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When More Likes is Not Better: The Consequences of High and Low Likes-to-Followers Ratios for Perceived Account Credibility and Social Media Marketing Effectiveness

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Abstract

Previous research on social media marketing assumes that the more followers or “likes” an individual or company has on social media, the better. The current research is the first that challenges this assumption by showing that people make inferences about the credibility of social media accounts based on the number of likes a post receives relative to the size of its likely audience. The findings indicate that high as well as low likes-to-followers ratios negatively influence the perceived credibility of the account, and, as such, dampen social media marketing effectiveness. The addition of hashtags is identified as a way to guard against the negative impact of high likes-to-followers ratios. Managers, (aspiring) influencers, and people in general involved in (personal) branding on social media can use the present findings to maximize the effectiveness of their social media marketing strategy.

Keywords: Social Media Marketing; Instagram; Likes; Followers; Hashtag; Credibility

1.Introduction

“I feel anxiety over how many likes I get after I post a picture.

If I get two likes, I feel like, what’s wrong with me?”

– Anonymous (Olsen and Williams 2017)

A quick search on Google shows a thriving industry based on consumers’ desire to get ever more likes and followers on social media, and the related anxiety about failing to get the high numbers considered reflective of high popularity. For social media platforms like Instagram and Facebook, numerous companies offer services to increase a post’s likes and comments, or to boost an account’s followers. These services include the purchase of likes or followers at so called “like farms.” How popular this “quick fix” for high numbers of likes or followers is shows from estimations that 40% of the influencers have been involved at some point (Geller 2018).

The number of likes or followers on social media is considered an important metric in (personal) branding, as it indicates a person’s or company’s popularity, profitability and, more generally, the post’s effectiveness (De Cristofaro et al. 2014; De Vries et al. 2012). Previous research has examined the factors that impact these metrics, under the assumption of *the more likes or followers, the better* (De Vries et al. 2012). Strikingly, however, no research has yet challenged this assumption.

The current research aims to do so by identifying circumstances under which many likes or followers may backfire. Some blogs on the internet warn against high or low likes-to-followers ratios. High likes-to-followers ratios (i.e., a disproportionately high number of *likes* on a certain post given the number of followers of the account) may signal that likes have been purchased (Osman 2017), whereas low likes-to-followers ratios (i.e., a relatively low

number of likes given the high number of *followers*) may suggest inactive followers because they are bought rather than obtained through shared interests (Ehrhardt 2017). These warnings, however, are not grounded in theory nor based on formal studies looking into the actual consequences of high and low likes-to-followers ratios, or of the suspicion of purchased likes or followers. The current insights into the potentially negative consequences of many likes or followers are thus limited. The present research is the first to empirically investigate the consequences of high and low likes-to-followers ratios for the perceived credibility of social media accounts and social media marketing effectiveness. The findings indicate that both high and low likes-to-followers ratios on an Instagram account negatively influence the perceived credibility of the account and thus detrimentally impact posts' effectiveness. The research further identifies the addition of many hashtags to a post as a way to guard against the negative impact of high likes-to-followers ratios.

This research provides insights for the digital marketing, advertising and social media literature, which are interesting for academics as well as for practitioners and individuals involved with (personal) branding and advertising. It provides valuable and directly applicable implications for both companies and individuals active on social media.

The structure of this paper is as follows. First, the conceptual framework and hypotheses are developed. This section is followed by the description of three experiments testing the formulated hypotheses. The paper concludes with implications for managers and people in general engaging in (personal) branding on social media and proposes some limitations that provide opportunities for future research.

2. Conceptual Framework and Hypotheses

2.1. Likes-to-followers Ratios

It is generally assumed in the literature as well as in the popular press that the more followers a social media account has or the more likes a social media post receives, the higher its marketing effectiveness (De Vries et al. 2012; Hosie 2017; Molloy 2017). One way in which a high number of followers or likes may impact a post's effectiveness is by forming social proof. Social proof is the notion that humans follow the opinions of the crowd. When many people like something, people infer that it should be good (Cialdini 1987). Applied to the social media context, this means that people use the numbers of followers or likes to make inferences about the popularity and quality of social media posts and the accounts they belong to.

However, the current research argues that it is not just the number of likes or followers that users use to make inferences. Rather, it is posited that users make credibility inferences about a post and its account based on the number of likes a post receives *relative to the size of its likely audience*. As Instagram accounts do not contain direct information about the total size of a post's audience nor about the account's credibility, users turn to audience size- and credibility-related *cues* to get an impression (cf. Kirmani 1990; Kirmani and Wright 1989), such as the number of followers for audience size and the number of likes versus followers for account credibility. Previous research has shown that engagement rates on Instagram vary around 3–14%, meaning that for every 1000 followers, a post receives an average of 30–140 likes (Ehrhardt 2017; Erkan 2015; Morales 2017; Osman 2017). Although not everyone would be aware of exactly these numbers, the current research argues that if users feel that a social media post received a disproportionately high or low number of likes given its likely audience size in terms of followers, this negatively affects the perceived credibility of the account. In other words, it is posited that users make inferences about the credibility of social media accounts based on the likes-to-followers ratio of a post. If the ratio

of likes-to-followers is perceived as very high or very low, users will infer that many of the likes or followers must be bogus, and accordingly, perceive the account as less credible.

2.2. Indicators of Social Media Marketing Effectiveness

Existing research has shown that credibility perceptions play an important role in marketing effectiveness (Erdem et al. 2002; Erdem and Swait 2004). Credibility has been shown to increase word-of-mouth and loyalty (Sweeney et al. 2008) as well as quality perceptions and purchase intentions (Baek et al. 2010). No research has yet examined the impact of perceived account credibility on social media marketing effectiveness, however.

Three important objectives of (personal) branding on social media are the creation of a positive attitude towards the profile, convincing users to follow, and convincing users to recommend following the account—the latter being a measure of word-of-mouth. Applying the earlier findings on credibility and marketing effectiveness to the field of social media, a positive relationship between perceived account credibility and these indicators of social media marketing effectiveness is expected. Also expected is the existence of an optimum in terms of likes-to-followers ratios. Posts with too many likes given their number of followers may reduce credibility perceptions by suggesting that likes have been purchased. Conversely, posts with too few likes given the number of followers may lower the perceived credibility by signaling bought, inactive followers and, as such, dampen marketing effectiveness. More formally:

H1: The relationship between likes-to-followers ratios and social media marketing effectiveness is mediated by perceived account credibility, and takes the form of an inverted-U shape, with moderate likes-to-followers ratios being

perceived as more credible and being more effective than low or high likes-to-followers ratios.

2.3. *Inferred Audience Size*

If H1 is true and users make inferences about the credibility of social media accounts based on the number of likes that a post receives relative to the size of its likely audience, the latter inferred from the number of followers, one way to mitigate the negative effect of high likes-to-followers ratios may be to increase the inferred size of the audience by adding hashtags to a post. Hashtags group similar posts together, allowing users to browse posts by subject and making posts easier to find. As such, increasing the number of hashtags in a social media post is a way to increase the number of views by occasional viewers (i.e., people who are not followers of the account) and hence to increase the likely audience size of the post (Mention 2018). Increasing the likely audience size of the post while holding the number of likes constant reduces the disproportionately high number of likes given the likely audience and hence may positively affect credibility perceptions. It is therefore expected that accounts with posts with high likes-to-followers ratios are perceived as more credible and hence are more effective in terms of social media marketing when the post contains a large number of hashtags than when the post contains a small number of hashtags.¹ More formally, this leads to the following hypothesis:

¹ A pretest (N = 28, 57.1% male; mean age 20.6, SD = 0.84) confirmed that users pay attention to the likes-to-followers ratio and number of hashtags. After showing participants a fictitious Instagram account of Peter with 228 followers, 1191 likes on a post, and three hashtags, they were asked how they would describe "Peter". Example responses were (italics added for emphasis): "*As he has excessive likes compared to the followers he has, thinking about Peter I see an insecure person.*" And "Peter is an account with *approximately the same number of followers and followed. However, it is shocking that his picture has around 1000 likes. This suggests he paid or downloaded an app to get more likes, which makes him a little bit of a "loser"...* Also, he only has three hashtags, so it will be nearly impossible to get all the likes for a normal/traditional picture of clouds and only three hashtags."

H2: The number of hashtags in a social media post moderates the impact of the likes-to-followers ratio on perceived account credibility, so that a high number of hashtags mitigates the negative effect of high likes-to-followers ratios on the perceived credibility of the account.

In sum, it is expected that the impact of likes-to-followers ratios on social media marketing effectiveness is mediated by perceived account credibility and moderated by number of hashtags. The conceptual framework, depicting the hypothesized relationships with solid black lines, is presented in Figure 1².

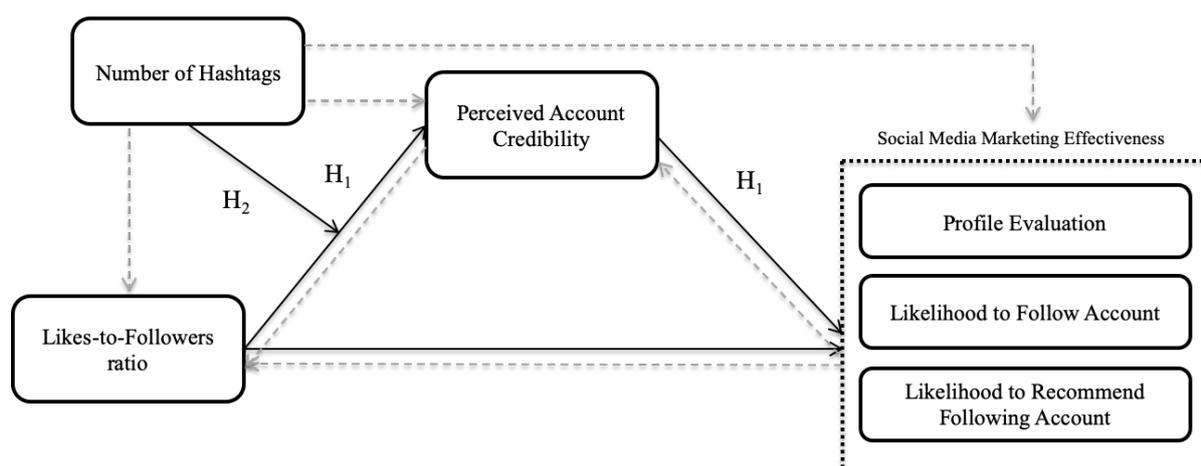


Figure 1. Conceptual Framework

3. Experiment 1

In Experiment 1 the relationship between likes-to-followers ratios and social media marketing effectiveness was examined, as well as the mediating role of perceived account credibility. Three levels of likes-to-followers ratios were included to test the inverted-U shape hypothesized in H1.

² Possible structural relationships that are not central to, and hence not tested in, the current research are depicted with light grey dashed lines.

3.1.Method

Three-hundred participants (55.3% male; mean age 33.6, $SD = 9.32$; 78% from the United States, 16% from India, the rest from diverse countries; 66% having at least a four-year college degree) took part in this study conducted on MTurk. The study used a 3 (likes-to-followers ratio: low vs. moderate vs. high) between-participants factorial design.

After signing an informed-consent form, participants were randomly assigned to one of three conditions. All participants were instructed to take a look at an Instagram account and post of a fictitious person (Peter). In all conditions, the account had 300 followers. In line with the average engagement rates on Instagram (see Appendix 1), participants in the low versus moderate versus high likes-to-followers ratio conditions saw an Instagram post with respectively 5, 25 or 255 likes (Appendix 2). Participants were then asked: “*How likely is it that you would follow this person on Instagram?*” and “*How likely is it that you would recommend following this profile to someone else?*” [(1) *not at all likely*, (7) *very likely*; averaged into an indicator of social media marketing effectiveness; $\alpha = 0.92$]. The measure of account credibility consisted of: “*What is your impression of the number of likes relative to the number of followers?*” [(1) *very negative*, (7) *very positive*]. At the end participants were asked: “*When I formed my opinion about the Instagram post, I looked at (multiple answers possible)...: The number of: likes/ followers/ likes relative to followers*”, “*How suspicious do you find the number of likes relative to the number of followers?*”, “*Are you aware of the possibility to purchase likes?*”, “*How common do you think is the purchase of likes?*”, and “*How often have you bought likes?*” [(1) *not at all/never* to (7) *very much/common/familiar/frequently*].

3.2. Results and Discussion

Preliminary checks confirmed that participants paid attention to the likes-to-followers ratio. When forming their opinion about the Instagram post, 49.7% consciously looked at the number of likes, 66.0% at the number of followers, and 47.7% at the number of likes relative to the number of followers (i.e., likes-to-followers ratio). Moreover, an one-sample t-test using the scale's mid-point as a benchmark confirmed that on average participants were aware of the possibility to purchase likes on Instagram posts ($M = 4.46$; $SD = 2.31$; $t(299) = 33.49$, $p < .001$). They also believed that the purchase of likes is fairly common ($M = 4.28$; $SD = 1.75$; $t(299) = 42.41$, $p < .001$), and 28.7% of participants indicated that they had bought likes on Instagram at least once themselves. Finally, participants who were more aware of the possibility of purchasing likes found likes-to-followers ratios more suspicious ($r = 0.16$, $p = 0.003$).

To determine whether the effect of likes-to-followers ratios on social media marketing effectiveness was mediated by perceived account credibility, first two one-way ANOVAs were performed. The ANOVA with social media marketing effectiveness as a function of likes-to-followers ratios revealed the expected effect ($F(2,297) = 5.39$, $p < .01$). In line with the predicted inverted-U shape, post hoc tests (least significant difference; LSD) confirmed that participants in the moderate likes-to-followers ratio condition indicated higher social media marketing effectiveness compared to participants in the low and high likes-to-followers ratio conditions (see Table 1).

An ANOVA with perceived account credibility as a function of likes-to-followers ratios ($F(2,297) = 8.57$, $p < .0001$) showed a similar pattern: participants in the moderate likes-to-followers ratio condition indicated higher perceived credibility than those in the low

and high likes-to-followers ratio conditions. Both social media marketing effectiveness and perceived credibility did not differ between the low and high likes-to-followers ratio conditions.

Continuing, the Process macro for multi-categorical mediation with bias-corrected bootstrapping, 5000 resamples, and moderate as the reference category (Model 4; Hayes 2018), showed that the effect of likes-to-followers ratios on social media marketing effectiveness was mediated by perceived account credibility (95% CI, excluding zero: low vs. moderate [-.86,-.24], high vs. moderate [-.70,-.18]), confirming H1.

Experiment	Likes-to-followers ratio condition	Social media marketing effectiveness		Account credibility	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
1	Moderate	3.94 ^{a,b}	2.01	4.98 ^{c,d}	1.47
	Low	3.40 ^a	1.90	4.18 ^d	1.66
	High	3.07 ^b	1.80	4.33 ^c	1.22
2	Low	3.69 ^{a,b}	1.33	3.15 ^{a,b}	1.47
	Moderate ^I	4.14 ^a	1.07	3.88 ^a	1.43
	Moderate ^{II}	4.28 ^b	1.17	3.75 ^b	1.31

Table 1. Results one-way ANOVAs. Superscripts a, b, c, d indicating significant differences within column at $p < .05$, .01, .001 and .0001 level respectively.

4. Experiment 2

In Experiment 2 the relationship between likes-to-followers ratios, perceived account credibility, and social media marketing effectiveness was again examined. However, instead of manipulating the number of likes and keeping the number of followers constant (Experiment 1), the number of likes was kept constant and the number of followers manipulated. The goal of this experiment was to examine in more detail the negative effect, identified in Experiment 1, of a high number of followers of an account relative to the number of likes on a post (i.e., of *low* compared to moderate likes-to-followers ratios).

4.1. Method

One hundred and seventy-six participants (31.8% male; mean age 23.0, $SD = 8.30$; 85.8% from North America and Europe, the others from countries across the world; 38.1% having at least a four-year college degree) were recruited by undergraduate students (e.g., friends, family and acquaintances) in return for partial course credit. The study used a 3 (likes-to-followers ratio: moderate^I vs. moderate^{II} vs. low) between-participants factorial design.

After signing an informed-consent form, participants were randomly assigned to one of three conditions. Similar to Experiment 1, participants were instructed to look at the Instagram account and post of Peter. In all conditions, the post received 18 likes. In the moderate^I versus moderate^{II} versus low likes-to-followers ratio conditions, the Instagram account had 200, 500 or 2000 followers respectively (Appendix 3). Participants were then asked: “*How do you feel towards Peter?*” and “*How do you feel towards this profile?*” Both items ranged from (1) *very negative* to (7) *very positive*, and were averaged into an indicator of social media marketing effectiveness ($\alpha = 0.89$). As a measure of account credibility, participants were asked: “*How (I) believable/ (II) credible do you find this account?*”, and “*Do you trust this account?*” [(1) *not at all*, to (7) *very much*; $\alpha = 0.92$]. The questionnaire finished measuring participants’ social media expertise ($\alpha = 0.89$): “*How familiar are you with Instagram?*”, “*How would you rate your expertise on (I) social media?/ (II) Instagram?*” [(1) *not at all familiar/very low expertise* to (7) *very familiar/very high expertise*].

4.2. Results and Discussion

An ANOVA with social media marketing effectiveness as a function of likes-to-followers ratios demonstrated the expected effect ($F(2,173) = 4.00, p < .05$). Post hoc tests (LSD) confirmed that participants in the low likes-to-followers ratio condition indicated lower social media marketing effectiveness compared to participants in the two moderate likes-to-followers ratio conditions (Table 1). An ANOVA with perceived account credibility as a function of likes-to-followers ratios showed similar findings ($F(2,173) = 4.59, p < .05$): participants in the low likes-to-followers ratio condition reported lower perceived credibility compared to participants in the two moderate likes-to-followers ratio conditions. Both analyses hold that social media marketing effectiveness and perceived credibility did not differ between the two moderate likes-to-followers ratio conditions.

Finally, Process Model 4 for multi-categorical mediation with bias-corrected bootstrapping, 5000 resamples, and low as the reference category, showed that the effect of likes-to-followers ratios on social media marketing effectiveness was mediated by perceived account credibility³ (95% CI: moderate^I vs. low [.11, .67], moderate^{II} vs. low [.06, .58]). These findings provide further support for H1, with moderate likes-to-followers ratios being perceived as more credible and being more effective than low likes-to-followers ratios.

5. Experiment 3

The goal of Experiment 3 was twofold. The first goal was to test whether the addition of a high number of hashtags to a post could mitigate the negative effect of a high likes-to-followers ratio on perceived account credibility, as predicted by H2. The second and most encompassing goal was to test the entire proposed theoretical framework in one model of

³ Controlling for social media expertise by including it as a covariate rendered the same results (moderate^I vs. low [.10, .66], moderate^{II} vs. low [.05, .56]).

moderated mediation, explaining the impact of likes-to-followers ratios on social media marketing effectiveness in terms of perceived account credibility and number of hashtags used.

5.1.Method

Two hundred and ninety-nine participants (44.5% male; mean age 29.2, $SD = 14.59$; 83.5% from North America and Europe; 38.8% having at least a four-year college degree) were recruited by undergraduate students (e.g., friends, family and acquaintances) in return for partial course credit. The study used a 2 (likes-to-followers ratio: moderate vs. high) \times 2 (number of hashtags: few vs. many) between-participants factorial design.

After signing an informed-consent form, participants were randomly assigned to one of four conditions. Participants were instructed to look at the same Instagram account and post as in Experiment 1. In all conditions the account had 228 followers. Participants in the moderate likes-to-followers ratio, few hashtags condition saw an Instagram post with 29 likes and one hashtag. Participants in the moderate likes-to-followers ratio, many hashtags condition saw an Instagram post with 29 likes and twenty hashtags. Participants in the high likes-to-followers ratio, few hashtags condition saw the post with 1,191 likes and one hashtag. Participants in the high likes-to-followers ratio, many hashtags condition saw the post with 1,191 likes with 20 hashtags (Appendix 4). Participants were then asked: “*How do you evaluate this profile?*” (0 to 10; 10 being most positive), and “*How likely is it that you would follow this person on Instagram* [(1) *not at all likely*, (7) *very likely*]. Measuring perceived account credibility, participants then evaluated the owner of the profile as being honest, sincere, real, and credible, and indicated how credible they found the account [(1) *not at all*, (7) *very much*; $\alpha = 0.90$].

5.2. Results and Discussion

An ANOVA on perceived account credibility as a function of likes-to-followers ratio and number of hashtags showed no main effect of number of hashtags ($F(1,295) = 1.55$, NS). A significant main effect of likes-to-followers ratio ($F(1,295) = 6.96$, $p < .01$) indicated lower perceived account credibility with a higher likes-to-followers ratio. Germane to H2, the predicted interaction between the likes-to-followers ratio and number of hashtags was also significant ($F(1,295) = 4.91$, $p < .05$).

In line with Experiment 1, simple main effects analyses showed that under conditions of few hashtags, accounts with high likes-to-followers ratios were perceived as less credible than accounts with moderate likes-to-followers ratios ($F(1,295) = 11.65$, $p = .001$). In addition, and in support of H2, under conditions of many hashtags no difference existed in perceived account credibility between accounts with high and moderate likes-to-followers ratios ($F < 1$, NS). Indeed, adding many hashtags to a post with a high likes-to-followers ratio significantly increased the perceived account credibility ($F(1,295) = 5.74$, $p < .05$), up to the level of posts with moderate like-to-followers ratios. Adding hashtags to a post with a moderate likes-to-followers ratio did not affect perceived account credibility ($F < 1$, NS; see Figure 2).

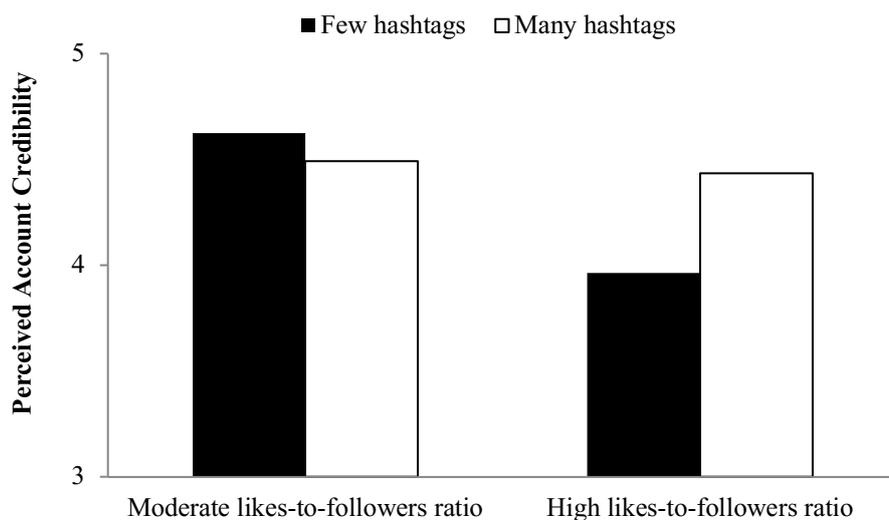


Figure 2. Perceived Account Credibility as a Function of Likes-to-Followers Ratio and Number of Hashtags

To examine whether the lower perceived account credibility under conditions of high likes-to-followers ratios and few hashtags translates into a more negative evaluation of the profile and a lower likelihood to follow the account, two moderated mediation analyses were performed (Model 7; Hayes 2018). The first analysis used the likes-to-followers ratio as independent variable, the number of hashtags as moderator, the perceived account credibility as mediator, and profile evaluation as proposed dependent variable. A bootstrapping procedure with 5000 re-samples showed a significant index of moderated mediation (95% CI: [0.25,1.65]). More specifically, a significant indirect effect for the few hashtags condition was found ([-1.33,-0.32]), such that the lower perceived account credibility under conditions of high likes-to-followers ratios and few hashtags translated into a more negative profile evaluation. In contrast, no significant indirect effect was found for the many hashtags condition ([-0.32,0.64]).

This exact same analysis was repeated with likelihood to follow the account as dependent variable. The results again showed a significant index of moderated mediation ([0.09,0.79]). That is, a significant indirect effect for the few hashtags condition ([-0.72,-0.21]) confirmed that the lower perceived account credibility under conditions of high likes-

to-followers ratios and few hashtags resulted in a lower likelihood to follow the account. No significant indirect effect was found for the many hashtags condition ($[-0.27, 0.23]$).

The findings of Experiment 3 were in line with H1. Moreover, they provided support for H2 and the entire proposed theoretical framework by showing that perceived account credibility mediates the effect of likes-to-followers ratios on social media marketing effectiveness under conditions of few hashtags but not when many hashtags are used, confirming the mitigating influence of a high number of hashtags on the relationship between likes-to-followers ratios and perceived account credibility.

6. General Discussion

The current research is the first to demonstrate that a high number of likes or followers is not necessarily a good thing, which so far seemed to be the belief in the literature as well as in the popular press. More concretely, the present research warns against high and low likes-to-followers ratios given their negative effects on perceived account credibility, profile evaluation, likelihood to follow, and to recommend following the account. Moreover, it shows the importance of perceived account credibility for social media marketing effectiveness and identifies how to guard against the negative effect of high likes-to-followers ratios.

6.1. Implications for Practice

The influencer industry, in which individuals promote products or services on social media and are paid by companies for doing so, is an immense industry projected to be worth a 5–10 billion USD by 2020. Two billion USD of this is estimated to occur on Instagram,

from micro-influencers making around 50 USD per post to big stars reportedly receiving half a million USD per Instagram post (Mediakix 2017). Given the substantial amounts of money involved and the potential for earning by advertising on social media platforms, managers, (aspiring) influencers, as well as people in general involved with (personal) branding and advertising on social media platforms can use the findings of this research to decide whether or not to stimulate the number of followers of an account, the number of likes on a post and/or to choose the number of hashtags to use when striving for credibility and effective social media marketing, including word-of-mouth. As a guideline, engagement rates of 3–14 percent may result in moderate likes-to-followers ratios, with lower engagement rates resulting in low and higher engagement rates resulting in high likes-to-followers ratios (see Appendix 1). Moreover, the addition of hashtags to posts with moderate likes-to-followers ratios did not affect perceived account credibility, while it improved the perceived credibility under conditions of high likes-to-followers ratios. Hence the use of many hashtags is generally recommended and is deemed vital when high likes-to-followers ratios are expected. But how many hashtags are “many”? The maximum number of hashtags that one can use in an Instagram post is 30 (Mention 2018). A pretest ($N = 50$; 38.0 % male; mean age 33.8 years, $SD = 10.16$) showed that participants agreed with the statements “Twenty hashtags in an Instagram post is many” (scale ranging from (1) *strongly disagree* to (7) *strongly agree*; $M = 6.70$; $SD = 0.61$; one-sample t-test using the scale’s mid-point as a benchmark, $t(49) = 36.83$, $p < .0001$), and “One hashtag in an Instagram post is few” ($M = 5.82$; $SD = 1.90$; $t(49) = 8.62$, $p < .0001$), while disagreeing with the statements “Twenty hashtags in an Instagram post is few” ($M = 1.40$; $SD = 0.86$; $t(49) = -17.32$, $p < .0001$), and “One hashtag in an Instagram post is many” ($M = 1.32$; $SD = 0.91$; $t(49) = -16.88$, $p < .0001$). Note that the use of hashtags does not come with extra cost, while potential losses in terms of credibility and marketing effectiveness could be prevented.

Finally, from a managerial perspective, a practical implication of the research may be to invest only in influencers who will resist the temptation of purchasing likes or followers and, as such, prevent credibility issues by artificially increased or deflated likes-to-followers ratios on their posts.

6.2.Limitations and Further Research

This research is subject to some limitations that may provide fruitful opportunities for future research. The current study focused on the social media platform Instagram. Academic research on Instagram is still limited (e.g., Sheldon and Bryant 2016). However, with more than 800 million monthly active users (Statista 2017), and people reportedly spending more time on Instagram than on similar sites (Sheldon and Bryant 2016), the importance of studying this social media platform is evident. Future research may examine whether the findings of this research generalize to other social media platforms that also show the number of likes on a post and the account's number of followers, like Facebook and Twitter.

An Instagram profile of an individual has been used in this research. There is no apparent reason to assume it would not, but future research may replicate this research using company profiles to examine whether the findings generalize to social media profiles of companies with varying levels of likes-to-followers ratios. Moreover, previous research suggests that small companies may be perceived as more sincere than big companies in their underlying motivations (De Vries and Duque 2018), and hence further research may study the impact of firm size on the perceived credibility of the corporate Instagram account.

Other than hashtags, further research may examine whether other ways to increase the number of views by occasional viewers and hence the likely audience size of the post, such as the addition and number of tagged users, have similar effects. By tagging other

Instagram users, the post will also be visible to the tagged person(s) and to all of his/her followers (Mention 2018), and, as such, may similarly impact credibility inferences.

Finally, rather than how many people like or follow, do people pay attention to *who* likes a post, is following, or is not following an account? What are the underlying motivations of liking versus not liking a post when following versus not following a certain account, and how do these motivations spill over to others? What are the consequences of a high number of likes from “the wrong people”; that is, people a brand or influencer does not want to associate itself with? Likes from *undesired* users may be a realistic risk when likes or followers are purchased and hence lie outside of the profile owner’s control.

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Appendix 1. Explanation Likes-to-followers Ratios and Classification, Experiments 1-3

Experiment	Likes	Followers	Likes-to-followers ratio	Engagement rate (likes/followers)*100%	Classification Likes-to-followers ratio
1	5	300	5:300	1.7%	Low
	25	300	25:300	8.3%	Moderate
	255	300	255:300	85%	High
2	18	200	18:200	9%	Moderate
	18	500	18:500	3.6%	Moderate
	18	2000	18:2000	0.9%	Low
3	29	228	29:228	12.7%	Moderate
	1191	228	1191:228	522.4%	High

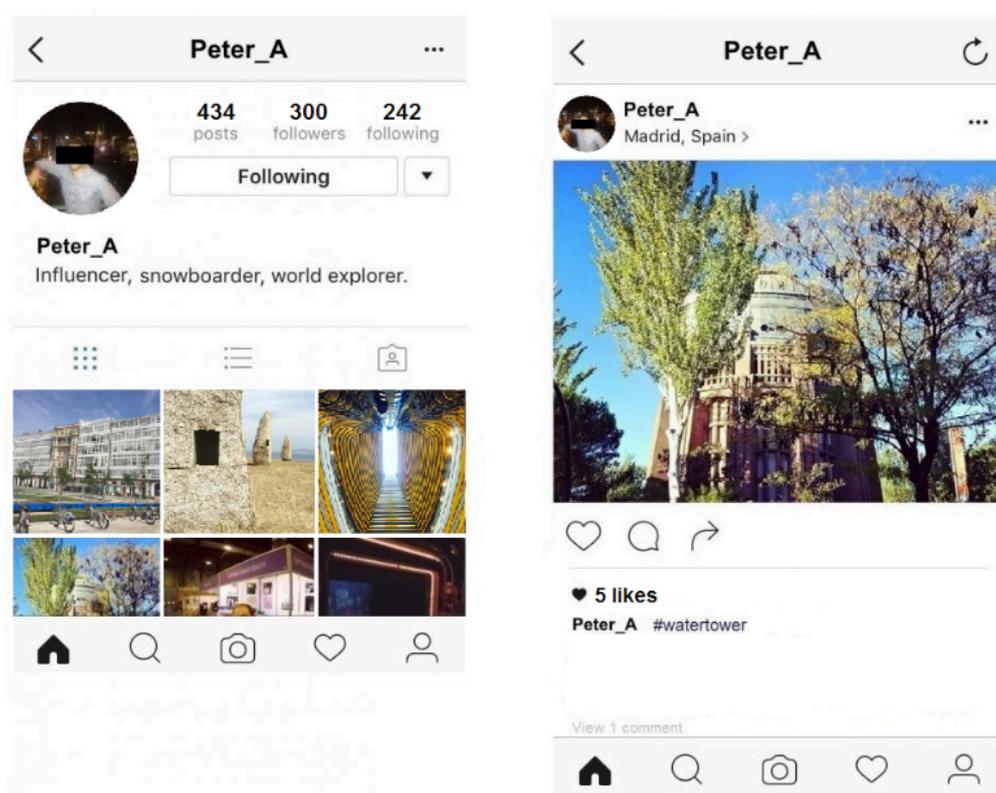
* The classification of likes-to-followers ratios is based on the average engagement rate on Instagram (i.e., 3–14 percent; Ehrhardt 2017; Erkan 2015; 2019; Morales 2017; Osman 2017) as a benchmark for being moderate (versus high or low).

Appendix 2. Likes-to-followers Ratio Manipulation Experiment 1

Thank you for taking part in this research. You will participate in a study about Instagram, which will take around 8 minutes of your time.

Please take a look at the Instagram profile and post below, and continue with the questions on the following screen.

Low/moderate/high likes-to-followers ratio condition:



< **Peter_A** ...

 **434** posts **300** followers **242** following

Following ▾

Peter_A
Influencer, snowboarder, world explorer.



< **Peter_A** ↻

 **Peter_A**
Madrid, Spain > ...



♥ **25 likes**

Peter_A #watertower

View 1 comment

< **Peter_A** ...

 **434** posts **300** followers **242** following

Following ▾

Peter_A
Influencer, snowboarder, world explorer.



< **Peter_A** ↻

 **Peter_A**
Madrid, Spain > ...



♥ **255 likes**

Peter_A #watertower

View 1 comment

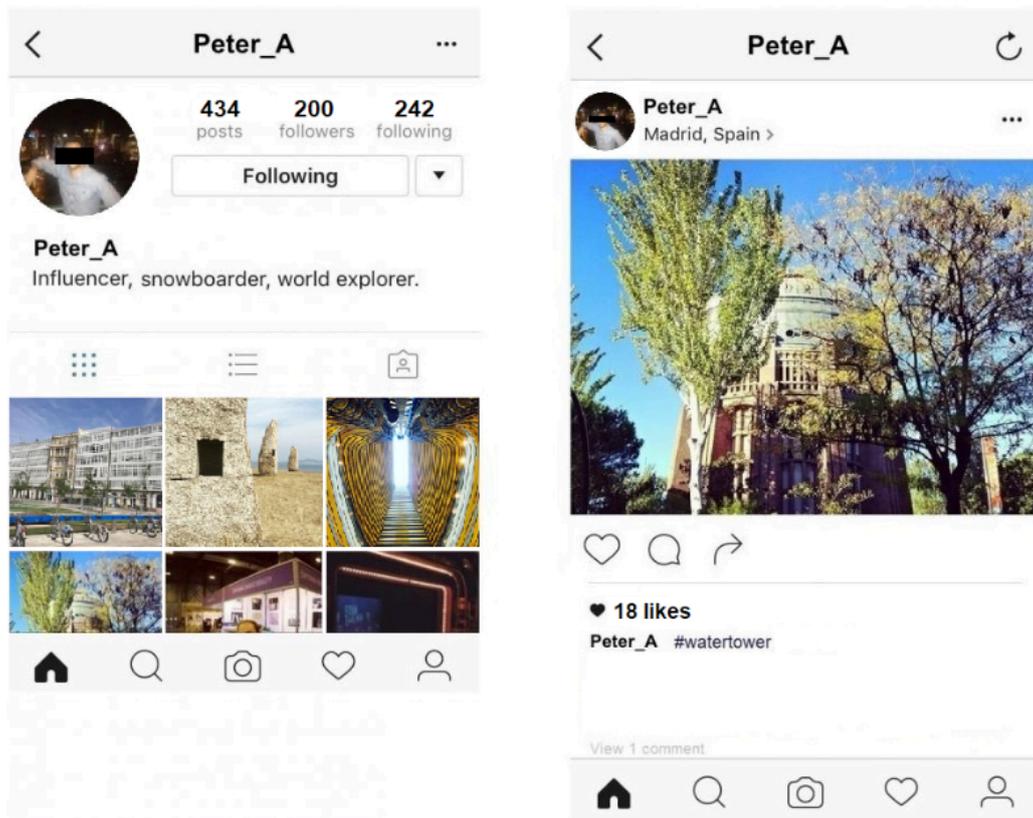
    

Appendix 3. Likes-to-followers Ratio Manipulation Experiment 2

Thank you for taking part in this research. You will participate in a study about Instagram, which will take around 8 minutes of your time.

Please take a look at the Instagram profile and post below, and continue with the questions on the following screen.

Moderate^I/Moderate^{II}/Low likes-to-followers ratio condition:



< **Peter_A** ...

 **434** posts **500** followers **242** following

Following ▾

Peter_A
Influencer, snowboarder, world explorer.

⋮ ☰ 📁



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< **Peter_A** ↻

 **Peter_A**
Madrid, Spain > ...



❤️ 💬 ➦

♥️ **18 likes**
Peter_A #watertower

View 1 comment

🏠 🔍 📷 ❤️ 👤

< **Peter_A** ...

 **434** posts **2000** followers **242** following

Following ▾

Peter_A
Influencer, snowboarder, world explorer.

⋮ ☰ 📁



🏠 🔍 📷 ❤️ 👤

< **Peter_A** ↻

 **Peter_A**
Madrid, Spain > ...



❤️ 💬 ➦

♥️ **18 likes**
Peter_A #watertower

View 1 comment

🏠 🔍 📷 ❤️ 👤

Appendix 4. Hashtags Manipulation Experiment 3

Thank you for taking part in this research. You will participate in a study about Instagram, which will take around 8 minutes of your time.

Please take a look at the Instagram profile and post below, and continue with the questions on the following screen.

Few hashtags condition:



Many hashtags condition:

