ARTICLE IN PRESS

Business Horizons (2019) xxx, xxx-xxx



Available online at www.sciencedirect.com

ScienceDirect



INDIANA UNIVERSITY

www.elsevier.com/locate/bushor

The double-edged impact of social media on online trading: Opportunities, threats, and recommendations for organizations

Lorenzo Bizzi a,*, Alice Labban b

KEYWORDS

Social media; Online trading; Social networks; Blogging; Cryptocurrencies Abstract While we understand well how social media channels sway consumers, there is little understanding of their influence on online trading behavior. We argue that social media are creating a new class of self-directed online traders by simultaneously encouraging and biasing trading decisions. Through an empirical study, we show that heavy social media users are more likely to engage in online trading but are largely affected by online herding behavior, and are four times more likely to blindly follow other traders. Bloggers, influencers, social network contacts, and social media news shape these users' online trading behaviors. As online traders influenced by social media are unlikely to receive adequate returns, companies face an ethical dilemma: They could leverage social media to efficiently access funds but they risk inappropriately exploiting the inexperience of online traders biased by social media. We offer a set of nine practical recommendations for organizations to respond to these new challenges.

 $_{\odot}$ 2019 Kelley School of Business, Indiana University. Published by Elsevier Inc. All rights reserved.

1. The impact of social media on trading: The rise of online traders

Bitcoin and cryptocurrencies represent a fascinating and timely case to study. A bitcoin traded in July 2010 for just \$0.06, in January 2017 for \$900, and in

^a Mihaylo College of Business & Economics, California State University, Fullerton, 800 N. State College Blvd., Fullerton, CA 92831, U.S.A.

^b Seaver College, Pepperdine University, 24255 Pacific Coast Highway, Malibu, CA 90265, U.S.A.

^{*} Corresponding author

E-mail addresses: lbizzi@fullerton.edu (L. Bizzi),
alice.labban@pepperdine.edu (A. Labban)

L. Bizzi, A. Labban

December 2017 for \$19,700. In 2010, \$100 invested would have turned into over \$30 million in 2017. By the end of 2017, there were over 1,300 cryptocurrencies with a market capitalization of about \$587 billion and \$500 billion daily volume of online transactions. After reaching their peak, the cryptocurrencies' prices started dramatically fluctuating and bitcoin's price dropped from \$19,000 to about \$5,000 in just a few months. One possible reason for both the performance and risk of cryptocurrencies is the effect of social media on online trading, which started from the beginning. The creator of Bitcoin, Satoshi Nakamoto, published a white paper online, disseminating information in over 500 posts in a social media forum. Bitcoin started attracting interest in 2011 when WeUseCoins published an online video that went viral on social media, reaching 6.4 million views. Social media diffused information about companies accepting bitcoin as payment and about the growth of cryptocurrencies. Garcia, Tessone, Mavrodiev, and Perony (2014) stipulated that the volume of word-of-mouth communications in social media and the volume of information search diffused through social media influenced price growth and fluctuations of Bitcoin. Mai, Shan, Bai, Wang, and Chiang (2018) found that the user-generated content diffused through social media had a significant impact on Bitcoin volume of transactions and performance. The cryptocurrency case is an example of how social media can significantly affect online trading, calling for the need to understand the phenomenon.

The purpose of this article is to understand how social media influence online trading. While we are already aware that social media affect decisions of institutional investors—44% of them reported using social media to find content that can better inform investment decisions (Greenwich Associates, 2014)—there is an unexplored effect of social media that academics have not yet considered. Social media is creating a new class of online traders that has been growing in recent years. According to Aite Group (2014), about 25% of U.S. adults are online self-directed traders, totaling 54 million traders with \$2.8 trillion in assets. NASDAQ (2017) reported that in 2017, E-Trade Financial Corporation alone reached 3.6 million brokerage accounts that held \$285 billion in securities. Self-directed online traders tend to be young, with millennials controlling 68% of all atrisk assets, according to J.D. Power (2017). A study by the Student Loan Report (2018) said that over 20% of university students with loan debt used their borrowings for cryptocurrency trading.

The effects of social media on online trading is not entirely positive. Individuals are likely

attracted by the messages diffused by social media and are encouraged to use their financial resources in online trading instead of using them for alternative purposes, such as savings, mortgages, long-term investments, or consumption. This increases the supply of capital, market liquidity. capitalization, and, consequently, the performance of traded assets. However, the new traders' lower financial literacy-compared to experienced or institutional investors—makes them vulnerable to the distorted messages spread via social media. Social media sources can influence herding behaviors in which traders blindly and quickly follow one another's trading decisions, which cause swift fluctuations in asset prices that influence risk of traded financial assets. In light of these observations, we illustrate the effects of social media use on online trading, explore aggregate consequences for organizations, and devise actionable recommendations for organizations to exploit opportunities and minimize threats.

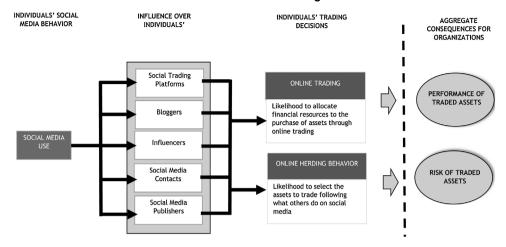
2. A model for social media use and online trading

Figure 1 portrays how social media use influences online trading. The model presents five sources of social media influence that affect online trading behaviors in two ways: (1) online trading decision, which refers to the decision to use personal financial resources for the acquisition through online trading of financial assets (e.g., stocks, securities, cryptocurrencies) instead of using these resources for alternative uses (e.g., consumption, saving, long-term investments); and (2) online herding behavior, which is the decision to select the assets to trade online as a function of the decisions or suggestions made by others. The model anticipates that the more people use social media, the more affected they are by these social media influences and the more likely they are to engage in online trading and online herding behavior. Sections 2.1.-2.5, review the five social media sources of influence, detailing how they specifically affect online trading and online herding behaviors.

2.1. Social trading platforms

Social trading platforms, such as ZuluTrade, Stock-Twits, Seeking Alpha, Sharewise, Wikifolio, or eToro—a platform that boasted 5 million accounts in 2018—offer information via decentralized crowd-sourced stock assessments in which individuals copy the trading decisions of one another instead of following financial recommendations provided by

Figure 1. A model for the effect of social media on online trading behavior



institutional investors. These specialized channels have been growing in popularity and attracting new traders (Wang et al., 2015). The more people use social media, the more they get exposed to information about social trading platforms, increasing the likelihood of engaging in online trading since they perceive that online trading is easy and accessible to everyone. However, social trading platforms exacerbate herding behaviors because individuals automatically imitate trading choices of the masses.

2.2. Bloggers

Bloggers are perceived as credible sources that send reliable quality signals, strongly influencing the perceptions of individuals and their subsequent decisions (Luo, Zhang, Gu, & Phang, 2017). Financial bloggers provide information about trading recommendations and forecasts, impacting trading decisions (Saxton & Anker, 2013). Individuals perceive bloggers report whispers, rumors, privileged information, and precious leaks that may not be known to those who do not blog, therefore motivating trading decisions (Harjoto, Zaima, & Zhang, 2009). Financial bloggers compete to attract an audience by disseminating a large amount of trading information and have become important sources of information for trading (Fotak, 2007). The more people spend time using social media, the more they will be influenced by bloggers and decide invest with online trading. However, the crowd imitates the choices of famous bloggers. Bloggers influence one another and followers imitate bloggers and share their predictions, exacerbating herding behaviors.

2.3. Influencers

On February 21, 2018, Kylie Jenner posted an adverse tweet against Snapchat and, soon after, the

stocks of the company plummeted, leading to losses of \$1.3 billion. A scrupulous analysis suggests there were multiple possible causes behind the collapse, but still several suggest that the tweet may have somehow influenced the fluctuation. While bloggers are primarily known for their blogs, influencers do not necessarily have a website or blog but are sought after by many individuals and are often at the center of conversations rather than being the person who guides them. Social media celebrities, through their comments and opinions, influence individuals who would like to be associated and identified with them (Shalev & Morwitz, 2011). Influencers are powerful human brands that positively impact the performance of companies associated with them (Kupfer, vor der Holte, Kübler, & Hennig-Thurau, 2018). The motivation to be recognized as influential members in a social media network drives social media influencers (Kietzmann, Hermkens, McCarthy, & Silvestre, 2011). About 40% of financial advisers are motivated to promote a personal image of a thought leader and influencer through social media (Putnam Investments, 2015). The more people use social media, the more they become likely to follow influencers' recommendations and engage in online trading. However, individuals blindly follow the opinions or recommendations of influencers instead of rationally making decisions on their own (Pelster & Gonzalez, 2016), exacerbating herding behaviors.

2.4. Social network contacts

The personal contacts developed through social networks influence-trading behaviors. Social contacts use social networking sites to give visibility to their trading decisions, through posts, to exchange information about trading decisions and encourage each other to trade (Mudholkar & Uttarwar, 2015).

Information coming from friends and social contacts is perceived as trustworthy and individuals tend to give more importance to word-of-mouth communication from social contacts than from professional experts (Garcia, 2013).

Affective relationships lead individuals to imitate the decisions of their friends in order to satisfy the need of belonging to a group (Kilduff, 1990). If contacts make a social media post about their acquisition of a cryptocurrency or encourage trading, a friend may feel the desire to imitate them. The constant information provided by social media contacts and accessed through notifications from mobile apps may exacerbate fear of missing out as applied to trading decisions, motivating individuals to trade in order to reduce the apprehension and anxiety that stems from the possibility of missing out on rewards social contacts are enjoying (Clor-Proell, Guggenmos, & Rennekamp, 2018). Katsenelson (2018) argued that fear of missing out may have been a core reason why many individuals bought bitcoin and other cryptocurrencies. The more people use social media, the more they are influenced by their network of contacts, increasing the likelihood to trade online. Moreover, friends will imitate one another's trading decisions, which will quickly spread in the social networks and exacerbate herding behaviors.

2.5. Online trading publishers

Social media host a large number of pages from new media publishers that specialize in disseminating online trading information. Online content published in social media is timely, constantly updated, and easily accessible. While acclaimed media sources (e.g., The Wall Street Journal or Financial Times) often require a paid subscription, these specialized publishers are mostly free and targeted specifically to self-directed online traders. The more people use social media, the more they get exposure to information about online trading, which increases familiarity with it and encourages involvement. Information diffused through social media publishers is likely to appeal because of sensationalism and extreme opinions that quickly exacerbate positive or negative views. Social media publishers spurred the diffusion of deliberate misinformation, or fake news, that attract interest because of their sensational appeal. Social media are the perfect vehicle for the diffusion of fake news because content spreads without third-party filtering, fact checking, or editorial judgment, which allows individuals with no record or reputation to reach as many readers as major publishers (Allcott & Gentzkow, 2017). Fake news tends to spread rapidly through social media because people are less likely to question news when they see themselves as part of a public social group (Jun, Meng, & Johar, 2017), especially when it comes to younger individuals who tend to trust online sources more than others (Warner-Søderholm et al., 2018). As fake news become viral, it is likely to trigger herding behaviors. Information reported by online trading publishers often leverages questionable technical analysis that appeals to a large audience due to its simplicity but supports impulsive decisions and herding behaviors.

3. An exploratory empirical study

In order to provide evidence for the effect of social media on online trading, we conducted an exploratory empirical study on a random sample of 286 Americans. The sample selection was completely random, without exclusion criteria, except for adult age, to assess the observed effects on a sample representative of the diversity of the entire U.S. population. We measured social media use by asking respondents to indicate the amount of time they usually spend on social media each day. We then asked them to report how likely they are to engage in online trading. Then, using indicators for online herding behavior, we asked them to assess the likelihood, if they were to engage in online trading, that they would make trading decisions "following the choices others make when trading online, blindly following the choices others make when trading online or looking at choices others make rather than trying to understand future cash flow." We then assessed the strength of the sources of social media influence. First, we asked: "In general, how likely are you to consider the opinion of the following people on social media?" providing the following options: bloggers, influencers, my social media friends and contacts, people who write articles in social media, and online news publishers. Second, we focused specifically on assessing the influence of social media sources on online trading decisions and asked the following question: "If you would ever do online trading, how likely are you to consider the opinion of the following people on social media?" The answers provided were bloggers, influencers, my social media friends and contacts, people who write articles in social media about online trading, and people who use social trading platforms (which was explained as websites in which online traders share opinions and choices about online trading). Questions were rated using 5-point Likert scales.

Table 1. Empirical evidence from the exploratory study

		OUTCOME	Light SM use	Heavy SM use	Diff.	Partial Correl	Statistical Strength
USE	ONLINE TRADING	Likelihood to engage in online trading	55%	63%	+14%	.15	p =.009
	NLINE HERDING BEHAVIOR	Following the choices others make when trading online	54%	78%	+44%	.23	p =.000
		Blindly following the choices others make when trading online	4%	26%	+441%	.22	p =.000
		Looking at choices others make rather than trying to understand future cash flow	34%	56%	+64%	.24	p =.000
	SOCIAL MEDIA INFLUENCE	Bloggers	37%	59%	+57%	.27	p =.000
		Influencers	25%	45%	+76%	.27	p =.000
Σ		My social media friends and contacts	69%	89%	+28%	.36	p =.000
\begin{array}{c c c c c c c c c c c c c c c c c c c		People who write articles in social media	46%	82%	+78%	.32	p =.000
SOCIAL MEDIA		Online news publishers	68%	84%	+23%	.25	p =.000
	SOCIAL MEDIA INFLUENCE ON ONLINE TRADING	Bloggers	29%	50%	+69%	.24	p =.000
		Influencers	25%	54%	+109%	.29	p =.000
		My social media friends and contacts	40%	69%	+69%	.31	p =.000
		People who write articles in social media about online trading	52%	89%	+70%	.32	p =.000
		People who use social trading platforms.	62%	91%	+45%	.33	p =.000

Table 1 shows the results of the exploratory study. The table reports partial correlation results that illustrate the effects of social media use controlling for and therefore removing for the effect of respondents' differences in, age, gender, tenure of years inside their current organization, level of education, whether or not they received a college degree in business, and the amount of business books they have ever read. These last two controls are important to observe differences among respondents with or without business knowledge. The table shows the difference in the responses of individuals who report light use of social media (1 hour or less per day) versus heavy use of social media (2 hours or more per day). We found strong confirmation for our empirical model. There is a partial correlation of medium strength between social media use and online trading likelihood and a strong partial correlation with all other indicators. We can see that heavy social media users have 63% likelihood of considering online trading (moderately or higher) against 55% of light social media users. The differences get very pronounced when it comes to online herding behaviors:

- 78% of heavy social media users are likely (somewhat likely or higher) to follow the choices of others when trading online against 54% of light social media users;
- Only 4% of light social media users would blindly follow the choices of others when trading online

but a surprising 26% of heavy social media users would blindly follow others when trading online;

- Heavy social media users are four times more likely to follow others blindly when trading online than light social media users; and
- Heavy social media users are 64% more likely than light social media users to look at choices others make rather than trying to understand future cash flow.

We can notice strong differences also when it comes to the influence of social media sources:

- 59% of heavy social media users are influenced by bloggers against 37% of light social media users;
- 45% of heavy social media users are influenced by influencers comparatively to 25% of light social media users;
- 89% of heavy social media users are influenced by their social contacts, compared to 69% of light social media users; and
- Heavy social media users are 78% more likely to be influenced by people who write articles on social media and 23% more likely to be influenced by online publishers than light social media users.

RECOMMENDATION	DESCRIPTION	FOR WHICH COMPANIES?	BENEFITS FOR ORGANIZATIONS	BENEFITS/COST FOR INDIVIDUALS No direct benefit or cost for individuals.	
Data Analytics Investment	Investment in data analytics to study social media sentiments and develop predictive models.	For companies with a large customer base and a large audience on social media.	Understanding and anticipating consumers', investors', and traders' responses to better make, time, and communicate decisions.		
Management of Corporate Social Media	Constant engagement in corporate social media pages to diffuse information to customers, stakeholders, and traders. Use social media to report financial results.	For all companies in all businesses.	Better communicating with consumers, traders, and social media sources. Gaining exposure, reducing fluctuations, and attracting attention from stakeholders.	Developing a better relationship with the companies. Making better online trading decisions by being less affected by the biases of social media.	
Social Media Intelligence	Monitoring of social media sources to identify fake news and promptly respond, even through legal action.	For all companies in all businesses.	Protection from the deleterious effects of fake news on consumers and on security prices.	Making better online trading decisions by being less exposed to the influence of fake news.	
Earned Influencer Marketing	Nurturing relationships with influencers, without paying them, to ensure accurate reporting and monitoring of information about the company.	For companies with a large audience, with products mostly targeted to millennials and that appeal to large masses.	Minimizing the negative influence of influencers and maximizing their positive influence on the brand and the perception of company's value. Create company's ambassadors.	Making better online trading decisions by being less affected by biased influencers.	
Corporate Blogging	Create corporate blogs, participate in forums and blogs to ensure accuracy of information shared, provide feedback and monitor sentiment.	For all companies in all businesses.	Better control of the information and crisis management. Decrease the relevance of outside bloggers in the determination of asset performance and risk. It also benefits customer relations, search engine optimization, and possible direct sales.	Individuals can get access to better information for making their trading decisions and can develop stronger relationships with the company.	
Social Media Policy	Develop a social media policy for employees to ensure that their social media exchanges benefit and do not damage the company.	For companies with a large base of employees who are often engaged in social media.	Better involving employees in the diffusion of information about the company. Benefits also for employees and their organizational attachment.	Opportunity to develop better relationships with employees of the company. Access to more reliable information.	

RECOMMENDATION	DESCRIPTION	FOR WHICH COMPANIES?	BENEFITS FOR ORGANIZATIONS	BENEFITS/COST FOR INDIVIDUALS
NonEquity Crowdfunding	Raising small funds through crowdfunding websites without providing ownership titles.	For startup companies, for social enterprises, for nonprofit organizations, for businesses that require little startup capital.	Easy way of raising funds, minimizing costs, avoiding intermediaries and regulations. No giving up ownership and retaining full control of the business. Risk of raising insufficient funds.	No risk for individuals because they do not acquire equity. They acquire intangible returns, gifts, or the right to receive the products if they are marketed.
Equity Crowdfunding	Raising funds through crowdfunding websites in exchange for private company securities.	For startup companies, for innovative products and services. Effective when investors have significant knowledge of the products/services.	Easy way of raising funds, minimizing costs, avoiding intermediaries and regulations. Ownership is given away but control is often retained by the entrepreneur.	Risky for individuals. Significant possibility of fraud and Ponzi schemes. Significant possibility of not perceiving any return from the funds invested.
Initial Coin Offering (ICO)	Raising funds through the emission of cryptocurrency tokens exchanged for legal tender or other cryptocurrencies.	For startup companies, mostly in high-technology businesses and businesses related to blockchain technology.	Quickest way of raising funds, minimizing costs, avoiding intermediaries and regulations. Risk of law violation.	Highly risky for individuals. High possibility of fraud. High possibility of not seeing any return for the funds provided.

B. Bizzi, A. Labban

When we focus on the scenario of respondents engaging in online trading, the differences become even more pronounced. Here, we can see that bloggers influence 50% of heavy social media users against 29% of light social media users. Then, 54% of heavy social media users are influenced by influencers compared to 29% of light social media users. Furthermore, social contacts influence 69% of heavy social media users compared to 40% of light social media users. Last, a surprising 89% and 91% of heavy social media users are likely to be influenced, respectively, by people who write articles in social media about online trading and by people who use social trading platforms. Light social media users are respectively 70% and 45% less likely to be influenced by the same sources. Overall, evidence strongly supports our proposed ideas.

4. Consequences for organizations and individuals

While the model explains the effect of social media use at the individual level, we can derive inferences on aggregate consequences for organizations. Social media use has been dramatically increasing in the last years. The percentage of U.S. adults using social media changed from 8% in 2006 to 50% in 2012 to 69% in 2018 (PEW Research Center, 2018). The daily worldwide time spent on social networking sites has increased by 50% in the last 5 years, from 90 minutes in 2012 to 135 minutes in 2017 (Statista, 2018). The increase in social media use is likely to trigger systemic effects for organizations, influencing aggregate performance and risk of traded assets. Performance refers to the average price in any asset traded in a specified period of time and risk refers to the fluctuation in prices in the assets traded in a specified period of time. The increase of social media use positively affects performance by encouraging online trading, which increases the supply of capital, providing new liquidity to the market and therefore influencing performance of assets traded. Increased social media does have other effects; it exacerbates herding effects, which significantly influence fluctuations in prices by virtue of their strength, velocity, and frequency. Information that goes viral on social media spreads at incredible velocity and high frequency, being often difficult to predict or control. The market may not always efficiently correct mispriced assets, resulting in multiple and significant fluctuations. At the aggregate level, social media is therefore likely to exercise a double-edged impact for organizations, affecting both performance and risk of traded assets.

However, the consequences for individuals will be deleterious. Most online traders are likely to be noise traders, who, due to their low financial literacy and to the biasing influence of social media, do not base their decisions on fundamental analysis and on actual changes in the intrinsic value of the securities or assets they trade. They will base their decisions on what others are doing on social media; on sensational, imperfect, and biased information diffused through social media; or impulsive comments from social media celebrities or on dubious technical analysis predictions released by uncredited social media sources. The vast majority of self-directed traders—over 90% of them—lose money with the aggregate portfolio of individuals suffering an annual performance penalty of 3.8% (Barber, Lee, Liu, & Odean, 2008). Therefore, social media could exacerbate noise trading and make individuals lose money.

5. Recommendations for organizations

Social media can create both opportunities and threats for organizations. As the threat of risk creates challenges, there is also an opportunity to gain easy access to funds. Many startups resort to getting funds through crowdfunding initiatives in which the social media influence on trading becomes relevant. However, as we mentioned, most individuals who trade online risk losing their money. Should organizations benefit from this kind of opportunity? Here, we provide nine recommendations for organizations in response to the challenges of social media influence on online trading. Table 2 summarizes the recommendations, briefly describes them, highlights for which businesses they should be implemented, and isolates the benefits and costs for both organizations and individual traders.

5.1. Data analytics investment

A key recommendation is to invest in data analytics to explore, examine, and understand social media sentiment. Social media sentiment affects the way in which investors and traders perceive information and form opinions about the intrinsic value of assets (Piñeiro-Chousa, Vizcaíno-González, & Pérez-Pico, 2017). From the understanding of social media sentiment, organizations can develop predictive models that anticipate the reaction of traders and foresee evolution and fluctuation in the prices of securities. Bollen, Mao, and Zheng

(2011) found that by measuring the sentiment on Twitter, it is possible to build a model that predicts (with 86% accuracy) whether the market will rise or fall 3 days later. Models could be tailored to the specific characteristics of each company, for which different social media sentiments could translate more or less intensely into responses from traders. Companies can use this knowledge as a basis to understand how their decisions can potentially affect market responses, to better time their decisions, and to better communicate and select their decisions.

5.2. Managing corporate social media

Through corporate social media accounts, firms share information that reaches online traders, bloggers, influencers, publishers, or end consumers. Through corporate social media, companies can minimize the deleterious effects of social media while maximizing positive effects. According to Kim and Youm (2017), corporations use social media to communicate information and provoke reactions from customers; these communications positively influence perceptions about company value, affecting trading decisions and the consequent performance and risk of securities. Alexander and Gentry (2014) suggested organizations should use social media to report financial results, complying with SEC regulations. Through their posts, organizations directly influence social media sentiment, which, in turn, will affect the way in which investors and traders make their decisions (Piñeiro-Chousa et al., 2017).

5.3. Social media intelligence

Starbucks suffered significant losses because of the Dreamers' Day fake news, which went viral and misinformed individuals about the company's initiative to give discounts to undocumented immigrants. Companies can invest in social media intelligence to monitor the diffusion of fake news, track back the sources that spread the information, and, if needed, fight back with legal action. The purpose would be to develop a reputation that the company has an aggressive stance against deliberately harmful fake news in an attempt to discourage individuals with vicious intentions from purposefully spreading them.

5.4. Earned influencer marketing

Recently, companies have been investing in influencer marketing; here, they do not target the whole segment population but rather specific influencers that shape the opinions of masses. While companies should not pay influencers to diffuse information that directly affects value perception, earned influencer marketing—whereby influencers do not receive money/compensation but rather gain via association with the company—may be advisable. Influencers do have personal relationships with management and use these relationships to gain legitimacy and obtain credibility for their recommendations. Organizations should nurture their relationships with influencers, attracting their interest and giving them access to information that the influencers could choose to diffuse in order to affect perceptions about the company. Positive relationships with influencers could avoid that influencers spread dubious information about the company and give them the opportunity to verify whether the information they wish to share is accurate.

5.5. Corporate blogging

A possible way to increase control over the information diffused and decrease relevance of outside bloggers in affecting prices of assets traded is to invest in corporate blogging, creating official and unofficial blogs that attract traffic and manage a large amount of information circulating about the company. Managing corporate blogs could be essential for crisis management, as the company will have an efficient channel to explain facts when corporate scandals or problems occur. Mazboudi and Khalil (2017) argued that by sharing information on Twitter and blogs, organizations can mitigate possible deleterious effects of stock fluctuations. Corporate blogging can also be effective in building relationships with customers, improving search engine optimization, and increasing direct sales through the blogs. Several companies have invested in corporate blogging. Caterpillar has developed a network of blogs broken down by industry and by categories within the industry, which allow the company to engage with most customers, help solve problems, find creative ideas, manage negative information, and attract a large flow of users interested in the company by diverting their attention from uncontrolled bloggers to the official company blogs. Herding effects could be mitigated as users may wish to verify whether the opinion shared by bloggers is based on facts reported in the company's blog. Bloggers or other social media sources may refrain from sharing opinions that are not based on facts reported in the blogs, therefore increasing company's control on the information that may affect traders' behaviors.

10 L. Bizzi, A. Labban

5.6. Social media policy

A powerful resource to communicate information about the company on social media and to control whether the information about the company in social media is accurate is the employees themselves. Companies have been developing social media policies that prescribe the behaviors employees have to display when interacting in social media about their company. A social media policy is necessary to avoid employees sharing sensitive information about the company, as they could influence perceptions about the company's intrinsic value and possibly influence asset prices. A social media policy is necessary to avoid employees' opinions being taken as the company's opinions, therefore possibly influencing perceptions about its value. A social media policy is also important because employees could monitor misinformation about the company and report it to management or directly counter misinformation by participating in blogs. Social media policies can also better engage employees and improve relationships with them, overall benefiting the company.

5.7. Nonequity crowdfunding

Companies can leverage social media to give visibility to their initiatives, to test, the market, and to attract small funds from multiple individuals. Indeed, the argument that online traders often lack financial literacy to make well-informed decisions and are biased by the influence of social media should be a warning for companies. While there are companies legitimately attempting to raise funds to finance the acquisition of assets that generate profits, there will be other companies that leverage crowdfunding to raise funds in an exploitative manner. The least risky way to raise funds online is through crowdfunding websites such as Indigogo or Kickstarter. Small entrepreneurs of startups use these vehicles, often raising small funds from large masses without the exchange of ownership of the company. Entrepreneurs appeal to the social cause of the initiative in order to obtain funds. While individuals do not obtain ownership of the company in exchange for their funds, they can get exposure, intangible benefits, or free products in the case in which the startup reaches the market.

5.8. Equity crowdfunding

Equity crowdfunding is the raising of funds from online sources and crowdfunding websites in exchange for the provision of private equity. This is an instrument used by small startups rather than large and established companies. The companies that engage in equity crowdfunding promise financial compensation. Social media that attract new investors are likely to offer new opportunities for entrepreneurs to attract funds through equity crowdfunding. Entrepreneurs could leverage social media sources to give visibility to their crowdfunding initiatives in an attempt to raise capital. Although there are successful cases of companies that managed to raise capital and appropriately reward investors, crowdfunding is risky to individuals. The absence of regulations and control allowed the proliferation of crowdfrauding, whereby individuals are given false promises and are often attracted by Ponzi schemes in which the entrepreneur uses funds from later investors to reward early investors, spreading false claims that the company is profitable, thereby attracting more interest from inexperienced investors (Baucus & Mitteness, 2016).

5.9. Initial Coin Offerings (ICO)

An alternative form of crowdfunding, which recently attracted worldwide attention, is the Initial Coin Offering (ICO). Through the ICO, entrepreneurs raise funds through exchange of cryptocurrencies. The traditional formula requires the entrepreneur to create a new cryptocurrency associated with the project under development and sells the cryptocurrency in the form of tokens that are exchanged for other popular cryptocurrencies such as bitcoin or ethereum. The entrepreneur should then exchange bitcoin or ethereum to finance the acquisition of assets. Hypothetically, if the project ends up being successful, the value of the tokens acquired by the investors should increase. Social media has strongly contributed to the diffusion of ICOs, raising the visibility of entrepreneurial initiatives and allowing companies to raise funds at incredible speed. Unfortunately, the rate of success of ICO initiatives is extremely low and they are-even more than crowdfunding initiatives-prone to scams and illegal activities.

6. Summary

While academics have devoted considerable attention to understanding the influence of social media on consumer behavior or employee behavior, there has been little attention focused on understanding how social media can affect online trading behavior. This article raises the importance of understanding the influence of social media on online trading and proposes that social media is creating a new class of online traders whose behavior has a double-edged

ARTICLE IN PRESS

The double-edged impact of social media on online trading

effect on organizations, affecting both performance and risk of traded assets. This article offers a key to disentangle the influence mechanisms of social media and to identify practical recommendations for organizations to cope with the rising challenges.

References

- Aite Group. (2014, January 17). Online trading penetration in the United States and retail traders' trading device preferences are rapidly changing. Available at https://aitegroup.com/online-trading-penetration-united-states-and-retail-traders-trading-device-preferences-are-rapidly
- Alexander, R. M., & Gentry, J. K. (2014). Using social media to report financial results. *Business Horizons*, 57(2), 161–167.
- Allcott, H., & Gentzkow, M. (2017). Social media and fake news in the 2016 election. *Journal of Economic Perspectives*, 31(2), 211–236.
- Barber, B. M., Lee, Y. T., Liu, Y. J., & Odean, T. (2008). Just how much do individual investors lose by trading? *The Review of Financial Studies*, 22(2), 609–632.
- Baucus, M. S., & Mitteness, C. R. (2016). Crowdfrauding: Avoiding Ponzi entrepreneurs when investing in new ventures. *Business Horizons*, 59(1), 37–50.
- Bollen, J., Mao, H., & Zheng, X. (2011). Twitter mood predicts the stock market. *Journal of Computational Science*, 2(1), 1–8.
- Clor-Proell, S., Guggenmos, R., & Rennekamp, K. M. (2018). Mobile devices and investment apps: The effects of push notification, information release, and the fear of missing out. Available at https://papers.ssrn.com/sol3/papers.cfm? abstract id=2991262
- Fotak, V. (2007). The impact of blog recommendations on security prices and trading volumes. Available at https://papers.srn.com/sol3/papers.cfm?abstract_id=1089868
- Garcia, M. J. R. (2013). Financial education and behavioral finance: New insights into the role of information in financial decisions. *Journal of Economic Surveys*, 27(2), 297–315.
- Garcia, D., Tessone, C. J., Mavrodiev, P., & Perony, N. (2014). The digital traces of bubbles: Feedback cycles between socioeconomic signals in the Bitcoin economy. *Journal of the Royal Society Interface*, 11(99), 20140623.
- Greenwich Associates. (2014). Social media influencing investment decisions at global institutions. Available at https://www.greenwich.com/press-release/social-media-influencing-investment-decisions-global-institutions
- Harjoto, M., Zaima, J., & Zhang, J. (2009). Information content of whispers relative to firm size. *Managerial Finance*, 35(7), 624–644.
- Jun, Y., Meng, R., & Johar, G. V. (2017). Perceived social presence reduces fact-checking. *Proceedings of the National Academy* of Sciences, 114(23), 5976–5981.
- Katsenelson, V. (2018, January 12). Bitcoin and cryptocurrencies are just the Beanie Babies of the moment. MarketWatch. Available at https://www.marketwatch. com/story/bitcoin-and-cryptocurrencies-are-just-thebeanie-babies-of-the-moment-2018-01-12
- Kietzmann, J. H., Hermkens, K., McCarthy, I. P., & Silvestre, B. S. (2011). Social media? Get serious! Understanding the functional building blocks of social media. *Business Horizons*, 54 (3), 241–251.
- Kilduff, M. (1990). The interpersonal structure of decision making: A social comparison approach to organizational choice.

- Organizational Behavior and Human Decision Processes, 47 (2), 270–288.
- Kim, E. H., & Youm, Y. N. (2017). How do social media affect analyst stock recommendations? Evidence from S&P 500 electric power companies' Twitter accounts. Strategic Management Journal, 38(13), 2599–2622.
- Kupfer, A., vor der Holte, N. P., Kübler, R. V., & Hennig-Thurau, T. (2018). The role of the partner brand's social media power in brand alliances. *Journal of Marketing*, 82(3), 25–44.
- Luo, X., Zhang, J. J., Gu, B., & Phang, C. (2017). Expert blogs and consumer perceptions of competing brands. *MIS Quarterly*, *41* (2), 371–395.
- Mai, F., Shan, Z., Bai, Q., Wang, X., & Chiang, R. H. L. (2018). How does social media impact Bitcoin value? A test of the silent majority hypothesis. *Journal of Management Informa*tion Systems, 35(1), 19–52.
- Mazboudi, M., & Khalil, S. (2017). The attenuation effect of social media: Evidence from acquisitions by large firms. Journal of Financial Stability, 28(1), 115—124.
- Mudholkar, G. P., & Uttarwar, V. R. (2015). The impact of social networking sites on investment decisions. Chronicle of the Neville Wadia Institute of Management Studies and Research, 4(1), 252–256.
- NASDAQ. (2017, December 15). E*TRADE financial November DARTs up 15% from prior month. Available at http://www.nasdaq.com/article/etrade-financial-november-darts-up-15-from-prior-month-cm892352
- Pelster, M., & Gonzalez, G. R. (2016). Social media interactions and biases in investment decisions. *Centre for Economic Policy Research*. Available at https://cepr.org/sites/default/files/Matthias%20Pelster.pdf
- PEW Research Center. (2018). Social media facts sheet. Available at http://www.pewinternet.org/fact-sheet/social-media/
- Piñeiro-Chousa, J., Vizcaíno-González, M., & Pérez-Pico, A. M. (2017). Influence of social media over the stock market. *Psychology and Marketing*, 34(1), 101–108.
- Power, J. D. (2017). *U.S. self-directed investor satisfaction study*. Available at http://www.jdpower.com/resource/us-self-directed-investor-satisfaction-study
- Putnam Investments. (2015, September 15). Putnam Investments social advisor study. Available at https://www.putnam.com/advisor/content/advisorTechTips/2488-2015-putnam-investments-social-advisor-survey/?pr=091615
- Saxton, G. D., & Anker, A. E. (2013). The aggregate effects of decentralized knowledge production: Financial bloggers and information asymmetries in the stock market. *Journal of Communication*, 63(6), 1054–1069.
- Shalev, E., & Morwitz, V. G. (2011). Influence via comparison-driven self-evaluation and restoration: The case of the low-status influencer. *Journal of Consumer Research*, 38(5), 964–980.
- Statista. (2018). Daily time spent on social networking by internet users worldwide from 2012 to 2017 (in minutes). Available at https://www.statista.com/statistics/433871/daily-social-media-usage-worldwide/
- Student Loan Report. (2018, March 22). Financial aid funding cryptocurrency investments. Available at https://studentloans.net/financial-aid-funding-cryptocurrency-investments/
- Wang, G., Wang, T., Wang, B., Sambasivan, D., Zhang, Z., Zheng, H., et al. (2015). Crowds on Wall Street: Extracting value from collaborative investing platforms. In Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work and Social Computing (pp. 17–30). Briarcliff Manor, NY: ACM.
- Warner-Søderholm, G., Bertsch, A., Sawe, E., Lee, D., Wolfe, T., Meyer, J., et al. (2018). Who trusts social media? *Computers in Human Behavior*, 81, 303–315.