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ACTA MARISIENSIS, OECONOMICS SERIES
Online:ISSN 2668-3989, ISSN L 2668-3148
Print:ISSN 2668-3148, ISSN L 2668-3148

doi: 10.2478/amso-2022-0002

FINANCIAL REPORTING ON SOCIAL MEDIA. EMPIRICAL STUDY ON THE EUROPEAN MEDICAL SECTOR.

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Abstract: *Corporate advertising is essential for the functioning of an efficient capital market. Over the past decade, social networks have begun to become an integral part of the contemporary lifestyle of entities, being used as a means of communication with stakeholders. The quantitative research carried out on the sample of 119 companies in the medical sector, listed on the European stock exchanges, closely follows the correlations between the use of social networks and the financial information disseminated to the public. Techniques of exploratory data analysis were used to identify the determinants of financial communication through social means, followed by the calculation of the index of the use of these means of communication and its correlation with the financial performance rates of the studied companies. We believe that the ubiquitous adoption of technologies plays an essential role in the communication between management and users, bringing an indirect contribution to the proper functioning of an entity.*

Keywords: *social networks, corporate advertising, financial performance*

JEL Classification: M41, M42, G41

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1 INTRODUCTION

The widespread adoption of internet technologies, both in fixed and mobile forms, has led to the large-scale growth of social networks operating within the corporate landscape (Debreceny, 2015). In addition, investors can monitor a brand's performance on a much more objective and neutral basis and predict its future value, as social media are appropriate tools for changing users' opinions.

It is obvious that social media has become a crucial part of our lives, especially during the COVID-19 pandemic, when social media platforms such as Twitter and Facebook have played an important role in the transmission of information, both accurate and inaccurate. As the response to COVID-19 has reduced face-to-face contact, communication through social media has increased (Bae, 2021). Also, before the COVID-19 pandemic, numerous studies tried to explain the impact of these networks on society, as they presented:

- Schniederjans et al. (2013), identified the relationship between a company's financial performance and managing impressions on social media;
- Luo et al. (2013), studied the impact of social media on the future value of shares;
- Akmese et al. (2016), inferred that companies traded on international markets and which had active social media accounts achieved higher financial performance than entities with inactive accounts.

2 DEFINITION OF THE RESEARCHED PROBLEM

Social media is an important public relations tool that allows two-way communication with stakeholders, as pointed out by researchers such as: Alikilic and Atabek, (2012), Skaržauskienė et al. (2013), Alexander and Gentry (2014), (Kilgour, 2015). Hoeber et al. (2016) stated that social media provides a valuable source of information for entities in terms of public opinion. Even though the internet (i.e. the website) is intensively used for corporate reporting purposes, it is no longer considered a source of competitive advantage in dealing with stakeholders in the same way as current social media (Veltri and Nardo, 2013).

2.1. Strategic dissemination of financial information

It is important to note how management determines the conduct of the process of disseminating information, including whether it is carried out strategically or randomly, occasionally. The identification and application of a strategic plan for the dissemination of information of any kind, through the multitude of existing communication channels, contributes to improving the degree to which management shapes the information environment around the entity, as well as the ability to directly or indirectly influence investors' perspectives on the company. Companies are believed to use voluntary disclosure to balance their decisions and communicate with the market (Lei, 2019)." Accordingly, this proactive action by companies provides investors with the information they need to make informed decisions (Madhani, 2016).

The primary success of a strategy depends on three key factors: the alignment of the entity with the external environment, a realistic internal vision of its core competencies and sustainable competitive advantages, as well as careful implementation and monitoring.

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Recent theory suggests that disclosure of information by entities, either through a strategy or randomly, can lead to two distinct effects (Lambert, 2012), and another expert study documents the existence of both effects:

- an effect of average accuracy of information;
  The average accuracy reflects the average level of investor awareness and would increase with any useful disclosure (Bhattacharya, 2012).
- an effect of information asymmetry between investors.
  Asymmetry between investors refers to the difference in information between investors and could increase or decrease with a disclosure of information, depending on whether the information was evenly distributed (Bhattacharya, 2012).

2.2. Voluntary disclosure of financial information via the internet

The economic system is increasingly becoming based on digital tools. Due to the relatively low cost and power of information and communication technologies, companies are using them to undertake some activities that until now they were doing in more rudimentary ways.

Communication networks are changing the internal processes of companies, as well as the way they relate to their customers and other stakeholders, social networks are accessible to anyone who has access to the Internet. On the one hand, internal information processes are faster and more automated than they were. Intranets allow companies to process accounting information more effectively and efficiently. On the other hand, the Internet allows firms to expand the number of external users of accounting information at a lower cost.

In this context, the dissemination of accounting information on the internet adds a new dimension to corporate reporting. Online, real-time information will soon replace the historical financial statements currently provided by companies to stakeholders. The search and presentation capabilities of the internet allow companies to add value to corporate information. Companies should be able to provide key stakeholders with a wide range of additional non-financial information that can be accessed upon request, depending on the interests of the stakeholders.

3 PRESENTING THE RESEARCH FINDINGS

3.1. Research methodology

The entities in the sample of the research were selected based on the following criteria:

Table 1 Sample criteria

Industry	Medical
Region	Europe
Active on the capital market	Yes

Source: authors' projection

The application of the three established criteria results in the number of 119 companies listed on the European stock exchanges, which are part of the sample. Thus, the geographical distribution of the sample is as follows:

Table 2 Sample geographical distribution

Country	Number	Weight
Belgium	1	0,84%
Bulgaria	1	0,84%
Denmark	7	5,88%
Switzerland	3	2,52%
Finland	6	5,04%
France	13	10,92%
Germany	24	20,16%
Ireland	2	1,68%
Italy	4	3,36%
Norway	3	2,52%
Holland	2	1,68%
Poland	5	4,20%
Romania	3	2,52%
Slovenia	2	1,68%
Spain	7	5,88%
Sweden	15	12,60%
UK	20	16,80%
Hungary	1	0,84%

Source: authors' projection

The information necessary to achieve the established objectives was collected from the financial reports of the companies, and their websites, but also from public sources such as www.investing.com, respectively www.yahoofinance.com.

3.2. Setting the research questions and presenting results

(1.) Are there any potential correlations between performance indicators and the voluntary disclosure index?

We measured the level of voluntary disclosure of financial information through social media, by dividing the score obtained by each entity, by the maximum score that can be obtained. In order to quantify the degree of disclosure of information through these distribution channels, we have improved the index created by Al- Sartawi, and Hamdan (2019), which initially contained only two measurement criteria, namely the use of social networks and the identification of the number of active accounts on these platforms. Thus, the new improved index takes into account the following aspects:

Table 3 Index criteria

Criteria	Yes	No
Use of social networks	1	0
No of active accounts	6	0
Link from web page to social networks	1	0
E-mail alert	1	0
TOTAL	**9**	**0**

Source: authors' projection

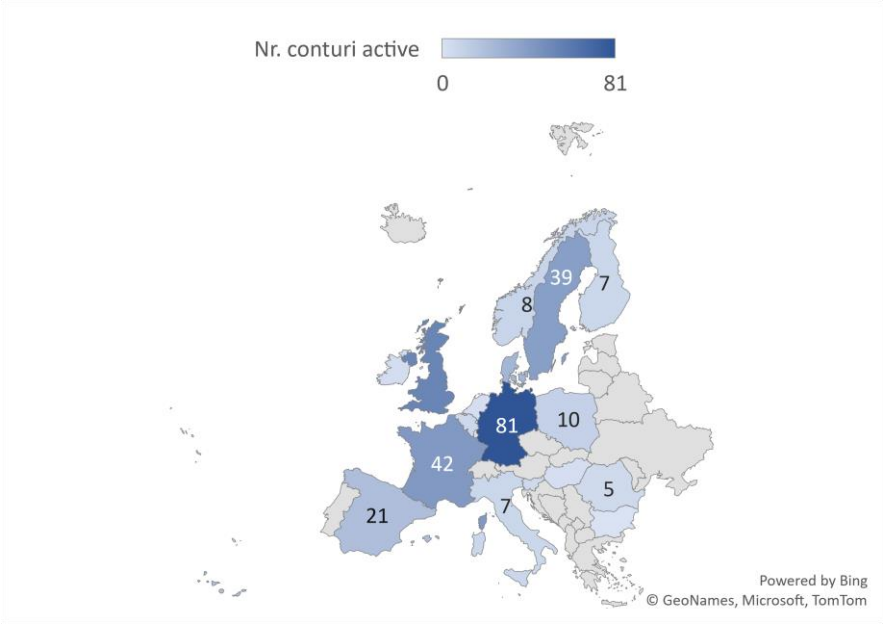
The first step in determining this score is about whether to use social networks, respectively identifying companies that have at least one account open. Thus, if a company has an account opened on at least one social media platform it is assigned the maximum score, respectively 1, and if not, 0. Following the centralization of the active accounts, we have established as 6 as the maximum number of accounts used by the sampled companies. The figure below shows the situation regarding the geographically active social media accounts, following the analysis of the data collected at the level of each entity.

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Online:ISSN 2668-3989, ISSN L 2668-3148
Print:ISSN 2668-3148, ISSN L 2668-3148

Figure 1 Geographical distribution of social media accounts



Source: authors' projection

The following criteria consider reliability. In this regard, we have checked the ease with which users can get in touch with the social networks used. Thus, the companies to which we identified the link to the social media platforms received a score 1, respectively those for which it was not identified we gave a score 0. We identified 87 companies out of the total of 119 (73%) that directly link the website with social media platforms, respectively 32 (27%) that do not provide users with this aspect, making it difficult for users to interact.

After collecting all the necessary information, the index that measures the degree of disclosure of financial information through social networks is calculated using the following formula:

$$Index\ calculation = \frac{Use\ of\ social\ networks + Active\ accounts + Link + E - mail}{9}$$

The table below shows the summary of independent variables used to establish potential existing correlations. In order to establish and identify as many correlations as possible between the two categories of variables, we have selected both financial and stock market performance indicators, as well as the Piotroski score, used to assess the soundness of the financial position of the company.

Table 4 Summary of independent variables

	Media	Median	MIN	.MAX
Debts/Capital	77.6%	49.4%	0.3%	4.813
Fast liquidity	1.69	0.96	0.28	13.60
Gross profit or loss margin	52.5%	54.0%	5.8%	0.955
Current liquidity	2.39	1.59	0.41	14.27
P/B.V.	5.14	2.73	0.24	67.88
W/E	62.41	24.54	1.49	2,212.62
Capitalization	11,454.16	1,070.15	7.51	277,589.28
Value of the company	14,039.43	1,353.80	10.71	318,471.18
EV / EBITDA	21.00	13.63	0.42	250.81
ROE	20.4%	12.7%	0.2%	1.306
ROA	9.6%	5.4%	0.1%	0.775
Revenue growth rate	35.9%	16.3%	0.1%	8.612
Piotrowski score	5,8	6	2	9
Liabilities/Assets	25.2	22.4	0.1	0.713

Source: authors' projection

Analyzing the correlations of all variables, we identified the non-existence of direct relationships in the performance indicators considered and the use of social networks as a means of communication. Thus, as a dependent variable increase, there is no tendency for the dependent variable to change in a particular direction.

We conclude that, within healthcare entities, listed on European stock exchanges, the financial information made available to the public takes precedence over social networks and the information distributed through them and is not dependent on each other.

(2.) What are the drivers of social media presence?

In order to obtain answers as pertinent as possible to this research question, the number of active accounts has been used as a dependent variable, while the independent variables on which the calculations have been directed are the year of establishment, as well as the age and sex of the person at the head of the entities.

3.3 Independent variables analysis

- Sex CEO

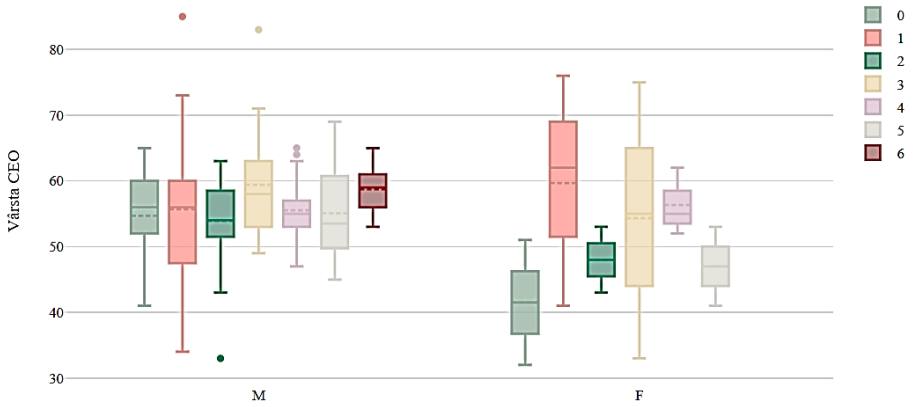
In the case of companies that have a CEO female persons, the rate of use of social networks is 86.6%, while in the case of management at male management, the degree of use of this means of communication is 87.5%. The average value of the number of active social networks in the case of female management is 2.53, while the average in the case of male individuals is slightly higher, reaching the value of 2.83. We thus conclude that the disclosure of information through social networks is not conditioned by the sex of the person at the head of the company. However, 93% of companies that are not active on social media, have male CEO at the helm.

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Print:ISSN 2668-3148, ISSN L 2668-3148

Figure 2 Distribution of independent variable (SEX CEO)

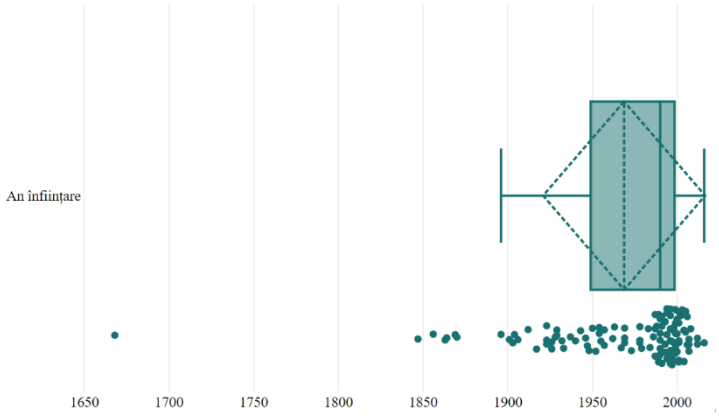


Source: Authors' projection

- Year of foundation

It is noted that the highest rate of use of social networks is found in the companies established in the period 1920-1960 (95%), at the opposite pole being those established in the period 1960-1980 (73%).

Figure 3 Distribution of independent variable (year of incorporation)



Source: Authors' projection

Also, on average, most active accounts (3.36) are held by companies that were established until 1920, while the fewest are found in companies established between 1980 and 1990. However, most companies that do not have any active social media account were established between 1990 and 2000.

Table 5 Summary of funding period

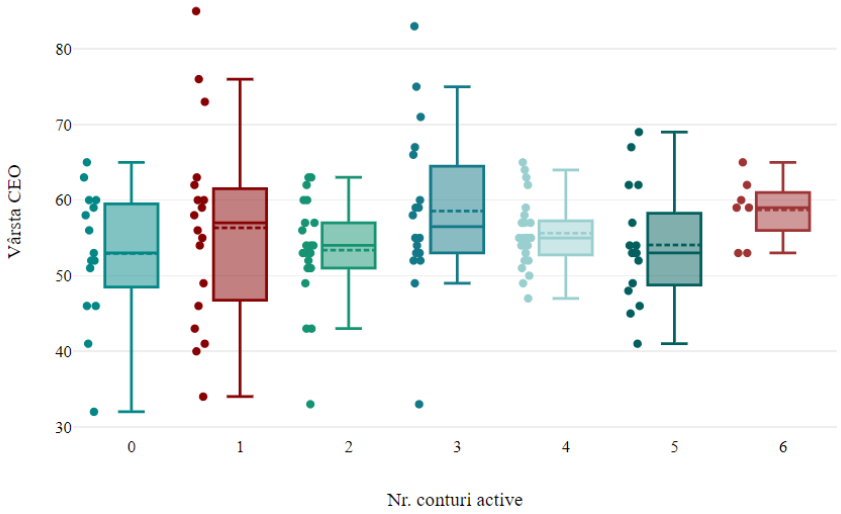
Funding period	Usability	Average no. active accounts
until 1920	*92%*	3.36
1920-1960	*95%*	3.09
1960-1980	*73%*	2.64
1980-1990	*75%*	2.00
1990-2000	*88%*	2.94
2000-present	*81%*	2.24

Source: Authors' projection

- Age of the CEO

According to the table below, which summarizes the presence of companies on social networks according to the age of the CEO currently at the head of the companies in the sample, the highest average number of active accounts is held by the companies that have at the helm a CEO between the ages of 50 and 60.

Figure 4 Distribution of independent variable (AGE CEO)



Source: Authors' projection

With a relatively low association between the three independent variables and the dependent variable, directed more towards 0 than 1, it is considered that the mere presence on social networks is not directly influenced by the year in which the entity was established, respectively by the persons at the head of the entities. Entities established for long periods of time have been identified that rely on the importance of an active relationship between management

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Online:ISSN 2668-3989, ISSN L 2668-3148
Print:ISSN 2668-3148, ISSN L 2668-3148

and investors through social networks, but also newly established entities that do not attach as much importance to this means of communication.

4 CONCLUSIONS

The ubiquitous adoption of technologies plays a key role in the process of interaction between management and users of financial information. In the context in which the information found in the financial reports has an increased role within the selected sample, we consider that the non-identification within this research of an dependence between the researched variables does not mean that the social networks do not indirectly contribute to the reform of a field of activity, such as the medical one.

With regard to the possible determinants of the presence on social networks, we conclude that the year of incorporation, the age and sex of the person at the head of the studied entities operating in the medical sector, are not aspects that directly influence the way in which the entities activate and distribute information within this means of communication.

In the future, we will develop this research with the addition of new criteria for measuring and quantifying the financial reporting process with the help of this means of communication, in order to identify the impact of social networks on the contribution of companies in the sustainable economy.

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