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Financing, Small and Medium Entities and Social Media

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Abstract
This article examines the relationship between corporate social media communication and financing for Small and Medium Entities (SMEs). First, it provides a critical analysis of prior literature on the use of corporate social media and the potential benefit and costs for SMEs. It then discusses current evidence on the relationship between corporate social media, the cost of equity and the cost of debt. Next, it provides empirical evidence on the impact of corporate social media use on the cost of debt for a set of small and medium firms listed on the Alternative Investment Market London. Lastly, it proposes future research avenues about the association between corporate social media communication and corporate financing. This study provides important theoretical and empirical evidence on how social media are revolutionizing corporate disclosure and the important implications for SMEs and their financing.

JEL Classification: M41, G30, M15
Keywords: Social media; Financing; Small and medium entities; AIM London; Cost of debt

1. Introduction

Access to financing and the related costs are often critical to Small and Medium Entities (SMEs) (Beck & Demirguc-Kunt, 2006; Beck et al., 2008; López-Gracia & Sogorb-Mira, 2008). The main consequences for SMEs are limited growth opportunities and the potential risk of failure due to the lack of cash. These difficulties are mostly due to the information asymmetry between SMEs and potential investors (Bougrain & Haudeville, 2002; Leiponen & Byma, 2009). On the information supply side, SMEs often have limited resources to externally provide timely information. On the information demand side, investors require more information to mitigate the uncertainties around SMEs' activities.

Past literature shows the positive implications for SMEs to develop investor relationship (IR) departments in terms of access to financing (Bushee & Miller, 2012). However, developing IR requires investing substantial financial and human resources, representing thus a clear constraint for SMEs. Social media have the potential to be a game-changer for SMEs and their disclosure activities (Blankespoor et al., 2014; Miller & Skinner, 2015). Social media allow users to directly communicate information without intermediaries at a very low cost (Kaplan & Haenlein, 2010). Moreover, users can disseminate information in real-time and the recipients can comment and/or reply to the messages. As such, SMEs can use social media to constantly update their stakeholders, and in particular investors and financers.

Nonetheless, social media can induce costs for SMEs as they 'lose' control of the messages. Once an SME releases a message on social media, any user can then have access to that set of information and start new conversations and/or critically engage with the firm (Lee et al., 2015). Moreover, it is unclear *ex ante* whether investors would notice the messages SMEs release on social media. For instance, every day more than 500 million tweets are sent every day, which means 6,000 tweets every second.[1] Another key concern surrounding social media is the

[1] Further information: https://www.internetlivestats.com/twitter-statistics/

reliability of social media messages. The Security and Exchange Commission (SEC), the American financial watchdog, issued in January 2012 a warning around investing based on social media information.[2] The risk of misleading information and the difficulty to independently verify messages may create an information environment that is unreliable.

This article thus aims to theoretically and empirically analyze the association between SMEs' financing and corporate social media communication. It first reviews past literature on corporate social media communication and its implications for SMEs. It critically analyzes the implications of corporate social media communication for equity and debt financing. It then provides empirical evidence on the impact of corporate social media communication on the cost of debt for a sample of small and medium firms listed on the Alternative Investment Market (AIM) London. Drawing on the analyses, it concludes by suggesting avenues for future research on financing and social media communication, with a particular focus on SMEs.

The contributions of this article are manifold. First, it adds to the growing literature on the role of social media for companies (Blankespoor, 2018; Miller & Skinner, 2015). Specifically, it shows the importance of corporate social media communication for investors and financers in their decision-making process. Second, it contributes to the literature on SMEs and financing (Beck & Demirguc-Kunt, 2006; Beck et al., 2008). This paper shows the positive implications for companies, and in particular for SMEs, to release information on social media because they will experience numerous benefits, including higher investors' attention, lower cost of equity and lower cost of debt. This paper also adds to our understanding of SMEs' voluntary disclosure (Boulland et al., 2021; Bushee & Miller, 2012; Filip et al., 2020; Ghio & Verona, 2020). While prior literature focuses on mimicking disclosure strategies of large firms, such as developing IR, this paper shows that companies can use new media platforms to disclose information and experience positive effects.

[2] Further information at: https://www.sec.gov/investor/alerts/socialmediaandfraud.pdf.

2. The use of corporate social media

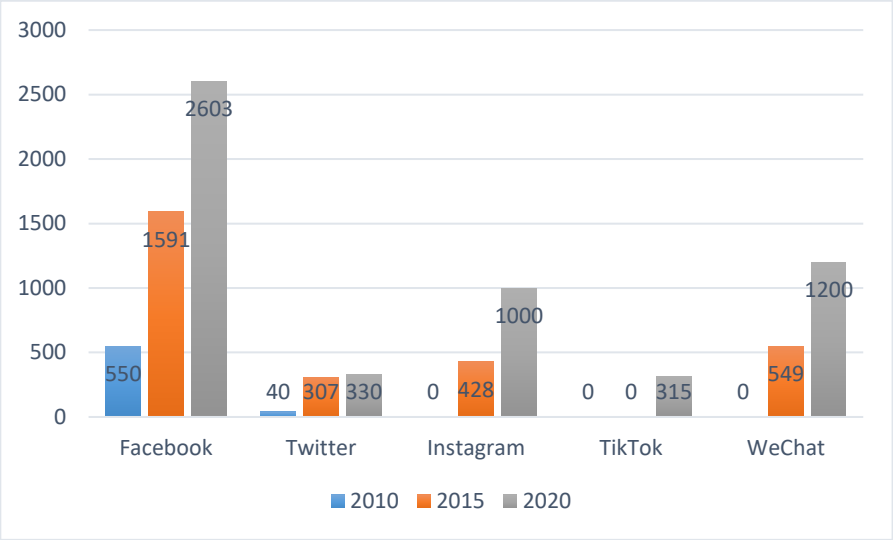
Social media are revolutionizing communication processes, not only for individuals but also for companies. For a longtime, companies could disclose information to their stakeholders mostly through press releases which would then be disseminated by the financial press. Financial journalists often represented the gatekeepers of business communication. Considering the limited pages traditional press could print, journalists' decisions in terms of coverage and information content had a significant role in disseminating information to the public. This information control was detrimental to SMEs as they were often excluded from the press due to the limited audience.

Firms could provide information to their stakeholders through their websites or press releases. However, investors would need to actively pull this type of information. This implied that often the news could be read with a delay and would become less relevant for investment decisions. Moreover, users could not directly engage with the firm as this was a one-way communication between a company and its stakeholders. This delay is even more relevant for SMEs who often have limited financial and human resources to dedicate to investor relations. This situation can exacerbate the information asymmetry between SMEs and their investors, limiting their access to credit or leading to a higher cost of financing.

Social media present unique features that disrupt corporate communication. Social media are virtual platforms used to communicate among users (Kaplan et al. 2010). Examples of social media include Facebook, Instagram, Twitter, and WeChat among others. Figure 1 reports the trend of the number of users among different platforms. For instance, Facebook has almost 2.6 billion users in 2020. However, Instagram, a platform that mostly allows users to share pictures and videos, is having the fastest growth and currently has 1 billion users. From a business perspective, companies tend to use Twitter to communicate to their

investors (Ghio & Verona, 2020; Jung et al., 2018), while other platforms such as YouTube and Instagram are mostly dedicated to commercial use.

Figure 1 – Social media users (Source: Statista.com)



It is possible to identify two streams of research examining the relationship between social media and the business world. One examines the consequences of users' talk about companies on social media. Dedicated platforms to financial discussions, such as Seeking Alpha and Yahoo Finance, appear to influence market participants' decisions (Acharya et al., 2016; Ding et al., 2020). In these social media platforms, users act as informal analysts who discuss firms' performance and try to forecast their trends. Bartov et al. (2018) show that individual tweets on social media successfully predict forthcoming quarterly earnings and returns. These results are robust to concurrent information on traditional media. Differently, Jia et al. (2020) examine the rumours on Twitter around mergers. They show that social media can distort the price for weeks and it is not helping investors to predict merger realization.

Therefore, it is possible to appreciate that the possibility for users to interact on social media. Their conversations are shaping the investment market. Pre-social media, these conversations were difficult to happen, but also challenging from a research methodological perspective to map. Moreover, it also implies that firms may need to consider users' discussions about their activities on social media. This requires substantial monitoring of social media activities. However, this may be difficult for SMEs which have limited resources to monitor these conversations. This evidence on users discussing financial performance is also relevant to better understand the use of social media. While social media role in marketing is well-established, evidence of their relevance from an investment perspective is still in its infancy.

The other stream of literature examines the determinants and consequences of companies using social media to disclose information. In their seminal paper, Kaplan and Haenlein (2010) provide five suggestions to companies to be effective on social media, such as be active, be interesting, be humble, be unprofessional, and be honest. The benefits to use social media for companies are manifold. First, they have direct access to the message, with no need for intermediaries, such as the financial press. This is particularly important for SMEs who are often excluded from the press coverage for their limited relevance to the readership. Second, companies face a little cost to disclose information on social media. Most of these social media platforms are free of use and are of easy use. However, the increased attention towards corporate social media is leading firms to invest resources into social media strategies. Another advantage of corporate social media communication concerns the possibility to send information in real time worldwide. This allows companies to constantly update users with information that they believe relevant to potential investment decisions. The question is whether investors care about this set of information and whether they incorporate them in their decision process.

Lee et al. 2015 find that engaging on social media in the aftermath of a corporate crisis, such as a product recall, mitigates the negative backlash on the web. This is particularly important as firms may use social media to finally directly engage with their stakeholders. Firms also

adjust the content of their tweets to the audience. Recently, Filip et al. (2020) show that innovative small cap firms disclose more cash flow information relative to earnings in their tweets relative to non-innovative small cap firms. This is because innovation small firms consider cash flows information key to their investors. Indeed, Filip et al. (2020) provide evidence that tweets about cash flows in innovative small cap firms are more retweeted and favourite than for non-innovative firms. This additional finding suggests that investors pay attention to corporate tweets content and actively engage with corporate accounts. Turning the attention to firms' CSR disclosure, Gómez-Carrasco et al. (2021) document that firms tend to communicate supplementary CSR issues and biased towards favourable information. Conversely, outside stakeholders focus on core CSR issues.

Table 1 provides a visual representation of the main streams of literature on corporate social media with a particular focus on SMEs.

Social Media and firms
•More visibility (Filip et al. 2020; Ghio & Verona, 2020)
•Higher investors' attention (Jung et al. 2018)
•Strategic use (Filip et al. 2020; Lee et al. 2015; Jun et al. 2018)
Social media and firms' stakeholders
•Earnings predictions (Acharya et al. 2016; Ding et al. 2020; Bartov et al. 2018)
•Mergers rumors (Jia et al. 2020)
•CSR discussion (Gómez-Carrasco et al. 2021)

Table 1 – Corporate Social Media Research

3. Financing and corporate social media

The corporate use of social media as a marketing channel is well documented (Alalwan et al., 2017; Appel et al., 2020). Customers constantly look at corporate social media account to receive their latest product updates and their promotions. A different question is whether investors and financers, who often rely on annual reports, financial press and analysts' reports, consider social media disclosure in their decisions.

Past research mostly focuses on the relationship between firms' activity on social media and equity investors. Blankespoor et al. (2014) show that tweets including hyperlinks to the earnings announcements reduce the information asymmetry, especially for firms of smaller size. Jung et al. (2018) document that firms behave opportunistically on social media. Specifically, they disseminate less information on social media when quarterly earnings announcements are negative relative to when they are positive. These corporate behaviours aim to reduce investors' attention at the earnings announcement.

Boulland et al. (2021) show that SMEs mostly rely on social media and less on other disclosure channels, i.e., conference calls, IR, investors' days, to disclose financial information. Moreover, small and medium firms which disclose earnings information on Twitter in the fourteen days before the earnings announcement exhibit higher investment attention at the earnings announcement relative to those who remain silent. They also show that tweeting before the earnings announcement leads to higher retail investment and analysts' forecasts. By showing the persistence of a price reversal in the weeks following the earnings announcement, they also observe that tweeting leads to an inflated reaction at the earnings announcement. However, SMEs appear to behave opportunistically. They tweet before positive news while they remain silent when they have bad news.

The type of activity and the corporate person engaging on social media is also relevant for users. Cade (2018) shows that the number of retweets influences the influence a criticism has on non-professional investors. Firms may mitigate these investors' concerns by addressing

them directly or redirecting the attention to more positive news. Elliott et al. (2018) notice that investors react better to bad news when an announcement comes from the CEO on Twitter than when an announcement comes from the company investors relation account.

Recently, Al Guindy (2021) provides evidence that firms active on social media experience a lower cost of equity capital. This relationship is stronger for SMEs. Moreover, they show that tweeting financial information is key to reduce information asymmetry and thus, the cost of equity. Their core argument is that tweeting helps disseminating information while the disclosure of new information is difficult to ascertain and unlikely to happen due to disclosure regulation.

In an important exception to the narrow focus on social media and equity in the broader discussion about financing, Fehrenbacher and Ghio (2021) show that social media leads to higher trade credit received for SMEs. This is relevant as trade credit is often a key source of financing for firms of smaller size. They show that more activity on social media leads to higher trust due to more timely information. This means that suppliers are more likely to extend longer payment terms for those SMEs who are active on social media because they are considered more trustworthy following the release of timely information on social media.

Overall, this stream of literature on social media and financing shows that firms, and particularly SMEs, benefit from being active on social media in terms of lower cost of equity and higher investors' attention. An important gap in the literature is the association between corporate social media and the cost of debt, which represent a key source of financing for SMEs (Holmes et al., 1994; Valta, 2012).

4. Empirical evidence

This section aims to provide empirical evidence of the relationship between corporate social media activity on Twitter and the cost of debt. I focus on a sample of SMEs listed on the Alternative Investment Market (AIM) London Stock Exchange. This setting is ideal to understand financing decisions for SMEs as it attracts firms of smaller sizes with an appetite for financing. Indeed, Gerakos et al. (2013) argue that "The goal [of AIM] is to provide investors with access to 'smaller growing companies', thereby increasing the pool of available capital" (p. 190). I focus on Twitter because it is a social media platform commonly used by companies to communicate to their investors and financers (Al Guindy, 2021; Blankespoor, 2018; Jung et al., 2018).

Consistently with the European Union definition of SMEs, I only consider firms with total assets below €43 million.[3] I gather and merge data from multiple databases, i.e., EIKON and WorldScope for financial data and a proprietary database developed through Python for social media information. Table 2 provides the description of the sampling and data collection. I exclude firms operating in the financial and insurance industry because they follow specific reporting requirements. I also exclude firms with negative equity because they often present significant problems of viability. Lastly, I delete firms that are not small and medium, i.e., total assets above €43 million, and those with unavailable data. The final sample includes 1,716 firm-year observations. All continuous variables are winsorized at the 2 percent level to mitigate the influence of outliers.

Firm-year observations on the AIM London market between 2009 and 2016	7,032
Less firm-year observations from the financial and insurance industry	(1,085)
Less firm-year observations with negative equity	(468)

[3] I also reperform the tests with additional criteria for SMEs (e.g., turnover lower than or equal to 50 million and staff headcount below 250). The results are qualitatively similar.

Less firm-year observations with total assets above €43 million	(1,585)
Less firm-year observations with unavailable data	(2,178)
Final total number of firm-year observations	***1,716***

Table 2 – Sample composition

I then start investigating the relationship between corporate Twitter activity and the cost of debt. Table 3 presents a description of the variables included in the analyses. The groups 'Cost of debt' and 'Social media' represent the variables of interest. We look at the content of the tweets, focusing on financial information. The latter has been defined adapting the vocabulary defined by Lerman (2020). The group 'Firm characteristics' includes variables aiming to have a more complete picture of the factors influencing financing decisions.

Variable	Definition	Source
<u>*Cost of debt*</u>		
$INTEREST\_RATE_t$	Interest Rate - Estimated Average (ITEM8356)	WorldScope
<u>*Social media*</u>		
TWEETS	Twitter activity, measured as the number of tweets issued in year t.	Python script
$TWEETS\_FIN_t$	Financial twitter activity, measured as the number of tweets about financials issued in year t.	Python script
$TWEETS\_PROD_t$	Product twitter activity, measured as the number of tweets about products issued in year t.	Python script

$FAV\_FIN\_TW_t$	Favourite financial tweets, measured as the number of favourite for tweets about financials issued in year t.	Python script
$RETW\_FIN\_TW_t$	Retweet financial tweets, measured as the number of retweets for tweets about financials issued in year t.	Python script

Firm characteristics

$SIZE_t$	Firm's size, measured as the natural logarithm of total assets in year t.	EIKON
$GROWTH_t$	Firm's growth, measured as change in revenues from year t–1 to year t divided by revenues in year t–1.	EIKON
MTB_t	Market-to-book value in year t.	EIKON
ROA_t	Return on Assets, measured as net income in year t divided by total assets in year t–1.	
LEV_t	Leverage, measured as total liabilities in year t divided by total assets in year t–1.	EIKON
$LTDebt_t$	Long-term debt, measured as long-term debt in year t divided by total assets in year t–1.	EIKON
$CAPEX_t$	Capital expenditures, measured as capital expenditures in year t divided by total assets in year t–1.	EIKON
$ANALYSTS_t$	Analysts following, measured as the natural logarithm of one plus the number of analysts following the firm in year t.	EIKON

$BIG4_t$	Audit, dummy variable equal to 1 if a firms' auditor is one of the Big-4 in year t, and 0 otherwise.	EIKON

Table 3 – Variables description

Table 4 reports the descriptive statistics of the variables. Firms issue on average 49 tweets per year, of which approximately 15% about their products. Firms listed on the AIM London tend to have a high growth rate (mean = 6.8%) but with a low level of profitability (mean = -38.5%. They are also poorly covered by financial analysts and they tend to hire non-Big4 auditors.

Variable	Obs	Mean	Std. dev.	Min	Max
INTEREST_Rate	1,716	0.141	5.802	0	240.712
TWEETS	1,716	49.096	173.697	0	2,277
TWEETS_FIN	1,716	2.787	16.618	0	469
TWEETS_PROD	1,716	7.285	32.700	0	608
FAV_FIN_TW	1,716	0.774	4.840	0	86
RETW_FIN_TW	1,716	4.662	45.287	0	1297
SIZE	1,716	9.308	0.974	6.265	10.660
GROWTH	1,716	0.068	0.418	-1.002	2.253
MTB	1,716	3.201	5.305	0.156	35.829
ROA	1,716	-0.385	5.720	-172.9	1.709
CAPEX	1,716	0.034	0.059	0	0.426
LTDebt	1,716	0.045	0.102	0	0.755
LEV	1,716	0.359	0.262	0.023	0.951
ANALYSTS	1,716	0.404	0.468	0	2.079
BIG4	1,716	0.101	0.301	0	1

Table 4 – Descriptive statistics

Table 5 reports the correlation analysis between variables. The cost of debt (*INTEREST_RATE*) is negatively associated with Twitter

activity (*TWEETS*) as well as with different types of tweets (*TWEETS_FIN* and *TWEETS_PROD*). These results provide preliminary evidence that corporate social media activity may benefit small and medium firms by leading to a lower cost of debt.

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*	*(15)*
(1) INTEREST_Rate	1														
(2) TWEETS	-0.006	1													
(3) TWEETS_FIN	-0.004	**0.663**	1												
(4) TWEETS_PROD	-0.005	**0.774**	**0.513**	1											
(5) FAV_FIN_TW	-0.003	**0.570**	**0.676**	**0.430**	1										
(6) RETW_FIN_TW	-0.002	**0.371**	**0.487**	**0.378**	**0.445**	1									
(7) SIZE	0.015	**0.047**	0.056	**0.035**	0.026	0.028	1								
(8) GROWTH	-0.004	0.018	0.008	0.007	0.002	-0.001	**0.048**	1							
(9) MTB	-0.007	**0.093**	**0.054**	**0.069**	**0.076**	0.034	**-0.312**	0.017	1						
(10) ROA	0.001	0.007	0.005	0.007	-0.006	0.002	**0.061**	**-0.079**	**-0.084**	1					
(11) CAPEX	-0.014	-0.022	-0.017	-0.019	-0.013	-0.006	**0.093**	0.014	-0.022	-0.031	1				
(12) LTDebt	-0.010	-0.009	-0.010	0.008	-0.005	-0.014	**0.096**	**0.071**	**0.060**	0.016	**0.181**	1			
(13) LEV	-0.024	0.042	0.004	**0.045**	0.011	-0.007	0.013	**0.405**	**0.114**	**-0.240**	**0.070**	**0.411**	1		
(14) ANALYSTS	-0.020	**0.088**	**0.083**	**0.111**	**0.041**	**0.039**	**0.276**	**0.083**	**0.047**	0.040	-0.017	-0.004	0.008	1	
(15) BIG4	-0.008	-0.008	-0.007	0.012	-0.018	0.034	**0.069**	**-0.045**	**0.050**	0.009	**0.074**	-0.023	-0.000	**0.081**	1

Table 5 – Correlation Matrix

Note: Bold figures indicate significance at less than 10%

I then use regression analysis to further test the relationship between corporate Twitter activity and the cost of debt. Equation (1) reports the estimated model using an OLS regression (standard errors double-clustered at industry and year level):

$$\begin{aligned} INTEREST\_RATE_{i,t} = {} & \alpha_0 + \alpha_1 TWITTER\_ACT_{i,t} + \alpha_2 SIZE_{i,t} \\ & + \alpha_3 GROWTH_{i,t} + \alpha_4 MTB_{i,t} + \alpha_5 ROA_{i,t} \\ & + \alpha_6 CAPEX_{i,t} + \alpha_7 LTDebt_{i,t} + \alpha_8 LEV_{i,t} \\ & + \alpha_9 ANALYSTS_{i,t} + \alpha_{10} BIG4_{i,t} \\ & + \text{Firm Fixed Effects} + \Omega_{i,t} \end{aligned} \quad (1)$$

where:

$TWITTER\_ACT_t$ = one of the following variables:

$TWEETS_t$ = Twitter activity, measured as the number of tweets issued in year t.;

$TWEETS\_FIN_t$ = Financial twitter activity, measured as the number of tweets about financials issued in year t;

$TWEETS\_PRODUCT_t$ = Product twitter activity, measured as the number of tweets about products issued in year t.

All variables are defined in Table 3.

The variable of interest is *TWITTER_ACT*, which captures Twitter activity by a firm in a certain year (*TWEETS*), the tweets about financials by a firm in a certain year (*TWEETS_FIN*) and the tweets about products by a firm in a certain year (*TWEETS_PROD*). I control for firm characteristics that may influence the cost of debt, such as size (*SIZE*), growth (*GROWTH*), growth opportunities (*MTB*), and profitability (*ROA*), financing needs for capital expenditures (*CAPEX*) because these firms may demand more bank financing to finance their long-term

investments, liabilities, such as long-term debt (*LTDebt*) and leverage (*LEV)*, financial analysts' monitoring (*ANALYSTS*) and audit quality (*BIG4*). I include firm fixed effects to control for unobserved firm-level and time-invariant characteristics that may affect financing policies.

VARIABLES	(1) *INTER-EST_RATE*	(2) *INTER-EST_RATE*	(3) *INTER-EST_RATE*
TWEETS	-0.000*		
	(0.000)		
TWEETS_FIN		-0.003***	
		(0.001)	
TWEETS_PROD			-0.001
			(0.000)
SIZE	0.448	0.447*	0.444
	(0.270)	(0.267)	(0.268)
GROWTH	-0.035	-0.034	-0.034
	(0.043)	(0.042)	(0.043)
MTB	0.016	0.016	0.016
	(0.011)	(0.011)	(0.011)
ROA	0.006	0.006	0.006
	(0.005)	(0.005)	(0.005)
CAPEX	-0.255	-0.246	-0.258
	(0.176)	(0.170)	(0.175)
LT_Debt	-0.169	-0.178	-0.157
	(0.337)	(0.345)	(0.326)
LEV	-0.087**	-0.085*	-0.085**
	(0.041)	(0.043)	(0.042)
ANALYSTS	-0.436	-0.436	-0.436
	(0.356)	(0.354)	(0.355)
BIG4	-0.030	-0.034	-0.024
	(0.048)	(0.052)	(0.047)
Constant	-2.947	-2.948	-2.924
	(1.965)	(1.954)	(1.955)
Firm FE	YES	YES	YES

Observations	1,716	1,716	1,716
Adj. R-squared	0.251	0.251	0.251

Table 6. - Twitter activity and cost of debt

***, **, and * indicate significance level at the 1%, 5%, and 10% level, respectively.

Table 6 shows that Twitter activity (*TWEETS*) is negatively and significantly associated with the cost of debt (*INTEREST_RATE*) (Column 1) at less than 10 percent level (two-tailed). I then differentiate tweets according to their content, i.e., financial (Column 2) or product (Column 3). The relationship between financial tweets (*TWEETS_FIN*) and the cost of debt (*INTEREST_RATE*) is negative and significant at less than 1 percent level (two-tailed). The relationship between product tweets (*TWEETS_PROD*) and cost of debt (*INTEREST_RATE*) is negative and but not statistically significant. Overall, these results suggest that firms experience a lower cost of debt when they are active on social media. Financers appear to appreciate this dissemination channel. However, the benefits in terms of the cost of financing are stronger when tweeting about financials.

Next, I focus on the attention that tweets about financials receive on social media and whether this impacts the cost of debt. Equation (2) reports the estimated model using an OLS regression (standard errors double-clustered at industry and year level):

$$\begin{aligned} INTEREST\_RATE_{i,t} = {} & \alpha_0 + \alpha_1 TWITTER\_INTER_{i,t} + \alpha_2 SIZE_{i,t} \\ & + \alpha_3 GROWTH_{i,t} + \alpha_4 MTB_{i,t} + \alpha_5 ROA_{i,t} \\ & + \alpha_6 CAPEX_{i,t} + \alpha_7 LTDebt_{i,t} + \alpha_8 LEV_{i,t} \\ & + \alpha_9 ANALYSTS_{i,t} + \alpha_{10} BIG4_{i,t} \\ & + \text{Firm Fixed Effects} + \Omega_{i,t} \end{aligned} \quad (2)$$

where:

TWITTER_INTER = one of the following variables:

$FAV\_FIN\_TW_t$ = Favourite financial tweets, measured as the number of favourite for tweets about financials issued in year t;

$RETW\_FIN\_TW_t$ = Retweet financial tweets, measured as the number of retweets for tweets about financials issued in year t.

All variables are defined in Table 2.

VARIABLES	(1) *INTEREST_RATE*	(2) *INTEREST_RATE*
FAV_FIN_TW	-0.005***	
	(0.001)	
RETW_FIN_TW		-0.000
		(0.000)
SIZE	0.448*	0.445
	(0.268)	(0.269)
GROWTH	-0.035	-0.034
	(0.043)	(0.043)
MTB	0.016	0.016
	(0.011)	(0.011)
ROA	0.006	0.006
	(0.005)	(0.005)
CAPEX	-0.259	-0.256
	(0.183)	(0.175)
LT_Debt	-0.160	-0.162
	(0.329)	(0.330)
LEV	-0.084**	-0.084*
	(0.042)	(0.042)
ANALYSTS	-0.438	-0.437
	(0.355)	(0.356)
BIG4	-0.029	-0.023
	(0.048)	(0.048)
Constant	-3.433	-2.933
	(2.228)	(1.962)
Firm FE	YES	YES

Observations	1,716	1,716
Adj. R-squared	0.251	0.251

Table 7 – Twitter attention and Interest rate

***, **, and * indicate significance level at the 1%, 5%, and 10% level, respectively.

Table 7 shows that attention on Twitter about financials (*FAV_FIN_TW*) is negatively and significantly associated with the cost of debt (*INTEREST_RATE*) (Column 1) at less than 1 percent level (two-tailed). The relationship between retweets (*RETW_FIN_TW*) and cost of debt (*INTEREST_RATE*) is negative but not statistically significant. Financial tweets that received attention and appreciation are associated with a lower cost debt, while users' dissemination of these tweets does not appear to have any significant effect on the cost of debt.

Taken together, these results indicate that corporate social media activity (in particular, about financials) and attention towards financial tweets are associated with a lower cost of debt. Financers appreciate the dissemination of information on social media as they may reduce their information asymmetry with small and medium firms.

5. Conclusions and research avenues

This study firstly mapped the literature on corporate social media, with a particular focus on SMEs. Two streams of literature emerge. One concerns the use of social media by external users, for instance to discuss and predict stock prices. The other stream focuses on firms' use of social media. Social media are beneficial to firms to increase their visibility among investors and stakeholders. This is particularly important for SMEs which often suffer from external limited attention (Bushee & Miller, 2012). While prior literature emphasized the importance of investor relations, this strategy is often costly. SMEs may benefit from using social media to communicate information and grab attention at a low cost. They can thus increase their visibility around key events, e.g., earnings announcements, and reduce post earnings

announcement drifts. Moreover, social media allow firms a range of different engagement with their stakeholders. For instance, they can respond to users' comments, they can post files other than text, e.g., video, images, music, and have their senior management, e.g., CEO/CFO, to directly engage on their platforms.

Nonetheless, stakeholders need to pay attention to firms' disclosure on social media. Firms tend to act opportunistically on social media, meaning they disclose and emphasize good news and they stay silent when bad news happens. Future research could further investigate the reliability and the presence of misleading information by firms on social media. This would also help to shed light on whether users detect fake information by firms on social media and the effects on firms' reputation. As a growing number of users can now easily have access to firms' information, it is important to understand the implications on firms' monitoring. Social media may help stakeholders to obtain better and more accurate information. Alternatively, the external monitoring on social media may have little impact on firms' disclosure decisions due to the large volume of information to process on social media.

Secondly, this study provided empirical evidence that SMEs benefit from being active on social media with regard to the cost of debt. Specifically, tweets about financial information lead to a reduction in the cost of debt. Moreover, when users react positively to these financial tweets, i.e., by marking them as 'Favourite', firms experience a reduction in their cost of debt. We do not observe significant relationships between tweeting about products or dissemination of financial tweets through retweets. The use of firm fixed effects mitigates potential concerns about endogeneity as it allows to observe within firm changes. These results complement Al Guindy (2021) who shows that SMEs using Twitter exhibit a lower cost of equity capital, especially when tweeting financial information. Taken together, these findings suggest that SMEs need to pay attention to their use of social media because only certain tweets lead to a reduction in the cost of financing.

Future research could integrate the current set of findings by exploiting alternative settings to the main empirical question, for instance

by examining different (i) industries/sectors and (ii) firms' sizes (both within the SME definition and for larger corporates). Another interesting stream of research involves the impact of social media disclosure on alternative forms of equity (e.g. Venture Capital).

Additionally, future studies could expand the research to social media use other than Twitter and text. While more complex in terms of data gathering and data analysis, these social media platforms allow firms to gather users' attention through images and pictures. The extend these types of files may provide financers and investors with a broader range of information about corporate activities is still unclear. It is thus an empirical question whether these different types of information provide value added to their decisions and whether this would be particularly beneficial to SMEs who often have limited resources to develop sophisticated graphic or visual documents.

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