

# **Impact of Social Media on Consumers and Firms**

**Lisette de Vries**

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Publisher: University of Groningen, Groningen, The Netherlands

Printing: Ipkamp Drukkers, Enschede

ISBN: 978-90-367-7243-3

ISBN (e-book): 978-90-367-7244-0

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# **Impact of Social Media on Consumers and Firms**

## **Proefschrift**

ter verkrijging van de graad van doctor aan de  
Rijksuniversiteit Groningen  
op gezag van de  
rector magnificus prof. dr. E. Sterken  
en volgens besluit van het College voor Promoties.

De openbare verdediging zal plaatsvinden op

maandag 5 januari 2015 om 16.15 uur

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## **Dankwoord**

## DANKWOORD

Dit proefschrift is het eindresultaat van vier jaren werk. Deze vier jaren waren een mooie periode van mijn leven; ik heb veel mensen leren kennen, vrienden gemaakt, en erg veel geleerd in deze periode. Echter, het schrijven van een proefschrift vereist veel zelfdiscipline en is niet altijd even gemakkelijk. Zonder de steun van een aantal mensen was het vast nooit geschreven. Daarom wil ik hen graag bedanken.

Allereerst bedank ik Peter Leeflang, mijn promotor, en Sonja Gensler, mijn copromotor. De eerste twee jaren waren jullie beiden beschikbaar op locatie, echter daarna vertrokken jullie fysiek; in 2011 ging Peter officieel met emeritaat en vervolgens vertrok Sonja naar Münster. Dit was in het begin best wennen; waar ik eerder snel even kon binnenlopen voor een kleine vraag, moest ik nu vaker e-mailen of bellen. Elk nadeel heeft echter zijn voordeel, want dit heeft zeker bijgedragen aan mijn zelfstandigheid. Peter, heel erg bedankt voor alle feedback, je vertrouwen en enthousiasme. Ik heb veel van jou geleerd over onderzoek en marketing de afgelopen jaren. Ook bedankt voor je hartelijkheid en gastvrijheid; dit heeft ons naar Rome, Londen en Birmingham gebracht. Sonja, bedankt dat je altijd beschikbaar was via de e-mail, telefoon of Skype. Bedankt voor je betrokkenheid, vele discussies over onderzoek, en altijd gedetailleerde feedback. We zijn nu opnieuw collega's in Münster; Ik zie uit naar deze nieuwe onderzoeksperiode.

Furthermore, I would like to thank the evaluation committee, Prof. dr. M.G. Dekimpe, Prof. dr. T. Hennig-Thurau, and Prof. dr. P.C. Verhoef for evaluating my dissertation and their valuable feedback. I also owe thanks to the internal reading committee, Prof. dr. T.H.A. Bijmolt, Prof. dr. B.M. Fennis, Prof. dr. K. van Ittersum, and Prof. dr. J.E. Wieringa, for their constructive feedback on my dissertation.

Then, I would also like to thank my co-authors on Chapter 3: Alberto Marcati, Simona Romani, and Alessandro Peluso. Simona and Alessandro, thank you for all our regular weekly or multi-weekly Skype calls. They were fun, but also extremely useful. I have learned a lot from you, for which I am very grateful. Chapter 4 has benefited a lot from the valuable comments and suggestions from the two guest editors of the Journal of Interactive marketing special issue, Donna

Hoffman and Tom Novak, and three anonymous reviewers. The research in Chapter 5 is supported, in terms of data provision, by Nielsen and a European telecom firm. I am grateful for the provision of data by these organizations. Specifically, I would like to thank Yory and Sven for the discussions on research topics as well as solving practical issues.

I also owe many thanks to the marketing department of the University of Groningen. I really enjoyed the six years that I could be your colleague. First, I worked as a student assistant for Peter Verhoef. Eventually he guided me to the research master and ultimately in the PhD program. Peter, I am really happy that you showed me the possibilities in academia. Within the department, I enjoyed all the lunches, chit chatting in the hall way, tea/coffee breaks, and department outings. These social aspects made the marketing department a pleasant working environment. I could also always knock on someone's door for advice related to research or any other issue. A special thanks to Lara and Florian for the fun nights and discussions on Germany vs. the Netherlands. Of course I would also like to thank the secretaries, Lianne, Annicka, and Hanneke, for all their support the last four years.

During my PhD I also had the opportunity to spend some time at Boston College in Boston, USA and work with Prof. dr. Katherine N. Lemon. This period was extremely fruitful and valuable. Kay, thank you for your advice and for letting me be part of your group; it was a great period of my PhD.

The PhD coffee breaks with non-work related chatting or work-related discussions were essential to write this dissertation. Thank you current and former marketing PhD students: Stefanie Salmon, Jacob Wiebenga, Sander Beckers, Alec Minnema, Niels Holtrop, Evert de Haan, Carmen Donato, Sebastian Sadowski, Yi-Chun Ou, Eline de Vries, Frank Beke, Daniela Naydenova, Sandy Zhang, Titah Yudhistira, Katrin Reber, and Hans Risselada. Also, the meetings with the PhD committee and evenings out with PhD students from other departments were a welcome addition to PhD life. I would also like to thank Iguácel Melero and Moumita Das for their discussions about research, support in the last stages of my dissertation, and their friendship. I also thank Arthur de Boer, Ellen Nienhuis, and Linda Toolsema from the SOM office for their advice and support throughout these four years.

For the very last finalizing of my thesis I was already working in Münster. Therefore, I would also like to thank the colleagues from IWM, Simon Monske, Sascha Leweling, Charlotte Hufnagel, Thorsten Wiesel, and Gabi Rüter, and the whole Marketing Center Münster for their warm welcome and support.

Ik wil erg graag mijn twee paranimfen, Stefanie Salmon en Anne Rikst Engbers, apart bedanken. Stefanie, al vanaf de eerste dag klikte het erg goed; De buren zullen mogelijk wel af en toe last van ons hebben gehad. Maar, we konden ook de hele dag hard werken zonder te hoeven praten, wat erg prettig is. Het is erg fijn om bij iemand je hart te kunnen luchten wanneer dat nodig is. En ook al woon je al een poosje in Utrecht, en ik nu in Münster, ik hoop dat het goede contact blijft. Anne Rikst, we kennen elkaar al 16 jaar. Lunchen, koffie drinken, samen eten, even naar de bioscoop, of gewoon op de bank hangen en tv kijken; dit zijn erg waardevolle momenten die ik nu ook erg mis. Ik hoop dat we nog heel lang vriendinnen blijven.

Verder zorgen mijn andere lieve vrienden en familie geregeld voor de nodige afleiding. De verschillende eetavondjes, sporten, en avondjes stappen; Lieve Carlien, Mariella, In Den Doofpot, ISP Europe bestuur, Donja, en Kiki, ik ben blij dat jullie mijn vrienden zijn. Dan is er natuurlijk ook nog mijn familie die mij altijd ondersteunt, bedankt daarvoor! Papa, mama, Tessa, Wouter, en Marc, fijn dat ik altijd bij jullie terecht kan en dat jullie er voor mij zijn. Annie, Gert, Roeliene en Klaas, bedankt voor de steun en vele discussies die we hebben gehad.

Last but not least, Tonnis Jan, ik wil jou ook heel erg bedanken. Als ik overal problemen zag of niet wist hoe ik alles voor elkaar moest krijgen, wist jij te relativieren en me weer op te beuren. Jouw liefde, begrip, ondersteuning, maar ook juist vrijlaten hebben heel veel bijgedragen aan dit proefschrift. Heel erg bedankt voor alle steun en liefde. Ik hou van je.

Münster, oktober 2014.

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## **Chapter 1**

### **Introduction**

## 1. INTRODUCTION

Today, many firms use social media as part of the marketing mix (e.g., Slegg, 2013). Social media are Internet-based applications that allow firms, and particularly consumers, to create and exchange content (Kaplan & Haenlein, 2010). Moreover, social media is characterized by the fact that its users are connected via networks (e.g., Hennig-Thurau et al., 2010). The first social media application was established in 1997 (Six Degrees), although the most popular social media site at present, Facebook, did not become available for use by the larger public until 2006 (Facebook, 2014). Firms use social media to not only reach out to consumers, but also to create engagement and thereby strengthen the bond between themselves and their customers. Of course, social media can also have negative effects on companies and brands, as many stories in the press illustrate (Gensler et al., 2013). Indeed, one of the most important challenges for firms is to manage brands in a social media environment (Leeflang et al., 2014). Nevertheless, firms still hope that the potential positive effects of social media outweigh the negative effects. Since social media is a relatively new marketing tool, research about its impact on consumers and firms is still relatively scarce (see Chapter 2 for an overview of social media research related to this dissertation). We thus lack knowledge on a multitude of critical questions such as (i) what motivates consumers to engage in brand-related social media activities?, (ii) which firms' activities on social media are effective for creating engagement among consumers?, and (iii) what is the impact of social media on consumers' minds and firms' performance? In the following, we briefly delineate why these questions are relevant and important to investigate.

By investing in social media, firms hope that consumers will engage in brand-related activities via said social media. Some examples of brand-related activities include: uploading brand-related videos/pictures on social media, writing brand blogs, joining brand communities, commenting on brand-related content on social media, and watching brand videos on YouTube (Muntinga et al., 2011). Research shows that some of these brand-related social media activities can lead to positive firm outcomes, such as more store visits, higher sales, and positive word-of-mouth (e.g., Dholakia & Durham, 2010; Onishi & Manchanda, 2012; Rishika et al., 2013). Hence, it is important for firms to know how they can possibly influence consumers' engagement in these activities; in this respect, understanding consumers' motivations is a valuable first step. However, current research provides little knowledge about consumers' motivations to participate in brand-

related activities. Rather, previous research has investigated consumers' motivations for performing a variety of general activities online, such as creating content to express themselves (e.g., Hollenbeck & Kaikati, 2012; Schau & Gilly, 2003; Toubia & Stephen, 2013) or collaborating with others to feel more connected (e.g., Mathwick, 2002; Sheldon et al., 2011). These studies have several shortcomings, namely that most of them are explorative (e.g., Hollenbeck & Kaikati, 2012; Mathwick, 2002) and thus provide no empirical evidence of causal effects. The few studies that adopt a quantitative approach (e.g., Sheldon et al., 2011; Toubia & Stephen, 2013) neither look at brand-related activities nor examine multiple types of activities at the same time; thus they cannot infer the relative effects of motivations for different activities. In order to foster brand-related activities, though, firms need to learn something about consumers' motivations. Therefore, in Chapter 3, we provide an explanatory framework that builds on self-determination theory (SDT; Ryan & Deci, 2000) to uncover unique motivations for engaging in different types of brand-related activities on social media. In this way, we make two major contributions: First, we theoretically categorize and empirically measure the brand-related activities that consumers typically perform on social media, as well as the motives that potentially underlie these activities. Second, we develop and test our explanatory framework across four studies, showing that specific motivations have a differential role in driving activities that entail different levels of engagement. These findings provide firms with important information on how to encourage consumers to perform different brand-related activities on social media.

Once consumers engage in brand-related activities on social media (e.g., being active on a firm's fan page on Facebook), firms want to know how they can increase consumers' interactions with firm content on the fan page. However, research on how to specifically stimulate consumer activities on social media is scarce. Prior research has examined whether firms should reveal or hide demographic characteristics of brand fans on Facebook fan pages (Naylor et al., 2012). However, we lack knowledge about which content firms should post on their social media fan page to increase the interactions with this content (i.e., likes and comments on brand posts) of those consumers who are already fans. Chapter 4 addresses this gap by investigating the determinants of the number of likes and comments on brand posts on firms' fan pages (de Vries et al., 2012). The findings indicate that enhancing either the number of likes or the number of comments on brand posts requires different instruments (see Chapter 4). Thus, this study contributes to a better understanding of how firms' social media content/activities can engage consumers.

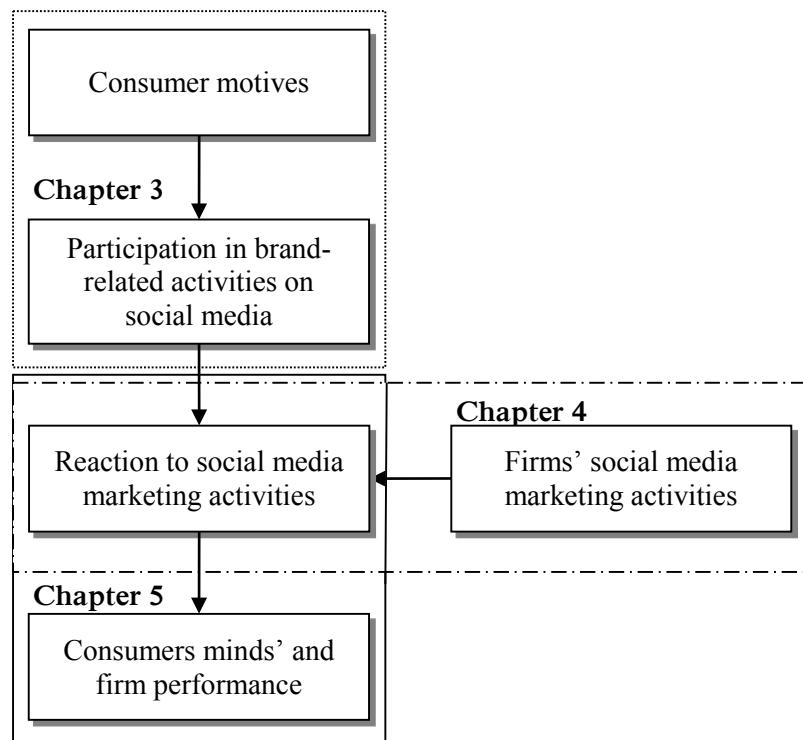
Another important question for firms is whether investments in social media pay off and whether to invest more in social media and less in traditional media, such as TV advertising. Online word-of-mouth (eWOM) is an important consideration in this regard, since consumers are not only active on the firm's fan page on social media or confronted with the firm's advertising; they also interact and talk with others online, and those conversations can affect purchasing decisions (e.g., Chen & Xie, 2008). To be precise and consistent, WOM is defined as "all informal communications directed at other consumers about the ownership, usage, or characteristics of particular goods and services or their sellers" (Westbrook, 1987, p. 261). eWOM is similar but occurring online and often information comes from strangers, but therefore the potential effects are much larger as reach is wider online (Hennig-Thurau et al., 2004). Currently, we do not know the effects of social media in combination with eWOM and advertising on firm outcomes. Only a few studies examine the effects of social media on consumers' minds and firm outcomes (e.g., Dholakia & Durham, 2010; Goh et al., 2013; Rishika et al., 2013). Previous research has examined the effects of eWOM (which was mainly focused on online reviews) on consumers' awareness, consideration, and preference (e.g., Adomavicius et al., 2013; Gupta & Harris, 2010; Purnawirawan et al., 2012), as well as the effects of eWOM on sales or stock prices (e.g., Tirunillai & Tellis, 2012; Zhu & Zhang, 2010). However, the discussed studies focus on either eWOM or social media. To date, there are only two academic studies (Goh et al., 2013; Kumar et al., 2013) that have investigated the combined effectiveness of eWOM and social media, finding that eWOM and social media can enhance each other. Furthermore, studies tend to only consider the impact of social media/eWOM on consumers' minds *or* on firm outcomes; the interactions between the two domains have not been widely studied. And yet, it is likely that social media (e.g., an interaction on the firm's fan page) or eWOM first affects how consumers perceive and evaluate the brand before they make a purchase. Lastly, no empirical research has examined the relative effects of social media, eWOM, and advertising on outcome measures. For firms, such insights are important for determining whether they should pay attention to all three types of media and if so, when they should invest in social media and when they should try to spur eWOM (IBM, 2011; Winer, 2009). In Chapter 5, we fill these gaps by examining the combined short- and long-term effects of social media (we focus solely on the firm's fan page on Facebook), eWOM, and advertising on consumer mindset metrics (unaided awareness, consideration, preference) and acquisition. Next to that, we examine how advertising, eWOM, and social media affect each other. The results show that social media does have value for the firm, as it explains a substantial amount of consumer mindset metrics

and acquisition. In addition, firms are able to influence eWOM as well as interactions on their fan page with their advertising expenditures. Results show that the firm's fan page on Facebook, eWOM, and advertising are both complements and substitutes.

Chapter 6 offers a reflective discussion on the findings from Chapters 3 through 5, as well as an outlook to the future.

Figure 1.1 shows the structure of this dissertation. Table 1.1 provides an overview of the dissertation's different chapters, highlighting their contributions, key results, applied methods, and data sources. Please note that the individual chapters are based on different articles that have been submitted to or published in academic journals. As such, they can be read separately, but some textual overlap may exist between the different chapters.

**Figure 1.1 Visual representation of this dissertation**



**Table 1.1: Overview of dissertation chapters**

Chapter	Contribution	Key results	Applied methods	Data sources
3. Explaining Consumer Brand-Related Activities on Social Media	Theoretically categorize and empirically measure brand-related activities on social media and the motives that potentially underlie these activities. Develop an explanatory framework that builds on SDT to determine unique motivations for engaging in different types of brand-related activities. Test this framework across four studies.	1) Specific motivations have a differential role in driving activities that entail varying levels of engagement. 2) The personal identity motive plays a unique role in leading people to generate online brand-related content by themselves (i.e., creating). 3) The socialization motive uniquely leads people to collaborate with other users to the content generation process (i.e., contributing).	- Structural equation model - Regression analysis - Mediation analysis	- Survey - Experiment
4. Popularity of Brand Posts on Brand Fan Pages: An Investigation of the Effects of Social Media Marketing	Empirically investigate which factors influence the number of likes and comments on brand posts (i.e., brand post popularity) on firm's fan pages.	1) Enhancing either the number of likes or the number of comments requires different instruments. 2) The number of likes are positively affected by the interactive brand post characteristics 'video' and 'contest'. 3) Posing a question enhances the number of comments. 4) The number of days a brand post is on top of the brand fan page positively affects brand post popularity. 5) Comments below the brand post affect likes and comments on that same brand post.	Regression analysis	Social media data
5. Effects of Social Media Marketing, eWOM, and Advertising on Consumer Mindset Metrics and Acquisition	Examine the short- and long-term effects of social media marketing and eWOM on consumer mindset metrics and acquisition. Determine the relative effects of social media marketing, eWOM, and advertising on consumer mindset metrics and acquisition. Examine how social media marketing, eWOM and advertising affect each other.	1) Social media marketing (i.e., interactions on the firm's fan page) does have value for the firm as it affects awareness and consideration. eWOM affects all three mindset metrics and acquisition. 2) Social media marketing explains largest part of awareness, then advertising, then eWOM. Advertising is most important for preference, consideration, and acquisition followed by eWOM, then social media marketing. 3) Advertising affects interactions on the firm's fan page on social media and eWOM.	Vector Autoregressive Model with Exogenous Variables (VARX)	- Transaction data - Social media data - Advertising data from Nielsen - Survey data - Online tracking data

## **Chapter 2**

### **Positioning of this Dissertation**

## 2. POSITIONING OF THIS DISSERTATION

In the discussion below, we outline the empirical research related to social media<sup>1</sup>, thereby positioning this dissertation in the current literature. We do not aim to summarize all existing literature on social media; we only discuss those studies that are relevant for this thesis. We discuss the included studies along the lines that were presented in Figure 1.1. We start with consumers' motivations to use and participate in social media, and at the same time we discuss the types of activities in which they engage. Subsequently, we discuss firms' social media marketing activities, how consumers react to social media marketing, and consequently how the latter impacts consumers' minds and firm performance (see also Figure 1.1). Following this discussion, we identify the gaps in the literature that are filled by the dissertation projects.

### 2.1 DATA COLLECTION METHOD

We conducted a thorough literature search in leading academic journals for articles published between 2000 and 2014. We chose this time frame because social media practically did not exist before 2000. In this overview, we include empirical papers of leading marketing journals (i.e., A, B, and some C), but also from journals in the field of management, information systems research, computer science, and psychology. We chose to include these other domains because social media is also an important field of study for them. For a complete overview of the journals taken into account, refer to Table 2.1. We searched for the following keywords to ensure that the most important articles related to social media were included: online word-of-mouth, online WOM, eWOM, online reviews, blogs, user-generated content (UGC), social media, and social network(ing) sites. We included eWOM and UGC in our search words because social media “allow the creation and exchange of UGC” (Kaplan & Haenlein, 2010, p. 61)<sup>2</sup>. After collecting the initial batch of articles, we thoroughly checked their references in order to obtain additional relevant papers.

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<sup>1</sup> Please note that we focus on social media research in a B2C context. However, use of social media can also be beneficial in a B2B context, but is likely to be different from a B2C context.

<sup>2</sup> We kindly refer to Chapter 1 for definitions of social media and eWOM.

**Table 2.1: Overview of included journals**

<b>Marketing journals</b>	<b>Journals from other fields</b>	
International Journal of Research in Marketing	<i>Management Science</i>	Harvard Business Review Management Science
Journal of the Academy of Marketing Science	<i>Information Systems/Computer Science</i>	ACM Transactions on the Web Computers in Human Behavior Cyberpsychology, Behavior, and Social Networking Decision Support Systems Information Systems Research International Journal of Electronic Commerce Journal of the Association of Information Systems Journal of Computer-Mediated Communication Journal of Management Information Systems
Journal of Advertising Research Journal of Business Research Journal of Consumer Research Journal of Interactive Marketing Journal of Marketing Research Journal of Marketing Marketing Letters Marketing Science	<i>Other (i.e., statistics, psychology)</i>	Journal of Applied Developmental Psychology Journal of Personality and Social Psychology Personality and Individual Differences Statistical Science

## 2.2 CONSUMER MOTIVATIONS FOR USING & PARTICIPATING IN SOCIAL MEDIA

People can simply *use* social media, i.e., become a member, but they can also actively *participate* by, for example, contributing to and posting content on the social media site. Usage and participation can be further understood as related or not related to a brand (see Table 2.2).

Most studies on motivations for *using* social media focused on why and how students use Facebook (e.g., Cheung et al., 2011; Lin & Lu, 2011; Pempek et al., 2009; Sheldon et al., 2011). It appears that Facebook is mostly used for social interactions between people who already know each other offline. A recent review of these studies showed that Facebook use is indeed mainly motivated by social needs (Nadkarni & Hofmann, 2012)<sup>3</sup>. Other research has focused on participation in social media, such as uploading photos on Flickr (Zeng & Wei, 2013), sharing content on Twitter (Stieglitz & Dang-Xuan, 2013; Toubia & Stephen, 2013), and sharing of videos on YouTube (Lange, 2007). Social motives are important for *participation* in social media (Lange, 2007; Zeng & Wei, 2013), as are image/status motives (Toubia & Stephen, 2013). In addition, Stieglitz and Dang-Xuan (2013) showed that emotional tweets are shared (i.e., retweeted) more often than neutral tweets.

<sup>3</sup> Since Nadkarni and Hofmann (2012) summarized this specific stream of research, we will not repeat their paper, but rather kindly refer the reader to Nadkarni and Hofmann (2012) if interested in studies on motivations to use Facebook.

**Table 2.2: Motivations to use and participate in social media**

	Non-brand-related	Brand-related
<b>Use</b>	<u>Social motives:</u> <ul style="list-style-type: none"> <li>• Cheung et al., 2011</li> <li>• Ellison et al., 2007</li> <li>• Lin &amp; Lu, 2011</li> <li>• Nadkarni &amp; Hofmann, 2012</li> <li>• Pempek et al., 2009</li> <li>• Sheldon et al., 2011</li> <li>• Steinfield et al., 2008</li> </ul>	<b>X</b>
<b>Participation</b>	<u>Social motives:</u> <ul style="list-style-type: none"> <li>• Lange, 2007</li> <li>• Zeng &amp; Wei, 2013</li> </ul> <u>Intrinsic &amp; image motive:</u> <ul style="list-style-type: none"> <li>• Toubia &amp; Stephen, 2013</li> </ul> <u>Emotional content:</u> <ul style="list-style-type: none"> <li>• Stieglitz &amp; Dang-Xuan, 2013</li> </ul>	<u>Self-presentation motive:</u> <ul style="list-style-type: none"> <li>• Hollenbeck &amp; Kaikati, 2012</li> </ul> <u>Social media site characteristics:</u> <ul style="list-style-type: none"> <li>• Smith et al., 2012</li> </ul>
<b>Use &amp; Participation</b>	<b>X</b>	THIS THESIS Chapter 3

As becomes clear from Table 2.2, we know relatively little about social media use and participation related to brands. Hollenbeck and Kaikati (2012) showed that consumers use brands on their Facebook pages—for example, by liking brands or posting photos to express themselves. Smith et al. (2012) showed that brand-related UGC differs across the social media platforms YouTube, Facebook and Twitter.

Findings from previous studies on motivations to use and participate in social media are fairly fragmented, mainly agreeing on the obvious: social motives are the main factor behind social media use (see Table 2.2). Also, studies have generally either focused on use or participation, but not on both. It is important to study both, however, as consumers first have to become social media users before they can actually participate. Plus, it is likely that motivations differ for use and participation. Additionally, most studies to date have examined general consumer activities on social media, but have not specifically investigated the types of brand-related activities consumers engage in. Brand-related activities on social media differ in their level of engagement, ranging from watching brand-related videos on YouTube, to engaging in discussions on social media fan pages, to writing brand blogs (e.g., Muntinga et al., 2011). Muntinga et al. (2011) provided preliminary qualitative insights into consumers' motivations for engaging in brand-related activities online. Users' main motivations for engaging in these activities include entertainment,

social interaction, information, remuneration, empowerment and personal identity (Muntinga et al., 2011). However, their study is only qualitative and does not theoretically argue why certain motivations should affect certain activities and not others. What is largely missing in the current literature is an overarching theoretical framework that can explain a multitude of brand-related consumer activities on social media. Thus, in Chapter 3 we provide an explanatory framework that builds on self-determination theory (SDT; Ryan & Deci, 2000) in order to identify unique motivations for engaging in brand-related activities on social media that differ in levels of engagement. We find that the personal identity and the socialization motives play unique roles in leading people to either generate online content by themselves (i.e., creating, highly engaging) or collaborate with other users in the content generation process (i.e., contributing, moderately engaging). These findings provide firms with important information on how to stimulate consumers to perform these relatively more engaging brand-related activities (see Chapter 3).

### 2.3 FIRM ACTIVITIES ON SOCIAL MEDIA

We call firm activities on social media ‘social media marketing’. Social media marketing can contain 1) viral social media campaigns developed by firms with the aim that consumers subsequently share them, 2) social media advertising intended to push messages to consumers, and 3) firms’ fan pages on social media that are designed to build relations and stimulate interactions with fans. Previous studies have mainly focused on viral marketing, but only a few studies have focused on social media advertising or firm’s fan pages (see Table 2.3). Also, studies on viral marketing have mainly focused on viral e-mail campaigns. But, since a viral campaign reflects the spreading of a message through networks of people, we do discuss it here.

In Table 2.3 we make a distinction between consumer evaluations and consumer interactions. Evaluations encompass, for example, consumers’ awareness and perception of the firm’s activities, whereas interactions reflect whether consumers also interact with the content. In the case of viral marketing, interactions mean that consumers share the campaign.

**Table 2.3: Firm activities on social media**

	<b>Viral marketing (e-mail)</b>	<b>Social media advertising</b>	<b>Social media fan page</b>
<b>Consumer evaluations</b>	<ul style="list-style-type: none"> <li>• De Bruyn &amp; Lilien, 2008</li> <li>• Kalyanam et al., 2007</li> <li>• Phelps et al., 2004</li> </ul>	Taylor et al., 2011	Naylor et al., 2012
<b>Consumer interactions</b>	<ul style="list-style-type: none"> <li>• Aral &amp; Walker, 2011</li> <li>• Bampo et al., 2008</li> <li>• Berger &amp; Milkman, 2012</li> <li>• Bonfrer &amp; Drèze, 2009</li> <li>• Hinz et al., 2011</li> <li>• Van der Lans et al., 2010</li> </ul>	Tucker, 2012 Tucker, 2014	THIS THESIS Chapter 4

### 2.3.1 Viral Marketing

In a viral marketing campaign, a firm develops a marketing message and encourages consumers to forward this message to others, for example via e-mail or social media (Van der Lans et al., 2010). The viral campaign thus resembles a virus that spreads among people. However, unlike with diseases, a viral campaign often does not become viral automatically. The success of a viral marketing campaign highly depends on active management (Kalyanam et al., 2007), such as how managers seed the campaign to certain people in the network (Hinz et al., 2011; Van der Lans et al., 2010). It appears that seeding (i.e., the first person to receive the campaign) to well-connected people makes the campaign more viral, as they are more likely to participate in viral marketing campaigns in general and actively use their large reach (Hinz et al., 2011).

The success of a viral marketing campaign also depends on the content of the message. Messages that contain strong emotions, such as fear, sadness, humor, or inspiration are more likely to be forwarded (Phelps et al., 2004). Also, while positive content is more likely to go viral than negative content, overall psychological arousal is an important driver of virality: Content that evokes high-arousal, activating emotions—either positive (i.e., awe) or negative (i.e., anger)—is more potently viral, whereas content that evokes low-arousal, deactivating emotions (e.g., sadness) is less viral (Berger & Milkman, 2012). Lastly, the success of a viral marketing campaign depends on the structure of the network (e.g., Bampo et al., 2008; Van der Lans et al., 2010). Bampo et al. (2008) advise firms to target influential customers who might then function as hubs and make the viral campaign spread more quickly.

All in all, previous studies show that the success of a viral marketing campaign highly depends on the seeding strategy of the firm, the emotional content of the message, and the structure of the social network.

### 2.3.2 Social Media Advertising

Social media advertising is advertising specifically placed on social media in order to push messages to consumers—for example, banner ads or sponsored posts on social media portals (please refer to Appendices A1 and A2 for examples of banner ads and sponsored posts on Facebook, respectively). There is scarce research on the effects of advertising on social media. One study was conducted on responses, perceptions, and attitudes towards ads in social network sites (Taylor et al., 2011). The results showed that informative and entertaining ads are perceived more positively. While Taylor et al.’s study investigated ads on social media that are similar to banners, new forms of ads have appeared on social media featuring a social element. As an example, some Facebook ads contain different social elements, such as ‘x number of people like brand y’ or ‘friend x likes brand z.’ To illustrate, in Appendix A3 we provide some examples of the different types of social ads one can encounter on social media. One working paper by Tucker (2012) showed that these ‘social ads’ do obtain larger click-through rates (i.e., consumer interactions) than regular ads. Moreover, Facebook allows sponsored posts to appear on users’ timelines while Twitter allows promoted tweets. That said, we still know little about consumers’ evaluations of or interactions with (i.e., clicking on) social media ads. These interactions with ads might subsequently affect firm performance. Recently, Tucker (2014) investigated the effectiveness of personalized ads on Facebook, thereby also taking into account privacy controls. Facebook implemented a policy change where users received more control over their privacy settings. After this change, the more unique personalized ads received more click-through rates, especially for people that implemented the privacy controls (Tucker, 2014). This dissertation does not focus on social media advertising, but we do acknowledge this as a fruitful and interesting area for future research and will further reflect on it in Chapter 6.

### 2.3.3 Firm’s Fan Page on Social Media

Research on how firms should design and update their fan page on social media to build relations and interact with consumers is also scarce. One study (Naylor et al., 2012) investigated whether firms should reveal or hide the demographic characteristics, such as a profile picture, of brand fans on Facebook fan pages. The results indicated that revealing the identity of the fan base can positively influence target consumers’ brand evaluations and purchase intentions. One of the things we do not know is which content firms should post on social media to increase consumer

interactions with this content. Many firms set up firm (or brand) fan pages<sup>4</sup> on sites such as Facebook, but they are not entirely certain about what to post or how to design these pages. We answer this question by investigating the determinants of a brand post's popularity, namely the number of likes and comments on brand posts, on brand fan pages (de Vries et al., 2012; see Chapter 4). As illustrations, Appendix B contains screenshots of Starbucks' fan page on Facebook (B1) and a corresponding brand post (B2). We find in our research that enhancing the number of either likes or comments on brand posts (i.e., content posted by the firm) requires different elements to be posted. To enhance the number of likes on a brand post, for example, firms should post a video or contest, but to enhance the number of comments on a brand post, they should pose a question. Moreover, brand fans are influenced by each other when liking or commenting on brand posts.

## **2.4 IMPACT OF SOCIAL MEDIA MARKETING AND eWOM ON CONSUMERS AND FIRMS**

We first discuss the impact of social media marketing on consumers' minds and subsequently on firms' performance. Naturally, it is firms' hope that their activities on social media (i.e., social media marketing) will lead to improved consumer mindset metrics and ultimately more sales. An important question for firms is whether to invest more in social media marketing and less in traditional media, such as TV advertising. Also, as stated before, online word-of-mouth (eWOM) is an important consideration, since consumers are not only active on the firm's fan page or confronted with the firm's advertising, but they also interact and talk with others online, deriving information for purchase decisions or how to use products from other consumers (e.g., Chen & Xie, 2008). We provide screenshots of two typical eWOM examples in Appendix C: C1 provides an example of online consumer reviews and C2 shows forum posts.

Therefore, and because of the previously mentioned relation between eWOM and social media, we primarily review two dimensions of the literature: the link between social media marketing and outcome measures, as well as the link between eWOM and outcome measures. An overview of advertising effectiveness is beyond the scope of this dissertation, but we do provide an overview of studies that considered eWOM and advertising concurrently, and from them we

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<sup>4</sup> Firm fan pages and brand fan pages are used interchangeably.

make inferences about relative effects. In Table 2.4 we provide an overview of the studies discussed in the following sections. In general, there is more research that focused on the impact of (social media marketing and) eWOM on firm performance than on the other research streams. We suspect that this is a publication bias, as high-quality journals often focus on performance impact.

#### **2.4.1 Impact of Social Media Marketing and eWOM on Consumers' Minds**

Only a few studies have examined the effects of social media marketing on consumers' minds (see Table 2.4). Naylor et al. (2012) showed that the identity of the fan base on Facebook fan pages influences target consumers' brand evaluations and purchase intentions. Dholakia and Durham (2010) showed that, after customers join the online brand community (note that this is not the same as social media marketing, but, as we discuss in Chapter 4, firms' fan pages on social media resemble online brand communities), they are more emotionally attached to the brand, have higher NPS scores, and generate more positive word-of-mouth. Meanwhile, some research (see Table 2.4) is devoted to the link between eWOM (mainly online reviews) and psychological factors, such as consumers' awareness, consideration, and preference (e.g., Adomavicius et al., 2013; Gupta & Harris, 2010; Purnawirawan et al., 2012). Experimental studies have shown that online reviews affect consumer attitudes and consideration (e.g., Gupta & Harris, 2010; Purnawirawan et al., 2012) and that online ratings serve as an anchor for forming product preferences (Adomavicius et al., 2013).

As becomes clear from Table 2.4, we know little about the effects of social media marketing on consumers' minds, such as their attitudes toward or evaluations of the brand. Additionally, we do not know the combined effects of either social media marketing and eWOM or social media marketing and advertising (e.g., TV ads) on consumers' minds. For example, advertising could stimulate interactions on the firm's fan page that in turn affect brand attitudes. Or, a social media campaign could lead to eWOM that subsequently affects consumers' minds. We also do not know the combined effects of social media marketing, eWOM, and advertising on consumers' minds. Consumers are often confronted with all these different types of information, but we do not know which one affects them most and why. This information is important for firms' decision-making, as the shift to online, and its subsequent proliferation of eWOM and social media, might actually decrease the effectiveness of advertising.

### 2.4.2 Impact of Social Media Marketing and eWOM on Firm Performance

Only a few studies have investigated whether social media marketing, in the form of online brand communities or brand fan pages, contribute to business success (see Table 2.4). Real-life online community experiments show that customers purchased more and generated more profit after joining an online brand community (Dholakia & Durham, 2010; Goh et al., 2013; Rishika et al., 2013; Manchanda et al., 2012).

A substantial amount of research is devoted to the link between the volume, valence, and variance of eWOM (mainly online reviews) and firm outcomes, which include sales (see Table 2.4; e.g., Chevalier & Mayzlin, 2006; Dellarocas et al., 2007; Duan et al., 2008; Liu, 2006; Moe & Trusov, 2011; Sun, 2012; Zhu & Zhang, 2010), buying probabilities (Leskovec et al., 2007), new sign-ups for a social network (Trusov et al., 2009), and stock prices (e.g., Tirunillai & Tellis, 2012). A recent meta-analysis on the effects of online product reviews on sales concludes that the mean review valence elasticity is .69 whereas the mean review volume elasticity is .35, indicating that valence is more important than volume for evoking sales (Floyd et al., 2014).

To date, there are only two academic studies that have investigated the effectiveness of both eWOM and social media marketing on firm performance (Goh et al., 2013; Kumar et al., 2013). Kumar et al. (2013) showed that the social media campaign of Hokey Pokey, an Indian premium ice cream store, has been successful at generating eWOM, which in turn has affected sales and net revenue positively. Meanwhile, Goh et al. (2013) examined content provided within an online retailer community. They found that posts and comments on the firm's fan page generated by users (eWOM) are more effective than posts and comments generated by the firm (social media marketing) for evoking purchases (Goh et al., 2013). These studies seem to indicate that social media marketing and eWOM work synergistically. However, the findings can only be applied to these two cases, and more research is needed that investigates the effectiveness of social media marketing and eWOM simultaneously.

Surprisingly, there are no studies examining the relative effects of advertising and social media marketing on firm performance (see Table 2.4). There is only scant empirical research regarding the relative effects of advertising and eWOM on firm performance (see Table 2.4). Some studies (e.g., Goh et al., 2013; Luo et al., 2013; Stephen & Galak, 2012; Trusov et al., 2009; Villanueva et al., 2008) have compared the effects of advertising and eWOM and conclude that eWOM is more effective than advertising, at generating both sales and acquisition. Furthermore, there is no research that examines the combined effects of social media marketing, eWOM, and

advertising on firm performance. In this regard, we are left with many unanswered research questions: Which type of media affects consumers the most with regard to their purchases? In addition, do advertising, social media marketing, and eWOM affect each other? Also, can firms affect interactions on their fan page and eWOM through advertising?

The final gap that merits discussion is that studies either consider the link between social media marketing/eWOM and consumers' minds or the link between social media marketing/eWOM and firm outcomes. However, it is likely that social media marketing and eWOM first affect consumers' minds by spurring higher awareness or preference, which can then lead to a purchase. A few experimental studies (e.g., Flanagin & Metzger, 2013; Forman et al., 2008; Purnawirawan et al., 2012) have shown that the perceived usefulness of online reviews positively affects purchase intentions (see Table 2.4). However, these outcome measures are self-reported. Ideally, research would combine both experimental or survey data with real transactional data to gain more insights into the underlying processes of why online reviews lead to more sales.

In Chapter 5 we fill these research gaps by examining the combined short- and long-term effects of social media marketing (the firm's fan page on social media), eWOM, and advertising on consumer mindset metrics (unaided awareness, consideration, preference) and acquisition. Next to that, we examine how advertising affects interactions on the firm's fan page on social media and eWOM. Additionally, we consider how social media marketing and eWOM might affect each other. In brief, the findings indicate that social media marketing and eWOM have value for firms, as they explain and affect consumers' minds and firm performance. In addition, firms can affect both interactions on their fan page on social media and eWOM with their advertising. The results furthermore indicate that social media marketing, eWOM, and advertising are both complements and substitutes.

**Table 2.4: Overview on studies on effects of social media marketing and eWOM on consumers' minds and firm performance**

	Social media marketing (SMM)	eWOM	SMM + eWOM	eWOM + advertising	SMM + advertising	SMM + eWOM + advertising
<b>Consumers' minds</b>	• Naylor et al., 2012	• Adomavicius et al., 2013 • Chih et al., 2013 • Gruen et al., 2006 • Gupta & Harris, 2010 • Huang et al., 2012 • Jang et al., 2012 • Khare et al., 2011 • Lee & Youn, 2009 • Purnawirawan et al., 2012	X	X	X	X
<b>Firm performance</b>	• Manchanda et al. 2012 • Rishika et al., 2013	• Ansari et al., 2011 • Archak et al., 2011 • Berger et al., 2010 • Chakravarty et al., 2010 • Chen et al., 2012 • Chevalier & Mayzlin, 2006 • Chintagunta et al., 2010 • Christodoulides et al., 2012 • Clemons et al., 2006 • Cui et al., 2012 • Dellarocas et al., 2007 • Dewan & Ramaprasad, 2012 • Dhar & Chang, 2009 • Duan et al., 2008 • Karniouchina, 2011 • Leskovec et al., 2007 • Liu, 2006 • Ludwig et al., 2013 • Luo et al., 2013 • Mallapragada et al., 2012 • Moe & Trusov, 2011 • Netzer et al., 2012 • Sonnier et al., 2011 • Stephen & Galak, 2012 • Sun, 2012 • Tirunillai & Tellis, 2012 • Ye et al., 2011 • Zhu & Zhang, 2010	• Goh et al., 2013 • Kumar et al., 2013	• Bruce et al., 2012 • Gopinath et al., 2014 • Onishi & Manchanda, 2012 • Stephen & Galak, 2012 • Trusov et al., 2009 • Villanueva et al., 2008	X	X
<b>Consumers' minds and firm performance</b>	• Dholakia & Durham, 2010	• Forman et al., 2008 • Li & Hitt, 2008 • Zhao et al., 2013	X	X	X	THIS THESIS Chapter 5

## **Chapter 3**

# **Explaining Consumer Brand-Related Activities on Social Media**

This chapter is based on De Vries, L., A.M. Peluso, S. Romani, P.S.H. Leeflang, and A. Marcati, *working paper, University of Münster, University of Salento, LUISS University, University of Groningen.*

### 3. EXPLAINING CONSUMER BRAND-RELATED ACTIVITIES ON SOCIAL MEDIA

#### 3.1 INTRODUCTION

Social media has proliferated in the last ten years. In 2013, there were more than 870 million Facebook users and almost 230 million Twitter users worldwide (Ahmad, 2013; Facebook, 2014). Among its many uses, social media makes it easier for consumers to follow and interact with brands. For example, more than 50% of social media users follow brands on social media and about 20% of all Tweets contain a brand mention (Jansen et al., 2009; Van Belleghem et al., 2011). People interact with brands on social media by engaging in several other brand-related activities that differ in the level of engagement required to perform them. They can be highly engaging, such as uploading brand-related videos/pictures on social media, or writing brand blogs, and any other activity in which users create brand-related content. Other activities are moderately engaging, such as joining brand communities, commenting on brand-related content on social media, and any other action in which users contribute to a brand-related content creation process initiated by others. Other activities are slightly engaging, such as watching brand videos on YouTube, reading branded articles on social media, and other actions in which users just consume brand-related content created by others (Muntinga et al., 2011). Research shows that the highly and moderately engaging activities lead to positive firm outcomes, such as more store visits, higher sales, and positive word-of-mouth (e.g., Chevalier & Mayzlin, 2006; Chintagunta et al., 2010; Dholakia & Durham, 2010; Karniouchina, 2011; Onishi & Manchanda, 2012; Rishika et al., 2013; Zhu & Zhang, 2010).

Companies spend vast sums of money developing social media marketing strategies. To illustrate, a study by Tata Consultancy Services (2013), a multinational consultancy company, reported that large consumer companies (with an annual revenue of at least \$100 million) will spend on average \$24 million on social media by 2015. Given the extraordinary relevance of social media in today's marketing strategy, it is important for firms to know how to motivate consumers to be involved in the relatively more engaging activities. Identifying the motives that prompt consumers to perform moderately or highly engaging brand-related activities is a first step, as this knowledge can help brand managers to develop effective social media strategies and help managers of social media platforms to facilitate higher user activity and content contribution.

Previous research has investigated consumers' motivations for performing a variety of activities online, such as creating content to express themselves (i.e., personal identity motive; e.g., Hollenbeck & Kaikati, 2012; Schau & Gilly, 2003; Toubia & Stephen, 2013) or collaborating with others to feel more connected (i.e., socialization motive; e.g., Mathwick, 2002; Sheldon et al., 2011). However, most of these studies are explorative (e.g., Hollenbeck & Kaikati, 2012; Mathwick, 2002; Muntinga et al., 2011; Nadkarni & Hofmann, 2012) and provide no empirical evidence of causal effects. Furthermore, the few studies that adopt experimental methods or, at least, a quantitative approach (e.g., Sheldon et al., 2011; Toubia & Stephen, 2013) examine general and not brand-related activities. Moreover, research generally only examined one type of activity and therefore could not examine the relative effects of the motives (especially personal identity and socialization) for engaging in said activities as part of an overarching model.

Our research fills these gaps by providing an explanatory framework that builds on self-determination theory (SDT; Ryan & Deci, 2000). Specifically, we make two major contributions: First, we theoretically categorize and empirically measure the brand-related activities that consumers typically perform on social media as well as the motives that potentially underlie these activities. Second, we develop and test an explanatory framework across four studies, showing that specific motivations have a differential role in driving activities that entail varying levels of engagement. In particular, we find that the personal identity and the socialization motives play unique roles in leading people to either generate online content by themselves (i.e., creating, high level of engagement) or collaborate with other users in the content generation process (i.e., contributing, moderate level of engagement). These findings provide firms with important information on how to encourage consumers to perform these relatively more engaging brand-related activities.

The flow of this chapter is as follows: In the next section, we describe brand-related activities on social media in more detail and develop our hypotheses based on SDT (Ryan & Deci, 2000). Finally, we discuss the empirical results of the four studies and put forward their implications.

## 3.2 THEORETICAL FRAMEWORK

### 3.2.1 Consumer Brand-Related Activities on Social Media

Shao (2009) proposes that general activities on social media can be divided into three categories that differ in their level of engagement: producing, participating, and consuming. Producing is the most engaging and contains the creation and publication of content. Participating is somewhat less engaging and refers to sharing content with others or rating content. Consuming is the least engaging and refers to watching, reading or viewing content. However, Shao's research is only theoretical and does not necessarily consider *brand-related* activities on social media. Similar to Shao, Oestreicher-Singer and Zalmanson (2013) identified different types of activities that consumers undertake on online content websites, which range in terms of the amount of time and effort required. They show that people engaging in highly effortful activities (i.e., creating content) are more valuable for the community as they are more likely to pay for a premium service in the community. Meanwhile, Muntinga et al. (2011) applied Shao's taxonomy to brand-related activities on social media and revised the three categories to creating, contributing, and consuming (Shao's producing, participating, and consuming, respectively). In this research, we use Muntinga et al.'s (2011) categorization as a starting point and develop our own definitions of the different brand-related activities. *Creating* activities are those in which users generate and disseminate online brand-related content on social media (e.g., writing a brand blog or producing a brand video). *Contributing* activities are activities in which users collaborate with others in the content generation process on social media (e.g., participating in an online conversation about a brand or contributing to existing ratings of a product). *Consuming* activities are activities in which users consume brand-related content created by others on social media (e.g., viewing branded videos or reading brand content to make a choice in an offline setting). The three types of brand-related activities on social media differ in their levels of engagement: *Creating* activities entail the most effort and engagement, *contributing* activities are moderately engaging, whereas *consuming* activities are the least engaging.

Prior studies identified consumers' motivations for participating in general online activities (i.e., not brand-related). Some studies suggest that individuals create content on the Internet (Belk, 2013; Schau & Gilly, 2003), and especially on social networking sites such as Facebook (Hollenbeck & Kaikati, 2012) and Twitter (Toubia & Stephen, 2013), to express themselves. Other studies in online and social media research (e.g., Mathwick, 2002; Sheldon et al., 2011) have found

that consumers exchange information with other users and often collaborate with them on content in an attempt to feel more connected to others. Likewise, Muntinga et al. (2011) explored the motivations behind consumers' brand-related activities when online, proposing that entertainment may drive all three brand-related activities, and that remuneration may further drive consuming activities. They also suggest that motivations tied to personal identity (i.e., self-expression and self-presentation) and socialization (i.e., integration and social interaction) are mainly related to *creating* and *contributing* activities, respectively (Muntinga et al., 2011). Although this view is not completely new in the literature (e.g., Muntinga et al., 2011; Nadkarni & Hofmann, 2012), empirical research is surprisingly scant. What is specifically missing is a clear framework for why and how certain motives affect the processes of creating or contributing. In the next sections, we argue that particular motives uniquely affect the different brand-related activities on social media and thereby propose that self-determination theory can explain which motivations drive which brand-related activities.

### 3.2.2 Hypotheses and Conceptual Framework

Our conceptual framework that builds upon SDT is visualized in Figure 3.1. SDT is a theory of human motivation and personality. It assumes that people are intrinsically motivated to act to the extent that their actions satisfy the psychological needs for autonomy, relatedness, and competence (Ryan & Deci, 2000). Therefore, people prefer activities that help them fulfill these basic psychological needs (Sheldon & Gunz, 2009). SDT also proposes that people can be extrinsically motivated, although motivations vary to the extent that they emanate from the self—in other words, whether they are autonomous and occur naturally. In general, the more autonomous the extrinsic motivation, the higher the level of engagement (Deci & Ryan, 2000; Ryan & Deci, 2000).

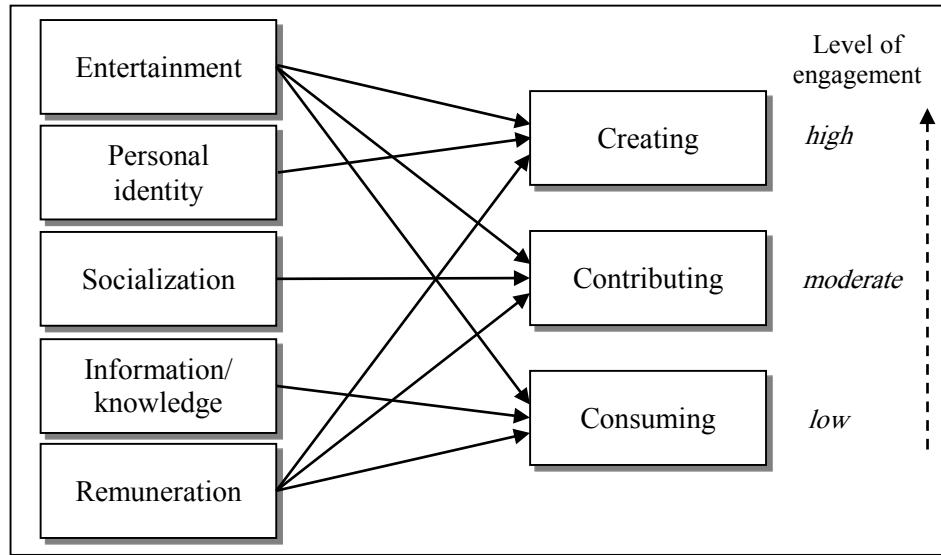
We use SDT, and then especially the fact that motivations differ in autonomy and engagement, to develop our hypotheses. We argue that all three brand-related activities on social media are affected by intrinsic motivation (i.e., entertainment) and the fully extrinsic motivation (i.e., remuneration)<sup>5</sup>. Apart from this, each brand-related activity on social media is uniquely affected by different motivations with varying levels of autonomy (see Figure 3.1). Thereby is personal identity the most autonomous extrinsic motivation, and information/knowledge on the

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<sup>5</sup> As can be observed, we also expect many null-effects to occur. Our hypotheses however focus only on the non-null-effects, since we think those are more interesting and managerially relevant. Also, when following the argumentation of SDT, these null-effects cannot occur (e.g., personal identity motive affecting consuming).

other hand the least autonomous. Entertainment is an intrinsic motivation and thereby fully autonomous, whereas remuneration is a non-autonomous motivation (e.g., Ryan & Deci, 2000). The discussion is guided by the level of engagement of the brand-related activities, starting with the most engaging brand-related activity on social media, *creating*, followed by *contributing* and lastly *consuming*.

**Figure 3.1: Conceptual framework**



#### *Relation between personal identity and brand-related creating activities*

Creating is an individual activity for which personal identity is an important motivation. People with a personal identity motivation, which is a highly autonomous motivation, are therefore more likely to engage in an activity that entails the highest level of engagement (Ryan & Deci, 2000), such as creating new online content about brands. By engaging in brand-related creating activities on social media, one can build or maintain one's personal identity (e.g., Belk, 2013; Schau & Gilly, 2003). For example, by posting brand-related content, one can relate the brand image to oneself and, in that way, contribute to his/her own personality and personal identity (Aaker, 1999). Previous studies have found that people express themselves by posting content on social media (Cheung et al., 2011; Labrecque et al., 2011; Park et al., 2009; Valenzuela et al., 2009; Zhao et al., 2008). In other words, creating brand-related content on social media is a way for consumers to use the brand image to express and present the self. Thus, we propose:

*H<sub>1</sub>: Personal identity is positively related to brand-related creating activities on social media.*

*Relation between socialization and brand-related contributing activities*

Brand-related contributing activities are an excellent way for people to interact with others. For example, members of brand communities on social media can interact with other members of these pages by talking about the brand. The main motivation for engaging in these types of activities, then, is to socialize with others (e.g., Mathwick, 2002). Socialization refers to staying in touch or communicating with people with the same interests, as well as feeling connected to others (Baumeister & Leary, 1995; Cacioppo & Patrick, 2008; Ryan & Deci, 2000). Socialization is a moderate autonomous motivation, so people with this type of motivation are more likely to engage in an activity that entails relatively moderate engagement (Ryan & Deci, 2000), such as contributing to the online content generation process surrounding brands (Cheung et al., 2011; Papacharissi & Rubin, 2000; Park et al., 2009; Sheldon et al., 2011). Therefore, we propose:

*H<sub>2</sub>: Socialization is positively related to brand-related contributing activities on social media.*

*Relation between information and knowledge and brand-related consuming activities*

Obtaining information and knowledge is an important motivation for engaging in brand-related consuming activities, albeit one that is relatively less autonomous. Hence, people with this type of motivation have a lessened need to participate in an effortful activity, so they tend to adopt activities that imply relatively little engagement (Ryan & Deci, 2000). For example, one can read brand-related information or watch branded YouTube videos to learn more about a product or brand in order to make a more informed purchase decision (Hennig-Thurau & Walsh, 2003; Muntinga et al., 2011). Also, by watching videos or looking at pictures related to a brand, one obtains information about the brand and its products. Previous studies also found that obtaining information and knowledge is an important factor when using social networking sites (Lin & Lu, 2011; Park et al., 2009). We therefore propose:

*H<sub>3</sub>: Information and knowledge is positively related to brand-related consuming activities on social media.*

### *Overarching motivations for all three brand-related activities*

According to SDT, intrinsic motivation, which is the entertainment of the activity itself, is the core type of motivation underlying game play and sport (Frederick & Ryan, 1993; 1995). We also believe that entertainment is the core, underlying motivation for engaging in brand-related activities on social media. People often engage in brand-related activities on social media because they are fun, entertaining, or satisfying in themselves without the necessity of obtaining separable outcomes (Deci & Ryan, 2000). For example, people might watch brand-related YouTube videos because they seek some entertainment. In addition, writing a (micro)blog about a new product is done because the writer receives inner satisfaction from completing the action itself. Previous studies have indeed found that entertainment influences social network site use (Cheung et al., 2011; Lin & Lu, 2011; Papacharissi & Rubin, 2000; Park et al., 2009; Sheldon et al., 2011). Hence, we propose that entertainment plays a role for all three brand-related activities on social media:

*H<sub>4</sub>: Entertainment is positively related to all three brand-related activities on social media.*

Remuneration is a non-autonomous or fully extrinsic motivation (Gagné & Deci, 2005), and an important motive for engaging in any brand-related activity on social media. If people can receive rewards, such as economic incentives, free samples, coupons, or specific software, they will be stimulated to engage in any type of brand-related activity on social media (Hennig-Thurau et al., 2004). For example, firms can provide monetary rewards when consumers write an article about the brand on social media or when they actively participate in online conversations about their brands on social media. So, remuneration should prompt people to engage in creating, contributing, and consuming activities on social media. This leads to the following hypothesis:

*H<sub>5</sub>: Remuneration is positively related to all three brand-related activities on social media.*

### **3.3 STUDY 1: MEASUREMENT DEVELOPMENT AND TESTING OF HYPOTHESES**

Study 1 is designed to provide an initial test of our hypotheses. First, we employed a confirmatory factor analysis in order to develop multi-item measures of creating, contributing, and consuming activities on social media and their potential underlying motives. Second, we used structural equation modeling to estimate the predicted relationships between motives and the three activities.

### 3.3.1 Measurement Development

We developed multi-item measures of brand-related activities on social media and their underlying motives using past studies and interviews with 40 social media users. These interviews were conducted using an open-ended questionnaire that asked respondents to list the activities they typically perform on social media and the reasons they do so. We adopted the brand-related activities categorization suggested by Muntinga et al. (2011), composed of 17 different activities, to create three sets of items based on the three types of activities. Since Muntinga and associates recognized that their list of indicators was non-exhaustive, we supplement the four items they proposed for assessing *creating* activities with three additional indicators (i.e., “Moderating brand-related discussions”, “Arbitrating brand-related discussions”, “Discovering/planning other activities”), which are drawn from prior studies (e.g., Parent et al., 2011) and the interviews.

With the aid of these sources, we developed a list of 30 items related to motives. To measure the personal identity motive, we used six items drawn from prior studies (Labrecque et al., 2011; Muntinga et al., 2011; Schau et al., 2009; Shao, 2009) and the interviews. The socialization motive was measured using six items completely developed from literature (Cheung et al., 2011; Park et al., 2009; Sheldon et al., 2011). To assess the information and knowledge motive, we used nine items adapted from past studies (Cheung et al., 2011; Papacharissi & Rubin, 2000; Park et al., 2009). The entertainment motive was measured through five items all based on past research (Courtois et al., 2009; Lin & Lu, 2011; Papacharissi & Rubin, 2000; Park et al., 2009; Sheldon et al., 2011). Finally, we developed four items concerning remuneration from prior studies (Hars & Ou, 2002; Hennig-Thurau et al., 2004) and the interviews.

Data collection was done in two stages. In the first stage, we checked the reliability of the measures, and in the second stage, we validated our measures and estimated the structural equation model. In the first stage, the 20 items regarding brand-related activities on social media were included in a questionnaire that assessed the extent to which social media users engage in the three types of brand-related activities using a seven-point scale (1 = never, 7 = very often). An additional 30 items regarding motives were included to assess the underlying reasons for engaging in those brand-related activities, also using a seven-point scale (1 = completely false, 7 = completely true). The questionnaire was administered to a sample of 161 social media users (50% males, 50% females; class of age: 18-39 years). The results of an exploratory factor analysis, using the maximum likelihood procedure and Promax rotation, were as expected. Items for brand-related

activities and motivations loaded on the corresponding overarching constructs. The CFA allowed us to remove three statistically inconsistent items regarding brand-related activities (i.e., “Playing branded online videogames”, “Downloading branded widgets”, “Sending branded virtual gifts/cards”; factor loadings  $< .50$ ). The three additional items for creating activities that we included indeed loaded on the creating factor. Although moderating and arbitrating discussions may also seem related to contributing activities, they require substantial effort, which makes these activities load on the creating factor. We furthermore removed three inconsistent items regarding socialization and information/knowledge motives for engaging in these activities (i.e., “It decreases the likelihood of being left out”, “I can receive specific support”, “It makes me learn how to do things”; factor loadings  $< .50$ ).

In the second stage, we included the refined sets of items, composed of 17 indicators concerning activities and 27 indicators concerning motives (see Table 3.1), in a new questionnaire. This questionnaire was administered to a new sample of 605 social media users (47% males, 53% females; class of age: 18-39). We performed a confirmatory factor analysis, using the maximum likelihood procedure, on data regarding brand-related activities and their underlying motives to estimate the proposed measurement model. In this model, basic items serve as observed variables measuring the intended latent constructs. Fit statistics are acceptable:  $\chi^2(792) = 1473.42$ ,  $p$ -value  $< .001$ ;  $\chi^2/d.f. = 1.815$ ; Goodness of Fit Index (GFI) = .901; Adjusted Goodness of Fit Index (AGFI) = .876; Comparative Fit Index (CFI) = .974; Normed Fit Index (NFI) = .944; Root Mean Square Error of Approximation (RMSEA) = .037; Standard Root Mean Square Residual (SRMR) = .048. Standardized estimates of factor loadings are all higher than .60, and each latent construct shows an adequate level of convergent validity ( $\rho$  indices  $> .80$ ) and average variance extracted (AVEs  $> .55$ ) (see Table 3.1). To assess discriminant validity, we constrained pairwise correlations between the latent constructs regarding the three social media activities and the five motives, then we compared the restricted models against the unconstrained one. The  $\chi^2$  difference tests confirm a significantly better fit for the unconstrained model than for the restricted ones (Anderson & Gerbing, 1988).

**Table 3.1: Results of the Confirmatory Factor Analysis**

<b>Factor/Item</b>	<b>Standardized Estimate</b>
I. <i>Personal identity</i> ( $\rho = .94$ , AVE = .73)	
It allows other people to understand who I am	.84 <sup>n.a.</sup>
It helps me represent what kind of person I am	.85*
It helps me disclose who I am to the world	.87*
It can craft my identity	.83*
It lets me express myself	.82*
It lets me shape my own identity/personality	.81*
II. <i>Socialization</i> ( $\rho = .93$ , AVE = .72)	
I can stay in touch with people with the same interests	.83 <sup>n.a.</sup>
I can communicate with people with the same interests	.86*
I can meet new people with the same interests	.85*
It makes me feel connected to others	.86*
It lets me stay in contact with like-minded people	.84*
III. <i>Information/Knowledge</i> ( $\rho = .94$ , AVE = .71)	
I can get information for free	.77 <sup>n.a.</sup>
I can search for information	.82*
It lets me keep up with the issues relevant for me	.90*
It lets me keep up with trends	.79*
It provides me with accurate accounts of news and events	.86*
It provides me with a wide variety of information	.88*
I can receive specific information for my interests	.85*
IV. <i>Entertainment</i> ( $\rho = .94$ , AVE = .75)	
It is enjoyable	.87 <sup>n.a.</sup>
It is entertaining	.87*
It is exciting	.80*
It is fun	.88*
It helps me amuse myself	.91*
V. <i>Remuneration</i> ( $\rho = .93$ , AVE = .77)	
I can receive rewards	.91 <sup>n.a.</sup>
I can receive incentives	.94*
I can receive gifts (such as free-samples, coupons, etc.)	.82*
I can get something in exchange for my participation/contribution	.83*
VI. <i>Creating</i> ( $\rho = .95$ , AVE = .74)	
Publishing brand-related weblogs	.79 <sup>n.a.</sup>
Uploading brand-related video, audio, pictures, etc.	.69*
Writing brand-related articles	.89*
Writing product reviews	.86*
Moderating brand-related discussions	.85*
Arbitrating brand-related discussions	.81*
Discovering/planning other activities	.64*
VII. <i>Contributing</i> ( $\rho = .85$ , AVE = .58)	
Rating products and/or brands	.67 <sup>n.a.</sup>
Joining brand profiles on social network sites	.66*
Engaging in brand-related conversations	.87*
Commenting on brand-related weblogs, videos, audio, pictures, etc.	.83*
VIII. <i>Consuming</i> ( $\rho = .90$ , AVE = .57)	
Viewing brand-related videos	.72 <sup>n.a.</sup>
Listening to brand-related audio	.65*
Watching brand-related pictures/photos	.71*
Following threads on online brand community forums	.85*
Reading comments on brand profiles on social network sites	.83*
Reading product reviews	.72*

$n = 605$ . \*  $p$ -value < .001. n.a. = not applicable.  $\chi^2(792) = 1437.42, p < .001$ ;  $\chi^2/d.f. = 1.815$ ; GFI = .901; AGFI = .876; CFI = .974; NFI = .944; RMSEA = .037; SRMR = .048;  $\rho$  = Construct Reliability; AVE = Average Variance Extracted.

### 3.3.2 Structural Equation Model Estimation

We estimated different structural equations models (SEMs) by using the following methodology. Each latent construct is measured by a single composite indicator that serves as an observed variable, according to an item-parceling procedure that is recommended for obtaining more parsimonious and precise structural estimates (Bandalos, 2002) and a better model fit (Nasser & Wisenbaker, 2003). Composite indicators are obtained by combining the corresponding item-level scores. Meanwhile, the error measurement variance for each indicator is fixed at the recommended level of one minus the composite reliability index ( $\rho$ ) computed from the basic items assessing the intended construct, and the path linking each indicator to the corresponding latent construct is fixed at root-square of  $\rho$  (Coffman & MacCallum, 2005).

To test whether our hypothesized model is a correct representation of the data, we first estimated a structural equation model containing all possible linkages between the five motivations and three activities. We also account for correlations between the motives and structural errors. Results revealed unacceptable fit statistics ( $\chi^2(1) = 81.036$ ,  $p$ -value < .001; GFI = .970; CFI = .968; NFI = .968; RMSEA = .364; SRMR = .041). Especially the  $\chi^2$ -value and the RMSEA are bad, which makes us to conclude that the current model does not fit the data well (Baumgartner & Homburg, 1996). Non-hypothesized relations appeared insignificant in this model. Therefore, we estimated a structural equation model that only included the linkages between constructs that we hypothesized (see Figure 3.1). Estimates of this model show satisfactory fit statistics:  $\chi^2(4) = 8.486$ ,  $p$ -value > .05;  $\chi^2/d.f. = 2.122$ ; GFI = .997; AGFI = .969; CFI = .998; NFI = .997; RMSEA = .043; SRMR = .015. Table 3.2 presents the standardized structural estimates, which support our hypotheses<sup>6</sup>. Next we discuss the results as found with our model corresponding to Figure 3.1 (see Table 3.2).

As predicted in  $H_1$ , personal identity is positively related to creating activities ( $\gamma = .20$ ,  $p$ -value < .001). As predicted in  $H_2$ , the socialization motive is positively related to contributing activities ( $\gamma = .19$ ,  $p$ -value < .001). The results also show that the information and knowledge motive is positively related to consuming activities ( $\gamma = .28$ ,  $p$ -value < .001), thus supporting  $H_3$ .

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<sup>6</sup> With a seemingly unrelated regression (SUR) analysis fairly similar results are obtained. The results are the same as in Table 3.2, except for the following relations: socialization is positively related to consuming and information/knowledge is positively related to contributing. The other found relations are as hypothesized, with non-hypothesized relations appearing insignificant.

As predicted in H<sub>4</sub>, the motive of entertainment is positively related to creating ( $\gamma = .20$ ,  $p$ -value < .001), contributing ( $\gamma = .36$ ,  $p$ -value < .001), and consuming activities ( $\gamma = .33$ ,  $p$ -value < .001). Finally, the remuneration motive is positively related to creating ( $\gamma = .28$ ,  $p$ -value < .001), contributing ( $\gamma = .28$ ,  $p$ -value < .001), and consuming activities ( $\gamma = .20$ ,  $p$ -value < .001), as predicted in H<sub>5</sub>.

**Table 3.2: Standardized estimates from path analysis**

Structural Path	Hypothesis	R <sup>2</sup>	Standardized Estimate ( $\gamma$ )
Personal Identity → Creating Activities	H1	.31	.20*
Entertainment → Creating Activities	H4		.20*
Remuneration → Creating Activities	H5		.28*
Socialization → Contributing Activities	H2	.48	.19*
Entertainment → Contributing Activities	H4		.36*
Remuneration → Contributing Activities	H5		.28*
Information/Knowledge → Consuming Activities	H3	.44	.28*
Entertainment → Consuming Activities	H4		.33*
Remuneration → Consuming Activities	H5		.20*

n = 605. \* p-value < .001. Fit statistics:  $\chi^2(4) = 8.486$ ,  $p > .05$ ;  $\chi^2/\text{d.f.} = 2.122$ ; GFI = .997; AGFI = .969; CFI = .998; NFI = .997; RMSEA = .043; SRMR = .015.

This study developed measures for the relevant constructs and provided evidence of the hypothesized relationships. However, because it uses a correlational approach, causal effects cannot be established. Uncovering these causal effects is particularly important for understanding what really motivates consumers to perform creating and contributing activities on social media, as those appear to be most relevant to marketers. Next to that, for managers it is important to know how they can change their communication, for example, in order to evoke motivations in consumers for engaging in the different brand-related activities on social media. Thus, the subsequent three studies focus on the unique motivations for engaging in creating and contributing activities. More specifically, Study 2 investigates the role of personal identity on creating activities, Study 3 examines the role of socialization on contributing activities, and Study 4 tests these two relations simultaneously rather than in isolation.

### 3.4 STUDY 2: EFFECT OF PERSONAL IDENTITY ON BRAND-RELATED CREATING ACTIVITIES

Study 2 focuses on the unique role of personal identity with regard to engaging people in brand-related creating activities on social media. Going back to the basis of SDT (Ryan & Deci, 2000), it suggests that people typically experience a basic need for autonomy. Need for autonomy refers to individuals' desire to organize their own behaviors by themselves in a way that is consistent with their perception of self. Thus, people seek to express their own sense of freedom without interferences from external authorities such as rules or instructions (Deci & Ryan, 2000; Gagné & Deci, 2005; Ryan et al., 2006). The psychological need for autonomy becomes stronger when people experience a temporary threat to their sense of freedom, thus motivating individuals to satisfy this need by engaging in activities that help them express their personality (Baumeister & Leary, 1995; Sheldon et al., 2011; Sheldon & Gunz, 2009). On the base of the personal identity motivation lies the need for autonomy; namely, an unmet need for autonomy leads to a motivational force to restore this need for autonomy (e.g., Sheldon & Gunz, 2009). This study also aims to show that individuals with an intensified need for autonomy, caused by a threat to their sense of freedom, exhibit a higher personal identity motive. This higher personal identity motive causes these individuals to engage more in brand-related creating activities on social media. Therefore, the personal identity motive should mediate the effect of need for autonomy on individuals' propensity for engaging in brand-related creating activities.

#### 3.4.1 Method

One hundred and eleven social media users (49%, males, 51% females; class of age: 18-39), recruited from an online pool of paid US respondents, were randomly assigned to one of two conditions (need for autonomy: present versus absent) of a between-subjects experiment.

Need for autonomy was manipulated via threat using an episodic recall task (see Rucker et al., 2011 for similar manipulations). In particular, respondents in the need for autonomy condition were asked to recall and describe an episode in their own life in which they felt they had no autonomy. Based on past research on the need for autonomy (e.g., Deci & Ryan, 2000; Ryan et al., 2006), we explicitly encouraged respondents in this condition to recall and describe situations in life in which they were forced to follow strict rules, had to choose a given option or course of action, or were not free to express themselves. Respondents in the no need for autonomy condition, which served as a baseline, were asked to describe a typical daily situation, such as a trip to a

grocery store (Rucker & Galinsky, 2008). After this recall task, respondents indicated how this described episode made them feel (“frustrated”, “irritated”, “annoyed”, “oppressed”; assessed on a seven-point scale: 1 = not at all, 7 = very much; e.g., Brehm, 1966; Fitzsimons & Lehmann, 2004).

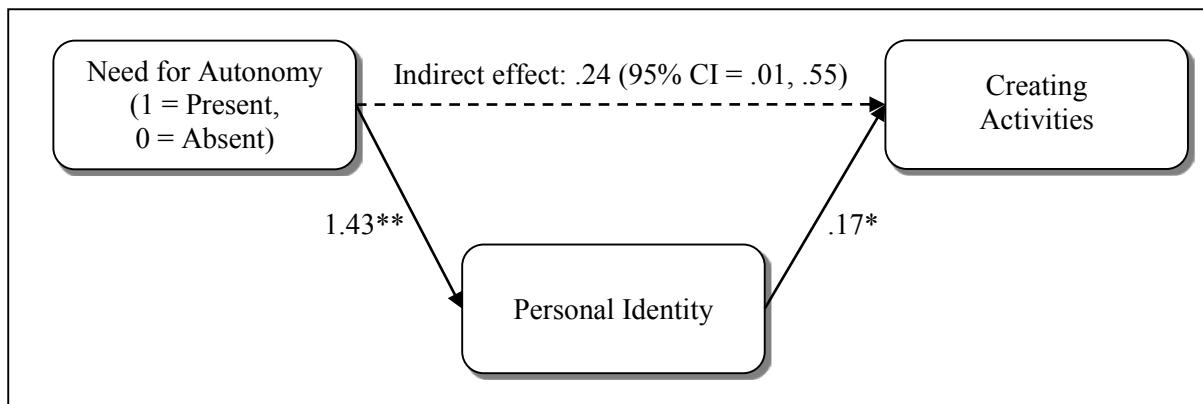
Respondents were then told to imagine a realistic situation in which they have the opportunity to spend some time on social media. They were then asked to indicate the extent (1 = not at all, 7 = to a very large extent) to which each of the six reasons regarding the personal identity motive (see Table 3.1) leads them to engage in brand-related activities on social media. After reporting the intensity of their personal identity motive, respondents rated their likelihood of performing one of the seven brand-related creating activities on social media (see Table 3.1) using a seven-point scale (1 = very unlikely, 7 = very likely).

### 3.4.2 Results

We first checked whether our manipulation made respondents in the need for autonomy condition feel worse than those in the baseline condition. The four items (e.g., frustration) assessing how respondents felt during the recall task were combined to obtain a composite index that summarized the feeling of lacking autonomy ( $\alpha = .91$ ). Respondents in the need for autonomy condition reported a higher feeling of lacking autonomy ( $M = 5.20$ ,  $SD = 1.03$ ) than respondents in the no need for autonomy condition ( $M = 2.50$ ,  $SD = 1.08$ ),  $t$ -statistic = 13.39,  $p$ -value < .001. This result shows that our manipulation was successful.

The two measures that respectively assess personal identity and likelihood of engaging in creating activities showed adequate levels of reliability ( $\alpha$ 's = .94 and .87, respectively), as already demonstrated in Study 1. The six items regarding personal identity were combined to obtain a composite index of the intensity with which respondents experience this motivation. Similarly, the seven items concerning the likelihood of engaging in brand-related creating activities on social media were combined to form a composite index that serves as a dependent variable.

**Figure 3.2: Mediation model summarizing the effect of need for autonomy on creating activities through personal identity**



\*  $p$ -value < .05; \*\*  $p$ -value < .01. The dotted arrow indicates an indirect effect.

We tested a simple mediation model (see Figure 3.2) that links the need for autonomy (1 = present, 0 = absent) to the likelihood of engaging in creating activities on social media through the personal identity motive, which serves as a mediator. Through a series of regressions, we found a positive direct effect of need for autonomy on personal identity ( $b = 1.43$ ,  $p$ -value < .001; hence corresponding to the needs-as-motives literature, e.g., Sheldon & Gunz, 2009), a positive direct effect of personal identity on the likelihood to engage in creating activities ( $b = .17$ ,  $p$ -value = .04), and an effect of need for autonomy on likelihood to engage in creating activities ( $b = .54$ ,  $p$ -value = .01), the latter of which becomes insignificant when personal identity is added into the model ( $p$ -value > .10). To establish mediation, we estimated the indirect effect of need for autonomy on the dependent variable using the bootstrapping technique suggested by Zhao et al., (2010) and implemented in the PROCESS macro developed by Hayes (2013, p. 419-456). The results, summarized in Figure 3.2, show that this indirect effect is positive and significant ( $b = .24$ , 95% confidence interval = .01, .55)<sup>7</sup>. To conclude, this study shows that the personal identity motive mediates the effect of need for autonomy on individuals' propensity for engaging in creating activities.

<sup>7</sup> We also ran an additional mediation analysis whereby we include respondents' emotions (e.g., frustration) as a covariate to control for the fact that the emotions could actually drive the effect instead of need for autonomy. The results are similar to Figure 3.2, whereby the indirect effect of need for autonomy through personal identity on creating activities is also positive and significant, although a bit smaller in magnitude ( $b = .15$ , 95% confidence interval = .01, .40).

### **3.5 STUDY 3: EFFECT OF SOCIALIZATION ON BRAND-RELATED CONTRIBUTING ACTIVITIES**

Study 3 focuses on the unique role of socialization with regard to engaging people in brand-related contributing activities on social media. According to SDT (Deci & Ryan, 2000), people typically experience a need for relatedness, which refers to individuals' desire to feel connected to others (Cacioppo & Patrick, 2008; Ryan & Deci, 2000). This psychological need becomes stronger when people experience a temporary threat to their sense of belonging and social connection, thus motivating individuals to fulfill this need by engaging in activities that allow social interaction and make them feel more connected to others (Baumeister & Leary, 1995). In other words, on the base of the socialization motivation lies the need for relatedness; namely, an unmet need for relatedness leads to a motivational force to restore this need for relatedness (e.g., Sheldon & Gunz, 2009). Based on this reasoning, this study aims to show that individuals with an intensified need for relatedness, caused by threatening their sense of belonging and social connection, exhibit a higher socialization motive. This higher socialization motive then causes people to engage more in brand-related contributing activities on social media. Therefore, the socialization motive should mediate the effect of need for relatedness on individuals' propensity for engaging in brand-related contributing activities.

#### **3.5.1 Method**

One hundred social media users (50% males, 50% females; class of age = 19-29), recruited from a population of students at an Italian university, participated in the study by entering laboratory sessions in groups of 25 for the chance to win a €50 cash prize. Respondents were randomly assigned to one of two conditions (need for relatedness: present versus absent) of a between-subjects experiment.

Need for relatedness was manipulated through a false-feedback procedure (see Baumeister et al., 2005 for similar manipulations). Specifically, respondents completed a fictitious personality test on their computers and then received feedback seemingly based on their responses. In reality, feedback was distributed randomly among respondents. Respondents in the need for relatedness condition received a notice indicating they have a lonely personality and tend to be averse in building social relationships. Sheldon and Gunz (2009) showed that inducing a need for relatedness subsequently triggers people to try and fulfill this need, thus leading to higher

motivational forces. Specifically, the respondents read the following feedback (based on Sheldon & Gunz, 2009):

“Your responses reveal a socially avoidant personality, which could create interpersonal relationship problems later in life. Although you may have friends now, in the near future this temperament could turn you away from them and other people around you. If your behavior should not improve, you might risk loneliness in the long term.”

Respondents in the no need for relatedness condition, which served as the baseline, received a notice indicating they have a stable personality that parallels the ‘average’ person of that age. Specifically, they read the following feedback:

“Your responses reveal a personality that tends to remain stable over time. Your temperament is balanced and presents no dominant trait. Your personality is practically in line with that of the ‘average’ individual in the population of your age.”

We pretested this manipulation on a separate sample of 50 social media users drawn from the same population of respondents. After the manipulation, we asked the pretest’s participants to indicate how they felt upon receiving the assigned feedback (“dejected”, “depleted”, “isolated”, “sad”; assessed on a seven-point scale: 1 = not at all, 7 = very much; Baumeister & Leary, 1995; MacDonald & Leary, 2005; Scalise et al., 1984). We combined the items to form a composite measure that describes participants’ feeling of lacking social connections ( $\alpha = .82$ ). Participants in the need for relatedness condition reported a higher feeling of lacking social connections ( $M = 2.74$ ,  $SD = 1.33$ ) than participants in the no need for relatedness condition ( $M = 1.89$ ,  $SD = 1.37$ ),  $t$ -statistic = 2.22,  $p$ -value < .05. This result shows that our manipulation was successful.

After reading the assigned feedback, the main study’s respondents were told to wait 20 minutes before completing the second part of the study and that they could spend that time by browsing the Internet on their computer. Unknown to respondents, any activity on the Web performed during that time period was recorded on video. Afterward, respondents completed a short questionnaire containing the five items related to the socialization motive, just like in Study 1 (see Table 3.1). Respondents rated the extent to which each of these items were reasons to engage in the actions they just performed on the Internet (1 = completely false, 7 = completely true).

### 3.5.2 Results

The five items assessing the socialization motive showed an acceptable level of reliability ( $\alpha = .80$ ), so their scores were combined to form a composite index of the intensity with which respondents experienced this motivation.

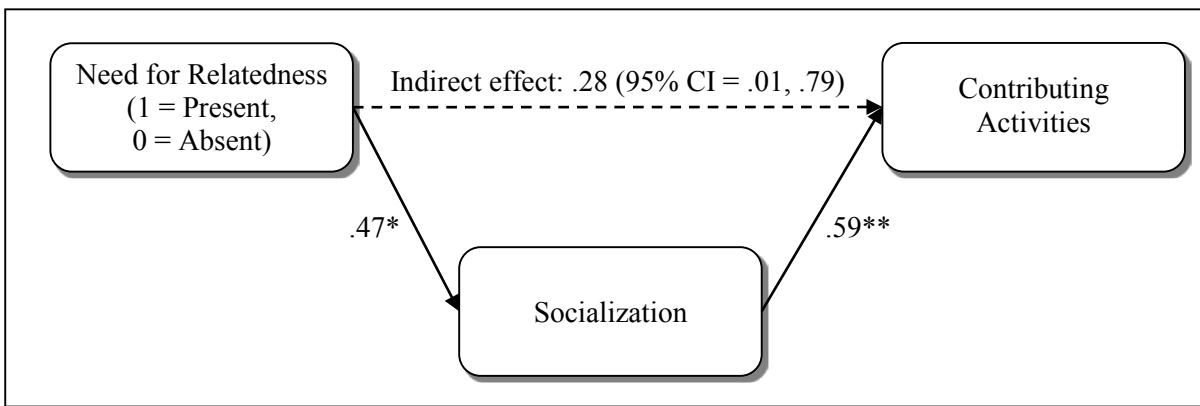
Three research assistants, blind to the aim of the research, served as independent judges. They coded each respondent's behavior on the Web as 1 when at least one brand-related contributing activity was present and 0 when no brand-related contributing activity was present. Proportional inter-judge agreement was 94%, yielding a PRL reliability index of 99% (Rust & Cool, 1994); any disagreement was resolved through discussion. The dichotomous variable resulting from this coding procedure, which serves as a dependent variable in the analysis, indicated whether or not respondents really engaged in brand-related contributing activities on social media.

We estimated a simple mediation model (see Figure 3.3) that links need for relatedness (1 = present, 0 = absent) to the above-mentioned dependent variable through the socialization motive, which serves as a mediator<sup>8</sup>. Through a series of regressions, we found a positive direct effect of need for relatedness on the socialization motive ( $b = .47$ ,  $p$ -value = .05; hence corresponding to the needs-as-motives literature, e.g., Sheldon & Gunz, 2009), a positive direct effect of socialization on respondents' engagement in contributing activities ( $b = .59$ ,  $p$ -value = .005), and an effect of need for relatedness on respondents' engagement in contributing activities ( $b = .83$ ,  $p$ -value = .04), the latter of which becomes insignificant when socialization is included into the model ( $p$ -value > .10). To establish mediation, we estimated the indirect effect of need for relatedness on our behavioral measure of engagement in contributing activities using the same bootstrapping technique as in Study 2. The results, summarized in Figure 3.3, show an indirect effect that is positive and significant ( $b = .28$ , 95% confidence interval = .01, .79). To conclude, the socialization motive mediates the effect of need for relatedness on individuals' propensity for engaging in contributing activities.

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<sup>8</sup> Preferably, we would have added the measured emotions to the regressions as covariates to rule out any alternative explanation (just as we did in Study 2). However, the manipulation check is only pre-tested, so unfortunately we cannot add the emotions to the regression or mediation analyses. We acknowledge this shortcoming in the limitations of this chapter.

**Figure 3.3: Mediation model summarizing the effect of need for relatedness on contributing activities through socialization**



\*  $p$ -value < .05; \*\*  $p$ -value < .01. The dotted arrow indicates an indirect effect.

Overall, Study 2 and Study 3 provided experimental evidence for the causal effects predicted in our central hypotheses (i.e.,  $H_1$  and  $H_2$ ). However, because the studies separately investigated causal effects and their respective mediators, we cannot conclude whether each of the two psychological needs (i.e., need for autonomy, need for relatedness) uniquely affects the associated motive, nor whether personal identity and socialization uniquely affect consumers' engagement in either creating or contributing activities. To quell this concern, the subsequent study tests our predicted effects simultaneously rather than in isolation.

### 3.6 STUDY 4: EFFECTS OF PERSONAL IDENTITY AND SOCIALIZATION ON BRAND-RELATED CREATING AND CONTRIBUTING ACTIVITIES

Study 4 uses a model that combines the two causal paths previously outlined (i.e., need for autonomy and need for relatedness on consumers' engagement in either creating or contributing activities, via personal identity and socialization). We aim to show that activating a need for autonomy in individuals boosts their personal identity motive, but not their socialization motive, and ultimately leads them to engage in creating activities on social media rather than contributing activities. Conversely, we expect the activation of a need for relatedness to increase the socialization motive of individuals, but not their personal identity motive. The augmented socialization motive, in turn, should prompt them to engage in contributing activities rather than creating activities. Therefore, the personal identity motive should mediate only the effect of need for autonomy on individuals' propensity to engage in creating activities, whereas socialization

should mediate only the effect of need for relatedness on their propensity to engage in contributing activities.

### 3.6.1 Method

Ninety-one social media users (53% males, 47% females, class of age = 19-29), recruited from a population of students at an Italian university, participated in the study. Respondents were randomly assigned to one of three conditions (type of need: need for autonomy versus need for relatedness versus no need) of a between-subjects experiment.

The type of need was manipulated using a false-feedback procedure, just like in Study 3 (see Baumeister et al., 2005 for similar manipulations). Respondents completed a fictitious personality test on their computers and then received feedback seemingly based on their responses, but which was in reality given at random. Respondents in the need for autonomy condition received a notice indicating they have a personality that is passive and dependent on others. Specifically, they read the following feedback:

“Your responses reveal an influenceable personality, which could make you increasingly dependent upon others, insecure, and unable to express yourself later in life. Although you may have chances to fulfill your wishes, in the near future this temperament could make you less aware of your actual needs and interests. If your behavior should not improve, you might lose your autonomy and ability to make important decisions.”

Respondents in the no need condition and in the need for relatedness condition received the same feedback as in Study 3.

We pretested this manipulation using a separate sample of 67 social media users drawn from the same population of respondents. After the manipulation, similar to Studies 2 and 3, the pretest’s participants reported the extent to which the assigned feedback made them feel as if they lacked autonomy (“frustrated”, “irritated”, “annoyed”, “oppressed”;  $\alpha = .77$ ) and lacked social connections (“dejected”, “depleted”, “isolated”, “sad”;  $\alpha = .84$ ). A factor analysis confirmed that these two sets of items loaded on two separate factors, thus ensuring that our measures captured the different feelings of lack of autonomy and lack of social ties. Scores on each set of items were combined to form two composite measures of the feeling of lacking autonomy and the feeling of lacking social connections. Participants in the need for autonomy condition reported a higher

feeling of lacking autonomy ( $M = 3.25$ ,  $SD = 1.61$ ) than participants in either the no need condition ( $M = 2.28$ ,  $SD = 1.29$ ),  $t$ -statistic = 2.42,  $p$ -value < .05, or the need for relatedness condition ( $M = 2.31$ ,  $SD = 1.06$ ),  $t$ -statistic = 2.32,  $p$ -value < .05. The difference between participants in the no need condition and those in the need for relatedness condition was insignificant ( $p$ -value > .50). On the other hand, pretest participants in the need for relatedness condition reported a higher feeling of lacking social connections ( $M = 3.15$ ,  $SD = 1.35$ ) than participants in either the no need condition ( $M = 2.27$ ,  $SD = 1.15$ ),  $t$ -statistic = 2.36,  $p$ -value < .05, or the need for autonomy condition ( $M = 2.36$ ,  $SD = 1.34$ ),  $t$ -statistic = 2.02,  $p$ -value < .05. The difference between participants in the no need condition and those in the need for autonomy condition was insignificant ( $p$ -value > .50). These results show that our false personality feedback procedure manipulated the intended needs orthogonally.

After reading the assigned feedback, the main study's respondents participated in an ostensibly unrelated study on social media. Respondents first read a cover story that their university is developing a social networking site for students and that they have the opportunity to perform some activities on this site to test its functioning. The choice of a university as the brand stimulus is based on prior literature on university branding (e.g., Chapple, 2011; Hemsley-Brown & Goonawardana, 2007). Furthermore, utilizing the university that respondents attend as a stimulus assures homogeneous levels of brand familiarity and brand involvement across participants. Next, respondents saw a webpage of the fictitious social networking site on their computers. The webpage was professionally designed to be as realistic as possible and organized in two sections, which were identical in size and shape but different in content. In one section, respondents were invited to share their personal experiences with the university by writing a short paragraph about their favorite courses. In the other section, respondents read a message posted by a fictitious social networking site user who expresses interest in the university and asks for accurate judgments about the quality of the university. This section also displayed a fictitious cumulative rating of six different aspects of the university (i.e., the university's accessibility, its faculty, facilities and structures, student services, difficulty of exams, and job opportunities), using a five-star review system typical of online review platforms.

Participants could then engage in one of the following two activities: write a short paragraph about their past experiences with the university, thus *creating* new content; or rate the university on these six aspects, thus *contributing* to the collective evaluation of the university. After engaging in either the creating activity or the contributing activity, respondents completed

the same six-item measure of the personal identity motive as in Study 2 and the same five-item measure of the socialization motive as in Study 3, both assessed on a seven-point scale (1 = completely false, 7 = completely true).

### 3.6.2 Results

The six items assessing personal identity ( $\alpha = .94$ ) were combined to form a composite index of the intensity with which respondents experienced this motivation. The same procedure was followed for the five items assessing socialization ( $\alpha = .89$ ) to form a composite index of the corresponding motivation. These two variables serve as mediators in the analysis.

The type of need activated in respondents is expressed using two dichotomous variables. One dichotomous variable was coded as 1 when participants received feedback indicating they have a passive and others-dependent personality and 0 otherwise, thus capturing whether or not a need for autonomy is present. The other dichotomous variable was coded as 1 when participants received feedback indicating they have a lonely personality and 0 otherwise, thus capturing whether or not a need for relatedness is present. Therefore, a value of 0 on both dichotomous variables indicates that participants received feedback indicating they have a stable personality, which serves as a baseline condition. These two dichotomous variables serve as independent variables in the analysis.

The type of activity respondents performed was coded as 1 when they chose to perform the creating task (i.e., writing a short paragraph about their favorite courses) and 0 when they chose to perform the contributing task (i.e., rating the university). This choice-based dichotomous measure of whether respondents engaged in the creating activity or in the contributing activity serves as a dependent variable.

We estimated a multiple mediation model that links need for autonomy (1 = present, 0 = absent) and need for relatedness (1 = present, 0 = absent) to our choice-based dependent variable (1 = creating activity, 0 = contributing activity) through the motivational mediators of personal identity and socialization<sup>9</sup>. In a series of regressions, we found that need for autonomy exerts a positive direct effect on personal identity ( $b = .98$ ,  $p$ -value = .006) and an insignificant direct effect

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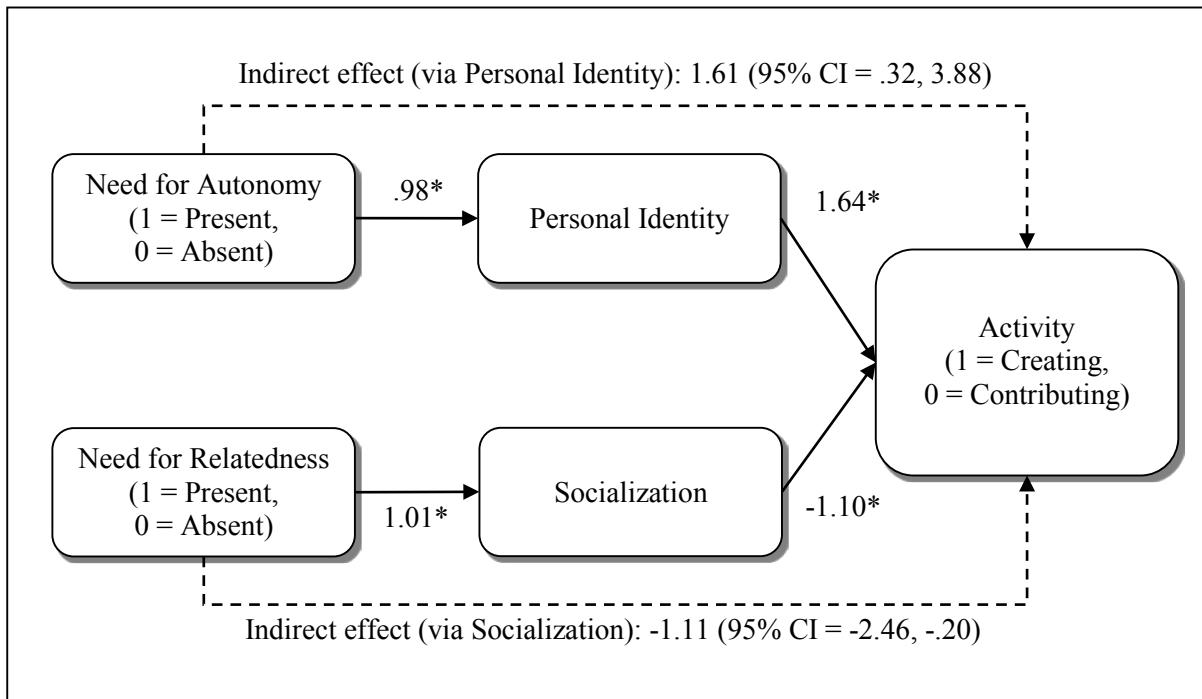
<sup>9</sup> Preferably, we would have added the measured emotions to the regressions as covariates to rule out any alternative explanation (just as we did in Study 2). However, the manipulation check is only pre-tested, so unfortunately we cannot add the emotions to the regression or mediation analyses. We acknowledge this shortcoming in the limitations of this chapter.

on socialization ( $b = .21$ ,  $p$ -value  $> .50$ ), whereas need for relatedness has a positive direct effect on socialization ( $b = 1.01$ ,  $p$ -value = .005) and an insignificant direct effect on personal identity ( $b = -.51$ ,  $p$ -value  $> .10$ ). Furthermore, we found that the personal identity motive has a positive direct effect on the dependent variable ( $b = 1.64$ ,  $p$ -value  $< .001$ ), whereas the socialization motive has a negative direct effect on it ( $b = -1.10$ ,  $p$ -value = .001), thus showing that personal identity and socialization lead respondents to engage more in the creating task and the contributing task, respectively. Finally, we found that need for autonomy positively affects the dependent variable ( $b = 1.16$ ,  $p$ -value = .03) while need for relatedness negatively affects it ( $b = -1.95$ ,  $p$ -value = .006); however, these effects become insignificant when personal identity and socialization are included into the model ( $p$ -value  $> .05$ ).

To establish mediation, we estimated the indirect effects of need for autonomy and need for relatedness on the dependent variable using the same bootstrapping technique as in Study 2. The results, summarized in Figure 3.4, show that the indirect effect of need for autonomy on the dependent variable through personal identity is positive and significant ( $b = 1.61$ , 95% confidence interval = .32, 3.88), whereas that via socialization is insignificant. Conversely, the indirect effect of need for relatedness on the dependent variable through socialization is negative and significant ( $b = -1.11$ , 95% confidence interval = -2.46, -.20), whereas that via personal identity is insignificant.

Overall, this study showed that respondents' participation in creating or contributing activities online depends on their experienced need for autonomy or relatedness. Thus, the obtained results further support our central prediction that consumers with either a need for autonomy or a need for relatedness experience a stronger motivation to express themselves or socialize with others, respectively; and these two motivational forces, in turn, cause them to engage in either creating or contributing activities on social media.

**Figure 3.4: Multiple mediation model summarizing the effect of need for autonomy and need for relatedness on creating and contributing activity through personal identity and socialization**



\*  $p$ -value < .01. Dotted arrows indicate indirect effects.

### 3.7 DISCUSSION

We developed and tested an explanatory framework based on SDT (e.g., Deci & Ryan, 2000; Ryan & Deci, 2000) in order to identify motivations behind consumer engagement in different brand-related activities on social media. These brand-related activities can be highly engaging (*creating*), moderately engaging (*contributing*), or slightly engaging (*consuming*; Muntinga et al., 2011). Past research shows that the relatively more engaging activities of creating and contributing—for example, writing product reviews and rating a brand on social media, respectively—lead to positive firm outcomes, such as higher sales (e.g., Dholakia & Durham, 2010; Rishika et al., 2013; Zhu & Zhang, 2010). Hence, we focused on two unique motivations that cause people to engage in creating or contributing activities.

In Study 1, we first identified and measured motives that might prompt consumers to engage in creating, contributing, and consuming activities on social media; afterwards we estimated relationships between motives and activities using a correlational approach. The results reveal unique relationships between the following: the personal identity motive and creating

activities; the socialization motive and contributing activities; and the information/knowledge motive and consuming activities. Both the fully intrinsic motivation of entertainment and the fully extrinsic motivation of remuneration relate to all three types of brand-related activities on social media.

In the subsequent three studies, we used experimental techniques to examine the underlying needs and motives for engaging in brand-related creating and contributing activities more closely. We found that the personal identity motive leads social media users to engage in brand-related creating activities, and the socialization motive stimulates them to engage in brand-related contributing activities. Our experimental results are robust as they are consistent across 1) different manipulations of the underlying needs for autonomy and relatedness (i.e., recall task, Study 2; false personality feedback, Study 3 and Study 4); 2) different operationalizations of the dependent variables (i.e., self-report measure, Study 2; external coding of users' real behavior on social media, Study 3; choice-based measure of users' activity on a realistic social networking site, Study 4); and 3) different samples (i.e., US social media users, Study 2; European users, Study 1, Study 3, and Study 4).

### 3.7.1 Implications for Theory

Prior studies (e.g., Chen, 2011; Shao, 2009; Sheldon, 2008) investigated motives for engaging in different activities on social media via a uses-and-gratifications perspective, which is a theoretical approach developed in communication research (Klapper, 1963; Ruggiero, 2000) that postulates that people use media to gratify specific needs. However, these studies offer fragmented findings, proposing a plethora of gratifications potentially derived from (social) media use while lacking theoretical justification (e.g., Hicks et al., 2012; Raacke & Bonds-Raacke, 2008; Ruggiero, 2000). Thus, the understanding of what really motivates people to perform brand-related activities on social media entailing different levels of engagement has remained limited to date.

Building on SDT (Ryan & Deci, 2000), our work offers a parsimonious explanation for why social media users perform brand-related activities that require different levels of engagement. In addition to the fully intrinsic motivation of entertainment and the fully extrinsic motivation of remuneration, which together drive all activities on social media, our theoretical and measurement model identifies a unique motive (i.e., personal identity, socialization, information/knowledge) for each of the three types of activities (i.e., *creating*, high engagement; *contributing*, moderate engagement; *consuming*, slight engagement). By focusing on creating and contributing, which are

the two relatively more engaging types of activities that are relevant for brands, our experimental studies show that these motives uniquely derive from very general human needs (i.e., need for autonomy and need for relatedness, respectively). This attests to the role of need for autonomy in driving creating activities through the personal identity motive, and the role of need for relatedness in driving contributing activities through socialization.

Furthermore, our research develops measurement scales to assess the intensity with which social media users engage in different brand-related activities on social media (i.e., creating, contributing, and consuming activities), as well as five underlying motives (i.e., personal identity, socialization, information/knowledge, entertainment, remuneration). Although other studies (Cheung et al., 2011; Lin & Lu, 2011; Park et al., 2009; Sheldon et al., 2011) have measured similar constructs, none have proposed multiple scales to assess different activities and motives simultaneously. Our research offers an integrated set of reliable measures to assess both activities and motives.

### **3.7.2 Implications for Branding**

Given the extraordinary relevance of social media in today's marketing strategy, companies need to know what actually motivates consumers to perform different brand-related activities on social media in order to devise effective social media strategies. Our research offers clear suggestions. Engaging consumers in creating or contributing activities is a good way for companies to craft and distribute viral content about brands, with positive consequences in terms of positive word-of-mouth, brand popularity and sales.

Our results also provide companies with guidelines for stimulating consumers to engage in these activities. Companies could leverage their communication strategies in order to activate in consumers the basic needs for autonomy and relatedness, which may encourage them to engage more in creating and contributing activities, respectively. In order to specifically motivate people to create brand-related content, firms could develop communication strategies that emphasize the self and the importance of making self-expressing choices, which should increase users' desire for autonomy. For example, firms could provide users with the opportunity to express themselves by hosting branding contests in which users can create and submit original content related to the packaging, the external design or the features of new products, similar to co-creation activities (e.g., Bayus, 2013; Füller, 2010). To motivate people to engage in brand-related contributing

activities, communication strategies could emphasize the importance of online friendships and network size, which should increase users' desire for relatedness. As a specific example, firms could explicitly mention, in their communication, "Share our ad or this Facebook post with your friends."

Our research also indicates that both remuneration and entertainment affect all three types of activities. As these activities require different levels of engagement, an intensification of these two motivations, keeping other conditions constant, might lead consumers to prefer performing the least engaging ones. Therefore, giving external incentives (e.g., free samples) or leveraging the entertainment motive (e.g., adding fun functions to a brand fan page) can be useful ways of increasing social media use in general and consuming activities in particular. However, these strategies might be insufficient for encouraging consumers to create original brand-related content on social media or contribute to brand-related content generated by others.

Finally, our research provides guidelines for managers of social media platforms on how to design these platforms. It is crucial that social media platforms are designed in such a way that consumers can easily engage in creating or contributing activities (Bughin, 2007). To facilitate brand-related creating activities, platforms should be designed so that consumers can readily upload photos and write comments about products and brands. To facilitate brand-related contributing activities, platforms should be designed so that consumers can easily rate products and brands, as well as chat with others on brand-related topics.

### 3.7.3 Limitations and Future Research

Our research has limitations that provide opportunities for future research. First, we did not deeply investigate the unique driver of consuming brand-related activities. Future research could run one large experiment whereby the needs for autonomy, relatedness, and competence are manipulated, which should lead to increased motivational drivers for personal identity, socialization, and information/knowledge, respectively. According to SDT and our hypotheses, these motivations should then uniquely drive creating, contributing and consuming activities.

Second, in our experiments (see Studies 2-4) we used two conditions, comparing high needs versus a neutral baseline. However, as is done more often in experimental research (e.g., Rucker & Galinsky, 2008), one could add a third category that manipulates a low need by asking people to, for example, recall a situation in which they had autonomy or where they felt related to others. Another future research suggestion related to our manipulations is to use manipulations

that are possibly easier to implement by managers. Our manipulations are currently psychologically oriented because of our focus on SDT, but in a follow-up experiment we could use manipulations that are a bit further away from SDT and more managerially focused. During manipulation checks we asked respondents how they felt, since we suspected participants would face some difficulty in judging their experienced needs for autonomy or relatedness. Although these emotions are not an alternative explanation for the results we found (see Study 2), it might be fruitful to add people's experienced need satisfaction for autonomy, relatedness, and competence (Sheldon et al., 2001; Sheldon & Gunz, 2009) as another manipulation check.

Third, our data dealt with the motives and activities on social media in general (Study 1, Study 2, Study 3) and on a realistic social networking site (Study 4). We did not make any distinction among different types of social media, such as between general and specialized social networking sites (e.g., Facebook and LinkedIn) or between media sharing and microblogging sites (e.g., YouTube and Twitter). Future research could investigate the potential moderating role of this variable to verify whether our results vary across different types of social media. For example, because certain social media are more suitable for presenting the self (e.g., blogs) while others are more suitable for socializing (e.g., dating sites), future studies could examine the differential roles of personal identity and socialization in leading people to perform creating and contributing activities across these two types of social media.

Fourth, we do not consider the potential role of individual differences. Our studies specifically collected data from samples of young-adult social media users. Future studies could test our hypotheses on different samples of users, such as adolescents and older adults. Psychological research suggests that adolescents tend to experience higher levels of egocentrism than other people (e.g., Greene et al., 1996; Schwartz et al., 2008), while older individuals tend to experience higher levels of loneliness (e.g., Jylhä, 2004; Shankar et al., 2011). Thus, adolescents might experience a stronger need for autonomy, and older people might experience a stronger need for relatedness. Building on this notion, future studies could test whether or not the relative effects of personal identity and socialization vary across different classes of age. In addition to age, future studies could examine other individual differences such as personality traits. Indeed, personality traits might moderate the relationships between motives and brand-related activities on social media (e.g., Sheldon & Gunz, 2009). For example, users low in self-esteem might experience a stronger need for autonomy and thus be more inclined to create brand-related content compared to

users high in self-esteem. Similarly, introverted users might experience a stronger need for socialization and thus be more inclined to perform contributing activities (e.g., Nadkarni & Hofmann, 2012; Orr et al., 2009). Hence, future studies could verify whether chronic self-esteem moderates the effect of personal identity on creating activities, and whether introversion moderates the effect of socialization on contributing activities.

Finally, future research could explore the moderating role of cultural differences. We collected our data within Western cultural contexts (the European Union and the United States), which tend to feature high levels of individualism (Hofstede et al., 2010, p. 89-102). Therefore, future studies could verify whether our results hold in Eastern contexts with high levels of collectivism (such as China and Japan). For instance, the effect of personal identity on creating activities might be stronger in Western countries than in Eastern countries, while the effect of socialization on contributing activities might be stronger in Eastern countries than in Western ones.

## **Chapter 4**

# **Popularity of Brand Posts on Brand Fan Pages: An Investigation of the Effects of Social Media Marketing**

This chapter is based on De Vries, L., S. Gensler, & P.S.H. Leeflang (2012), Popularity of Brand Posts on Brand Fan Pages: An Investigation of the Effects of Social Media Marketing, *Journal of Interactive Marketing*, 26,(2), 83-91.

## 4. POPULARITY OF BRAND POSTS ON BRAND FAN PAGES: AN INVESTIGATION OF THE EFFECTS OF SOCIAL MEDIA MARKETING<sup>10</sup>

### 4.1 INTRODUCTION

In 2011, more than 50% of social media users followed brands on social media (Van Belleghem et al., 2011). Not surprisingly, companies are increasingly investing in social media, indicated by nearly \$4.3 billion in worldwide marketing spending on social networking sites (Williamson, 2011). Managers invest in social media to foster relationships and interact with customers (SAS HBR, 2010). One way to realize this aim is to create brand communities in the form of brand fan pages on social networking sites, such as Facebook, where customers can interact with a company by liking or commenting on brand posts (McAlexander et al., 2002; Muniz & O'Guinn, 2001). Consumers who become fans of these brand fan pages tend to be loyal and committed to the company, and are more open to receiving information about the brand (Bagozzi & Dholakia, 2006). Moreover, brand fans tend to visit the store more, generate more positive word-of-mouth, and are more emotionally attached to the brand than non-brand fans (Dholakia & Durham, 2010).

While preliminary research has been conducted on the success of marketing activities on social media, little is known about the factors that influence brand post popularity, namely the number of likes and comments on brand posts at brand fan pages (Shankar & Batra, 2009; Ryan and Zabin 2010). Management-oriented studies about brand post popularity are mainly descriptive; they provide no theoretical foundation and do not formally test which activities actually improve brand post popularity. For example, these studies suggest that companies should experiment with different brand post characteristics, such as videos, images, text, or questions (Brookes, 2010; Keath et al., 2011). Current insights are thus limited, which has increased the call for research in the area of social media, as indicated by the subject of the Journal of Interactive Marketing special issue 2012 (26, 2) and the 2010-2012 Marketing Science Institute research priorities (MSI, 2011).

The aim of this research is to empirically investigate what factors drive brand post popularity. We develop a conceptual model that is based upon findings from the banner and advertising literature, as well as the word-of-mouth communication literature. We consider brand post characteristics (e.g., vividness, interactivity), content of the brand post (e.g., information,

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<sup>10</sup> Brand fan page means the same as firm's fan page, which we introduced in Chapter 2.

entertainment), position of the brand post, and the valence of comments on the brand post written by brand fans.

We gathered data from different brand fan pages on a social networking site to test our hypotheses. The findings indicate that enhancing either the number of likes or the number of comments on brand posts requires different instruments. With this research we generate new insights for the social media literature, which are interesting for academics as well as for practitioners. To the best of our knowledge, we are the first to empirically investigate which factors influence the popularity of brand posts at a social networking site. Our research provides valuable and directly applicable implications for companies' social media marketing activities.

The flow of this chapter is as follows: First, we describe brand fan pages and brand post popularity, and then develop the conceptual framework and hypotheses. That initial section is followed by a description of the study design. The empirical results are then described and discussed. We conclude with implications for managers, and propose some limitations that provide opportunities for further research.

## **4.2 BRAND FAN PAGES AND BRAND POST POPULARITY**

In just a few years, social networking sites have become extremely popular: Facebook, for example, claims to have attracted over 800 million active members (as of fall 2011) since starting in 2004 (Facebook, 2011). Social networking sites can be described as networks of friends for social or professional interactions (Trusov et al., 2009). Members of social networking sites can become friends with other members, but they can also become fans of brands on dedicated brand fan pages (see for an example of a brand fan page Appendix B1). Brand fans can share their enthusiasm about the brand on these dedicated pages and be united by their common interest in the brand (Kozinets, 1999). Brand fan pages reflect part of the customers' relationship with the brand (McAlexander et al., 2002), broaden the brand-customer relationship (Muniz & O'Guinn, 2001), and provide a source of information and social benefits to the members (Bagozzi & Dholakia, 2002; Dholakia et al., 2004). On these brand fan pages, companies can create brand posts containing anecdotes, photos, videos, or other material; brand fans can then interact with these brand posts by liking or commenting on them (see for an example of a brand post Appendix B2).

In this article, we focus on the determinants of brand post popularity, i.e., the number of likes and comments on brand posts<sup>11</sup>. In order to find these determinants affecting brand post popularity, we use research on the effectiveness of banner advertising, since the challenges for both banners and brand posts are firstly to attract people's attention and secondly to induce people to click on and view the content. For example, banners and brand posts need special characteristics or features that make them salient from the background and capture customers' attention (Fennis & Stroebe, 2010, p. 51). We also employ literature on online word-of-mouth (eWOM) communication when discussing the factors that influence brand post popularity, since liking and commenting on brand posts is similar to eWOM. Namely, the likes and comments on the brand post reflect the active statements of brand fans and are visible to others. In other words, by liking or commenting on a brand post, brand fans state their opinion publicly.

### **4.3 CONCEPTUAL FRAMEWORK AND HYPOTHESES**

The conceptual framework for the determinants of brand post popularity is presented in Figure 4.1. We argue that vividness, interactivity, the content of the brand post (information, entertainment), the top position of a brand post, and the valence of comments on a brand post are related to brand post popularity (i.e., the number of likes and the number of comments on brand posts). Additionally, we do control for the day of the week the brand post is placed, message length of the brand post, and the product category (see Figure 4.1).

#### **4.3.1 Vividness**

One way of enhancing the salience of brand posts is to include vivid brand post characteristics. Vividness reflects the richness of a brand post's formal features; in other words, it is the extent to which a brand post stimulates the different senses (Steuer, 1992). Vividness can be achieved by the inclusion of dynamic animations, (contrasting) colors, or pictures (Cho, 1999; Drèze & Hussherr, 2003; Fortin & Dholakia, 2005; Goldfarb & Tucker, 2011; Goodrich, 2011). The degree of vividness can differ in the way that it stimulates multiple senses (Coyle & Thorson, 2001). For example, a video is more vivid than a picture because the former stimulates not only sight, but also hearing.

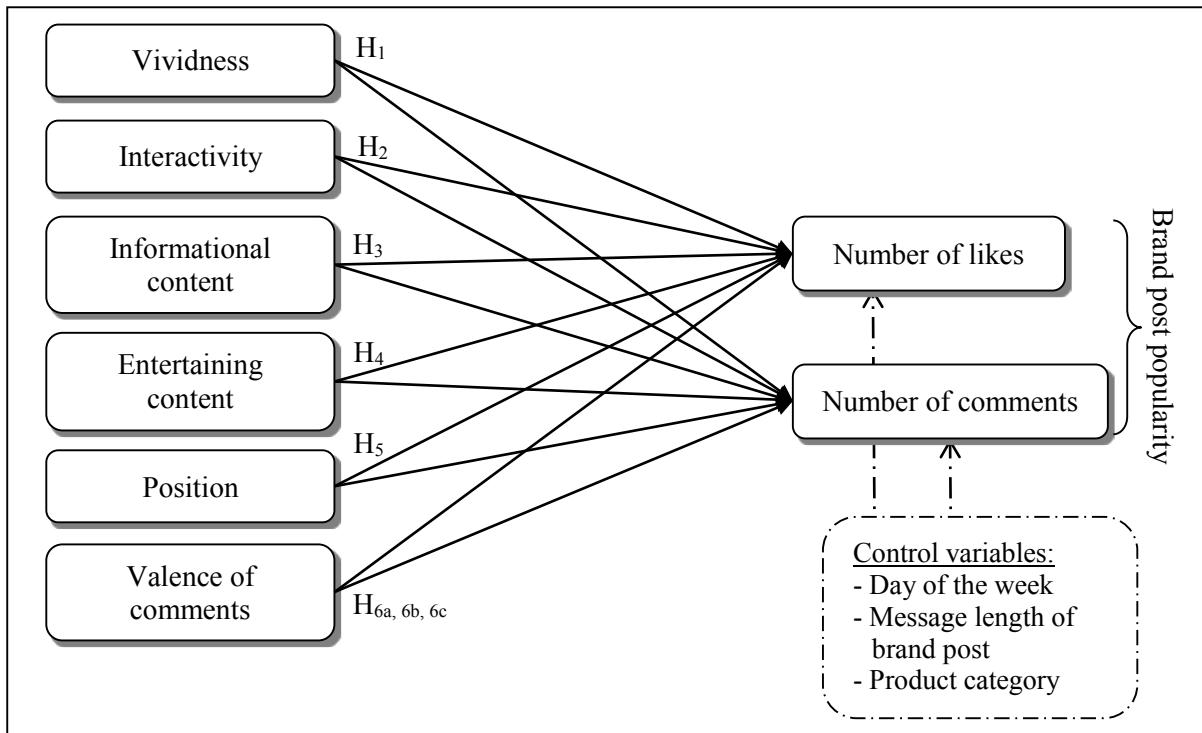
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<sup>11</sup> Please note that we do not investigate reasons for consumers to become brand fans. Rather, we examine the determinants of liking and commenting on brand posts, actions that are generally performed by brand fans.

Research shows that highly vivid banners are more effective with respect to intention to click (Cho, 1999) and click-through rates (Lohtia et al., 2003). Moreover, higher degrees of vividness appear to be most effective at enhancing attitudes toward a website (Coyle & Thorson, 2001; Fortin & Dholakia, 2005). We propose that more vivid brand posts lead to a more positive attitude toward the brand post. This positive attitude should then compel brand fans to like or comment on a brand post. Therefore, we formulate:

*H<sub>1</sub>: The higher the level of vividness of a brand post, the more popular the brand post.*

**Figure 4.1 Conceptual framework**



#### 4.3.2 Interactivity

Another way of enhancing the salience of a brand post is interactivity. Interactivity is defined as “the degree to which two or more communication parties can act on each other, on the communication medium, and on the messages and the degree to which such influences are synchronized” (Liu & Shrum, 2002, p. 54). Interactivity is characterized by two-way communication between companies and customers, as well as between customers themselves; put differently, it characterizes many-to-many communication (Goldfarb & Tucker, 2011; Hoffman & Novak, 1996). Brand post characteristics differ in the degree of interactivity. For example, a brand

post with only text is not at all interactive, while a link to a website is more interactive (Fortin & Dholakia, 2005) since brand fans can click on that link. Moreover, a question acts as a highly interactive brand post characteristic because it begs an answer from brand fans. Research shows inconclusive findings (no effect versus positive effect) regarding interactivity on outcome measures, such as attitude toward an ad, which might be explained by the considered degrees of interactivity (Liu & Shrum, 2002). Some research suggests that an optimal level of interactivity might exist (Fortin & Dholakia, 2005), but other research proposes a linear effect of interactivity (Coyle & Thorson, 2001). Since the objective of brand posts is to motivate brand fans to react (i.e., liking and/or commenting), we expect that higher degrees of interactivity will generate more likes and comments. Thus, we propose the following hypothesis:

*H<sub>2</sub>: The higher the level of interactivity of a brand post, the more popular the brand post.*

#### **4.3.3 Content of Brand Posts: Information and Entertainment**

Information-seeking is an important reason behind people's use of social networking sites (Lin & Lu, 2011), participation in virtual communities (Dholakia et al., 2004), and contribution to Facebook groups (Park et al., 2009). Furthermore, the pursuit of information explains why people consume brand-related content (Muntinga et al., 2011). Hence, if a brand post contains information about the brand or product, then the brand fans' motivations to participate or consume the content are met. Additionally, research shows that people tend to have positive attitudes toward informative ads on social networks (Taylor et al., 2011). Therefore, brand fans might have more positive attitudes toward informative brand posts compared to non-informative brand posts, thus leading to higher popularity. We propose:

*H<sub>3</sub>: Informative brand posts are more popular than non-informative brand posts.*

The entertainment value of a social networking site is also an important factor for using it (Cheung et al., 2011; Dholakia et al., 2004; Lin & Lu, 2011; Park et al., 2009). Entertainment leads people to consume, create or contribute to brand-related content online (Muntinga et al., 2011). Entertaining ads – ads that are perceived to be fun, exciting, cool, and flashy – do have a positive effect on attitude toward the ad (Taylor et al., 2011), attitude toward the brand, and the desire to return to the website (Raney et al., 2003). Hence, if a brand post is entertaining, brand fans' motivations to participate or consume the content are met. Therefore, brand fans might have more positive attitudes toward entertaining brand posts compared to non-entertaining brand posts, thus generating higher popularity. This leads to the following hypothesis:

*H<sub>4</sub>: Entertaining brand posts are more popular than non-entertaining brand posts.*

#### **4.3.4 Position of Brand Posts**

Advertising research shows that the position of a banner ad on a website has a positive effect on attention paid to the ad (Drèze & Husherr, 2003; Goodrich, 2011). Moreover, recent research on search advertising shows that position plays an important role for click-through rates; namely, ads on top of the page generate more clicks (Rutz & Trusov, 2011). Furthermore, prior exposure to banners has a positive effect on the clicking probability because an additional exposure to a banner increases the probability the banner will be noticed (Chatterjee et al., 2003). Whereas banners are mainly located on the periphery of websites (i.e., left or right and bottom or top), brand posts are located in the middle of the brand fan page. The most recently placed brand posts appear on top of the brand fan page, shifting older brand posts farther down on the brand fan page. If companies frequently create new brand posts, less recent ones shift down quickly, which means the latter are less noticeable and can receive less attention than brand posts that are located on top of the brand fan page. We therefore propose that the number of days the brand post is located on top of the brand fan page is beneficial for the brand post's popularity:

*H<sub>5</sub>: Position of a brand post on top of the brand fan page is positively related to brand post popularity.*

#### **4.3.5 Valence of Comments**

Brand fans can comment either positively, neutral, or negatively on brand posts. Research shows that consumers' online discussions about positive product or brand experiences can generate empathy and positive feelings among readers (Bickart & Schindler, 2001). This exchange of information and experiences between consumers has a positive effect on the perceptions of the value of a product, the likelihood of recommending the product (Gruen et al., 2006), and sales (e.g., Chevalier & Mayzlin, 2006; Chintagunta et al., 2010). The positive comments on a company's brand post might have complementary value to said post (Bronner & de Hoog, 2010) and thus increase the attractiveness of the brand post. Also, the positive comments of brand fans can enhance the value of the brand post and create empathy among brand fans. All in all, we expect that the share of positive comments on a brand post, compared to the share of neutral comments, leads to higher popularity for the brand post in question. We propose:

*H<sub>6a</sub>: The share of positive comments on a brand post is positively related to brand post popularity.*

However, brand fans can also comment negatively on a brand post. Therefore, we also investigate the effects of negative comments on brand post popularity. Substantial negative information appears to produce a negative effect on attitude toward the ad and the brand (Eisend, 2006). Furthermore, negative consumer reviews have a negative effect on purchase intentions or sales (e.g., Chevalier & Mayzlin, 2006; Dellarocas et al., 2007; Dhar & Chang, 2009). Moreover, Smith and Vogt (1995) show that negative WOM communication, presented directly before or after respondents have seen an ad, reduces brand attitudes, cognitive evaluations about the brand, and purchase intentions. At the brand fan page, the brand post and the comments are presented closely together (i.e., the comments are placed below the brand post). All in all, it might be very likely that negative comments to a brand post also decrease the attractiveness of the brand post. Consequently, brand fans will have a lower attitude toward this brand post and hence like it less. Also, brand fans might follow the mass and not want to press the like button if their peer brand fans comment negatively, i.e., dislike the brand post. This results in the following hypothesis:

*H<sub>6b</sub>: The share of negative comments on a brand post is negatively related to the number of likes on that brand post.*

Continuing on this point, research shows that when opinions on a website are very negative, consumers will adapt their opinion downwards (Schlosser, 2005). This effect may also occur for brand posts: When brand fans comment on a brand post, they might negatively adapt their comment if they read other negative comments, because they want to conform to others' opinions. This effect may thus lead to a higher number of negative comments. At the same time, people tend to differentiate their opinions and hence post multiple perspectives (e.g., Schlosser, 2005); thus, brand fans who disagree with these negative comments might rebut them by providing positive comments (e.g., Moe & Trusov, 2011). Moreover, the variance in posted comments seems to generate subsequent comments, which is an indication that negative comments are not necessarily bad (Moe & Trusov, 2011). So, negative comments might not only lead to more negative comments (conformation), but also to more positive comments (differentiation). Therefore, we propose:

*H<sub>6c</sub>: The share of negative comments on a brand post is positively related to the number of comments on that brand post.*

### 4.3.6 Control Variables

Research on search advertising shows that people perform fewer Internet searches during weekends than on weekdays, although click-through rates do not differ between weekdays and weekends (Rutz & Trusov, 2011). It might be that brand fans visit brand fan pages more during the weekends than on weekdays, which can result in higher popularity for brand posts placed during weekends. Hence, we account for the day of the week that companies place a brand post.

Advertising research further suggests that message length may affect outcome measures such as click-through rates either positively or negatively (Baltas, 2003; Robinson et al., 2007). We therefore include message length as a control variable.

Unobserved characteristics of product categories might lead to differences in brand post popularity across brands from different product categories. Therefore we control for the product category.

## 4.4 STUDY DESIGN

### 4.4.1 Operationalization of Variables

In this study, we explain brand post popularity, which is indicated by the number of likes and the number of comments on a brand post. For both vividness and interactivity, we have identified four different levels (no, low, medium, and high), which correspond to previous research (e.g., Coyle & Thorson, 2001; Fortin & Dholakia, 2005). The specific brand post characteristics that reflect low, medium, and high vividness as well as interactivity of the brand post are reported in Table 4.1.

Brand posts are regarded as informative when they contain information about the company/brand and/or its products. On the other hand, entertaining brand posts contain content that is unrelated to the brand, such as funny movies or anecdotes. Some brand posts are neutral; they are neither entertaining nor informative and are used as base categories in the analyses. An example of a non-informative, non-entertaining brand post is asking a neutral question, such as: ‘What color/taste do you like most?’ Regarding the valence of the comments, we count the number of positive, neutral, and negative comments on a brand post. Subsequently, we compute the shares of positive, neutral, and negative comments relative to the total number of comments per brand post. The share of neutral comments is used as a base category in the analyses.

**Table 4.1: Operationalizations of vivid and interactive brand post characteristics**

<b>Level</b>	<b>Vividness</b>	<b>Interactivity</b>
<i>low</i>	pictorial (photo or image)	link to a website (mainly to news sites or blogs, but never to the company website) voting (brand fans are able to vote for alternatives (e.g., which taste or design they think is best))
<i>medium</i>	event (application at the brand page and announces an upcoming (offline) event of the brand)	call to act (urges brand fans to do something (e.g., go to certain website, liking, or commenting) contest (brand fans are requested to do something (e.g., Tweet or like a website) for which they can win prizes)
<i>high</i>	video (mainly videos from YouTube)	question (sentence ending with a question mark) quiz (a question for which brand fans can win prizes)

#### 4.4.2 Data

We empirically investigated data from eleven international brands that were actively posting content at their brand fan pages on Facebook from May 24, 2010 to February 18, 2011. The brands encompass six different product categories: cosmetics, alcoholic beverages, mobile phones, leisure wear, accessories, and food. We gathered the number of likes and comments on a brand post, as well as the valence of the comments and other brand post characteristics, across a total of 355 brand posts<sup>12</sup>.

**Table 4.2: Average number of likes and comments per product category**

<b>product category</b>	<b>Likes</b>		<b>Comments</b>	
	<b>M</b>	<b>SD</b>	<b>M</b>	<b>SD</b>
food	145.91	82.22	53.91	41.47
accessories	143.49	52.33	14.86	28.80
leisure wear	184.02	73.55	15.61	10.51
alcoholic beverages	253.48	298.53	46.53	65.09
cosmetics	200.54	233.56	53.44	91.85
mobile phones	177.10	155.07	56.90	37.15

<sup>12</sup> We only use posts from the brands; we do not consider posts from the brand fans.

The average number ( $M$ ) of brand fans was 337,500 per brand ( $SD = 168,103$ ); the number of brand posts taken into account in this research was, on average, 32.27 per brand ( $SD = 7.10$ ); the average number of likes per brand post was 189.26 ( $SD = 193.10$ ), and the average number of comments per brand post was 42.26 ( $SD = 57.96$ ). The data shows quite a degree of variation across and within product categories for brand post popularity (i.e., likes and comments), which is shown in Table 4.2.

**Table 4.3: Descriptive statistics explanatory variables**

<b>Brand Post Characteristics and Content</b>						
<i>variable</i>	<i>level</i>	<i>operationalization</i>	<i>relative frequency</i>			
			<i>%</i>	<i>min %</i>	<i>max %</i>	
<i>vividness*</i>	<i>no</i>	pictorial event video	48.7%	20.9%	93.3%	
	<i>low</i>		34.4%	6.7%	65.1%	
	<i>medium</i>		0.6%	0.0%	3.3%	
	<i>high</i>		16.9%	0.0%	40.0%	
<i>interactivity*</i>	<i>no</i>	link website voting call to act contest question quiz	23.1%	2.3%	100.0%	
	<i>low</i>		51.5%	0.0%	86.0%	
	<i>medium</i>		2.3%	0.0%	10.2%	
			6.8%	0.0%	20.4%	
	<i>high</i>		9.3%	0.0%	33.3%	
			35.5%	6.7%	80.0%	
<i>information</i>		no information information	61.4% 38.6%	6.7% 4.0%	96.0% 93.3%	
<i>entertainment</i>		no entertainment entertainment	65.6% 34.4%	31.0% 7.1%	92.9% 69.0%	
<b>Variable</b>						
<i>operationalization</i>			<i>M</i>	<i>SD</i>		
<i>valence of comments**</i>		share of neutral comments share of positive comments share of negative comments	0.303 0.482 0.114	0.275 0.278 0.193		
<i>top position</i>		number of days	2.30	4.086		
<i>message length</i>		number of words	28.44	18.445		

\* Please note that the summations of the columns vividness and interactivity are more than 100%; some brand posts contain more than one interactive or vivid characteristic.

\*\* Please note that the shares of neutral, positive, and negative comments do not sum to one; some of the comments are coded as unknown because of language issues (following Godes & Mayzlin 2004).

Companies use different tools to stimulate brand fans to like or comment (see Table 4.3). On average, about 50% of the brand posts contain vivid characteristics and about 75% of the brand posts contain interactive characteristics. More specifically, the most popular are the vivid brand post characteristic ‘pictorial,’ and the interactive brand post characteristics ‘link to a website’ and

'question.' The medium vivid and high interactive brand post characteristics, 'event' and 'quiz,' respectively, occur infrequently during posts. Because these characteristics do not show much variation, we decided to exclude them from further analyses. Additionally, brands provided their fans with information regarding the company and its product(s) in 38.6% of the brand posts. Furthermore, 34.4% of the brand posts were entertaining. The relative shares of neutral, positive, and negative comments are 0.3, 0.48, and 0.11, respectively. Brands placed a new post, on average, every two days, with Thursday receiving the most brand posts of any individual day. The average text length of a brand post was 28 words.

#### 4.4.3 Methodology

We estimated a model for the determinants of brand post popularity, which were conditional upon being a brand fan and visiting the brand page. But, since we do not know the factors behind people becoming brand fans, and since this is not the focus of our study, we do not model this selection effect. The two dependent variables for brand post popularity are  $y_1$  = number of likes and  $y_2$  = number of comments, which are count data following a Poisson distribution (Cameron & Trivedi, 2005, p. 666; Hill et al., 2001, p. 227). Generally, one needs to conduct a Poisson regression if the data contains many zero's and small discrete values, but that is not the case here (see Table 4.2). For sufficiently large counts, limit theorem proposes that the Poisson distribution converges to a standard normal distribution (Rice, 1995). Hence, the model to explain the number of likes and the number of comments on brand posts can be expressed as:

$$y_{ij} = \alpha + \sum_{f=1}^2 \beta_f \text{vivid}_{fj} + \sum_{g=1}^5 \beta_g \text{ia}_{gj} + \beta_i \text{info}_j + \beta_e \text{entertain}_j + \beta_d \text{position}_j + \beta_p \text{pos}_j + \beta_n \text{neg}_j + \beta_c \text{weekd}_j + \beta_t \text{text}_j + \sum_{b=1}^5 \beta_b \text{pc}_b + \varepsilon_{ij}, \quad (4.1)$$

Where:

- $y_{ij}$ :  $y_{1j}$  or  $y_{2j}$ ; the number of likes per brand post  $j$  or the number of comments per brand post  $j$ , respectively,
- $\text{vivid}_{fj}$ : dummy variables indicating whether the vivid characteristic  $f$  at brand post  $j$  is present or not (baseline category is no vividness),
- $\text{ia}_{gj}$ : dummy variables indicating whether the interactive characteristic  $g$  at brand post  $j$  is present or not (baseline category is no interactivity),

<i>info<sub>j</sub></i> :	dummy variable indicating whether brand post <i>j</i> is <u>informative</u> (baseline category is no information),
<i>entertain<sub>j</sub></i> :	dummy variable indicating whether brand post <i>j</i> is <u>entertaining</u> (baseline category is no entertainment),
<i>position<sub>j</sub></i> :	indicating the <u>position</u> of the brand post by the number of days the brand post <i>j</i> is on top of the brand fan page,
<i>pos<sub>j</sub></i> :	indicating the share of <u>positive</u> comments on brand post <i>j</i> ,
<i>neg<sub>j</sub></i> :	indicating the share of <u>negative</u> comments on brand post <i>j</i> (baseline category for both positive and negative comments is the share of neutral comments),
<i>weekd<sub>j</sub></i> :	dummy variable if the brand post <i>j</i> is placed during <u>weekdays</u> ,
<i>text<sub>j</sub></i> :	indicating the number of words of brand post <i>j</i> ,
<i>pc<sub>b</sub></i> :	dummy variables for product <u>category b</u> (baseline category is ‘food’),
$\varepsilon_{ij}$ <sup>13</sup> :	$\varepsilon_{1j}$ or $\varepsilon_{2j}$ , normally distributed error terms for dependent variable $y_{1j}$ and $y_{2j}$ respectively.

We transformed zero’s in the dependent (i.e., the number of comments) and independent count variables (i.e., ‘position’ and ‘text’) into 0.00001. We conducted OLS regressions by taking the natural logarithm of the dependent variables, as well as of the independent count variables.

## 4.5 RESULTS

The estimation results are presented in Table 4.4, while Table 4.5 summarizes the findings. The effects of the potential explanatory variables on the components of brand post popularity (the number of likes and comments) are clearly different.

### 4.5.1 Number of Likes

The model for the number of likes is significant as a whole ( $F$ -value = 3.074,  $p$ -value < 0.01) and explains the variance of the dependent variable reasonably well ( $R^2 = 15.0\%$ , adj.  $R^2 = 10.1\%$ ).

The low level of vividness (i.e., ‘pictorial’) is not significantly related to the number of likes. But, the high degree of vividness (i.e., ‘video’) is significantly and positively related to the

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<sup>13</sup> The error terms of the two equations might be correlated, since likes and comments on the same brand post are likely to be dependent. Therefore, as a robustness check we also estimated a SUR-model. The results are exactly the same as those presented in section 4.5 where the equations are estimated independently.

**Table 4.4: Estimation results for brand post popularity\***

			<b>Log Likes</b>	<b>Log Comments</b>
<i>vividness</i>	<i>no</i>	(baseline)	-	-
	<i>low</i>	pictorial	0.080	-0.319
	<i>high</i>	video	<b>0.304</b>	-0.495
<i>interactivity</i>	<i>no</i>	(baseline)	-	-
	<i>low</i>	link website	-0.002	<b>-0.640</b>
	<i>medium</i>	voting	0.221	0.493
		call to act	0.216	-0.674
		contest	<b>0.393</b>	0.217
<i>information</i>	<i>high</i>	question	<b>-0.193</b>	<b>0.968</b>
		no information (baseline)	-	-
		information	0.018	-0.095
<i>entertainment</i>		no entertainment (baseline)	-	-
		entertainment	<b>-0.188</b>	-0.355
<i>position</i>		number of days	<b>0.022</b>	<b>0.063</b>
<i>valence of comments<sup>14</sup></i>		share of neutral (baseline)	-	-
		share of positive	<b>0.708</b>	<b>2.671<sup>a</sup></b>
		share of negative	-0.062	<b>3.082<sup>a</sup></b>
<i>control variables</i>	<i>product<sup>15</sup> categories</i>	weekdays	-0.106	-0.410
		message length	<b>-0.027</b>	0.061
		food (baseline)	-	-
		accessories	0.066	<b>-1.673</b>
		leisure wear	0.137	-0.453
		alcoholic beverages	0.149	-0.496
		cosmetics	-0.041	<b>-0.719</b>
		mobile phones	0.123	0.315
<i>constant</i>			<b>4.760</b>	<b>2.407</b>
		<i>N</i>	355	355
		F-value	<b>3.074</b>	<b>7.473</b>
		R <sup>2</sup>	0.150	0.300
		adj. R <sup>2</sup>	0.101	0.260

\* We report unstandardized coefficients. **Bold figures:** p-value < 0.05, *Italic figures:* p-value < 0.10.

<sup>a</sup> Parameter estimates with same superscripts are not significantly different from each other.

<sup>14</sup> Although not hypothesized, we also tested for the nonlinear effects of the shares of positive and negative comments to examine whether these effects increase nonlinearly or whether there is an optimum number of comments. We find that the quadratic term for the shares of positive and negative comments are negative, meaning that the effect is concave, thus decreasing again at one point in time.

<sup>15</sup> In a previous version of this chapter we included measures for brand relevance in the category (BRiC) by Fischer et al. (2010) to also take into account brand effects. We used BRiC as a proxy for brand equity, since we did not have information about brand equity. However, BRiC was not significantly related to either the number of likes or the number of comments. Therefore, we included product category specific dummy variables.

number of likes ( $\beta_{\text{video}} = 0.304$ ,  $p\text{-value} < 0.05$ ), in support of hypothesis 1. The low-level interactive brand post characteristics (i.e., ‘link to website’ and ‘voting’) are not significantly related to the number of likes, which contradicts hypothesis 2. The medium-level interactive brand post characteristic ‘call to act’ is not significantly related to the number of likes. On the other hand, the other medium-level interactive brand post characteristic (i.e., ‘contest’) is significantly and positively related to the number of likes ( $\beta_{\text{contest}} = 0.393$ ,  $p\text{-value} < 0.01$ ), which supports hypothesis 2. However, the high level of interactivity (i.e., ‘question’) is significantly and negatively related to the number of likes ( $\beta_{\text{question}} = -0.193$ ,  $p\text{-value} < 0.05$ ). All in all, we find partial support for hypothesis 2. Providing information at a brand post is not significantly related to the number of likes, so we cannot support hypothesis 3. Entertainment is marginally significant and negatively related to the number of likes ( $\beta_e = -0.188$ ,  $p\text{-value} < 0.10$ ), contrary to hypothesis 4. The top position of a brand post is significantly and positively related to the number of likes ( $\beta_d = 0.022$ ,  $p\text{-value} < 0.05$ ), in support of hypothesis 5. Compared to neutral comments, the share of positive comments is significantly and positively related to the number of likes ( $\beta_p = 0.708$ ,  $p\text{-value} < 0.01$ ), in support of hypothesis 6a. The share of negative comments is not significantly related to the number of likes, so we cannot confirm hypothesis 6b.

#### 4.5.2 Number of Comments

The model for the number of comments is significant as a whole ( $F\text{-value} = 7.473$ ,  $p\text{-value} < 0.01$ ) and explains the variance of the dependent variable reasonably well ( $R^2 = 30.0\%$ , adj.  $R^2 = 26.0\%$ ).

The vivid brand post characteristics are not significantly related to the number of comments, so we cannot support hypothesis 1 with regard to the number of comments. The low-level interactive brand post characteristic (i.e., ‘link website’) is marginally significant and negatively related to the number of comments ( $\beta_{\text{link}} = -0.640$ ,  $p\text{-value} < 0.10$ ), contrary to hypothesis 2. The other low and medium levels of interactive brand post characteristics are not significantly related to the number of comments. But the high-level interactive brand post characteristic (i.e., ‘question’) is significantly and positively related to the number of comments ( $\beta_{\text{question}} = 0.968$ ,  $p\text{-value} < 0.01$ ), in support of hypothesis 2.

Whether a brand post is informative or entertaining has no influence on the number of comments. Hence, we cannot support hypotheses 3 and 4 with regard to the number of comments. The top position of a brand post is significantly and positively related to the number of comments

( $\beta_d = 0.063$ , p-value < 0.05), in support of hypothesis 5. Compared to neutral comments, the shares of both positive and negative comments are positively related to the number of comments ( $\beta_p = 2.671$ ;  $\beta_n = 3.082$ , p-values < 0.01), in support of hypothesis 6a and hypothesis 6c, respectively.

**Table 4.5: Summary of results**

Hypotheses	Expected	Number of Likes	Number of Comments
$H_1$ : vividness	+	supported	not supported
$H_2$ : interactivity	+	partially supported	partially supported
$H_3$ : information	+	not supported	not supported
$H_4$ : entertainment	+	not supported	not supported
$H_5$ : position	+	supported	supported
$H_{6a}$ : share of positive comments	+	supported	supported
$H_{6b}$ : share of negative comments	-	not supported	n.a.
$H_{6c}$ : share of negative comments	+	n.a.	supported

Note: n.a. = not applicable because no hypothesis was formulated.

## 4.6 MANAGERIAL IMPLICATIONS

Our research can help the managers of brands' fan pages with deciding which characteristics or content to place at brand posts. We show that not all determinants responsible for enhancing the number of likes also have an effect on enhancing the number of comments, and vice versa.

### 4.6.1 Enhancing the Number of Likes

When managers aim to enhance the number of likes, they can place a highly vivid or a medium interactive brand post characteristic such as a video or a contest. Posting a question (highly interactive) has a negative effect on the number of likes. A question demands an answer, which cannot be given by liking the brand post. Also, entertainment has a negative effect on the number of likes. This might be explained by the fact that entertaining brand posts contain content that is unrelated to the brand, while brand fans are interested in the brand. Furthermore, the longer a brand post remains at the top of the brand fan page, the higher the probability that brand fans will be exposed to it, which indeed has a positive effect on the number of likes. However, we do want to mention that the average number of days that the brand post remained on top of the brand fan page was two days. Keeping a brand post at the top of the page for very long also means that the brand posts do not contain recent information, which might have negative effects on likes (and comments). Additionally, compared to neutral comments, the share of positive comments from

brand fans is positively related to the number of likes for the brand post in question. Our results further indicate that brand fans are influenced by each other: the share of positive comments to a brand post enhances the attractiveness of the brand post. This rise in general interest for a brand post may in turn lead to an increasing number of likes.

#### **4.6.2 Enhancing the Number of Comments**

Managers who specifically want to enhance the number of comments should utilize a highly interactive brand post characteristic, such as a question. This result is intuitive because answering a question is only possible by placing a comment. The other vivid and interactive brand post characteristics, as well as the content of the brand post, do not have an effect on the number of comments. Placing the low-level interactive brand post characteristic, a website link, even has a negative effect on the number of comments. An explanation might be that brand fans who click on the link navigate away from the brand fan page and do not return to comment on the brand post. Meanwhile, it is beneficial for the number of comments to keep the brand post longer at the top of the brand fan page. But, again, keeping the brand post on top for a long period might have negative effects on the number of comments. Finally, compared to neutral comments, the shares of both positive and negative comments are positively related to the number of comments. Most likely, positive and negative comments enhance a general interest in the brand post, which leads to more commenting. Previous research does show that people differentiate their opinions in online discussions, with the variance in posted comments seeming to generate subsequent comments (e.g., Moe & Trusov, 2011; Schlosser, 2005). For managers, this is an important finding because it indicates that negative comments are not necessarily bad. Brand fans may feel like part of the community when they engage in a lively discussion featuring both positive and negative arguments.

### **4.7 LIMITATIONS AND FURTHER RESEARCH**

This research is subject to some limitations that may provide fruitful avenues for future research. For one, we only included a limited number of brand posts per brand. The amount of data is sufficient for empirically investigating the factors that drive brand post popularity; however, brands did not often post a quiz or event at a brand post and therefore we excluded these two

explanatory variables from the analyses. Another aspect that we did not include in our research is the use of (financial) incentives by companies. Firms could, for example, place a brand post containing a discount that can only be obtained when liking the brand post. We capture this effect partly by the variable ‘contest.’ We expect that incentives are used across brands in a similar frequency, so excluding that factor would not distort our estimates, but future studies may want to use a more comprehensive dataset. Additionally, we gathered data from the brand fan pages of one social networking site, Facebook. It would be interesting to replicate this research for other social networking sites, to see whether the results still hold. Specifically, investigating social networking sites from other countries may shed light on possible cultural differences that influence which activities on brand fan pages are and are not successful.

Furthermore, we ignored a self-selection issue that would be interesting for future research to investigate: Namely, we only examined consumers who are already fans of the brand on the Facebook page. In addition, those who visit the fan page do not necessarily like or comment on the brand post. Future research might gather visitor numbers and estimate a model that is conditional upon visiting the page. Another related and interesting topic for further research is to examine the determinants of *brand* popularity. Brand popularity reflects the number of brand fans, which gives an indication of the brand’s recognition on social media. Industry market research shows that consumers become brand fans because they have had a positive experience with the product (Van Belleghem et al., 2011). It would be interesting to know, and could be used as a possible selection equation, how companies can influence consumers to become brand fans.

Social contagion (i.e., brand fans influencing each other) might play a role when brand fans choose to like or comment on a brand post. We show that the shares of positive and negative comments, compared to neutral comments, are positively related to brand post popularity. Other research has shown that WOM communication among social networking sites’ users significantly influences new sign-ups (Trusov et al., 2009). Similarly, social contagion might play a role in brand fans’ decisions to ‘adopt’ (i.e., like or comment on) a brand post. For example, Aral and Walker (2011) showed that a social network’s automated notifications influence the adoption of an application. The notifications that appear when a brand fan likes or comments on a brand post might influence the brand fan’s friends to become a brand fan or like and/or comment on a brand post. An investigation into how the popularity of brands and brand posts is affected by social contagion could prove interesting and valuable.

On a final note, we did not include dynamic aspects in our study. For example, the timing of the likes and comments to the brand post might be investigated. In other words, when do people react: mostly in the few hours after the brand post is created or does interest persist over a few days? This kind of information can be used to compute the number of days needed to effectively increase the popularity of a brand post. Moreover, the ‘adoption’ curve of likes and comments can be modeled if one knows how long it takes before a certain number of people like or comment on a brand post.

In conclusion, this research responds to the call for research into social media, and more specifically, how social media can be used to manage customer relationships, marketing communications, and branding. Future research may enrich our initial findings about the factors that determine the popularity of brand posts.



## **Chapter 5**

# **Effects of Social Media Marketing, eWOM and Advertising on Consumer Mindset Metrics and Acquisition**

This chapter is based on De Vries, L., S. Gensler, and P.S.H. Leeflang (2014), *working paper, University of Münster, University of Groningen*.

## 5. EFFECTS OF SOCIAL MEDIA MARKETING, EWOM AND ADVERTISING ON CONSUMER MINDSET METRICS AND ACQUISITION

### 5.1 INTRODUCTION

*“You’re Spending Your Money in All the Wrong Places” - David C. Edelman (Principal McKinsey & Company), 2010*

Social media threaten firms’ established business models (Hennig-Thurau et al., 2010), as consumers’ increasing move to social media possibly mitigates the effectiveness of traditional media, such as TV advertising (Maddox, 2008). Instead, consumers use firm-owned social media platforms (i.e., social media marketing), such as the firm’s fan page on Facebook, to interact with the firm and other consumers by liking, sharing, and commenting on content posted by the firm (see Chapter 4; de Vries et al., 2012). Remember from Chapter 2 that social media marketing can encompass firms’ various marketing actions on social media, but in this chapter we solely focus on the firm’s fan page on Facebook (see also Appendix B), which we refer to as social media marketing. Social media marketing is proliferating. For example, Coca Cola has over 77 million brand fans on Facebook and this number is increasing each day (Fanpagelist.com, 2013).

Moreover, consumers interact with each other and talk about brands online via blogs, forums, and review sites (i.e., outside the firm’s fan page on Facebook). This is typically called online word-of-mouth (eWOM). Because eWOM is initiated by consumers, firms have no direct control over what is said about the firm/brand. To illustrate the importance of eWOM, consider this: On average, 66% of U.S. customers read online reviews. Of these customers who read online reviews, 88% are influenced by them before purchase (Gesenhus, 2013). In addition, about 20% of all Tweets contain a brand mention (Jansen et al., 2009).

Because social media and eWOM supply additional information about brands and/or products, consumers may regard them as new elements of a firm’s communication mix (Chen & Xie, 2008; Mangold & Faulds, 2009). Aware of the increasing relevance of social media, firms are reallocating their budgets by spending more on social and less on traditional media, such as TV advertising (eMarketer, 2013). However, firms have found it difficult to determine the effects of social media, relative to and in conjunction with eWOM and advertising, on firm outcomes

(Nielsen, 2013). This lack of accountability has heightened firms' hesitation for investing even more into social media (eMarketer, 2013).

Only a few preliminary studies have found positive effects of social media marketing on firm outcomes (e.g., Kumar et al., 2013; Rishika et al., 2013). But, previous studies have investigated the effects of eWOM, mainly online reviews, on consumers' minds (Chen & Xie, 2008) as well as on firm outcomes, such as sales and stock prices (e.g., Chevalier & Mayzlin, 2006; Tirunillai & Tellis, 2012). Meta-analyses and extensive research have shown that advertising generally first affects consumers' minds before it affects their behavior (e.g., Sethuraman et al., 2011; Vakratsas & Ambler, 1999). Next to the fact that we know little about the effectiveness of social media marketing, we also do not know how social media marketing, eWOM, and advertising jointly affect outcome variables such as consumers' minds and firm performance. This is important to study since consumers are confronted with social media marketing, eWOM, and advertising—and all three are likely to affect their attitudes and preferences toward the brand, and subsequently their purchases.

In sum, this study investigates the effects of social media marketing, eWOM, and advertising on both consumer mindset metrics and acquisition. We consider consumer mindset metrics because of the general notion that consumers' minds must be affected before their behavior changes (Vakratsas & Ambler, 1999); therefore, such metrics can serve as leading indicators for financial performance (e.g., Srinivasan et al., 2010). We use customer acquisition as a firm performance metrics since acquiring customers is utmost important for firms, especially in the sector in which we conduct our research, the telecom sector.

We contribute to the literature in multiple ways. First, we examine the relative contributions of social media marketing, eWOM, and advertising with regard to consumer mindset metrics and acquisition. Second, we determine the short- and long-term effects of social media marketing and eWOM on consumer mindset metrics and acquisition<sup>16</sup>. Third, we investigate the interrelationships between social media marketing, eWOM, and advertising.

We obtained a unique dataset from a European telecom firm, which contained the following data streams: interactions with firm content on the firm's fan page on Facebook (social media marketing), eWOM, the firm's advertising expenditures, consumer mindset metrics, and customer

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<sup>16</sup> We do not focus on the direct effects of advertising on consumer mindset metrics and acquisition because these relations have been studied extensively. However, in section 5.5.1 we shortly discuss how the effects of advertising on mind-set metrics and acquisition compare to findings from previous studies.

acquisition over a time span of 2 years and 3 months. Results of the vector autoregressive model show that social media marketing, eWOM, and advertising do have value for the firm as they explain substantial amounts of consumer mindset metrics and acquisition. Moreover, they affect outcome variables in different ways. Social media marketing explains more of awareness than eWOM or advertising. For consideration, preference, and acquisition, advertising is most important, followed by eWOM and social media marketing. Furthermore, firms can influence the interactions on their fan page on Facebook and eWOM with their advertising. Results specifically show that social media marketing, eWOM, and advertising are both complements and substitutes, with all three information sources affecting consumer mindset metrics and acquisition in different ways. In contrast to Edelman (2010), who suggests that firms should focus less on advertising and more on social media or eWOM, we demonstrate that it is the combination of different media that affects consumers' minds and purchasing decisions. Hence, firms should carefully consider where to invest in order to reap the largest benefits.

The rest of this chapter is organized as follows: In the next section, we discuss the research background. In section 5.3, the data set from the European telecom company is described in detail. Section 5.4 covers the modeling approach, where the vector autoregressive model is identified and specified, and the analysis method is outlined. After that, we present the study's empirical findings, which provide important implications for academics as well as for practitioners. The chapter ends with a discussion of the study's limitations and some future research opportunities.

## 5.2 RESEARCH BACKGROUND

### 5.2.1 Literature on Social Media Marketing, eWOM, and Advertising

We summarize previous research on the effects of social media marketing and eWOM on consumer mindset metrics and firm performance in Table 5.1<sup>17</sup>.

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<sup>17</sup> We only include the most recent papers on eWOM. For a more extensive overview, we refer to Chapter 2.

**Table 5.1: Overview of studies on social media marketing, eWOM, and advertising**

	Social media marketing (SMM)	eWOM	SMM + eWOM	SMM + advertising	eWOM + advertising	SMM + eWOM + advertising
Consumers' minds	• Naylor et al., 2012	• Adomavicius et al., 2013 • Gupta & Harris, 2010 • Huang et al., 2012 • Khare et al., 2011 • Lee & Youn, 2009 • Purnawirawan et al., 2012	X	X	X	X
Firm performance	• Manchanda et al., 2012 (wp) • Rishika et al., 2013	• Ansari et al., 2011 • Archak et al., 2011 • Berger et al., 2010 • Chakravarty et al., 2010 • Chintagunta et al., 2010 • Cui et al., 2012 • Dhar & Chang, 2009 • Luo et al., 2013 • Moe & Trusov, 2011 • Sonnier et al., 2011 • Stephen & Galak, 2012 • Sun, 2012 • Tirunillai & Tellis, 2012 • Zhu & Zhang, 2010	• Goh et al., 2013 • Kumar et al., 2013	X	• Gopinath et al., 2014 • Onishi & Manchanda, 2012 • Trusov et al., 2009 • Villanueva et al., 2008	X
Consumers' minds and firm performance	• Dholakia & Durham, 2010	• Forman et al., 2008 • Li & Hitt, 2008 • Zhao et al., 2013	X	X	X	<b>THIS CHAPTER</b>

We do not discuss studies on advertising since this research stream is well established and provides several generalizations on the effectiveness of advertising (e.g., Sethuraman et al., 2011; Srinivasan et al., 2010, Vakratsas & Ambler, 1999)<sup>18</sup>. We do discuss studies that consider a combination of the different media types—so, for example, studies that simultaneously consider the effects of eWOM and advertising, or eWOM and social media marketing.

From Table 5.1, it is evident that research on the effects of social media marketing is scarce. Only a few studies examine the effects of social media marketing on consumers' minds. Naylor et al. (2012), for instance, showed that the identity of the fan base on Facebook fan pages influences target consumers' brand evaluations and purchase intentions. Dholakia and Durham (2010) demonstrated that customers are more emotionally attached to the brand, have higher NPS scores, and generate more positive word-of-mouth after becoming a member of the online brand community (note that this is not the same as social media, but as discussed in chapter 4, brand fan pages on social media can be regarded as a specific type of brand community). Substantial research is devoted to the link between eWOM (mainly online reviews) and consumers' mindset metrics, such as awareness, consideration, and preference (e.g., Adomavicius et al., 2013; Gupta & Harris, 2010; Purnawirawan et al., 2012). Experimental studies have shown that online reviews affect consumer attitudes and consideration (e.g., Gupta & Harris, 2010; Purnawirawan et al., 2012) and that online ratings serve as an anchor for forming product preferences (Adomavicius et al., 2013).

Next to that we know little about the effects of social media marketing on consumers' minds, we also have meager knowledge about the combined effects of social media marketing and eWOM, or social media marketing and advertising, on consumers' minds. For example, advertising could stimulate interactions on the firm's fan page, which could in turn affect brand attitudes. Or, a social media campaign can lead to eWOM, which subsequently could affect consumers' minds. Furthermore, we do not know the combined effects of social media, eWOM, and advertising on consumers' minds. Currently, consumers are confronted with all three different types of information, but we do not know which one affects them most. This is important for firms to know, however, as the shift to online, and the consequent proliferation of eWOM and social media, might actually decrease the effectiveness of advertising.

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<sup>18</sup> Although recently a meta-analysis on the effects of online reviews (eWOM) on sales is published (e.g., Floyd et al., 2014), indicating that research on eWOM is rich, we do discuss studies on eWOM since this research stream is still relatively new; the history of advertising research is much longer.

Additionally, there is fairly little research regarding the effects of social media marketing on firm outcomes. Only a few studies have investigated whether social media in the form of online brand communities or brand fan pages contribute to business success (see Table 5.1). Real-life online brand community experiments show that joining the community leads to business success as customers purchased more after becoming a member of the online brand community (e.g., Dholakia & Durham, 2010; Goh et al., 2013; Rishika et al., 2013). A substantial amount of research is devoted to the link between the volume, valence, and variance of eWOM (mainly online reviews) and firm outcomes, which include sales (see Table 5.1; e.g., Berger et al., 2010; Chintagunta et al., 2010; Moe & Trusov, 2011; Sun, 2012; Zhu & Zhang, 2010), new sign-ups for a social network (Trusov et al., 2009), and stock prices (e.g., Tirunillai & Tellis, 2012).

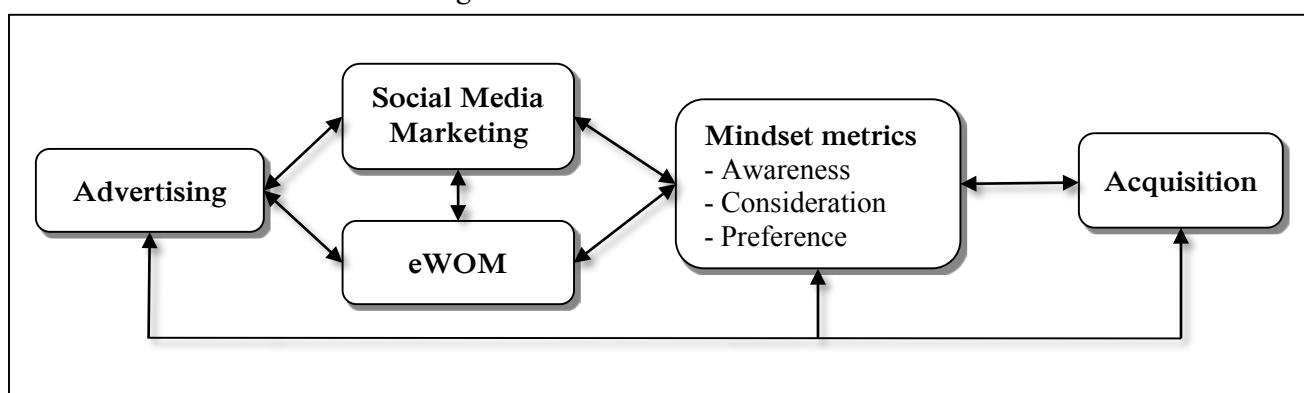
Surprisingly, we know little about the combined effects of different media types on firm performance. To date, there are only two academic studies that have investigated the effectiveness of both eWOM and social media marketing on firm performance (Goh et al., 2013; Kumar et al., 2013). Kumar et al. (2013) showed that the social media campaign of Hokey Pokey, an Indian premium ice cream store, has been successful at generating eWOM, which in turn has affected sales and net revenue positively. Meanwhile, Goh et al. (2013) examined content provided within an online retailer community. They found that posts and comments on the firm's fan page generated by users (eWOM) are more effective than posts and comments generated by the firm (social media marketing) for evoking purchases (Goh et al., 2013). These studies seem to indicate that social media marketing and eWOM enhance each other.

Moreover, there are no studies examining the relative effects of advertising and social media marketing on firm performance (see Table 5.1). There is only scant empirical research examining the relative effects of advertising and eWOM on firm performance (see Table 5.1). Some studies (e.g., Goh et al., 2013; Luo et al., 2013; Stephen & Galak, 2012; Trusov et al., 2009; Villanueva et al., 2008) have compared the effects of advertising and eWOM and conclude that eWOM is more effective than advertising, at generating both sales and acquisition. Only two studies have examined whether advertising affects eWOM, showing that advertising and eWOM work synergistically for enhancing sales (Gopinath et al., 2014; Onishi & Manchanda, 2012). Additionally, Gopinath et al. (2014) determined that advertising affects eWOM positively. However, there is no research that examines the simultaneous effects of social media marketing, eWOM, and advertising on firm performance.

Ultimately, we are left with many unanswered research questions, such as: Which type of media affects consumers the most when making a purchase? Do advertising, social media marketing, and eWOM affect each other? Can firms affect interactions on their fan page and eWOM by their advertising? Since consumers are nowadays confronted with social media marketing, online brand conversations, and the firm's advertising, it is likely that all these affect consumers. Failing to consider all different media types will likely lead to biases in the estimated effects. Moreover, studies have typically considered either the link between social media marketing/ eWOM and consumers' minds, or the link between social media marketing/ eWOM and firm outcomes. However, it is likely that social media marketing or eWOM first affects consumers' minds by generating higher awareness or preference, which may then spur a purchase decision. Although firm performance is the ultimate outcome measure for firms, it would be erroneous to neglect consumer mindset metrics and treat consumers' minds like a black box. When firms know which mindset metrics are affected by which media types, they can adjust their communication strategies accordingly.

We fill the research gaps by investigating the short- and long-term effects of social media marketing, eWOM, and advertising on both consumer mindset metrics and acquisition. Similar to Srinivasan et al. (2010) and Hanssens et al. (2014), we consider mindset metrics that reflect the mindset funnel: awareness, consideration and preference. We also take into account reciprocal relationships among all variables of interest, thereby explicitly examining how social media marketing, eWOM and advertising affect each other. The research framework used for this study is shown in Figure 5.1.

**Figure 5.1: Research framework**



### 5.2.2 Relations between Social Media Marketing, eWOM, and Awareness

It is expected that both social media marketing and eWOM might lead to higher *awareness*. An increase in either eWOM (i.e., blogs or reviews) or interactions with firm content on the firm's fan page on social media can raise the likelihood of consumers being confronted with the brand and thereby gaining higher brand awareness, assuming people visit the respective sites (Chen & Xie, 2008; Duan et al., 2008). These effects might be larger for social media than for eWOM due to the social network and its social contagion effects. If a brand fan interacts with a brand post it is broadcasted in real time to some or all friends in the fan's network (Hennig-Thurau et al., 2014). Thus, non-fans may also see brand posts if their friends interact with said brand posts via the status updates. In other words, consumers do not necessarily have to visit the firm's fan page to become aware of the consumer-firm interactions taking place. Additionally, a fan page on social media generally has a higher degree of social interactivity than blogs or forums (Stephen & Galak, 2012). This social interactivity in itself may lead to higher awareness for the firm. Since these social contagion or interactivity effects are often less prevalent or non-existent for eWOM, and the receivers of eWOM are often strangers instead of friends, its impact on awareness might be smaller than the effects of social media marketing.

### 5.2.3 Relations between Social Media Marketing, eWOM, and Consideration

Online consumer communications have a positive influence on *consideration* (Gupta & Harris, 2010). This effect has been found for online recommendations (i.e., eWOM), since they are used as additional product information or as a heuristic cue (Gupta & Harris, 2010). The sentiment of eWOM plays a role as well: Research shows that negative (positive) messages lead to lower (higher) attitudes toward the brand (Huang et al., 2012; Purnawirawan et al., 2012), which can in turn negatively (positively) affect the decision to purchase the product. In short, we expect that eWOM will affect consideration.

The effects of social media marketing on consideration are likely to be smaller than the effects of eWOM. Fan pages on social media are not typically outlets for firms' advertising or consumers' reviews. The firm's fan page is a good medium for obtaining a general feeling of the brand's status, but less so for information about product offerings. However, if people are confronted with the firm's posts on the fan page—for example, if they see their friends interacting with the brand—then the brand may enter into their consideration set.

### 5.2.4 Relations between Social Media Marketing, eWOM, and Preference

Previous research shows that online consumer interactions (eWOM) have a positive effect on the judgment of a product (Lee & Youn, 2009), which can lead to higher *preference*. The sentiment of the interactions may also play a role (Lee & Youn, 2009). It is likely that relatively more negative (positive) messages will weaken (bolster) attitudes toward and preferences for the brand. We know that consumers' preferences can be built upon and anchored by online ratings (Adomavicius et al., 2013), so we expect that eWOM affects preference.

The messages on the firm's fan page on social media are likely to be positive since firms will not communicate negative messages at their fan page. This might have the negative side effect of people perceiving these messages as less trustworthy than eWOM (Gilly et al., 1998). Because the information provided by firms is often one-sided, which is generally perceived as less trustworthy and helpful as two-sided information (Schlosser, 2011; Voerman, 2014), consumers might find it difficult to base their preferences on social media marketing.

We anticipate some reciprocity between interactions on the firm's fan page on social media, eWOM, and consumer mindset metrics (Godes & Mayzlin, 2004). Previous studies have found that satisfaction (Anderson, 1998), commitment, and trust (de Matos & Rossi, 2008) significantly influence consumer interactions. People talk more, both online and off, about brands or products when they are, for example, dissatisfied (Anderson, 1998) or when they have extremely positive or negative opinions (Dellarocas & Narayan, 2006; Moe & Schweidel, 2012).

### 5.2.5 Relations between Social Media Marketing, eWOM, and Acquisition

As stated before, there is scarce research concerning the effects of social media marketing on firm outcomes. This has prompted us to consider those studies that have examined online brand communities, although they are not exactly the same as social media marketing. However, the firm's fan page on social media resembles an online brand community (e.g., see Chapter 4). A few studies show that consumers purchase more after becoming a member of the firm's online brand community (Dholakia & Durham, 2010; Manchanda et al., 2012). These effects are caused by the fact that people start to visit the firm's store more after becoming a member; in other words, they seek greater interaction with the firm (Manchanda et al., 2012; Rishika et al., 2013). As highlighted earlier, Kumar et al. (2013) found that Hokey Pokey's social media campaign had positive effects on sales. We expect that social media marketing can lead to higher customer acquisition:

Specifically, when consumers interact with firms on their fan page, their friends may become indirectly acquainted with the firm and subsequently become a customer.

Previous research on the effects of eWOM shows that the volume of online reviews and blogs (e.g., Liu, 2006; Moe & Trusov, 2011; Onishi & Manchanda, 2012; Zhu & Zhang, 2010), the sentiment or valence of online reviews (Berger et al., 2010; Chevalier & Mayzlin, 2006; Chintagunta et al., 2010; Sonnier et al., 2011), and the variance of online reviews (Clemons et al., 2006; Sun, 2012) are important factors that influence sales or revenues. It should be noted that most of these studies (Trusov et al., 2009 being an exception) do not consider customer acquisition as an outcome variable. In contrast, we expect that the volume of eWOM affects customer acquisition positively. Additionally, we also believe that the sentiment is important, whereby it is likely that negative (positive) eWOM affects acquisition negatively (positively) (e.g., Zhu & Zhang, 2010).

The relationships between interactions at the firm's fan page on social media, eWOM and customer acquisition are likely to be reciprocal. Consumers talk about brands or products after purchase by recommending the product to others or complaining when the product does not meet expectations (e.g., Dellarocas & Narayan, 2006), thus increasing eWOM. Likewise, customers might become a member of the firm's fan page after purchasing a product, subsequently engaging with the firm and thereby increasing interactions on the firm's fan page.

### **5.2.6 Interrelationships among Social Media Marketing, eWOM, and Advertising**

Advertising can affect interactions on the firm's fan page and eWOM. It is well established that advertising inspires people to talk to each other about the campaign (Katz & Lazarsfeld, 1955). More recently, scholars have demonstrated that advertising can stimulate online chatter (Gopinath et al., 2014; Graham & Havlena, 2007; Keller & Fay, 2009; Onishi & Manchanda, 2012). A firm's advertising increases awareness for the firm, spurring people to talk about the brand online or to visit the firm's fan page.

Social media marketing and eWOM may also influence each other. For example, if a person likes or comments on content at the firm's fan page, (s)he can subsequently share this action with others on a personal blog. In this case, a higher number of interactions at the firm's fan page can lead to more eWOM. Kumar et al. (2013) actually evidenced this effect for a firm's social media campaign, thus indicating that social media marketing and eWOM work complementary.

However, social media marketing and eWOM can also be substitutes: Someone who is interacting at the firm's fan page might not feel the need to spread their experience to others via online portals (e.g., a blog). All in all, we expect that social media marketing, eWOM, and advertising affect each other. That said, it is difficult to make precise predictions about the direction of effects.

### 5.3 EMPIRICAL APPLICATION

We used data from a European telecom company to estimate the relations shown in the Research Framework (see Figure 5.1). The time span of the data ranged from week 30, 2011 to week 44, 2013, and was reported on a weekly basis.

The telecom sector is an interesting industry because consumers have high service level expectations. If these expectations are not met, consumers start to complain instantly—an activity made easy and visible thanks to online tools. As illustrations, in week 14 of 2012, one of the competing telecom firms was hit by a severe fire, which caused many people to be disconnected. In week 17 of 2012, this same competitor introduced new subscription terms (which were not perceived as better by consumers). Both events caused enormous increases in eWOM because consumers discussed the events online. To account for such events in the sector, we searched the news archives for important news items concerning the telecom sector as a whole, certain telecom providers, or new technology introductions (such as a new version of the iPhone). Such events could not only affect the volume and valence of online conversations, but also consumers' minds and eventually even acquisition. We thus control for such events.

Table 5.2 presents the operationalization of the variables. In the following sections we briefly discuss each variable type.

*Social media marketing.* We measured the volume of interactions with the firm's content on the focal firm's fan page on Facebook. This variable reflects the number of impressions resulting from brand fans' interactions with the firm's fan page or posts (i.e., liking the firm's fan page, as well as liking, commenting on or sharing one of the firm's fan page posts). As such, this variable captures social contagion effects. Additionally, we do have information about the sentiment of the messages on the firm's fan page. Most interactions with the firm's content are positive or neutral, with less than 0.05% of the fans providing negative messages on the firm's fan page. Because of this specificity in the data, we would not find any effects of sentiment on the

dependent variables and we therefore did not take sentiment of social media marketing into account. We do not have data on competitors' social media marketing.

**Table 5.2: Operationalization of variables**

Media types	Competition	Variables used in analyses
<b>Social media marketing</b>		
Interactions with firm content on the focal firm's Facebook page	no	Volume
<b>eWOM</b>		
Consumer messages about the firm online (mainly Twitter and forums)	yes	SOV Volume Valence (% pos and % neg)
<b>Advertising</b>		
Gross media expenditures on internet, print, OOH, radio, TV.	yes	SOV adstock per media channel
<b>Mindset metrics</b>		
Unaided awareness Consideration Preference	no	% of respondents that could recall, would consider and prefer the focal brand
<b>Acquisition</b>		
Number of new customers	no	Volume

**eWOM.** Data on eWOM were obtained from the most important public online sources, which are largely Twitter and forums (e.g., forums on the largest telecom providers, forums of Dutch opinion programs, consumer review sites; refer to Appendix C for examples). Data was available for the focal firm and its main competitors, so we used a relative or share-of-voice (SOV) measure for the volume of eWOM to also consider eWOM about competition. We computed this SOV measure by dividing the volume of messages about the focal firm by the volume of the total messages. For the valence of eWOM, we used the percentage of positive and negative messages, thereby treating neutral messages as the baseline.

**Advertising**<sup>19</sup>. Weekly gross media expenditures on print, out-of-home (OOH, e.g., billboards), radio, television, and Internet (e.g., banners) for the focal company as well as its competitors were obtained from Nielsen. There was no advertising for many weeks, resulting in zero's in the data. These zero's do not reflect reality because consumers can remember advertising from previous weeks. Hence, we compute adstock variables to avoid the zero's in the data and to

<sup>19</sup> We do not have data on prices and promotions, since that is unfeasible to collect for the telecom industry. Hence, our advertising variables also partly capture the effects of prices and promotions, since prices and promotions can also appear in ads.

capture these memory effects (e.g., Fry et al., 1999). More specifically, the following formula is used for the computation of adstock:

$$\text{adstock}_t = \text{ad\_exp}_t + \lambda \text{ad\_exp}_{t-1} + \dots + \lambda^{i-1} \text{ad\_exp}_{t-i}, \quad (5.1)$$

Where  $\text{ad\_exp}$  are the gross media expenditures,  $t$  is time in weeks, and  $i$  reflects the number of previous advertising expenditures taken into account. The variable  $\lambda$ , the decay parameter, is obtained by using the half-life  $\eta$  of advertising (e.g., Fry et al., 1999). By grid-searching we found that using an advertising half-life of 3 weeks yields the best results. More specifically, we calculated adstocks for different values of  $\eta$  and re-estimated the VARX model (see next section) with these different adstock values. The model with the advertising half-life of 3 provided the best fit statistics. Given that  $\eta = 3 = \ln(0.5) / \ln(\lambda)$ ,  $\lambda$  is 0.794. We computed adstock variables that can be reflected as four-week weighted moving averages ( $i = 3$ ). Subsequently, we computed SOV variables for all gross media expenditures by dividing the adstock of the focal firm by the total adstock, so that SOV ranges from 0 (focal firm does not advertise) to 1 (only the focal company advertises). SOV is 0.5 if the adstock of the focal firm and competitors is zero in a certain week, since then the advertising expenditures of the focal firm equals that of the competition.

*Mindset metrics.* Data on unaided awareness, consideration and preference for the focal firm were gathered by a third party using a weekly online panel. Unaided awareness was measured by asking respondents to list all the telecom providers they know. Consideration was measured by asking respondents to list the telecom providers they would consider if they had to choose one. Preference was measured by asking respondents to name the provider they would prefer if they had to choose a new telecom provider. We considered the percentage of respondents who could recall, would consider and would prefer the focal brand in our analyses. As a consequence, all mindset metrics range from 0 to 1.

*Acquisition.* Customer acquisition is measured by the number of new customers who subscribe to the telecom provider in week  $t$ . We take customer acquisition as a firm performance measure since acquiring new customers is of utmost importance in the telecom sector. Next to that, it is a measure that is relatively less used in studies as an outcome variable.

Table 5.3 provides correlations among the discussed variables.

**Table 5.3 Correlations among advertising, eWOM, social media, mind-set metrics and acquisition**

												acquisition
												preference
												consideration
												awareness
<b>SOV internet</b>	0.024	-0.082	0.246**	-0.093	0.091	-0.405**	0.134	0.155	-0.098	-0.037	0.028	0.238**
<b>SOV OOH</b>		0.285**	0.083	0.242**	0.188*	-0.186*	0.207*	-0.228*	0.046	0.151	0.009	0.176
<b>SOV print</b>			0.086	0.081	0.031	0.240**	-0.368**	-0.278**	0.158	0.069	-0.035	0.199**
<b>SOV radio</b>				0.012	-0.019	-0.136	0.088	0.309**	-0.077	0.101	-0.078	-0.031
<b>SOV TV</b>					-0.035	-0.098	-0.010	-0.178	0.284**	0.241**	0.129	0.332**
<b>eWOM pos</b>						0.017	-0.069	-0.207*	0.064	0.022	0.049	0.121
<b>eWOM neg</b>							-0.417**	-0.133	0.104**	0.080	0.077*	-0.142*
<b>eWOM SOV volume</b>								0.101	-0.218	-0.062	-0.200	-0.171
<b>social media</b>									0.221*	0.003	0.035	-0.035
<b>awareness</b>										0.259**	0.227*	0.198*
<b>consideration</b>											0.424**	0.213*
<b>preference</b>												0.284**

\*\*  $p$ -value < 0.01; \*  $p$ -value < 0.05

## 5.4 RESEARCH METHODOLOGY

### 5.4.1 Method

To capture the reciprocal relations between social media marketing, eWOM, advertising, mindset metrics, and acquisition, we used a vector autoregressive model with exogenous variables (VARX). Our exogenous variables include the dummy variable that captures ‘buzz events’ and the constant term. We utilized a VARX model in order to: 1) capture complex feedback loops through the system of equations, 2a) determine the short- and long-term effects of social media marketing and eWOM on consumer mindset metrics and acquisition<sup>20</sup>, 2b) determine the short- and long-term effects of social media marketing, eWOM, and advertising on each other, 3) capture the

<sup>20</sup> As mentioned in the ‘Introduction,’ we do not focus on the direct effects of advertising on consumer mindset metrics and acquisition, but merely on the interrelationships among social media marketing, eWOM, and advertising. However, we briefly mention whether the effects of advertising on mindset metrics and acquisition correspond to earlier findings in literature.

dynamic and carry-over effects over time through impulse response functions, 4) decompose the relative contributions of social media marketing, eWOM, and advertising on consumer mindset metrics and acquisition.

First, we tested the full dynamic system (see Figure 5.1) for endogeneity. We not only expected that the different types of media would lead to changes in mindset metrics and acquisition, but also that all relationships would be reciprocal. The Granger causality tests (Hamilton, 1994, p. 302-309) indicate that the different types of variables (i.e., social media marketing, eWOM, advertising, mindset metrics, and acquisition) are Granger causing each other. Hence, the Granger causality tests seem to confirm our discussions in sections 5.2.2 – 5.2.6 and the full dynamic system seems to represent the data well.

**Table 5.4: Unit root test results**

ADF + intercept	
<b>eWOM</b>	
Positive percentage	-7.939***
Negative percentage	-3.694***
SOV volume	-1.901
ΔSOV volume	-12.138***
<b>Social media marketing</b>	
Volume	-7.502***
<b>Advertising expenditures</b>	
SOV print	-3.709***
SOV radio	-2.764*
SOV TV	-4.848***
SOV OOH	-4.763***
SOV Internet	-3.691***
<b>Mindset metrics</b>	
Unaided awareness	-9.819***
Consideration	-10.465***
Preference	-4.225***
<b>Acquisition</b>	
Acquisition	-2.897**

\*\*\* significant at 1% level, \*\* significant at 5% level, \* significant at 10% level

Second, we tested whether social media marketing and eWOM have potential persistent effects on consumer mindset metrics and acquisition (Trusov et al., 2009). Persistent effects can occur in the case of nonstationary (i.e., evolving mean over time) time series, whereas temporary effects generally occur when the time series are stationary (i.e., constant mean over time). We utilized the augmented Dickey Fuller (ADF) test in order to assess the stationarity of the time

series. The ADF test is the most commonly used test and tests the null hypothesis of a unit root (Dickey & Fuller, 1979; Hamilton, 1994, p. 516). The results of the unit root tests are reported in Table 5.4. The test indicates that all the time series are stationary, except for eWOM SOV volume. But, after first differencing ( $\Delta$ ) eWOM SOV volume, the time series is stationary.

#### 5.4.2 VARX Model Specification

We specify the full dynamic system of our VARX model in equation 5.2. All variables are explained by their own past values and the past values of the other endogenous variables. More specifically, the vector of endogenous variables—i.e., adstock (SOV variables of TV, Print, Radio, OOH, and Internet), social media marketing (social vol), eWOM volume and sentiment (eWOM SOV volume, eWOM pos, eWOM neg), mindset metrics (awareness (A), consideration (Con), and preference (Pref)), and acquisition (Acq)—is explained by its own past, and can account for the dynamic relations among variables. We furthermore included constant terms for all endogenous variables (C) and controlled for ‘buzz events’ (e.g., a new iPhone introduction can lead to much online buzz, which possibly also influences mindset metrics and acquisition) with a dummy variable (X). This dummy variable takes the value of one if there is an event and zero otherwise. Based on the stationarity test results the VAR model is estimated in levels, except for eWOM SOV volume, which is added in first differences (indicated by  $\Delta$ ).

$$\begin{bmatrix} \text{SOV TV}_t \\ \text{SOV Print}_t \\ \text{SOV Radio}_t \\ \text{SOV OOH}_t \\ \text{SOV Internet}_t \\ \text{social vol}_t \\ \Delta\text{eWOM SOV vol}_t \\ \text{eWOM pos}_t \\ \text{eWOM neg}_t \\ A_t \\ \text{Con}_t \\ \text{Pref}_t \\ \text{Acq}_t \end{bmatrix} = \begin{bmatrix} C_{\text{SOV TV}} \\ C_{\text{SOV Print}} \\ C_{\text{SOV Radio}} \\ C_{\text{SOV OOH}} \\ C_{\text{SOV Internet}} \\ C_{\text{social vol}} \\ C_{\Delta\text{eWOM SOV vol}} \\ C_{\text{eWOM pos}} \\ C_{\text{eWOM neg}} \\ C_A \\ C_{\text{Con}} \\ C_{\text{Pref}} \\ C_{\text{Acq}} \end{bmatrix} + \theta_{\text{SOV TV}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \theta_{\text{SOV Print}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \theta_{\text{SOV Radio}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \theta_{\text{SOV OOH}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \theta_{\text{SOV Internet}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \theta_{\text{social vol}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \theta_{\Delta\text{eWOM SOV vol}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \theta_{\text{eWOM pos}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \theta_{\text{eWOM neg}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \Phi_{1,1}^j \dots \Phi_{1,13}^j \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \Phi_{13,1}^j \dots \Phi_{13,13}^j \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \sum_{j=1}^J \left[ \begin{bmatrix} \Phi_{1,1}^j & \dots & \Phi_{1,13}^j \\ \vdots & \ddots & \vdots \\ \Phi_{13,1}^j & \dots & \Phi_{13,13}^j \end{bmatrix} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} \right] + [X] + \varepsilon_{\text{SOV TV}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \varepsilon_{\text{SOV Print}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \varepsilon_{\text{SOV Radio}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \varepsilon_{\text{SOV OOH}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \varepsilon_{\text{SOV Internet}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \varepsilon_{\text{social vol}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \varepsilon_{\Delta\text{eWOM SOV vol}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \varepsilon_{\text{eWOM pos}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \varepsilon_{\text{eWOM neg}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \varepsilon_A \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \varepsilon_{\text{Con}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \varepsilon_{\text{Pref}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} + \varepsilon_{\text{Acq}} \begin{bmatrix} \text{SOV TV}_{t-j} \\ \text{SOV Print}_{t-j} \\ \text{SOV Radio}_{t-j} \\ \text{SOV OOH}_{t-j} \\ \text{SOV Internet}_{t-j} \\ \text{social vol}_{t-j} \\ \Delta\text{eWOM SOV vol}_{t-j} \\ \text{eWOM pos}_{t-j} \\ \text{eWOM neg}_{t-j} \\ A_{t-j} \\ \text{Con}_{t-j} \\ \text{Pref}_{t-j} \\ \text{Acq}_{t-j} \end{bmatrix} \quad (5.2)$$

In (5.2),  $t$  reflects the time periods (weekly) and  $j$  stands for the number of lags to be included in the model, which are determined on different information criteria (Lütkepohl, 1991, p. 136-153)<sup>21</sup>.

<sup>21</sup> It would also be possible to have different numbers of lags per equation, although it is common to have the same lag length per equation to preserve the symmetry of the system such that the system can be efficiently estimated by OLS (e.g., Enders, 2004, p. 281). For example, it could be that the effects of social media marketing and eWOM need

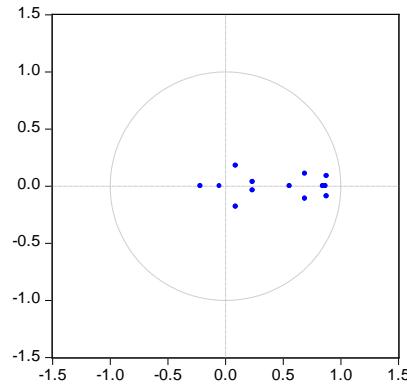
Finally,  $\varepsilon_t$  are white-noise error terms following a normal distribution  $N(0, \Sigma)$ . The vector  $\theta$  contains the parameters for the exogenous variable  $X$  (buzz events). The parameters  $\Phi_{ii}^j$  for the lagged endogenous variables reflect the direct (diagonal elements) and indirect (off-diagonal elements) effects among advertising, social media marketing, eWOM, mindset metrics, and acquisition<sup>22</sup>.

## 5.5 EMPIRICAL ANALYSES

Several information criteria (i.e., final prediction error, Schwarz information criterion, and Hannan-Quinn information criterion) indicate that the number of endogenous lags of the VARX model is one.

The estimated model is a stationary VARX model, as the autoregressive parameters are smaller than one (i.e.,  $\Phi < 1$ ; e.g., Hamilton, 1994, p. 259). In Figure 5.2 is visualized that all the roots are inside the unit root circle.

**Figure 5.2: Plot of autoregressive parameters estimated VARX model**




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less time to wear in than the effects of advertising. We do partly capture these effects already by computing adstock variables for advertising. Therefore, we keep the number of lags per equation the same.

<sup>22</sup> We could set some of the parameters  $\Phi$  at zero to, for example, make it impossible that consideration and preference affect awareness (i.e., estimate a structural VAR, SVAR). However, we do not want to restrict the model beforehand as there are several limitations to an SVAR model. First of all, putting restrictions on the parameters requires a good background theory. Considering the novelty of this research, this is already a potential first problem. Then, restricting beforehand is not preferred; first estimating the full model and then testing whether restrictions would be correct is already better (Hamilton, 1994, p. 335). So, when the model is specified well, it should also become apparent from the results that consideration and preference only have a minor effect on awareness, for example. Moreover, an SVAR cannot be consistently estimated by OLS, which is done with a VAR(X). Also, the identifying assumptions are hard to come by and the exclusion restrictions are generally difficult to defend (Hamilton, 1994, p. 335). Lastly, because of the restrictions in an SVAR it is difficult to calculate the IRFs and subsequently interpret the shocks in the system since the effects found cannot solely be attributed to a shock in one single variable (Hamilton, 1994, p. 335). Because of our interest in the IRFs and the other mentioned reasons, we chose to use a VARX model and not an SVAR model.

### 5.5.1 Interpretation of Results

Forecast error variance decomposition (FEVD) and generalized impulse response functions (GIRF) were used to interpret the results. FEVD was used to decompose the effects of different variables of interest (e.g., social media marketing) on consumer mindset metrics and acquisition (Pauwels, 2004). GIRF was used to examine the responses of outcome variables (e.g., mindset metrics and acquisition) to shocks in the variables of interest (e.g., social media marketing). GIRFs were furthermore used because they are not sensitive to the causal ordering of the variables in the system. The standard errors, which reflect the uncertainty of the impulses, were obtained by using Monte Carlo simulations with 250 runs (e.g., Srinivasan et al., 2010). Based on the GIRFs, we calculated the immediate (same period), 2 weeks, and > 2 weeks elasticities following Trusov et al.'s (2009) method. If the responses to shocks were not significant anymore after 2 weeks, we do not calculate the >2 weeks elasticity since the effects are not apparent after 2 weeks<sup>23</sup>.

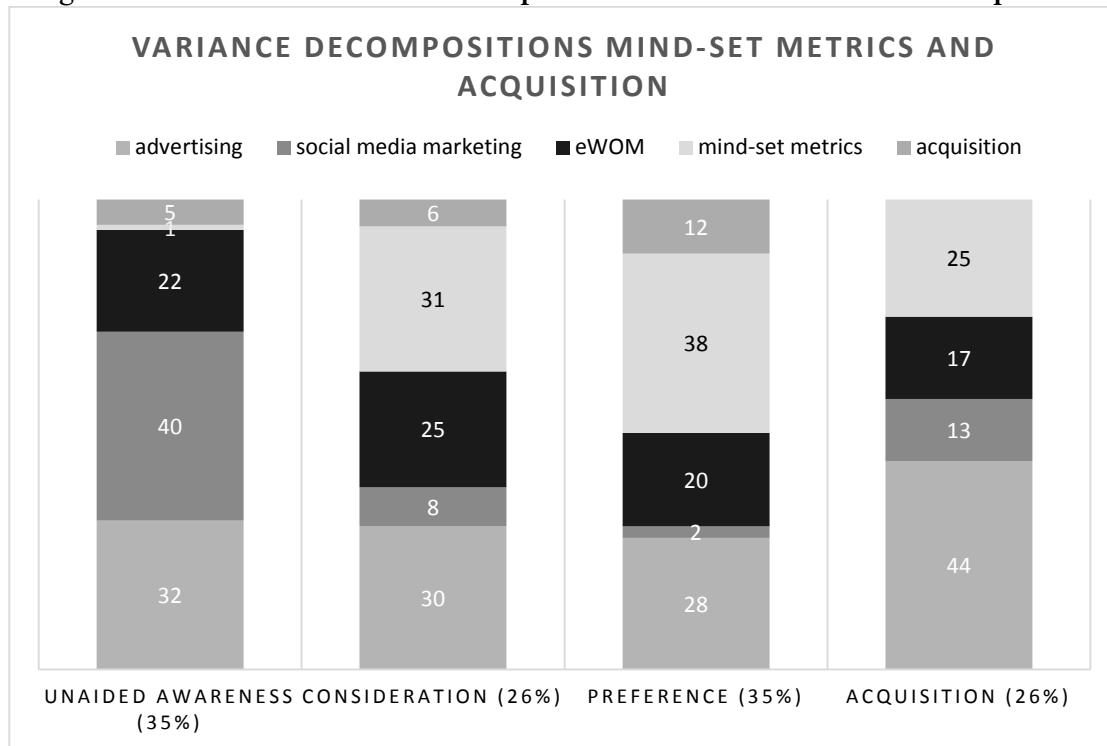
#### *Variance decompositions of consumer mindset metrics and acquisition*

The mindset metrics and acquisition are largely explained by their own past (i.e., their lagged value). Variables other than the past explain 35% of awareness, 26% of consideration, 35% of preference, and 26% of acquisition. Of these 26% of acquisition is about 6% explained by the mind-set metrics, which corresponds to the 8% Srinivasan et al. (2010) found. We rescaled the part not explained by the past (i.e., the remaining variance) to 100% to make the relative effects of the other variables more apparent, since our interest is not in the part that is explained by the own past (see Figure 5.3).

As expected, *awareness* is substantially affected by social media marketing, which explains 40% of the remaining variance. Moreover, adstock affects awareness considerably, explaining 32% of the remaining variance. eWOM has the overall smallest impact; it explains 22% of the remaining variance of awareness. We find that the other mindset metrics, preference and consideration, explain about 1% of the remaining variance, which aligns with expectations (see footnote 22). Meanwhile, acquisition explains about 5% of awareness (see Figure 5.3). Hence, feedback effects do occur.

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<sup>23</sup> Since we use adstock variables in our VARX model, the effects of advertising might seem slightly overrepresented compared to when using the original advertising variables. However, as explained in section 5.3 we have several reasons to use the adstock variables instead of the original advertising variables.

**Figure 5.3: Rescaled\* variance decompositions of mindset metrics and acquisition**

\* We rescaled the part not explained by the past (i.e., the remaining variance) to 100% to make the effects of the other variables more apparent

For consideration, preference, and acquisition the variance decompositions show similar stories, so we discuss the three metrics together. Consideration, preference, and acquisition are most affected by adstock, which explains 30%, 28%, and 44%, respectively, of the remaining variance<sup>24</sup>. Apparently, consumers are still mentally influenced by and still rely on information provided by the firm when deciding on a new subscription. Then, eWOM explains 25%, 20%, and 17% of the remaining variance of respectively consideration, preference, and acquisition. While social media marketing explains substantial less of consideration and preference (8% and 2%, respectively), but still a substantial part of acquisition (13%). That social media marketing explains less than eWOM is according to our expectations set out in the section Research Background. The mindset metrics explain furthermore a substantial amount of consideration, preference, and

<sup>24</sup> When comparing the relative contribution of adstock on acquisition with previous research (e.g., Srinivasan et al., 2010), our results seem valid. In the original variance decompositions acquisition is for 11% explained by adstock, whereas Srinivasan et al. (2010) find 4.5%, and for the full own marketing mix approximately 20%. Considering that we use adstock variables that capture both longer term effects and partial effects of prices and promotions, our 11% seems a valid number.

acquisition. Lastly, acquisition explains another 6% and 12% of consideration and preference, respectively (see Figure 5.3).

*Immediate and delayed effects of social media marketing and eWOM on mindset metrics and acquisition*

In some instances, the shocks led only to delayed effects (i.e., the response was only observed after the second week). All delayed effects observed were non-persistent, since they abated after a few weeks (note that this is actually a characteristic of a stationary VAR model). The immediate and delayed effects of shocks in social media marketing and eWOM on mindset metrics and acquisition are presented in Table 5.5. Please note that we report elasticities for immediate, 2 weeks, and longer than 2 weeks effects, as discussed on page 87.

**Table 5.5: Immediate, 2 week, and >2 weeks elasticities of mindset metrics and acquisition to social media marketing and eWOM**

1 unit increase in:				
	Social media marketing	eWOM SOV volume	positive eWOM	negative eWOM
<b>Immediate elasticity:</b>				
<b>awareness</b>	0.029	-0.049	ns	ns
<b>consideration</b>	ns	0.064	ns	0.063
<b>preference</b>	ns	ns	ns	0.091
<b>acquisition</b>	ns	0.108	ns	0.081
<b>2 weeks elasticity:</b>				
<b>awareness</b>	ns	0.039	ns	0.041
<b>consideration</b>	ns	ns	ns	0.131
<b>preference</b>	ns	ns	0.071	0.206
<b>acquisition</b>	ns	0.253	ns	ns
<b>&gt;2 weeks elasticity:</b>				
<b>awareness</b>	ns	ns	ns	ns
<b>consideration</b>	0.008 (3)	ns	ns	ns
<b>preference</b>	ns	ns	ns	ns
<b>acquisition</b>	ns	0.617 (1-6)	ns	ns

ns = not significant

Between brackets are the weeks in which the effects occur (only reported for >2 weeks).

Table 5.5 shows that both social media marketing and eWOM affect *awareness*, which is as expected. Social media marketing influences *awareness* significantly and positively: A 1 unit increase in social media marketing leads to an immediate increase in awareness of almost 0.03

(please remember that awareness can take on values between zero and one). There is no delayed effect of social media marketing on awareness (see Table 5.5). A 1 unit increase in eWOM SOV volume negatively affects awareness immediately (-0.049), but this negative effect is offset after two weeks (+0.039). A 1 unit shock in negative eWOM leads to a delayed increase of 0.041 in awareness. Positive eWOM has no significant effects on awareness.

For *consideration*, eWOM is more important than social media marketing, which is as expected. Negative eWOM has the largest effects on consideration: A 1 unit increase in negative eWOM leads to an immediate 0.063 increase in consideration, and a 0.131 increase in two weeks. A 1 unit increase in eWOM SOV volume leads to 0.064 higher consideration. Social media marketing affects consideration positively with a delay; a 1 unit increase leads to 0.008 higher consideration. Consideration was not significantly affected by positive eWOM.

eWOM affects *preference*, but social media marketing does not play a role, which is as expected. The valence of eWOM is especially important for people when developing their preferences. Meanwhile, the effects of negative eWOM are larger than those of positive eWOM: A 1 unit increase in negative eWOM leads to an immediate increase in preference of 0.091 and a delayed increase of 0.206; a 1 unit shock in positive eWOM leads to a 0.071 increase in preference in the second week.

Only eWOM, not social media marketing, affects *acquisition*. The volume of eWOM has the largest effects: A 1 unit increase in eWOM volume leads to 0.1 higher acquisition immediately, in two weeks to 0.25, and in the long-term to 0.6 more newly acquired customers. Compared to the sales to online reviews volume elasticity Floyd et al. (2014) find, this number is a bit higher (Floyd et al., 2014 report an average elasticity of 0.35 for volume). However, they only include elasticities derived from research on online reviews. Our measure of eWOM contains more than online reviews (see data description). Compared to advertising elasticities (for which the average is about 0.1, e.g., Sethuraman et al., 2011), this number is substantially higher. Last, a 1 unit increase in negative eWOM furthermore leads to 0.081 newly acquired customers in the first period (see Table 5.5).

We also investigated the effects of shocks in mindset metrics and acquisition on both social media and eWOM and find that the relations are indeed reciprocal.

*Interrelationships among social media marketing, eWOM, and advertising*

We investigated the effects of 1 SD shocks in the SOV adstock variables on social media and eWOM, thereafter we calculated elasticities that are reported in Table 5.6. Please note that we report effects for adstock that reflects a weighted four week average of advertising. Hence, the reported effects capture also this four week average and should be interpreted accordingly. The immediate and delayed effects of adstock on both interactions on the firm's fan page and eWOM are mixed (see Table 5.6)<sup>25</sup>.

**Table 5.6: Immediate, 2 week, and >2 weeks elasticities of social media and eWOM to adstock**

1 unit increase in SOV adstock:					
Immediate elasticity:	Internet	Print	OOH	Radio	TV
<b>social media</b>	ns	ns	ns	ns	ns
<b>EWOM SOV volume</b>	ns	ns	0.021	ns	ns
<b>positive eWOM</b>	ns	ns	ns	0.093	ns
<b>negative eWOM</b>	-0.038	ns	-0.052	0.035	ns
<b>2 weeks elasticity:</b>					
<b>social media</b>	ns	-0.465	ns	ns	ns
<b>EWOM SOV volume</b>	ns	-0.061	ns	ns	ns
<b>positive eWOM</b>	ns	ns	ns	ns	-0.048
<b>negative eWOM</b>	-0.067	0.076	-0.079	ns	ns
<b>&gt;2 weeks elasticity:</b>					
<b>social media</b>	ns	-2.806 (2-8)	ns	0.562 (3-6)	ns
<b>EWOM SOV volume</b>	ns	ns	ns	ns	ns
<b>positive eWOM</b>	ns	ns	ns	ns	-0.092 (2-3)
<b>negative eWOM</b>	ns	0.855 (2-9)	ns	ns	ns

ns = not significant

Between brackets are the weeks in which the effects occur (only reported for >2 weeks).

<sup>25</sup> Although we do not focus on the effects of adstock on consumer mindset metrics and acquisition, we briefly discuss whether the found elasticities correspond to previous studies. We find that on average; the immediate awareness to adstock elasticity is 0.036 and the long-term elasticity is 0.123 (Srinivasan et al. (2010) find 0.027; long-term 0.064). The elasticities we find for consideration are also slightly higher than those of Srinivasan et al. (2010); we find an immediate consideration to adstock elasticity of 0.026 and a long-term elasticity of 0.076 (Srinivasan et al. (2010) find 0.005; long-term 0.002). The elasticities we find for preference are very small, and some are even negative (Srinivasan et al. (2010) find elasticities that are close to zero). The elasticities that Srinivasan et al. (2010) found are all slightly lower in magnitude, but they also included insignificant estimates in their averages whereas we only used the significant results. What is also different in their study is that they did not use adstock variables. For acquisition we find that the average adstock elasticity (>2 weeks) is 0.15, which corresponds to findings from previous studies (e.g., Sethuraman et al., 2011).

In the following, we describe the positive effects of advertising on social media marketing and eWOM; these interrelationships indicate that there are possible complementary effects among social media marketing, eWOM, and advertising. First, advertising leads to more interactions on the firm's fan page: A 1 unit increase in SOV radio adstock leads in the longer term to 0.562 more interactions on the fan page.

Second, advertising positively affects the volume and positivity of eWOM, indicating that people start to talk more often and more positively online as a result of advertising. Third, advertising leads to less negative eWOM. More specifically, a 1 unit increase in SOV OOH adstock leads to 0.021 more eWOM SOV volume immediately. A 1 unit increase in SOV radio adstock leads to 0.093 more positive messages immediately. 1 unit increases in SOV Internet and SOV OOH adstock respectively lead to 0.038 and 0.052 less negative eWOM immediately. In two weeks, these onetime shocks in Internet and OOH adstock lead to 0.067 and 0.079 less negative eWOM, respectively.

The counterintuitive effects—indicating that social media marketing, eWOM, and advertising are *substitutes*—are as follows: Interactions on the firm's fan page on social media are negatively affected by print advertising. Over eight weeks, a 1 unit increase in SOV print adstock leads to 2.8 less interactions on the fan page.

We also find that advertising leads to less, less positive and more negative eWOM. A 1 unit increase in radio adstock leads to 0.035 more negative eWOM immediately. A 1 unit increase in SOV TV adstock leads in two weeks to 0.048 and in more than two weeks to 0.092 less positive messages. The delayed effect of a one-time increase in print adstock produced 0.855 more negative eWOM. Lastly, a 1 unit increase in print adstock leads to less messages overall (see Table 5.6).

Lastly, we examined interrelations among social media marketing and eWOM (not provided in a table). Results show that social media marketing and eWOM also affect each other. A one-time 1 SD shock in social media marketing leads to less and less positive eWOM in the first two weeks. eWOM volume also negatively affects interactions on the firm's fan page. These results indicate that social media marketing and eWOM are substitutes.

### 5.5.2 Comparison with Alternative Models and Robustness Checks

We compared the estimated VARX model (equation 5.2) with alternative models to investigate whether this model is preferred and robust over different model specifications. The different model specifications we test are 1) excluding mindset metrics to examine whether they add something to

a model where we link advertising, social media marketing, and eWOM directly to acquisition, 2) excluding social media marketing and eWOM to examine whether these variables explain more of mindset metrics and acquisition than advertising alone, and 3) aggregating the advertising variables over media channels to examine whether these explain mindset metrics and acquisition better than advertising per media channel. Following Srinivasan et al. (2010) we compared the model fit (adjusted R<sup>2</sup>'s) of our models (see Table 5.7)<sup>26</sup>.

**Table 5.7: Comparison of adjusted R<sup>2</sup>'s of alternative models**

	1. Model excluding mind- set metrics	2. Model excluding social media & eWOM	3. Model with aggregated advertising variables	4. Full model
<b>Awareness</b>	n.a.	0.030	0.168	0.150
<b>Consideration</b>	n.a.	0.055	0.041	0.054
<b>Preference</b>	n.a.	0.098	0.080	0.094
<b>Acquisition</b>	0.793	0.791	0.797	0.801

Excluding the mindset metrics from the acquisition model decreased its explanatory power: the adjusted R<sup>2</sup> dropped from 0.801 to 0.793 (see Table 5.7). Hence, theoretical (see section 5.2) and statistical reasons indicate that the model featuring mindset metrics is preferred over the model without mindset metrics. Then, we examined whether adding social media marketing and eWOM to the model actually improves model fit. We compared the fit statistics of the full model (as specified in equation 5.2) with models excluding social media marketing and eWOM (see Table 5.7). The model without social media marketing and eWOM performed worse for awareness and acquisition. For consideration and preference, adding social media marketing and eWOM did not improve model fit. However, the model including social media marketing and eWOM provides managerially relevant findings. Additionally, we estimated a model where we aggregate the advertising variables, except for internet advertising. We keep internet advertising separately since this might have important effects on eWOM and interactions on the firm's social media page, since these occur also on the internet. This model fits the data worse than the full model, except for awareness (see Table 5.7). It would be interesting to see if the unexpected negative interrelationships among advertising, eWOM, and social media change in this model with

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<sup>26</sup> Although it would be more correct to formally test changes in R<sup>2</sup>'s, due to the complexity of a VAR model, this is unfeasible. Therefore, we compare the adjusted R<sup>2</sup>'s of the different models as the adjusted R<sup>2</sup> also includes a penalty for the number of parameters estimated.

aggregated adstock variables. Basically, the results are the same for internet advertising. The aggregated media variable also has negative effects on social media. For the rest, there exist no significant relations among the aggregated media variable and eWOM or social media. Probably this is caused by the aggregation; the previously positive and negative effects of the different media channels on eWOM and social media may cancel out when aggregated. Hence, aggregating over media types does not provide the full picture and might even lead to misleading outcomes. Furthermore, the effects of eWOM and social media on mind-set metrics and acquisition are the same as in the full model, including some unexpected effects (e.g., negative eWOM affects preference positively; the volume of eWOM affects preference negatively). Hence, the full model containing mindset metrics, social media marketing, and eWOM is preferred over the other models.

Additionally, we examined whether we should add an additional dummy variable in our model to capture possible persistent effects from the ‘buzz events.’ Buzz events (X in equation 5.2) could possibly lead to a change in the data so that the mean of the time series remains significantly higher after the event (Enders, 2004, p. 240). We tested for a structural change due to changes in buzz events by using an intervention analysis (Enders, 2004, p. 240). In week 14, 2012, there was an enormous spike in the volume of eWOM, as discussed in the empirical application (mean volume plus 8 times the standard deviation). To investigate whether this one-time event led to a permanent change, we included a dummy variable that takes the value of one for all the weeks after week 14, 2012, and the value of zero for all weeks prior. This variable appeared to have no significant effect on the volume of eWOM; hence, we can conclude that this event did not cause a structural break in the data. We repeated the same approach for the spike in the volume of eWOM during week 17, 2012 (see empirical application). This variable also had no significant effect on the volume of eWOM. Thus, our specified model performed better compared to these alternative models.

In order to examine the robustness of our results, we estimated the VARX model with log-transformed variables for social media marketing and acquisition. The results of the FEVDs and GIRFs are fairly similar. Second, we compared the estimated full model with a full model estimated on a smaller time span (week 30, 2011 to week 8, 2013). The descriptive statistics of the time series variables negligibly changed. Also, results of the full model (provided in this chapter) are largely similar to what we found with the smaller dataset. Hence, we can conclude that our findings are robust.

## 5.6 DISCUSSION AND IMPLICATIONS FOR THEORY AND PRACTICE

With this research, we provide first insights into the combined effects of social media marketing, eWOM, and advertising on consumer mindset metrics and acquisition. We extensively discussed the possible mutual relations between the variables of interest. By empirically investigating data from a European telecom firm, we add several interesting findings to the current literature. First of all, we show that social media marketing, eWOM, but also advertising explain considerable parts of consumer mindset metrics and acquisition. Second, we show that shocks in social media marketing and eWOM have different effects on mindset metrics and acquisition. Lastly, we show that advertising, social media marketing, and eWOM are interrelated and affect each other in different ways.

*Awareness* is substantially more influenced by social media marketing than by advertising or eWOM. These effects might be explained by the social contagion effect of social media marketing, which is less apparent for eWOM and nonexistent for advertising. As expected, social media marketing influences awareness positively. Findings furthermore highlight that awareness is affected by both the volume and negativity of eWOM, which is as expected. We did not expect that eWOM volume would affect awareness negatively, but in two weeks the effect is positive. An explanation might relate to a negative correlation with print advertising, which is the media channel the firm invested in most after TV advertising. Hence, the effect can partly be attributed to the fact that the firm was investing less in advertising at the same time that eWOM volume was higher. Overall, brand discussions both online and on social media influence awareness, as expected. The effects were also observed vice versa: awareness influences interactions on the firm's fan page and eWOM. Our findings indicate that firms could enhance awareness by actively trying to increase the volume of interactions on their fan page. Currently, the firm places approximately seven new posts per week (one per day) producing 92,000 interactions with content on their fan page on Facebook. Based on the results from Chapter 4, the firm could post photos, contests or questions to increase consumers' interactions with the brand posts. Through these increased interactions, non-fans could gain more awareness of the brand and its messages through the social network, which could then have positive effects on awareness and consideration.

*Consideration* is substantially more influenced by advertising than by eWOM or social media marketing. The strong contribution of advertising can possibly be attributed to the fact that advertising also captures prices and promotions. Consideration is positively influenced by social

media marketing and negative eWOM, the latter of which is unexpected. An explanation could be that, while the messages are coded as negative, they may contain useful feedback and information for when people consider the brand (Berger et al., 2010; Vermeulen & Seegers, 2009). Unfortunately, we would need the exact wording of the messages in order to investigate this speculation. Additionally, the telecom brand we investigated is a relatively smaller one; hence, the negative messages may lead people to consider the brand whereas they otherwise would not have thought about this brand (e.g., Berger et al., 2010). On a related note, the effects were also observed vice versa: consideration affects negative eWOM. Given advertising's larger role in evoking consideration, firms should invest in advertising if they want to enhance brand consideration.

*Preference* is primarily influenced by advertising, then eWOM, and then social media marketing. We indeed expected that eWOM should have larger effects on preference than social media marketing. More specifically, preference is only affected by positive and negative eWOM, and not by eWOM volume. Apparently, sentiment is quite important for developing a preference: If someone reads a positive blog or forum post about the brand, (s)he might develop a preference for that brand. However, the positive effect of negative messages on preference is counterintuitive. A possible explanation might be as follows: the firm has an active web care department that answers queries and questions online and reacts to customers' negative comments. Hence, if the firm's web care is handling negative messages well, then the effects of web care may actually be affecting preference for the brand. Unfortunately, we do not have data on web care to test this speculation. On a related note, it should be observed that positive eWOM is practically not affecting mindset metrics or acquisition whereas negative eWOM does. Maybe this can be attributed to the fact that in the telecom sector, negative messages are much more common than positive ones; negative messages occur three times more than positive ones. Moreover, we do not observe that preference affects interactions on the firm's fan page or eWOM. If firms want to enhance preference for the brand, they should invest in advertising or try to motivate consumers to talk about the brand online.

*Acquisition* is substantially more explained by advertising than by social media marketing and eWOM. This can be explained by the fact that consumers rely on advertising to gain information about certain propositions and offers they like. While we could not include prices and promotions directly, advertising does capture these effects. Furthermore, acquisition is positively affected by shocks in eWOM volume and negative eWOM. The fact that eWOM volume affects acquisition positively in the short term confirms previous research (e.g., Liu, 2006; Zhu & Zhang,

2010), and we also find that the effects of eWOM last for several weeks. The positive effect of negative eWOM is contrary to our expectations. It could be that these negative messages do contain informational value and enhance recognition for the brand, which in turn leads to higher acquisition (e.g., Berger et al., 2010). The effects were also observed vice versa (i.e., acquisition positively affecting eWOM volume and decreasing negative eWOM), indicating that consumers engage in post-purchase eWOM, such as writing a blog or product review about their new phone. To enhance acquisition, firms could try to spur consumer messages about their brand online by asking consumers to review their products and services after purchase or use, since an increase in eWOM volume does lead to substantially higher acquisition numbers.

The results indicate that advertising, social media marketing, and eWOM are both substitutes and complements. This is in line with some previous studies, which find complementary effects for multiple media (e.g., Naik & Peters, 2009; Onishi & Manchanda, 2012). A firm's advertising does lead people to talk more online and on social media, which corresponds to previous research on TV advertising and blogging in the movie industry (Onishi & Manchanda, 2012). However, some researchers have found that multiple media might work antagonistically (Kolsarici & Vakratsas, 2011; Zenetti et al., 2014). Zenetti et al. (2014) found substitution effects of search engine advertising and TV advertising. Kolsarici and Vakratsas (2011) also discovered antagonistic media interactions, attributing this effect to one's exposure to saturated media. They also noted that substitution or cannibalization effects can occur among the different media channels, which would indicate a misallocation of advertising budgets (Kolsarici & Vakratsas, 2012). The latter might be a possible explanation for the negative relations among advertising and social media marketing. Notably, especially TV and print advertising seem to provide counterintuitive findings. Possibly this can be attributed to certain characteristics of these media. TV and print are the advertising media the firm is investing in most. So, the negative effects may be attributed to oversaturation of advertising. Lastly, we find that social media marketing and eWOM influence each other negatively in the short term, indicating they are substitutes.

## 5.7 LIMITATIONS AND FURTHER RESEARCH

This study was conducted using one firm from the telecom sector. Our ultimate outcome variable was customer acquisition, which is a natural choice for the telecom sector since acquiring new

customers is highly important. However, future research may be conducted for more firms in a different context or with different firm performance metrics.

This study finds that social media marketing, eWOM, and advertising are complements and substitutes at the same time. To gain deeper insights into these findings, future research could study the synergistic or interaction effects between a firm's advertising, social media marketing, and eWOM. It might be that advertising's mixed effects on interactions on the firm's fan page and eWOM can be explained by certain unobserved interactions between the media channels. Previous research has determined that synergy effects between online and offline advertising can exist (e.g., Naik & Peters, 2009). However, because the VARX model includes many interrelationships, adding interaction effects is computationally challenging; thus, we propose this issue for future research.

We did not account for advertising on social media (i.e., banner ads) because it was not yet possible to obtain this type of data. The firm we studied uses little social media advertising, instead focusing more on their fan page on social media. Nonetheless, future research might consider social media advertising in order to gain more complete insight into the effects of social media marketing on outcome measures.

Next, we do not have information on the costs of utilizing the different channels. We can assume that social media marketing is cheaper to utilize than advertising, but we do not know how much cheaper. Similarly, we know that the firm can react to eWOM via its web care, but we do not have information about the costs of said web care. Hence, we are unable to make any detailed suggestions on budget allocation for the different channels. Future researchers might try to gather this type of data.

Additionally, we did not include other marketing mix instruments such as price, promotion, and distribution. This would lead to a more complete picture of how all marketing mix elements work together on mindset metrics and firm performance. We tried to compose price and promotion variables, but this is practically infeasible for a telecom firm. There are many different propositions for different prices, different amounts of minutes/texts, with or without a phone, etc. On top of that, different types of promotions are tied to these different propositions. For distribution, phones and subscriptions are sold everywhere, so there is no variation in this variable. Another variable that we did not include are visits to the telecom firm's website. Website visits indicate interest in the brand and can thus affect consumers' evaluations of the brand and their decision to become a

customer. Therefore, an extensive investigation of all marketing mix elements on outcome measures, particularly in a different sector, is another fruitful research direction.

To conclude, we have to disagree with Edelman's statement, "You're Spending Your Money in All the Wrong Places," since advertising is still effective at enhancing consumer mindset metrics and customer acquisition. For enhancing awareness, social media marketing plays a larger role than advertising, but for consideration, preference, and acquisition, advertising is the most important—although social media marketing and eWOM do play a considerable role. Advertising can also be used to spur both eWOM and interactions on the firm's fan page, but we also find negative effects that might hint to oversaturation of advertising. Therefore, advertising remains important, but may have to be utilized in different ways than in the past. Since we do not have any information on the costs associated with the different channels, we cannot say if firms should invest more in social media marketing or less in traditional media. We can formulate a more nuanced opinion about Edelman's statement if more data on costs and budgets become available.



## **Chapter 6**

### **General Discussion**

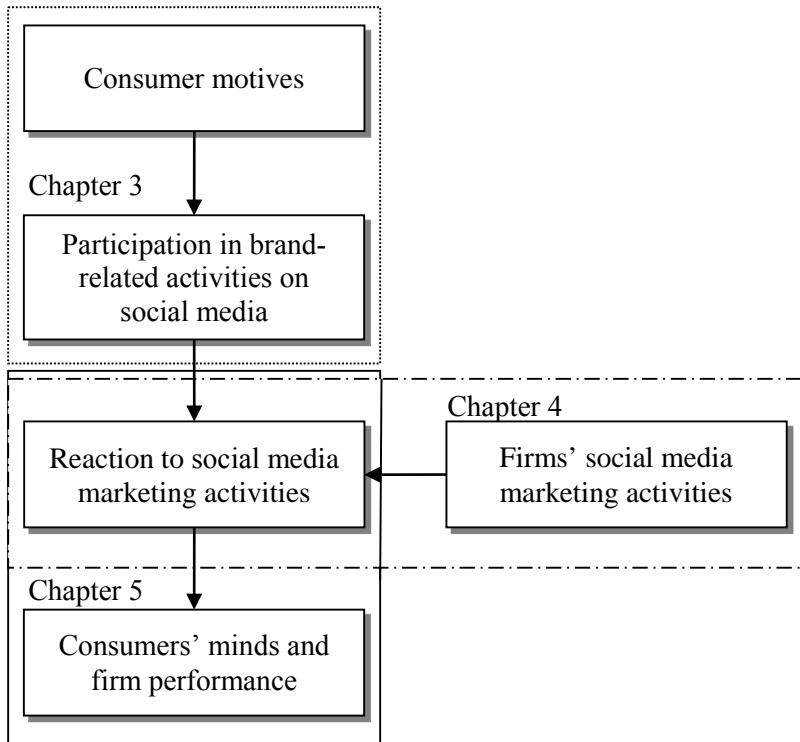
## 6. GENERAL DISCUSSION

Today, many firms use social media as part of the marketing mix (e.g., Slegg, 2013; Chen & Xie, 2008). Firms use social media to not only reach out to consumers, but also to create engagement and strengthen the bond between themselves and their customers. Social media changed the way companies do business, and as such it can threaten existing business models; however, it can also create new opportunities (Hennig-Thurau et al., 2010). Despite the increasing importance of social media, relatively little academic research has focused on social media (Chapter 2). Therefore, this dissertation has aimed to shed light on the impact of social media on consumers and firms.

In the next sections we highlight our contributions to the literature by focusing on the linkages among the various dissertation chapters. Then, we will more deeply reflect on the empirical findings of each of the chapters. Lastly, we provide an outlook for future research.

### 6.1 CONTRIBUTIONS AND LINKS BETWEEN THE CHAPTERS

Figure 6.1 visually represents the dissertation chapters and how they are linked. As is evident, the different empirical chapters of the dissertation are clearly related to each other. We examined the impact of social media on consumers and firms from different perspectives: We focused on the consumer side, deriving some psychological insights, but also considered the firm side, uncovering some strategic implications. Specifically, this dissertation answered three research questions that were outlined in the introduction: (i) What motivates consumers to engage in brand-related social media activities? (ii) Which of a firm's activities on social media are effective for creating engagement among consumers? (iii) What is the impact of social media on consumers' minds' and firms' performance? We answered these questions by using different data sources and methodologies, thereby contributing to theory and practice in several ways.

**Figure 6.1: Link between the different dissertation chapters**

By combining different research methods and techniques, we are able to provide a complete picture of social media's impact on consumers and firms, including motivations and activities. We started in Chapter 3 with the consumer side by investigating motivations to engage in brand-related activities on social media that differ in their levels of engagement. It is important for firms to know how they can not only persuade consumers to become fans, but subsequently increase consumer interactions on their fan page. This is what we investigated in Chapter 4. With firms investing more and more in social media, they want to know what the outcomes of their investments are. Thus, in Chapter 5 we show that social media marketing, i.e., interactions with firm content on the firm's fan page, does lead to higher awareness and consideration. Furthermore, a firm can affect online conversations and interactions with firm content on the firm's fan page by its advertising. In short, Chapters 3 through 5 describe the path from motivations for using social media, to activities on social media, and finally to the impact of social media on consumers and firms. All in all, this dissertation provides many new insights on social media from both the consumer and firm perspective.

## 6.2 SUMMARY OF DISSERTATION PROJECTS

### 6.2.1 Explaining Consumer Brand-Related Activities on Social Media

People engage in various brand-related activities on social media that differ in their levels of engagement. These activities can be highly engaging (such as writing brand blogs), moderately engaging (such as engaging in brand discussions on fan pages), or slightly engaging (such as watching brand videos on YouTube). It is important for firms to know how to motivate consumers to be involved, especially in the relatively more engaging activities since those can lead to positive firm outcomes such as higher sales. Building on self-determination theory, Chapter 3 provided an explanatory framework that identifies unique motivations for engaging in brand-related activities on social media that differ in their levels of engagement. Four distinct studies showed that specific motivations have a differential role in driving activities that entail varying levels of engagement. We first employed a survey study to develop and validate measures that can assess brand-related activities on social media and their underlying motives. We also tested and confirmed our hypotheses in the first study. In the three subsequent experimental studies, we provided converging evidence indicating that personal identity and socialization play unique roles in leading people to participate in highly engaging activities (e.g., creating content on social media) or in moderately engaging activities (e.g., contributing to existing content). These findings have implications for theory and practice insofar as they specify how to stimulate consumers to perform these relatively more engaging brand-related activities.

### 6.2.2 Popularity of Brand Posts on Brand Fan Pages: An Investigation of the Effects of Social Media Marketing

Once consumers engage in brand-related activities on social media, such as being active on a firm's fan page on social media, firms want to know how they can increase consumers' interactions with firm content on the brand fan page. Firms can place brand posts (containing videos, messages, quizzes, information, and other material) on these brand fan pages. Customers can become fans of these brand fan pages, and subsequently indicate that they like the brand post or comment on it. The number of likes and comments on a brand post reflects its popularity. In Chapter 4, we determined the possible drivers of brand post popularity. We analyzed 355 brand posts from eleven international brands spread across six product categories. The results showed that positioning the brand post on the top of the brand fan page enhances brand post popularity. However, the findings also indicated that different drivers influence the number of likes and the number of comments on

brand posts. Namely, vivid and interactive brand post characteristics enhance the number of likes. Moreover, the share of positive comments on a brand post is positively related to the number of likes on that same brand post. Meanwhile, the number of comments can be enhanced by asking questions (an interactive brand post characteristic). The shares of both positive and negative comments are positively related to the number of comments. Brand managers who operate brand fan pages can be guided by our research with regards to deciding which characteristics or content to place at brand posts.

### **6.2.3 Effects of Social Media Marketing, eWOM and Advertising on Consumer Mindset Metrics and Acquisition**

In Chapter 5, we provided insights into the effects of social media marketing (i.e., firm's fan page on Facebook), eWOM, and advertising on consumer mindset metrics (i.e., awareness, consideration, preference) and acquisition. We used a unique dataset from a European telecom firm and applied VARX modeling. The results showed that social media marketing explains a substantial amount of consumer mindset metrics and acquisition. Social media marketing explains more of awareness than eWOM or advertising. For consideration, preference, and acquisition, advertising is most important, followed by eWOM and social media marketing. Social media marketing positively affects awareness in the short term, and consideration in the long term. eWOM affects all three mind-set metrics and acquisition in both the short- and the long-term. The firm can influence interactions on their fan page and eWOM via their advertising expenditures. The results furthermore showed that social media marketing, eWOM, and advertising are both complements and substitutes.

## **6.3 OUTLOOK TO THE FUTURE**

This dissertation provided insights into the impact of social media on consumers and firms, but many issues still remain unexplored. In the following, we highlight the most important research gaps, at least in our understanding, and explain what can be studied in the future.

In Chapter 3, we examined which motivations lead to certain brand-related activities on social media. However, we do not know if engaging in these activities impacts consumers' perceptions and attitudes towards the brand. Which type of activity would have the largest effect

on consumers' minds? Does this follow logically from the order of activities we proposed? In other words, if consuming brand-related activities require the least effort, does consuming also lead to the smallest changes in attitudes and perceptions? On the other hand, if creating brand-related activities require the most effort, does creating lead to the highest changes in attitudes and perceptions? Or are these activities pursued in different stages of the purchase funnel, whereby creating is mainly done after purchase, but consuming occurs in the awareness phase? More generally, to what extent do consumers take social media into account in their buying decisions? How can and should consumers be reached via social and traditional media? In short, how relevant is social media for consumers?

Focusing more on the firm side, other questions arise, such as: which consumer brand-related activities on social media contribute most to business success? In Chapter 3, we focused on contributing and creating activities because research seems to indicate that those activities lead to business success. However, we still do not know which type of consumer brand-related activity (creating, contributing, or consuming) affects firm performance most. In Chapters 4 and 5, we focused on the firm's fan page, but there are more forms of social media marketing as we discussed in Chapter 2. Which type of social media marketing (viral social media campaign, social media advertising, the firm's fan page; see Chapter 2) affects consumers the most and produces the highest impact on firm performance? On this point, it would be useful to compare the effects of consumer-initiated or firm-initiated activities on social media and examine which has the highest impact on firm performance. We provided some first insights on this latter research idea in Chapter 5: Whether the largest effect(s) can be attributed to consumer- (eWOM) or firm-initiated activities (fan page and advertising) differs per outcome measure.

Moreover, should advertising campaigns be fully coordinated and integrated across media channels, or is it better to employ the channels in different ways? For example, should firms use advertising to push messages to consumers, but use social media to interact with customers and build relations? Additionally, when looking outside the communication mix toward the broader marketing mix, how do social media interact with prices, promotion, and distribution? Answers to these questions would lead to a more complete picture of how all marketing mix elements work together, how firms can best integrate different media types, and how they should allocate marketing budgets.

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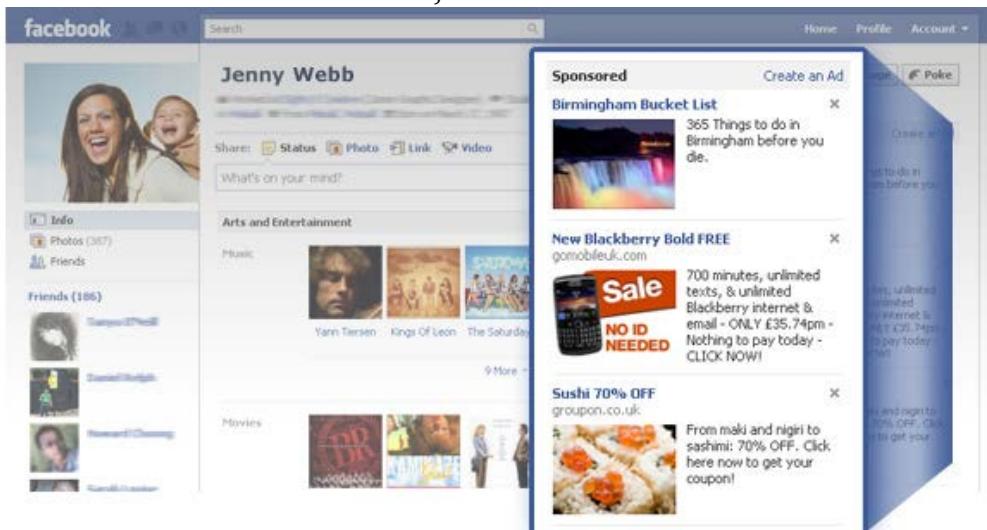


## **Appendices**

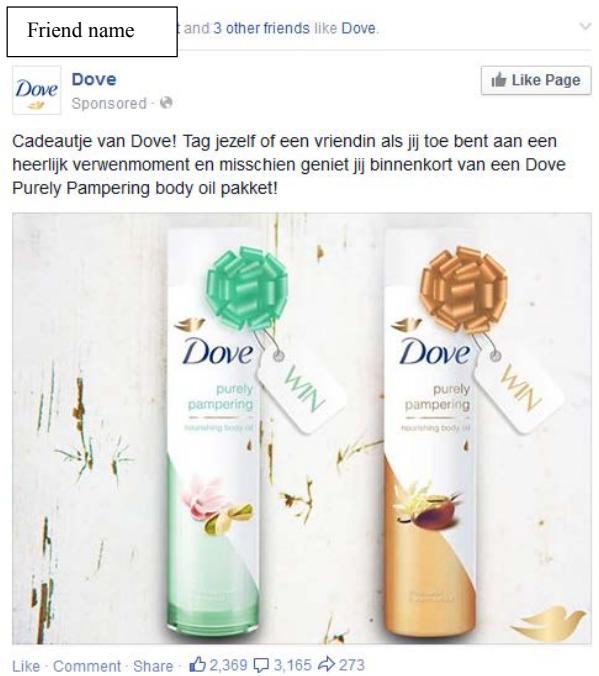
## APPENDIX A. SOCIAL MEDIA ADVERTISING

Appendix A provides several examples of social media advertising as discussed in Chapter 2. First of all, Appendix A1 provides regular or standard social media ads that mostly appear on the right side of the Facebook wall. These ads are fairly similar to online banners. Appendix A2 subsequently shows another type of social media advertising, sponsored posts. These posts appear on someone's Facebook wall and look similar to Facebook posts from friends. Then, Appendix A3 provides 'social' ads from Facebook. They can be found on the same place as the standard social media ads (see A1), but the 'social' ads contain certain social elements, either a 'friend' or a 'non-friend' element, as highlighted in A3.

### A1. Standard social media ads, similar to banner ads



## A2. Sponsored posts that appear on one's Facebook wall



## A3. Social media ads containing a social element

### Foscam Camera Shop

[foscam.nl](http://foscam.nl)



Draadloze Netwerk  
beveiligingscamera's.  
Goedkoop en de  
grootste keus in  
Nederland!

→ No social element

### Friso Kindervoeding

Al Friso fan?



Vele zwangere vrouwen  
en jonge moeders zijn  
fan van Friso. Jij ook?  
Like!

Friend name

likes Friso Kindervoeding.

→ Social 'friend' element

### Samsung Galaxy Tab 3 10.1

[yeal.nl](http://yeal.nl)



De Samsung Galaxy Tab  
3 10.1 nu op Yeal! vanaf  
€ 0,01 cent! Bied mee!

1,037 people like this.

→ Social 'non-friend' element

## APPENDIX B. FIRM'S FAN PAGE ON SOCIAL MEDIA

Appendix B provides an example of Starbucks' fan page on Facebook. Fan pages on social media are discussed in Chapter 2 and are important elements of Chapters 4 and 5. In Appendix B1 a screenshot of the Starbucks Facebook page is shown; when people click the like-button, they become 'brand fans'. Subsequently, brand fans can interact with Starbucks posts (more general, we call them brand posts in Chapter 4) by liking, commenting on, or sharing the brand post (see Appendix B2). In Chapter 4 we examine determinants of the likes and comments on brand posts. In Chapter 5 we also use the interactions with firm content (e.g., liking the page, interacting with brand posts) as our social media marketing variable.

### B1. Starbucks' fan page on Facebook



## B2. Example of Starbucks' brand post

Starbucks UK  
13 November

Our Mulled Caramel Apple Spice - something special just for Birmingham.

Like · Comment

264 people like this.

Write a comment...

Ooh yummy, how long will this be in the stores for ?  
Like · Reply · 13 November at 13:12 via mobile

Starbucks UK It'll be around until the beginning of January Michelle.  
Like · 14 November at 15:08

After people became brand fans, they can like or comment on the firm's brand posts.

## APPENDIX C. eWOM

Appendix C provides typical examples of eWOM. Appendix C1 contains online consumer reviews on the Samsung Galaxy S5 from Amazon.com. Most research to date on eWOM is conducted on the effects of online reviews on sales (e.g., Berger et al., 2010; Chintagunta et al., 2010; Moe & Trusov, 2011; Sun, 2012; Zhu & Zhang, 2010). As one can see in Appendix C1, there are 221 (volume) reviews for this specific product, with an average rating of 4 out of 5 (fairly positive indicating the valence), and from these ratings one can calculate the variance. Volume, valence, and variance are mostly used variables to capture effects of eWOM. Appendix C1 also provides one review text, some studies also analyzed the texts into more detail (e.g., Ludwig et al., 2013). Appendix C2 provides forum posts from a cooking forum. Online forums exist on a multitude of topics among which are electronic products or telecom. Consumers start discussions on a certain topic, and other consumers can react on that. Volume and valence of telecom forum posts are part of our eWOM measure in Chapter 5.

### C1. Online consumer reviews from Amazon.com

**Customer Reviews**

★★★★★ (221)  
4.0 out of 5 stars

Star Rating	Count
5 star	135
4 star	27
3 star	15
2 star	9
1 star	35

[See all 221 customer reviews](#)

**Most Helpful Customer Reviews**

174 of 199 people found the following review helpful

★★★★★ An Evolutionary Step Forward That Still Offers Plenty To Love  
By JJG TOP 500 REVIEWER on April 11, 2014

The Samsung Galaxy S5 offers more of an evolutionary step forward in Samsung's S series smartphones than a revolutionary new phone. There are plenty of new features and advances with the S5 but those who already own a S4 likely will not be rushing to get the S5. I'm coming from an iPhone 4S so the S5 offers a lot of new features for me and provides plenty to love.

## C2. Forum posts on a cooking forum

FORUMS LATEST ACTIVITY MY SUBSCRIPTIONS

Topics Posts Last Post

**General**

<b>Baking</b> Discuss everything baking from bread to cake here.	198	2,402	 <a href="#">End-Of-Summer Dessert Recipes???</a> by <a href="#">SarahkChicago</a> 20 hours ago
<b>Celebrity Chefs &amp; Cooking on TV</b> Discuss cooking with celebrity chefs such as Rick Bayless, Emeril Lagasse, as well as cooking television shows such as The Iron Chef here.	109	1,286	 <a href="#">What is your favourite cooking show?</a> by <a href="#">stockbrokers</a> 18 hours ago
<b>General Cooking Discussion</b> Discuss all general cooking discussion here.	883	7,123	 <a href="#">a Witcher defines who you are</a> by <a href="#">Big Daddy's House</a> 1 day ago
<b>Health &amp; Nutrition</b> Discuss everything from calories, exercise, and saturated fats here.	158	3,210	 <a href="#">What did you eat today?</a> by <a href="#">stockbrokers</a> 1 day ago

**What did you bake today?**  
02-25-2009, 06:10 PM  
  
Today I baked white chocolate macadamia nut cookies.

**Liketobake**  
Senior Member  
  
Join Date: May 2006  
Posts: 950  
  
Tags: None  


**tesley**  
Senior Member  
  
Join Date: Nov 2008  
Posts: 140  
  
03-24-2009, 05:02 AM  
Flower pot Bread  
I baked Sundried Tomato Bread at the weekend, I made the recipe up. I don't often make it by hand, as it's hard on the wrists, but I enjoyed the results.  
Bread with sundried tomatoes  


Source: [www.cookingforums.net](http://www.cookingforums.net)



# **Nederlandse Samenvatting**

## NEDERLANDSE SAMENVATTING

Tegenwoordig gebruiken veel bedrijven sociale media als onderdeel van hun marketing strategie. Sociale media zijn applicaties op internet waar bedrijven, maar vooral consumenten de inhoud van de applicaties kunnen creëren en met elkaar kunnen delen. Enkele voorbeelden van sociale media zijn Facebook, Twitter, Instagram, en YouTube. Bedrijven gebruiken sociale media om consumenten te bereiken en zo geëngageerdheid en een sterkere binding met hun klanten te creëren. Sociale media heeft de manier waarop bedrijven werken veranderd; het kan bedrijfsmodellen bedreigen, maar het kan ook kansen opleveren. Ondanks het toegenomen belang van sociale media, is er nog maar relatief weinig academisch onderzoek gedaan naar sociale media binnen het vakgebied marketing. In hoofdstuk 2 bespreken we de huidige literatuur uitgebreid en laten we zien wat we nog niet weten. Dit proefschrift speelt in op deze lacunes in de literatuur en geeft nieuwe inzichten in de invloed van sociale media op bedrijven en consumenten.

Dit proefschrift geeft antwoorden op de volgende vragen: (i) wat motiveert consumenten om merk-gerelateerde activiteiten op sociale media uit te oefenen?, (ii) welke activiteiten van bedrijven zorgen ervoor dat consumenten actiever interacteren met het bedrijf op sociale media?, en (iii) wat is de invloed van sociale media op percepties van consumenten en het bedrijfsresultaat? In dit proefschrift beantwoorden we deze vragen door gebruik te maken van verschillende databronnen en analysemethoden waarbij we op verschillende manieren een significante bijdrage leveren aan theorie en praktijk.

De empirische hoofdstukken zijn aan elkaar gerelateerd. In hoofdstuk 3 onderzoeken we de consumentenkant van het verhaal door de motieven voor merk-gerelateerde activiteiten op sociale media in kaart te brengen. Een voorbeeld van zo'n merk-gerelateerde activiteit is het fan worden van een merk op sociale media, zoals Facebook. Voor bedrijven is het niet alleen van belang om te weten hoe ze consumenten kunnen overtuigen fans te worden, ze willen vervolgens ook interacteren met consumenten. Daarom onderzoeken we in hoofdstuk 4 welke merkberichten bedrijven moeten plaatsen op hun Facebook pagina om het meeste aantal ‘vind-ik-leuks’ en reacties te vergaren. Aangezien bedrijven steeds meer investeren in sociale media, is het belangrijk om te weten wat deze investeringen opleveren. In hoofdstuk 5 laten we zien dat de interacties op de Facebook pagina van het bedrijf leiden tot hogere merkherkenning en merkoverweging.

Investeren in sociale media levert dus zeker iets op voor bedrijven. Vervolgens zullen de belangrijkste resultaten per hoofdstuk in meer detail uiteen gezet worden.

Consumenten verrichten verschillende activiteiten op sociale media, die gerelateerd zijn aan merken. Deze activiteiten verschillen in de hoeveelheid moeite die het kost om ze uit te voeren. Ze kunnen relatief veel moeite kosten (zoals het schrijven van een blog over een merk), gemiddeld moeite (zoals lid worden van een Facebook fan pagina), of slechts een klein beetje moeite (zoals het kijken van een reclame op YouTube). Voor bedrijven is het belangrijk om te weten hoe ze mensen kunnen overhalen om deze activiteiten te verrichten, en dan voornamelijk de activiteiten die meer moeite kosten, omdat eerder onderzoek heeft aangetoond dat deze kunnen leiden tot meer verkopen. Op basis van de zogenaamde psychologische zelfbeschikking theorie, ontwikkelen we in hoofdstuk 3 een raamwerk dat unieke motieven identificeert voor deze verschillende merkgerelateerde activiteiten. In vier verschillende studies laten we zien dat bepaalde motieven ten grondslag liggen aan verschillende activiteiten. In de eerste studie ontwikkelen we met behulp van vragenlijsten maatstaven voor het meten van de motieven en de activiteiten. Ook testen en bevestigen we onze hypothesen in de eerste studie. De drie opeenvolgende experimentele studies laten zien dat de motieven persoonlijke identiteit en socialisatie unieke drijfveren zijn voor de relatief meer moeite kostende activiteiten. Meer specifiek, het motief persoonlijke identiteit is een belangrijk motief om inhoud te creëren, terwijl socialisatie een motief is om bij te dragen aan de inhoud van sociale media sites.

Als consumenten eenmaal participeren in merk-gerelateerde activiteiten op sociale media, zoals fan worden van een merk op Facebook, willen bedrijven vervolgens weten hoe ze de interactie met consumenten op hun Facebook fan pagina kunnen verhogen. Op deze Facebook fan pagina kunnen bedrijven berichten plaatsen met bijvoorbeeld video's, stukjes tekst, quizjes, informatie, etc. Fans van deze pagina's kunnen deze berichten 'liken' of een reactie plaatsen. We noemen deze 'vind-ik-leuks' en reacties merkberichtpopulairiteit. In hoofdstuk 4 onderzoeken we welke elementen van de merkberichten de populairiteit verhogen. Hiervoor analyseren we 355 merkberichten van Facebook van elf verschillende internationale merken en zes verschillende productcategorieën. De resultaten wijzen uit dat het voordeelig is voor het aantal 'vind-ik-leuks' en reacties om een bericht bovenaan de pagina te plaatsen, zodat het meer opvalt. Verder wordt het aantal 'vind-ik-leuks' positief beïnvloed door een video en een wedstrijd. Het aandeel positieve reacties onder een bericht beïnvloedt het aantal 'vind-ik-leuks' op datzelfde bericht ook positief.

Reacties kunnen worden verhoogd door een vraag te stellen. Tevens leiden zowel de aandelen positieve en negatieve reacties tot meer reacties in totaal, wat erop kan wijzen dat mensen de discussie met elkaar aangaan. Managers die verantwoordelijk zijn voor de inhoud op Facebook fan pagina's kunnen dit onderzoek gebruiken om te bepalen wat voor berichten ze kunnen plaatsen.

Als laatste onderzoeken we in hoofdstuk 5 of de investeringen in sociale media ook echt iets opleveren voor bedrijven. We geven inzicht in de gecombineerde effecten van de Facebook pagina van een bedrijf (sociale media marketing), online mond-totmond communicatie (oftewel, de gesprekken van consumenten over het merk online buiten deze Facebook pagina), en reclame op de perceptie van de consument (merkbekendheid, -overweging, en -voorkeur) en nieuwe klanten (acquisitie). We gebruiken unieke data van een Europese telecom provider en gebruiken een analysemethode specifiek voor het analyseren van data over tijd (Vector Autoregressive Model). De resultaten laten zien dat sociale media marketing een substantieel deel verklaart van de variatie in de perceptie van de consument en acquisitie. Voor het verhogen van merkbekendheid blijkt sociale media marketing een grote rol te spelen; de effecten die we vinden voor sociale media marketing zijn groter dan die van online mond-totmond communicatie of reclame. Voor merkoverweging, -voorkeur en acquisitie blijkt reclame het meest belangrijk, gevolgd door online mond-totmond communicatie en sociale media marketing. Verder kan het bedrijf de interacties op de Facebook pagina en mond-totmond communicatie positief beïnvloeden door reclame. Echter, we vinden ook negatieve effecten van reclame op Facebook pagina interacties en mond-totmond communicatie. Deze resultaten laten zien dat de consument dus wordt beïnvloed door alle vormen van informatie over het bedrijf die hij/zij tegenwoordig tegenkomt (sociale media marketing, online mond-totmond communicatie, reclame). Echter, bedrijven moeten goed bedenken in welke media te investeren.

Concluderend, dit proefschrift heeft antwoord gegeven op enkele belangrijke vragen met betrekking tot sociale media en marketing en daarbij leveren we een significante bijdrage aan theorie en praktijk.