

Drivers of firms' sociability on social media: Evidence from an emerging country

Hela Borgi^{a*}

^aAccounting Department, College of Business and Administration, Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia

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ABSTRACT

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The purpose of this paper is to investigate the drivers of firms' sociability on social media (SM), an unregulated area, in an emerging country, namely, Kingdom of Saudi Arabia (KSA). The sample of this study is 345 non-financial listed firms on Tadawul stock exchange during 2016-2019. Data are collected from several sources such as annual reports, the official website of the sample companies. Other data are collected manually such as the presence of the CEO and the sampled companies on SM. Our findings show that firm size and leverage level are important firms' characteristics that drive firms' sociability on social media. The finding shows that CEO sociability on social media is a key CEOs' characteristic that drives firms' sociability on social media. Further analysis reports that there is a complementary effect between CEO's sociability on social media and firm size in increasing firms' sociability on SM. The findings also show that there is a complementary effect between CEO's sociability on social media and firm leverage in increasing firms' sociability on SM. This study contributes to the disclosure literature by providing empirical evidence of the drivers of firms' sociability on SM, an unregulated area in KSA. It also complements the considerable literature on voluntary disclosure which ignores the use of SM platforms as a "new" voluntary type of reporting. The present study complements recent literature on the adoption of SM by providing evidence that the sociability of top leaders is a driver of firms' sociability on SM.

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1. Introduction

The use of social media has entirely transformed the way individuals and businesses communicate. Social media has emerged as the primary means of facilitating the movement of information and knowledge. The internet has also transformed the way companies release their financial accounts by shifting the level of corporate disclosure to social media platforms (Alarco'n et al., 2015). Traditionally, Firms used to disclose financial and non-financial information through periodical reports and public statements (Siala et al. 2014). However, as the use of social media has grown, this type of disclosure has evolved. Hence, companies currently share financial and non-financial information via official websites, social media platforms, and other means. Firms are more and more encouraged to embrace social media as it helps to lessen information asymmetry between the company and investors and influences the emotional reactions of investors (Chen et al., 2014). Investors usually refer to information shared on social media to forecast future stock variations and make their decisions (Bollen et al., 2011; Sul et al., 2014).

* Corresponding author.

E-mail address: haborgi@pnu.edu.sa (H. Borgi)

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Other benefits that come from enhanced internet activity is the freedom to act in terms of timing process and type of data. This freedom creates new opportunities to negotiate directly with shareholders by allowing them to respond in a timely manner to any news. In addition, the attitudes of CEOs toward the potential value of IT, like social media (SM), play an important role in determining whether or not IT innovations are adopted in the real world (Thong & Yap, 1995; Mikalef & Pateli, 2017; Miteku et al., 2022).

Despite of the growing adoption of social media for the purpose of information disclosure (Blankespoor et al., 2013; Elliott et al., 2018), yet such phenomenon still represents a field of unexplored research due to the very limited studies that exist on the subject matter (Debreceeny, 2015; Zhou et al., 2015; Miller and Skinner, 2015; Elliott et al., 2018). Even though social media may present opportunities for individuals as well as businesses, academic accounting literature on the topic is still sparse. This topic is largely covered in business and entrepreneurship literature, relying primarily on qualitative analyses or pilot studies (Aronica et al., 2021; Arnone & Deprince, 2016; Berthon et al., 2012; Cesaroni & Consoli, 2015; Durkin et al., 2013). Only a handful of studies employ quantitative techniques (Cassetta et al., 2019; Koski et al., 2019).

In this study, we aim to fill the gap in the literature by exploiting a large sample of listed firms in the Kingdom of Saudi Arabia (KSA), an understudied and unique context. In fact, KSA is viewed as one of the leading Islamic countries (Borgi et al., 2021). The Tadawul stock exchange, the solely authorized exchange in the KSA, is the largest and only MENA country in the G20. It is also the largest liquid market in the Middle East and North Africa (Tadawul, 2019). KSA is a key member of OPEC that has around 25% of the world's oil reserves and it represents one of the largest oil producers in OPEC (Borgi et al., 2021; Ibrahim et al., 2019).

The purpose of this paper is to investigate the drivers of firms' sociability on social media (SM), an unregulated area, in KSA. The final sample of this study is 345 non-financial listed firms on Tadawul stock exchange during 2016-2019. Data are collected from several sources such as annual reports, the official website of the sample companies. Other data are collected manually such as the presence of the CEO and the sampled companies on social media.

Our findings show that firm size and leverage level are important drivers of firms' sociability on social media. Our results imply that larger firms are more likely to be sociable on social media than smaller ones. It also suggests that highly indebted firms are more likely to embrace social media platforms. The finding shows that CEO sociability on social media is significantly associated with firms' sociability on social media. This result implies that firms with a more sociable CEO tend to be more sociable on social media. Further analysis reports that larger firms tend to be more sociable on social media when there is a more sociable CEO. In other words, there is a complementary effect between CEO's sociability on social media and firm size in increasing firms' sociability on SM. The findings also show that indebted firms tend to be more sociable on social media when there is a more sociable CEO. Therefore, there is a complementary effect between CEO's sociability on social media and firm leverage in increasing firms' sociability on SM.

Our findings have several implications for different stakeholders concerned with the adoption of social media. Indeed, it should give a signal to policymakers and regulators that listed firms are using social media, an unregulated area that needs their attention. The findings of this research have also a practical implication for shareholders and boards of directors in selecting a new CEO by taking into consideration their sociability on social media.

This study contributes to the disclosure literature by providing empirical evidence of the drivers of firms' sociability on SM, an unregulated area in KSA. It also complements the considerable literature on voluntary disclosure which ignores the use of SM platforms as a "new" voluntary type of reporting. The present study complements recent literature on the adoption of SM by providing evidence that the sociability of top leaders is a driver of firms' sociability on SM.

The remainder of this study is as follows. Section 2 presents the literature review and hypotheses development. Section 3 describes the research design, including sample and data collection, and model specification. Section 4 reports the results and Section 5 presents the conclusion.

2. Literature review and hypotheses development

The literature defines social media as "a group of internet-based applications that build on the ideological and technological foundations of web, and that allow the creation and exchange of user generated content" (Kaplan & Haenlein, 2011). In addition, according to Mou et al. (2013), social media includes web-based technologies.

2.1 Firms' characteristics

According to the Theory of Diffusion Innovations (TDI) (Roger, 1995, p.15-17) there are five main attributes that may influence the rate of adoption of an innovation (a new technological idea) and migrate from the creation to use (Hossain et al. 2012). In this case, social media is the innovation in question.

- Relative advantage: If an innovation has a higher relative advantage, it will be adopted more rapidly.
- Compatibility: If an innovation is perceived to be consistent with existing values, past experiences and needs of potential adopters, it will be easier to adopt.
- Complexity: New ideas that are simple to understand are adopted more rapidly than those which require the innovator to develop new skills and understandings.

- **Trial-ability:** New ideas that can be trialled represent less uncertainty to the individual who is considering their adoption, since the individual can evaluate the ideas before deciding whether to adopt.
- **Observability:** This refers to the degree to which the results of an innovation can be seen by others. If the results of an innovation are observed easily, it will, if perceived a success, be adopted faster.

Therefore, according to the innovation diffusion theory, the use of social media by firms will depend upon how entities /or persons perceive the attributes summarized above.

We assume that if firms observe the benefits of the use of social media, they will be more motivated to use it. It will also depend on their trial-ability and complexity. According to Rogers (1995), there are five stages through which a technological innovation passes: knowledge (exposure to its existence and understanding of its functions); persuasion (the forming of a favorable attitude to it); decision (commitment to its adoption); implementation (putting it to use); and confirmation (reinforcement based on positive outcomes from it).

Social media is yet an unregulated context, which may encourage firms to adopt it voluntarily. Consequently, firms may use it to share financial and non-financial information as it helps to lessen information asymmetry between the company and investors and influences the emotional reactions of investors (Chen et al., 2014). Investors usually refer to information shared on social media to forecast future stock variations and make their decisions (Bollen et al., 2011; Sul et al., 2014). In their systematic review on voluntary disclosure, Zamil et al. (2021) find that there is a considerable emphasis on the firm characteristics that derive voluntary reporting. More particularly, approximately, 33 percent of the literature have examined the relationship between voluntary disclosure and the following features: firm size, leverage and profitability. Moreover, 10 percent have investigated the influence of the auditor type on voluntary disclosure.

Arnica et al. (2021) argue that social media adoption should be determined by the organizational context of the firm, such as the corporate characteristics of the firm. Empirical studies show that firm size is a key driver of SM adoption (Abed et al., 2015; Cesaroni & Consoli, 2015; Fernandes et al., 2016; Fosso Wamba & Carter, 2014; Galati et al., 2017; Koski et al., 2019; Meske & Stieglitz, 2013). Specifically, Meske and Stieglitz (2013) argue that Small and Medium Enterprises (SME) in Germany generally adopt SM but lack a management strategy, limiting their economic potential. Galati et al. (2017) show that smaller firms in the Sicilian wine industry are more engaged in the adoption of SM than larger ones; these latter instead use more traditional marketing channels (e.g., promotions, events, etc.). In the same vein, Fernandes et al. (2016) provide evidence that SMEs, and more particularly those belonging to the service industry, are more likely to use SM in Portugal. With respect to Saudi context, firms tend to vary significantly in terms of the size and therefore in their reactions to voluntary disclosure (Boshnak, 2022) and more particularly to the use of social media. Hence, we formulate the following hypothesis:

Hypothesis 1: *Firms' characteristics are associated with firms' sociability on social media.*

2.2 CEOs' characteristics

According to the Upper Echelon Theory (UET), senior managers' experiences, values and characters influence their strategic decisions and, in turn, influence organizational outcomes (Hambrick and Mason, 1984). Hambrick and Mason (1984) argue that observable managerial characteristics of CEOs such as tenure, education and other group characteristics influence financial reporting outcomes and process rather than psychological characteristics (cognitive base values). In fact, CEOs bring their past experiences, education level and qualifications, and preferences into their decision-making processes (Carpenter et al., 2004; Bamford et al., 2006). As such, CEOs exert a significant influence on firm outcomes. (Shen, 2021).

Previous studies show that the use of SM is related more to the top management characteristics than the corporate characteristics of the firm (Fosso Wamba & Carter, 2014). Prior literature provides evidence that the CEOs influence the overall financial reporting process and care about disclosures as a financial reporting decision (Baatwah et al., 2015; Borgi et al., 2021). CEOs' backgrounds and demographic features tend to vary which may lead to differences in cognitive orientation and thus strategic decision-making (Hambrick & Mason, 1984).

According to a 2016 study by CEO.com, there is a general understanding among many corporate leaders that the CEOs presence on social media can influence not only their thought leadership but also improve their companies' innovativeness and reputation (Shandwick, 2012). Timely financial reporting can increase the possibility of improving the firm's reputation as it is important for investors to reach timely information for decision-making. So, for the sake of their firms' reputation, CEOs may use social media to announce any timely information about the company that could reassure the users of financial statements, including the earnings announcement and announcement about publishing audited financial statements. Hence, CEOs' presence on social media could be a driver of firms' sociability on social media.

Suárez-Rico et al. (2018) find that CEO tenure has a negative impact on online disclosure. Zamil et al. (2021) argue that a critical appraisal between studies is challenging because of the limited number of research on this topic. They encourage scholars to investigate more top management impact on voluntary disclosure in the future. Hence, we formulate the following hypothesis:

Hypothesis 2: *CEOs' characteristics are associated with firms' sociability on social media.*

2.3 Complementarity effects

With respect to the literature that focuses on social media, previous studies show that the use of SM is related to managers' characteristics as well as firms' characteristics (Fosso Wamba & Carter, 2014; Koski et al., 2019). However, the debate on which CEOs' and firms' characteristics affect the use of SM remains still open and it is currently lacking evidence based on large samples. According to Oliveira, et al. (2014), both firm characteristics (e.g., firm size) and top management characteristics are important factors when adopting new technologies, like social media. Consequently, we expect that there is a complementary effect between firm and CEO characteristics on firm sociability on social media. Hence, we formulate the following hypothesis:

Hypothesis 3: *Firms' and CEOs' characteristics have a complementary effect on firms' sociability on social media.*

3. Methodology and research design

3.1 Sample and data collection

The purpose of this paper is to investigate the drivers of firms' sociability on social media (SM) in KSA. The research population is non-financial listed firms on Tadawul stock exchange during 2016-2019. Data are collected from several sources such as annual reports, the official website of the sample companies. Other data are collected manually such as the presence of the CEO and the sampled companies on social media. The initial sample consists of 756 firm-year observations. We exclude financial firms as information disclosure and corporate governance systems are different from non-financial firms. Also, we exclude firms with missing and incomplete data. The final sample consists of 345 firm-year observations. We use a panel data regression model using the Stata software. Table 1 reports the sample derivation.

Table 1

Sample derivation

Criteria	Firm-year observations
Initial sample	756
Less: financial companies	(236)
Less: companies with missing data	(175)
Final sample	345

3.2 Measurement of variables

Dependent variable

The dependent variable is the firm's presence on social media (F_SM). The number of social media platforms is steadily growing. Actually, there are at least five different platforms (e.g., Facebook, Twitter, Instagram, Snapshot, LinkedIn). Each platform has unique features and emphasizes certain aspects even if they may share common features such as the ability to publish and share photos and videos (Koski et al., 2019). The current study focuses on the firm's presence on social media in two main platforms: LinkedIn and Twitter. In fact, the number of users in LinkedIn have experienced rapid growth from about 50 million users in 2012 to more than 100 million users around the world in 2016 (Koski et al., 2019). LinkedIn is considered as a professional platform where firms are able to publish and share content, to recruit staff and to increase the visibility of their trademarks. Twitter is also considered as a professional platform as firms use it to share professional information such as news and announcements relevant to one's business peers (e.g., communicating financial information to a firm's investors). We do not consider other social media platforms like Facebook as it is designed for more networking with friends and family rather than for business purposes. Hence, the F_SM is calculated through a score that is equal to the average of its presence on "professional" social media (LinkedIn and Twitter). More precisely, when we look for the firm in LinkedIn and Twitter, we give 1 to the firm if it has an active¹ social media account in LinkedIn and an additional 1 if it has an active account in Twitter too. Then, we compute the average for this firm that is present in both platforms, and we obtain 1. The second example is that we give 1 to the firm if it has an active account in LinkedIn and zero if does not have an active in Twitter (and vice versa). Then, we compute the average for this firm that is present in only one platform, and we obtain 0.5. To sum up, the dependent variable F_SM is a score that varies between 0 and 1.

Independent variables

The current study considers firms' and CEOs' characteristics. For firms' characteristics, we consider the following variables: Firm size (F_SIZE): measured by the natural logarithm of total assets. Firm leverage level (F_LEV): measured by the ratio of total liabilities to total assets. Firm profitability (F_PROF) is measured by the ratio of net income to total shareholders' equity. The auditor type (BIGF) is the auditor type measured by a dummy variable coded 1 if the company is audited by one of the big four audit firms and zero otherwise. For CEOs' characteristics, we consider the following variables: CEO_SM is calculated through a score that is equal to the average of his presence on "professional" social media (LinkedIn and Twitter). More

¹ A social media account is considered active when the firm made some sort of actions such as liking, sharing, posting and reposting within the previous 60 days (Borgi et al., 2021).

precisely, when we look for the CEO in LinkedIn and Twitter, we give 1 to the CEO if he has an active² social media account in LinkedIn and an additional 1 if he has an active account in Twitter too. Then, we compute the average for the CEO who is present in both platforms, and we obtain 1. The second example is that we assign 1 to the CEO if he has an active account in LinkedIn and we assign zero if he has not an active account in Twitter (and vice versa). Then, we compute the average for the CEO who is present in only one platform, and we obtain 0.5. To sum up, the CEO_SM is a score that varies between 0 and 1. CEO_EDUC is the education level of the CEO and it is measured by a scale as follows: if the CEO has a bachelor degree, the variable takes the value of 1. If he has a master's degree or equivalent (e.g., MBA degree), the variable takes the value of 2. If the CEO has a doctorate degree, the variable takes the value of 3. CEO_T is the number of years a current CEO holds the position.

All variables are summarized in Table 2.

Table 2

Variables' description and measurement

Variable name	Description	Measurement
Dependent variable		
F_SM	firm's sociability on social media	It is calculated through a score that is equal to the average of its presence on "professional" social media (LinkedIn and Twitter).
Independent variables		
<i>Firms' characteristics</i>		
F_SIZE	Firm size	It is measured by the natural logarithm of total assets. (): () is the auditor type
F_LEV	Firm leverage level	It is measured by the ratio of total liabilities to total assets.
F_PROF	Firm profitability	It is measured by the ratio of net income to total shareholders' equity.
BIGF	Auditor type	It is measured by a dummy variable coded 1 if the company is audited by one of the big four audit firms and zero otherwise.
<i>CEO's characteristics</i>		
CEO_SM	CEO's sociability on social media	It is calculated through a score that is equal to the average of his presence on "professional" social media (LinkedIn and Twitter).
CEO_EDUC	CEO's education level	It is measured by a scale as follows: if the CEO has a bachelor's degree, so the variable takes the value of 1. If he has a master's degree or equivalent (e.g., MBA degree), so the variable takes the value of 2. If the CEO has a doctorate degree, so the variable takes the value of 3.
CEO_T	CEO tenure	It is measured by the number of years that a current CEO holds the position.

3.3 Model specification

Our baseline models are specified below:

$$F_SM_{it} = a + \delta_1(\text{Firm characteristics})_{it} + \delta_2(\text{CEO characteristics})_{it} + \varepsilon_{it} \quad (1)$$

$$F_SM_{it} = a + \delta_1(\text{Firm characteristics})_{it} + \delta_2(\text{CEO characteristics})_{it} + \delta_3(\text{Firm characteristics} \times \text{CEO characteristics})_{it} + \varepsilon_{it} \quad (2)$$

where i represents firm, t represents the year and ε_{it} is the associated error. All variables are defined in the previous subsection.

4. Results

4.1 Descriptive results and correlations

Table 3 shows that approximately 65% of listed firms in KSA adopt social media with a standard deviation of 37%. The results show that only 25% of the CEO use social media platforms. The average of their education level is master's degree, and the average of their tenure is five years.

Table 3

Descriptive results

Variable	Mean	Std. Dev.	Min	Max
F_SM	0.6492	0.369	0	1
F_SIZE	5.2046	0.975	0	6.19
F_LEV	0.39	0.20	0.03	0.89
F_PROF	0.05	0.50	-8.09	0.60
BIGF	0.51	0.50	0	1
CEO_SM	0.2519	0.340	0	1
CEO_EDUC	2.5706	0.734	1	3
CEO_T	5.3701	4.910	0	23

² A social media account is considered active when the CEO made some sort of actions such as liking, sharing, posting and reposting within the previous 60 days (Borgi et al., 2021).

We perform a test of multicollinearity to examine correlation among the independent variables. Maintaining the cut-off rate for the Variance Inflation Factor (VIF) at 3, we sense no multicollinearity. Table 4 presents the matrix of correlations and the VIF.

Table 4
Matrix of correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	VIF
(1) F_SIZE	1.000							1.44
(2) F_LEV	-0.021	1.000						1.03
(3) F_PROF	0.025	0.037	1.000					1.30
(4) BIGF	0.122	0.074	-0.108	1.000				1.04
(5) CEO_SM	-0.163	-0.059	0.106	-0.088	1.000			1.10
(6) CEO_EDUC	0.257	-0.083	-0.080	0.086	0.168	1.000		1.18
(7) CEO_T	-0.086	-0.036	-0.058	0.015	0.126	-0.122	1.000	1.03

4.2 Multivariate regression

Following Borgi et al. (2021), we perform the Hausman test to select the appropriate panel regression model (e.g., fixed or a random effect panel regression). The results suggest that fixed effect panel regressions are appropriate. We also verified the assumptions regarding the random component's autocorrelation and Homoskedacity. The results suggest that there is a presence of the first-order autocorrelation of random errors and indicate that the Homoskedacity assumption is not satisfied. Hence, we cluster standard errors in two dimensions between firms and years to correct the potential effect of heteroscedasticity and autocorrelation (Borgi & Tawiah, 2022; Gow et al., 2010). This method is also used by Borgi et al. (2021) and Baatwah et al. (2015). Table 5 presents the results of multiple regressions.

Table 5
The results of multiple regressions

	Model 1		Model 2		Model 3	
	Coef.	T-value	Coef.	T-value	Coef.	T-value
F_SIZE	0.0625	1.72*			0.0323	0.93
F_LEV	0.0045	2.78***	0.0042	2.38**		
F_PROF	-0.0023	-0.65	-0.0016	-0.51	-0.0004	-0.08
BIGF	0.0364	0.7	0.0432	0.85	0.0226	0.42
CEO_SM	0.3948	4.38***				
CEO_EDUC	0.0467	1.17	0.0523	1.39	0.0833	2.22**
CEO_T	0.0041	0.62	0.0033	0.54	0.0071	1.05
CEO_SM * F_SIZE			0.0776	5.02***		
CEO_SM * F_LEV					0.0456	3.80***
Constant	0.0629	0.34	0.3794	3.53***	0.2067	1.1
Observations	345		345		345	
R-squared	0.1715		0.1725		0.0711	
F-statistic	19.49***		22.31***		7.63***	

Model (1) includes the firm's and CEO's characteristics as independent variables. The model is globally significant (e.g., F-statistic is significant at the level of 1 percent). As shown in the table, the firm size is positive and significant at the level of 10 percent. This result suggests that larger firms are more likely to be sociable on social media than smaller ones. This is consistent with Oliveira et al. (2014) that shows that firm size is an important factor when adopting new technologies, like social media. However, the finding is not consistent with Galati et al. (2017) that show that smaller firms are more engaged in the adoption of SM than larger ones. They add that larger firms may use more traditional marketing channels (e.g. promotions, events, etc.). The result of the current study could be explained by the fact that larger firms may have more resources to invest in adopting social media as a technology than smaller ones. It implies that larger firms are more likely to be willing to open a dialogue with stakeholders through adopting social media platforms as a "new technology".

The leverage level is positive and significant at the level of 1 percent. This finding is consistent with Al-Moataz and Hussainey (2012) that show a positive relationship between leverage and voluntary disclosure. However, it is not in line with Alturki (2014) that shows that there is no significant association between leverage level and voluntary disclosure. The result suggests that highly indebted firms are more likely to embrace social media platforms as a way to reassure creditors through disclosing information. However, the results show that profitability level and the auditor type are not drivers of firms' sociability on social media. Hence, hypothesis 1 is partially supported.

Regarding CEO characteristics, the results show that CEO sociability on social media is positive and significant at the level of 1 percent. This result is consistent with Upper Echelon Theory which suggests that senior managers' past experiences, and characters influence their strategic decisions and therefore, affect the financial reporting outcomes. The finding suggests that CEO sociability on social media is significantly associated with firms' sociability on social media. This result implies that firms with a more sociable CEO tend to be more sociable on social media. This result implies that when the CEO is more

sociable via social media, firms tend to be more sociable in social media by disclosing information on such platforms. However, CEO tenure and education are not significant in this model.

To address the third hypothesis, we used two interactions terms: the first one is for CEO's sociability on social media and firm size ($CEO_SM \times F_SIZE$) in model (2) and the second one is for CEO's sociability on social media and firm leverage ($CEO_SM \times F_LEV$) in model (3). The results show the moderating role of CEO's sociability on social media in the firm size and firms' sociability on SM nexus. The coefficient of ($CEO_SM \times F_SIZE$) is significantly positive at a 1 percent level. This suggests that CEO's sociability on social media moderates the relationship between the firm size and firms' sociability on SM. Thus, larger firms tend to be more sociable on social media when there is a more sociable CEO. In other words, there is a complementary effect between CEO's sociability on social media and firm size in increasing firms' sociability on SM. The results show the moderating role of CEO's sociability on social media in the firm leverage and firms' sociability on SM nexus. The coefficient of ($CEO_SM \times F_LEV$) is significantly positive at a 1 percent level. This suggests that CEO's sociability on social media moderates the relationship between the firm leverage and firms' sociability on SM. Thus, indebted firms tend to be more sociable on social media when there is a more sociable CEO. In other words, there is a complementary effect between CEO's sociability on social media and firm leverage in increasing firms' sociability on SM.

5. Conclusion

The purpose of this paper is to investigate the drivers of firms' sociability on social media (SM), an unregulated area, in KSA. The final sample of this study is 345 non-financial listed firms on Tadawul stock exchange during 2016-2019. Data are collected from several sources such as annual reports, the official website of the sample companies. Other data are collected manually such as the presence of the CEO and the sampled companies on social media.

Our findings show that firm size and leverage level are important drivers of firms' sociability on social media. Our results imply that larger firms are more likely to be sociable on social media than smaller ones. It also suggests that highly indebted firms are more likely to embrace social media platforms. The finding shows that CEO sociability on social media is significantly associated with firms' sociability on social media. This result implies that firms with a more sociable CEO tend to be more sociable on social media. Further analysis reports that larger firms tend to be more sociable on social media when there is a more sociable CEO. In other words, there is a complementary effect between CEO's sociability on social media and firm size in increasing firms' sociability on SM. The findings also show that indebted firms tend to be more sociable on social media when there is a more sociable CEO. Therefore, there is a complementary effect between CEO's sociability on social media and firm leverage in increasing firms' sociability on SM.

Our study complements the social media literature with findings from KSA, a neglected region in the literature. It also complements the considerable literature on voluntary disclosure which ignores the use of social media platforms as a "new" voluntary type of reporting. The present study complements recent literature on the adoption of social media by providing evidence that the sociability of top leaders is a driver of firms' sociability on social media.

Our findings have several implications for different stakeholders concerned with the adoption of social media. Indeed, it should give a signal to policymakers and regulators that listed firms are using social media, an unregulated area, and it needs their attention. The findings of this research have also a practical implication for shareholders and boards of directors in selecting a new CEO by taking into consideration their sociability on social media. It also has implications for researchers. In fact, studies examining firms' presence on social media are scarce, and the context of KSA remains understudied. Thus, this study calls for more research in such topics to get a better understanding of the drivers of firms' presence on social media, an unregulated area, in different contexts.

This research acknowledges some limitations that suggest caution in the interpretation of the results. First, the setting of the current study (KSA) is a particular context as we cannot consider some other CEO characteristics. For example, we could not include CEO duality because of the national regulation that prohibits CEO to hold simultaneously the position of Chairman of the Board and any other executive position in the company. Also, we could not include the CEO gender as no woman holds this position at the time of conducting the empirical work in the sampled companies. Further, the empirical results are based on a sample of non-financial listed firms from KSA, thereby the findings cannot be generalized to other institutional settings and jurisdictions. Such limitations allow future research to examine this issue in other contexts that could report different results.

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