Ze współpracy z zagranicą / International cooperation

Corporate news disclosure on intangible assets during the COVID-19 crisis in pharmaceutical companies

Ujawnianie informacji o wartościach niematerialnych i prawnych w komunikatach spółek farmaceutycznych podczas kryzysu COVID-19

MILOŠ PETKOVIĆ*, PIOTR LUTY**, VULE MIZDRAKOVIĆ***

Abstract

Purpose: This study explores corporate news communication about intangible assets during the COVID-19 crisis in the largest global pharmaceutical companies.

Methodology/approach: Computerised lexical content analysis was performed on 297 articles (texts) from 34 companies, amounting to 280,246 words. We generated a bottom-up clustering of the keywords, titles and abstracts. The qualitative data were obtained from the ProQuest textual database by Clarivate.

Findings: The research demonstrates that the biggest global pharmaceutical companies focused intensively on intangible assets during the crisis. They disclosed information on three main intangibles: (1) brand, (2) patent and (3) license, covering 78.17% of the entire corpus text.

Research limitations: The study limitations include the fact that the sample concerns only the biggest pharmaceutical companies that met our criteria. Further research could cover small and medium-sized companies and other industries. Finally, further analysis could combine quantitative and qualitative methods within the same research.

* Miloš Petković, PhD, Singidunum University, Serbia, ⓞ https://orcid.org/0000-0002-1989-0504, mpetkovic@singidunum.ac.rs

** Piotr Luty, PhD, Wroclaw University of Economics and Business, Poland, ⓞ https://orcid.org/0000-0003-0955-7000, piotr.luty@ue.wroc.pl

*** Vule Mizdraković, PhD, Singidunum University, Serbia, ⓞ https://orcid.org/ 0000-0002-7886-9203, vmizdrakovic@singidunum.ac.rs

Originality/value: The research article contributes to the current literature on intangible asset narratives, showing how the biggest pharmaceutical companies tend to achieve a competitive advantage, stay successful during a crisis and address messages to their key stakeholders. Considering the high risks and existing uncertainties, these messages could be of the utmost importance.

Keywords: intangible assets, corporate news, COVID-19, pharmaceutical companies, content analysis.

Streszczenie

Cel: Celem artykułu jest zbadanie informacji komunikowanych przez największe światowe spółki farmaceutyczne związanych z wartościami niematerialnymi i prawnymi w czasie pandemii COVID-19.

Metodyka/podejście badawcze: W artykule przeprowadzono analizę treści 297 artykułów (tekstów) z 34 firm, obejmujących 280 246 słów. Przeprowadzono grupowanie słów kluczowych, tytułów i abstraktów. Dane jakościowe uzyskano z bazy danych ProQuest firmy Clarivate.

Wyniki: Wyniki badania wykazały, że największe światowe firmy farmaceutyczne w czasie kryzysu intensywnie skupiały się na wartościach niematerialnych i prawnych. Spółki ujawniły informacje dotyczące trzech głównych elementów wartości niematerialnych i prawnych: (1) marki, (2) patentu i (3) licencji, które zajmowały 78,17% całego tekstu.

Ograniczenia badawcze: Ograniczeniem artykułu jest fakt, że próba dotyczy wyłącznie największych firm farmaceutycznych. Dalsze badania mogą również objąć mniejsze i średnie przedsiębiorstwa oraz inne branże. Dodatkowo w dalszej analizie można połączyć metody ilościowe i jakościowe.

Oryginalność/wartość: Artykuł stanowi rozwinięcie i uzupełnienie istniejącej literatury na temat informacji o wartościach niematerialnych i prawnych oraz tego, w jaki sposób największe firmy farmaceutyczne dążą do osiągnięcia przewagi konkurencyjnej, odnoszą sukcesy w czasie kryzysu i kierują komunikaty do swoich kluczowych interesariuszy. Biorąc pod uwagę wysokie ryzyko i niepewność prowadzenia działalności w sektorze farmaceutycznym, informacje te mogą mieć ogromne znaczenie dla spółek.

Słowa kluczowe: wartości niematerialne i prawne, informacje korporacyjne, COVID-19, spółki farmaceutyczne, analiza treści.

Introduction

Moorcraft (2020) showed that more than 85% of a company's value belongs to intangible assets, specifically brand, intellectual property and human capital. The sample of companies was mainly related to highly innovative industries. Intangible assets increase efficiency and productivity and provide a long-term competitive advantage (Uddin et al., 2022). Numerous academic papers have confirmed the positive impact of intangible assets on value creation, efficiency, financial performance and productivity (Eisfeldt, Papanikolaou, 2013; Hasan et al., 2021; Peters, Taylor, 2017). Boguth et al. (2022) argued that intangible assets represent an essential production factor for companies.

Reporting information is addressed to stakeholders and has several perspectives: investor, employee, supplier, social and environmental, internal processes, and innovation and learning (Boesso, Kumar, 2007). The information meets specific goals for particular stakeholder groups and is also related to improving and acquiring

knowledge (sustainable development of stakeholders). From the investors' perspective, one of the reporting goals is to understand the value of assets internally developed. Additionally, intangible assets provide a fair view of corporate performance, strengthening partnerships with stakeholders (Boesso, Kumar, 2007).

The recent COVID-19 crisis resulted in a remarkable fall in companies' stocks, as well as significant fluctuations in the value of gold, equity, crypto assets, oil and energy (Akhtaruzzaman et al., 2021; Bai et al., 2021; Ding et al., 2021). Furthermore, Ding et al. (2021) demonstrated that a company's financial performance was not immune to COVID-19 shocks. Baker et al. (2020) recalled the effects of a previous pandemic, namely the Spanish Flu, on markets and economies, stating that infectious diseases have a profound negative effect. This motivated us to examine intangible assets during the COVID-19 crisis.

Intangible assets, as a balance sheet item, are valuable corporate assets that create a company's competitive advantage. Intangible assets such as brands, patents, goodwill, licences, systems, software and customer relationships are essential for a company's production (Eisfeldt, Papanikolaou, 2013). Nemlioglu and Mallick (2020) and Venieris et al. (2015) focused on intangible assets during the crisis and showed that they become more important during tough times, restructuration or time shocks. Overall, intangible assets are essential to a company's recovery during a crisis.

Although a large body of literature has been published on the relationship between intangible assets and company performance, more research is needed on corporate communication about intangible assets (Dumay, 2013). The role of managers can shape better corporate communication through language performativity (Crane, Glozer, 2016). The sum of all intangibles, knowledge, relationships and different capabilities that a company uses to leverage and conduct external environment management has not been studied enough (Yong et al., 2019). Analysing corporate communication reveals which main topics were disclosed, how strong the relationship is between them, and what their frequency is in the whole corpus text. Therefore, this paper explores corporate news communication during the COVID-19 crisis from a sample of the largest pharmaceutical companies, with intangible assets as the main focus.

The Reinert method and analysis of similarities (ANOSIM) will be used. The Reinert method reveals the main topics of a company's disclosure (Aversa et al., 2022), while ANOSIM identifies lexicographical formations of words with the highest representativeness within the corpus text (Lee, 2020).

By combining the company's quantitative and qualitative information, users of financial information can improve their decision-making. Our study highlights three main intangible asset narratives: brand, patent and license, resulting in a better understanding of accounting narratives disclosed in a company's corporate news. Considering managerial discretionary accounting narratives as vital assets, the research results may provide important information for financial information users.

The paper has three main contributions to the literature. First, we highlight the most important intangible assets for pharmaceutical companies during a crisis. Second, we document that the disclosure of selected intangible assets is very intensive in corporate communication. Finally, we highlight precise narratives and

concrete indicators of each intangible asset explained in cluster formations of text. Overall, the results of this paper will help reduce information asymmetry between the management and owners of the sampled companies on the one hand, and management and potential investors on the other.

The paper has five sections. After the introduction, Section 1 presents a review of the existing literature. Section 2 explains the research methodology, while Section 3 presents the empirical findings. Finally, section 4 contains the conclusions.

1. Theoretical background and literature review

1.1. Theoretical background for intangible asset disclosure in the pharmaceutical industry

Intangible assets are an essential element of assets that provide information about a company's future ability to achieve economic benefits (Sriram, 2008). Their disclosure in the financial statements is considered when assessing a company's financial condition. In financial statements, information on intangible assets is disclosed in the balance sheet and additionally described in explanatory notes. The disclosure of intangible assets signals that the company is developing, and the capitalisation in assets demonstrates the project's viability (Ferguson et al., 2021). Unfortunately, due to legal conditions, there are situations when companies do not disclose intangible assets, including all costs associated with them as operating expenses (Zainol et al., 2008). For this reason, information on intangible and legal assets should also be sought in company announcements (Ferguson et al., 2021).

Signalling theory explains the reaction between the two sides of an information message. In corporate communication, signalling theory may reduce information asymmetry between the company and stakeholders (Aureliano-Silva et al., 2021). Information asymmetry depends on the activity of companies in the media, with companies that actively communicate information to stakeholders reducing information asymmetry (Yao et al., 2018). Companies signal information to investors and other stakeholders that is important to them to achieve a competitive advantage, and they do this while interacting with other competitors' messages (Janney, Folta, 2006). Information, ratings and rankings published in official communication channels help build a company's image and influence others' perceptions of the company (Zhang et al., 2010). Signalling theory can help clarify the manner and scope of communication between companies and potential stakeholders (Hasseldine et al., 2005). To this end, companies will choose the appropriate sets of financial ratios and the appropriate language in their communications to emphasise the information that is most important to them (Watson et al., 2002). The selection of appropriate and precise language in a company's messages affects the success of the intended signal (Shneor, Vik, 2020). However, there is a risk that companies will publish only positive news, eliminating or severely limiting the scope of negative information (Albertini, 2019). Thus, instead of reducing information asymmetry, it will increase.

1.2. Intangible asset disclosures
in a knowledge-based economy

Investing in R&D is not enough to improve the perception of companies. Companies must also care about the quality of their innovative products and communicate this to potential buyers efficiently (Pappu, Quester, 2016). Intellectual capital (IC) is widely covered in the literature (Dabic et al., 2021) and consist of human capital, social capital and organisational capital. IC positively impacted companies' financial performance during the pandemic (Ognjanovic et al., 2023), although not all companies effectively used it for value creation. Based on a sample of Southeast Asia companies, IC was not particularly used to improve financial performance during COVID-19 (Lestari, Adhariani, 2022). Human capital can be defined as people's knowledge, experience and skills in an organisation (Nigam et al., 2020). Messages sent by pharmaceutical companies during the pandemic confirmed that they had the human resources to create a vaccine against COVID-19. According to legitimacy theory, companies operate in a specific environment and build relationships within it, providing a basis for activity. In this context, the existence of social capital concerns the relationships they build. In the case of companies from the pharmaceutical sector, social capital allows them to develop knowledge. Organisational capital meant having the infrastructure (Nigam et al., 2020) to ensure that innovative research took place to create a vaccine. The literature shows the positive impact of social capital and organisational capital on innovation in the chemical industry (Dost et al., 2016).

The chemical and pharmaceutical sectors are characterised by high innovation in creating new products. Innovative companies have intangible assets with complicated valuations, which makes quality communication between the company and its stakeholders vital. The assessment of innovative companies is based mainly on qualitative data analysis (Hoffmann, Kleimeier, 2021). In the modern world, intangible assets, despite their crucial role in the development and operation of companies, are disclosed in a vague manner (Li et al., 2021). In assessing disclosures of intangible assets, many authors use a common source, which is a company's published financial statements. Despite the specific substantive content in terms of what is included and disclosed, these reports have limitations, which result from the specified minimum information ranges.

For this reason, knowledge about disclosures of intangible assets from other sources should be considered supplementary (Cuozzo et al., 2017). Additional sources of information, e.g. news or tweets, have the advantage that the information posted is directly what the companies want to communicate. Social media communication in disclosing intangible assets was essential during COVID-19 (Rangel-Perez et al., 2022). Company news posted as tweets can help evaluate tangible and intangible assets (Cerchiello, Giudici, 2016). Thus, information channels in social media are becoming a crucial and comprehensive tool for evaluating companies.

The quality of the valuation of intangible assets influences entities' financial situation and market valuation. Intangible resources can positively impact export performance (Monteiro et al., 2017). Corporate reputation is seen through the

prism of intangible asset disclosures and ESG-related messages (Wong, Zhang, 2022). The language of communication should be understood by the recipients of the information. Company size and the share of intangible assets can indicate the quality of information disclosed by companies. According to positive accounting theory, companies seek to disclose information about intangible assets to influence their reputation and attractiveness. In financial reporting, with its emphasis historically on tangible-oriented assets, there is a need to increase the disclosure of intangible assets.

1.3. Intangible assets during the COVID-19 crisis

During COVID-19, companies that exhibited high levels of resilience were characterised by high amounts of cash reserves, low debt (particularly short-term debt), stronger profitability, reduced reliance on global supply chains, and increased commitment to corporate social responsibility (Ding et al., 2021). Using a sample of public companies from the United States, however, Uddin et al. (2022) found that companies with high levels of intangible assets were more resilient to the negative effects of infectious disease pandemics during the 1985–2020 period. This was demonstrated for both internally generated and externally acquired intangibles. By contrast, Demers et al. (2021) demonstrated that internally generated intangible assets were a statistically significant positive variable of stock market returns during the COVID-19 breakout and its full effects in 2020. They concluded that high investments in intangible assets were a more important factor than companies' environmental and social responsibility levels to share price resilience. Therefore, regarding intangible assets and COVID-19, research shows that investments in intangible assets are a good strategic decision. From the standpoint of the pandemic, Sayed et al. (2022) found that it reduced the generally positive impact of investments in intangible assets on the non-financial performance of Egyptian companies.

2. Research methodology

The research paper is based on a top-down approach that includes selected keywords to form specific sub-clusters from the main text corpus. These sub-clusters are related to the topic of intangible assets.

2.1. Textual analysis using IRaMuTeQ
– a statistical tool for text mining

Qualitative research has become more prominent in management sciences in recent years. The specialised textual statistical software IRaMuTeQ (Interface de R pour les Analyses Multidimensionnelles de Textes et de Questionnaires) will be used in our study. The software uses the 'Bibliometrix package' from R software to characterise the corpus text. IRaMuTeQ was developed in Python, enabling a protocol for performing textual analysis. Goulart et al. (2020) confirmed the

software's rigorous textual data analysis in management sciences. This method allows us to link a word to its natural context because meaning depends on the word's position in semantic space. Albertini (2021) emphasised two rules here. First, word importance depends on its frequency in the corpus text; second, words are attached to the lemma (phrase) to which they belong. Rocha de Souza et al. (2018) argued that qualitative data analysis identifies associations between text segments and keywords extracted from these texts.

The Reinert method and ANOSIM were used for clustering and to analyse the corpus text. The Reinert method reveals the main topics of disclosures, and the corpus text is clustered according to the existing software vocabularies. This method uses matrices to cross-reduce forms within the corpus text (in repeated texts of x2 type). Consequently, it makes it possible to obtain a definitive classification of homogeneous clusters that are formed based on similar vocabulary but different segments.

A dendrogram will be used to visually represent the links between clusters. It also provides a new and modern way of presenting data derived from the factorial plan (Aversa et al., 2022).

Meanwhile, ANOSIM identifies lexicographical formations of words with the highest representativeness within the corpus text (Lee, 2020). This analysis identifies word co-occurrences, illustrating the connectivity and forming a structure of the text corpus content. The analysis presents the shared parts and specificities concerning descriptive variables (Marchand, Ratinaud, 2012).

The corpus text for this study comprises corporate news from 34 global pharmaceutical companies in 2020, 2021 and 2022. The information was obtained from the ProQuest textual database by Clarivate. The corpus was collected by copying the text, including titles, abstracts and body text. The final research material was 566 pages long. Qualitative analysis was then applied.

IRaMuTeQ has its own dictionaries, allowing us to better understand and analyse the whole text. It also facilitated the lemmatisation (formation of phrases connecting to each other based on the similar context) of the texts thanks to the singular forms of nouns and the infinitive forms of verbs in order to group them into three semantic categories. Using IRaMuTeQ will allow us to assess how words group with each other, their frequency, and how strong the relationship between clusters is, focusing mainly on intangible assets.

2.2. Research material and research sample

The research material comprises corporate news published by the 34 biggest international pharmaceutical companies to explore the main narratives on intangible assets. All corporate information is already published and publicly available on official company websites for the business years 2020, 2021 and 2022. All of the companies are highly innovative and technologically intensive (Francis, Schipper, 1999). Twenty-seven are based in the USA, and seven are European.

3. Findings and discussion

The research study had two phases: analysing the corpus and creating a sub-corpus.

3.1. Phase one: analysing the entire textual corpus to reveal the main news categories in the examined companies

This phase included 297 articles (texts), 280,246 words and 14,867 forms, which covered 78.17% of the corpus. More precisely, this percentage has 11,974 lemmas, 10,398 active forms, 7,945 text segments and 219,068 hapaxes (words that are only included in the three main clusters). The paper identified three main categories or clusters (Figure 1).

Figure 1. Semantic clouds of three categories of corporate news published by selected companies
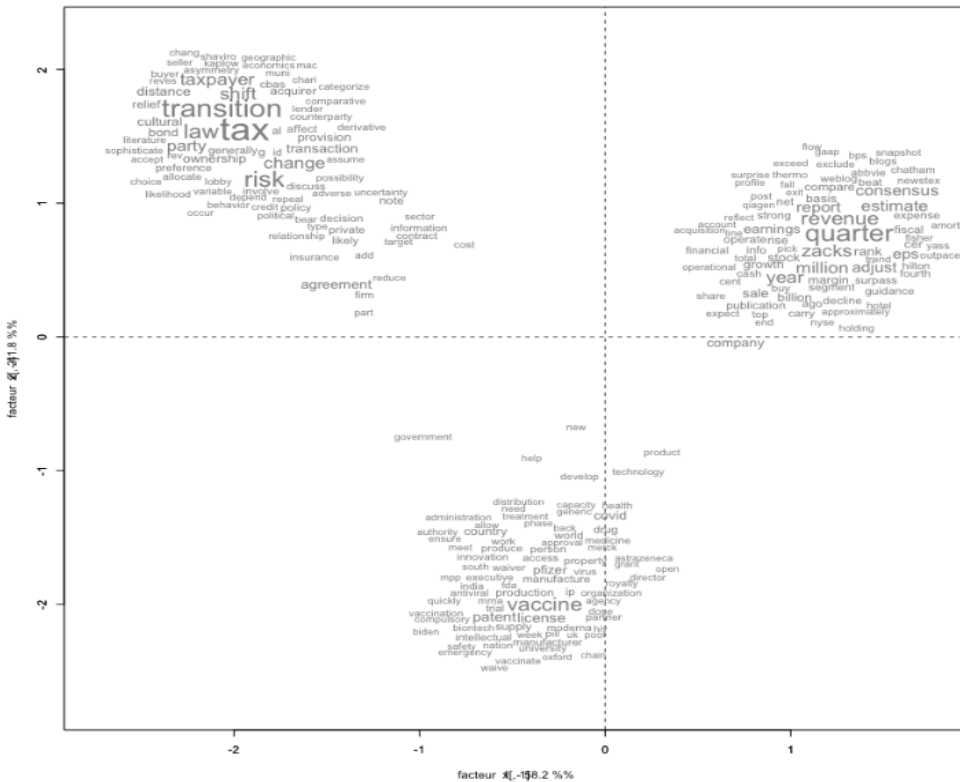
Source: authors' own elaboration.

Figure 2. Dendrogram of the three main clusters of the corpus
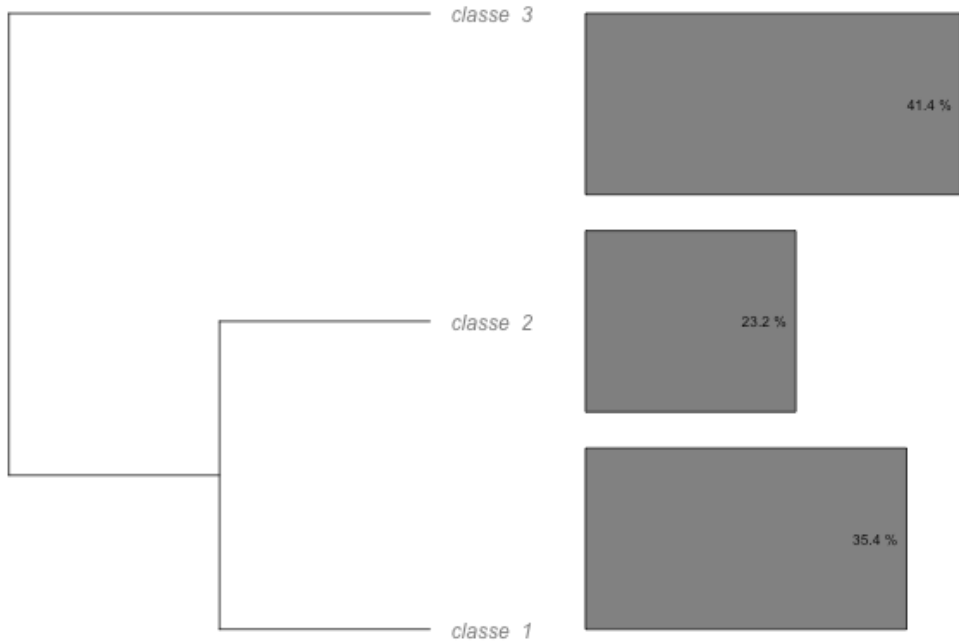
Source: authors' own elaboration.

Table 1. Categories revealed in Phase 1

Category	Name	% of forms analysed
Category 1	Intangible Assets	35.4
Category 2	Governance	23.2
Category 3	Financial Performance	41.4

Source: authors' own elaboration.

All three categories have links with the topic of intangible assets. Category 1, Intangible Assets, primarily covers the topic of our interest (intellectual property, patents, licences, property, innovation, R&D, and knowledge). Category 2, Governance, discusses organisational governance (work, organisation, company, firm, agreement, transition, management, risk, general, decision, leadership, director, and strategy). Category 3, Financial Performance, covers the terminology related to financial indicators (revenue, million, earnings, profits, sales, stock, billion, growth, margin, costs, expense, and cash).

By analysing the results, we conclude that one of the three categories is purely related to intangible assets. As such, Category 1 will be analysed further and

included in the next sub-corpus. The first level of analysis allowed us to identify the main categories that will be more receptive to intangible assets and the categories closely related to them in a given sample. In Figure 1, we can see that Category 1 is located at the middle-bottom position. This category is clearly separated from the other two, which is desirable. Category 1 relates to 35.4% of the whole corpus text, with 99,207 words. In Figure 2, we can see that Categories 1 and 2 influence Category 3, which means that intangible assets and the company's governance influence the final financial performance. The next second-level analysis will allow us to focus only on Category 1 and explore in-depth what companies wrote about intangible assets in their public narratives.

## 3.2. Phase two: creating a sub-corpus
from the text corpus

The second phase focuses on creating a sub-corpus from the initial corpus in order to clarify category or cluster 1. The clarification will lead to a better understanding of the selected category (Figure 3).

Figure 3. Creation of sub-semantic clouds
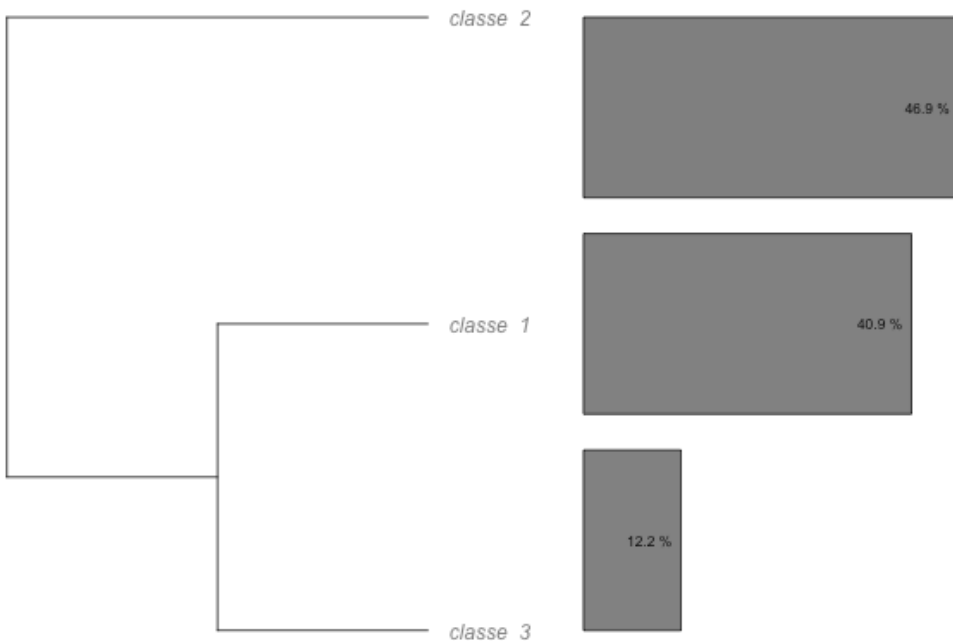
Source: authors' own elaboration.

Figure 4. Dendrogram of the three main classes of sub-corpus text
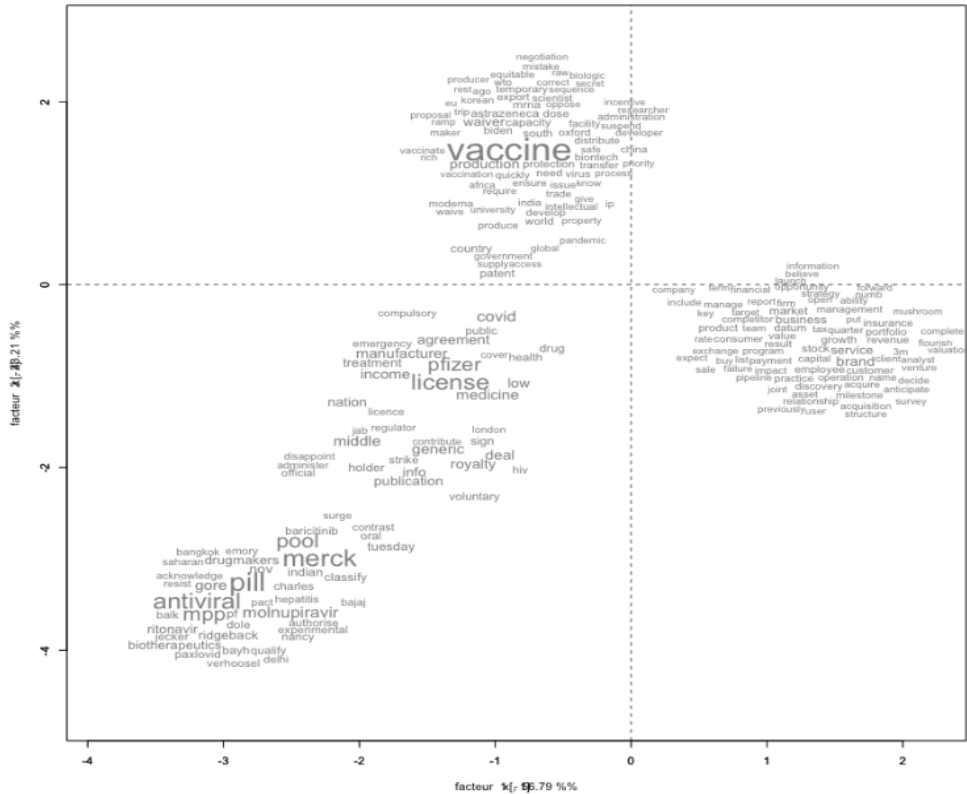
Source: authors' own elaboration.

Table 2. Categories revealed in Phase 2

Category	Name	% of forms analysed
Category 1	Patents	40.9%
Category 2	Brand	46.9%
Category 3	Licenses	12.2%

Source: authors' own elaboration.

In this sub-corpus, we have cluster 1 with 40.9% top-middle cluster, category 2 with 46.9% right-middle cluster, and category 3 with 12.2% left-bottom cluster. The first cluster is about the vaccine's patent, the second is about the brand, and the third is about the licence.

The second level of analysis produced a precise clarification of the intangible assets category. This final analysis gave us three categories: Patents (Category 1),

Brand (Category 2) and Licences (Category 3). Category 1 concerns protecting production, knowledge and innovation in the pharmaceutical sector. Category 2 discusses the importance of brands in the industry. A brand brings not only higher financial returns, such as revenues, growth of stocks and a reduction in expenses but also higher customer satisfaction. Finally, Category 3 presents licensing as a need and added value to each company. Without that, manufacturing would not occur at all.

Figure 4 above presents the three main categories or variables in the factor plan. A factorial plan produces the proximity and distances of words from the initial corpus text. It calculates the chi-square correlation for each variable, a contingency table and frequency. The X-axis or abscissa (or factor 1) refers to the distance and distribution of variables. The Y-axis or ordinate (or factor 2) indicates the tangibility of the relationship (strength) between the three variables. Both factors, X and Y, can have positive and negative values. Category 1 was found in the area of positive abscissa and negative ordinate. Category 2 was found in the area of negative abscissa and positive ordinate. Category 3 was found on both negative abscissa and ordinate. From the above, we can conclude that all three variables are close to each other, making their relationship strongly tangible. The influence on each other is different and mainly depends on their position in the factorial plan. The performance of licences and patents comes from a strong company brand.

This final step produced results that better crystallised the initial heterogeneous corpus into smaller homogeneous pieces. These pieces show the main narratives related to intangible assets in the pharmaceutical industry. More importantly, the key narratives justify what top managers, directors and decision-makers understand and disclose about intangible assets in their public speeches or communications. These can be taken as the main indicators for further research. We can conclude that the selected pharmaceutical companies emphasise that financial performance can only be achieved through efficient organisational governance and intangible assets, i.e., brands, patents and licences.

Figure 5 above used ANOSIM on the corpus, which is another IRaMuTeQ method that presents the links between the most frequent words. These words belong to one of nine clouds, and the company is at the centre of the results. It comprises research and development, technology, management, partnerships, work, and strategy. The company is under the influence of several factors, such as future risks, the production of vaccines, stock prices, cultural differences, brand value, and consumers. In conclusion, it is impossible to expect a company to have a competitive advantage without considering all the highlighted factors.

Figure 5. Analysis of similarities of the cluster diversity
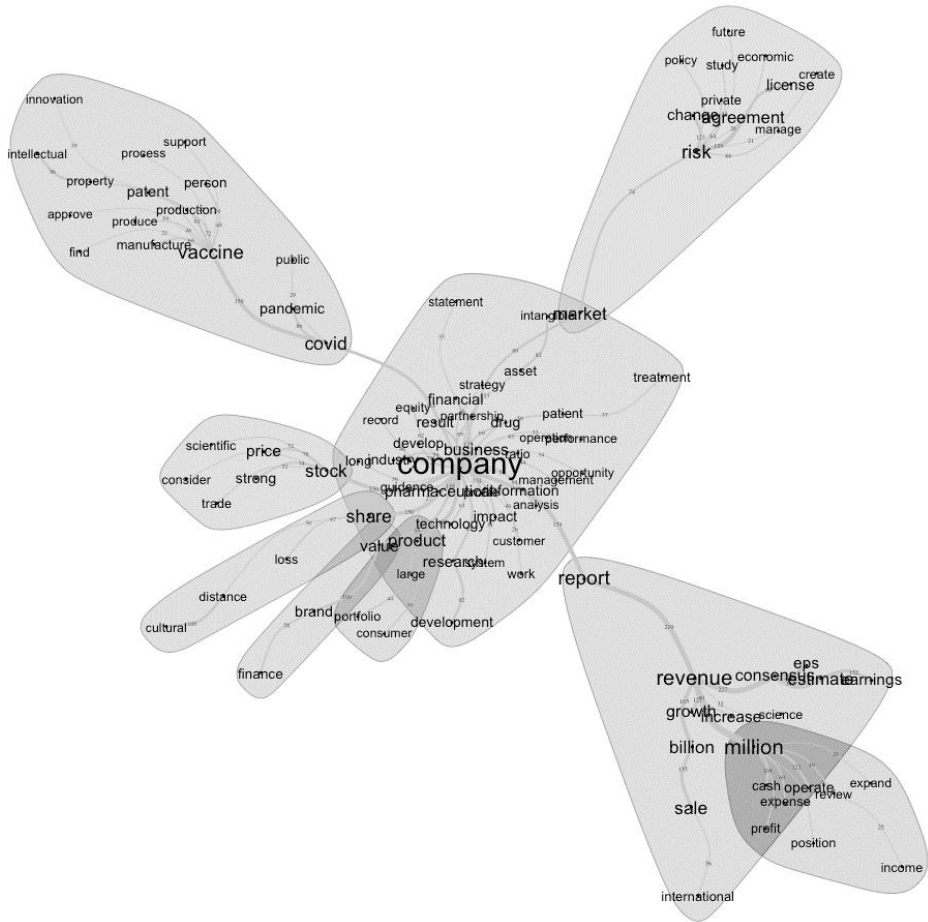
Source: authors' own elaboration.

Similar research explored the importance of voluntary disclosure in companies' annual reports on financial performance (Albertini et al., 2021). On a European sample of companies that have adopted IFRS/IAS, Albertini (2021) confirmed that textual analysis of leadership disclosure on stakeholder values, managerial competencies and innovations are the main drivers of competitive advantage. Albuquerque et al. (2020), Berman et al. (2019), and Huang et al. (2021) worked on a similar topic and demonstrated that quality communication with stakeholders reduces risk during times of crisis. Petković (2022) confirmed intensive public communication on a sample of the biggest US banks and its influence on their competitive advantage.

Conclusions

The research study contributes to the literature on the corporate disclosure of intangible assets during the COVID-19 crisis. The study showed how much attention the biggest global pharmaceutical companies pay to intangible assets, but also what they publish. To reduce uncertainties, companies try to share strategic objectives in public with their stakeholders.

The paper conducted a qualitative examination of corporate news concerning intangible assets during COVID-19, focusing on the biggest global pharmaceutical companies between 2020 and 2022. The corpus text included 297 different articles and 280,246 words on 566 pages. The research study covered 100% of the whole corpus text, whereas 78.17% of the text referred to intangible assets topic, which confirmed that the produced clusters or factors represented most of the corporate communication. The research paper identified three main clusters, brand, patent and license, which were key value drivers. The increased transparency in corporate news disclosures may also address heightened investor scrutiny and the need to provide reassurance during uncertainty. This increase in disclosures can be attributed to the increased focus on research and development for new medications and treatments for COVID-19 and the need for transparency and accountability in the pharmaceutical industry during this time. Overall, it can be concluded that the COVID-19 crisis has had a profound impact on the way pharmaceutical companies disclose information about their intangible assets and that this trend is likely to continue in the future.

Limitations of the study include the inability of the research methods to combine quantitative and qualitative information within the same studies. Further research is needed to determine the long-term effects of COVID-19 on the disclosure of intangible assets in the pharmaceutical industry. This research could also be extended by working on listed companies from other sectors and countries. Finally, based on the results of this research, future research should focus on providing a relevant methodology for disclosing corporate communication in a useful and relevant form that would enable comparison between entities.

References

Akhtaruzzaman M., Boubaker S., Lucey B.M., Sensoy A. (2021), *Is gold a hedge or a safe-haven asset in the COVID–19 crisis?* "Economic Modelling", 102 (1), 105588; https://doi.org/10.1016/j.econmod.2021.105588.

Albertini E. (2019), *Integrated reporting: an exploratory study of French companies*, "Journal of Management and Governance", 23 (2), pp. 513–535; https://doi.org/10.1007/s10997-018-9428-6.

Albertini E. (2021), *What are the environmental capabilities, as components of the sustainable intellectual capital, that matter to the CEOs of European companies?* "Journal of Intellectual Capital", 22 (5), pp. 918–937; https://doi.org/10.1108/JIC-06-2020-0215.

Albertini E., Berger-Remy F., Lefrancq S., Morgana L., Petković M., Walliser E. (2021), *Voluntary disclosure and intellectual capital: how CEOs mobilise discretionary accounting narratives to account for value creation stemming from intellectual capital*, "Journal of Applied Accounting Research", 22 (4), pp. 687–705; https://doi.org/10/gjkvwf.

Albuquerque R., Koskinen Y., Yang S., Zhang C. (2020), *Resiliency of environmental and social stocks: an analysis of the exogenous COVID-19 market crash*, "The Review of Corporate Finance Studies", 9 (3), pp. 593–621; https://doi.org/10.1093/rcfs/cfaa011.

Aureliano-Silva L., Leung X., Spers E.E. (2021), *The effect of online reviews on restaurant visit intentions: applying signaling and involvement theories*, "Journal of Hospitality and Tourism Technology", 12 (4), pp. 672–688; https://doi.org/10.1108/JHTT-06-2020-0143.

Aversa D., Adamashvili N., Fiore M., Spada A. (2022), *Scoping Review (SR) via Text Data Mining on Water Scarcity and Climate Change*, "Sustainability", 15 (1), 70; https://doi.org/10.3390/su15010070.

Bagna E., Cotta Ramusino E., Denicolai S. (2021), *Innovation through patents and intangible assets: effects on growth and profitability of European companies*, "Journal of Open Innovation: Technology, Market and Complexity", 7 (4), pp. 1–19.

Bai L., Wei Y., Wei G., Li X., Zhang S. (2021), *Infectious disease pandemic and permanent volatility of international stock markets: a long-term perspective*, "Finance Research Letters", 40 (1), 101709; https://doi.org/10.1016/j.frl.2020.101709.

Baker S.R., Bloom N., Davis S.J., Kost K., Sammon M., Viratyosin T. (2020), *The unprecedented stock market reaction to COVID-19*, "The Review of Asset Pricing Studies", 10 (4), pp. 742–758; https://doi.org/10.1093/rapstu/raaa008.

Berman M.G., Stier A.J., Akcelik G.N. (2019), *Environmental neuroscience*, "American Psychologist", 74 (9), pp. 1039–1052; https://doi.org/10.1037/amp0000583.

Bharathi-Kamath G. (2008), *Intellectual capital and corporate performance in Indian pharmaceutical industry*, "Journal of Intellectual Capital", 9 (4), pp. 684–704.

Boesso G., Kumar K. (2007), *Drivers of corporate voluntary disclosure: A framework and empirical evidence from Italy and the United States*, "Accounting, Auditing & Accountability Journal", 20 (2), pp. 269–296; https://doi.org/10.1108/09513570710741028.

Boguth O., Newton D., Simutin M. (2022), *The fragility of organisation capital*, "Journal of Financial and Quantitative Analysis", 57 (3), pp. 857–887; https://doi.org/10.1017/S0022109021000144.

Cerchiello P., Giudici P. (2016), *How to measure the quality of financial tweets*, "Quality & Quantity", 50 (4), pp. 1695–1713; https://doi.org/10.1007/s11135-015-0229-6.

Crane A., Glozer S. (2016), *Researching corporate social responsibility communication: themes, opportunities and challenges*, "Journal of Management Studies", 53 (7), pp. 1223–1252; https://doi.org/10.1111/joms.12196.

Cuozzo B., Dumay J., Palmaccio M., Lombardi R. (2017), *Intellectual capital disclosure: a structured literature review*, "Journal of Intellectual Capital", 18 (1), pp. 9–28; https://doi.org/10.1108/JIC-10-2016-0104.

Dabic M., Vlačic B., Scuotto V., Warkentin M. (2021), *Two decades of the Journal of Intellectual Capital: a bibliometric overview and an agenda for future research*, "Journal of Intellectual Capital", 22 (3), pp. 458–477; https://doi.org/10.1108/JIC-02-2020-0052.

Delios A., Beamish P. (2022), *Survival and profitability: the roles of experience and intangible assets in foreign subsidiary performance*, "The Academy of Management Journal", 44 (5), pp. 1028–1038.

Demers E., Hendrikse J., Joos P. (2021), *ESG did not immunise stocks during the COVID-19 crisis, but investments in intangible assets did*, "Journal of Business Finance & Accounting", 48 (1), pp. 433–462.

Ding W., Levine R., Lin C., Xie W. (2021), *Corporate immunity to the COVID-19 pandemic*, "Journal of Financial Economics", 141 (2), pp. 802–830; https://doi.org/10.1016/j.jfineco.2021.03.005.

Dost M., Badir Y.F., Ali Z., Tariq A. (2016), *The impact of intellectual capital on innovation generation and adoption*, "Journal of Intellectual Capital", 17 (4), pp. 675–695; https://doi.org/10.1108/JIC-04-2016-0047.

Dumay J. (2013), *The third stage of IC: towards a new IC future and beyond*, "Journal of Intellectual Capital", 14 (1), pp. 5–9; https://doi.org/10.1108/14691931311288986.

Eisfeldt A.L., Papanikolaou D. (2013), *Organisation capital and the cross-section of expected returns: organisation capital*, "The Journal of Finance", 68 (4), pp. 1365–1406; https://doi.org/10.1111/jofi.12034.

Ferguson, A., Kean S., Pündrich G. (2021), *Factors Affecting the Value-Relevance of Capitalized Exploration and Evaluation Expenditures Under IFRS 6*, "Journal of Accounting, Auditing & Finance", 36 (4), pp. 802–825; https://doi.org/10.1177/0148558X20916337.

Francis J., Schipper K. (1999), *Have financial statements lost their relevance?* "Journal of Accounting Research", 37 (2), pp. 319–352.

Goulart G.D.S., Weber A.F., Porto R.B. (2020), *Desempenho mercadológico no mercado de alta tecnologia: puma revisão sistemática*, "Internext", 15 (1), 37–52; https://doi.org/10.18568/internext.v15i1.535.

Gupta K., Goel S., Bhatia P. (2020), *Intellectual capital and profitability: evidence from Indian pharmaceutical sector*, "Vision", 24 (2), pp. 204–216.

Hasan M.M., Lobo G.J., Qiu B. (2021), *Organisational capital, corporate tax avoidance, and firm value*, "Journal of Corporate Finance", 70 (1), 102050; https://doi.org/10.1016/j.jcorpfin.2021.102050.

Hasseldine J., Salama A.I., Toms J.S. (2005), *Quantity versus quality: the impact of environmental disclosures on the reputations of UK Plcs*, "The British Accounting Review", 37 (2), pp. 231–248; https://doi.org/10.1016/j.bar.2004.10.003.

Hoffmann A.O.I., Kleimeier S. (2021), *Financial disclosure readability and innovative firms' cost of debt*, "International Review of Finance", 21 (2), pp. 699–713; https://doi.org/10.1111/irfi.12292.

Huang Y., Yang S., Zhu Q. (2021), *Brand equity and the Covid-19 stock market crash: evidence from U.S. listed firms*, "Finance Research Letters", 43, 101941; https://doi.org/10.1016/j.frl.2021.101941.

Janney J.J., Folta T.B. (2006), *Moderating effects of investor experience on the signaling value of private equity placements*, "Journal of Business Venturing", 21 (1), pp. 27–44; https://doi.org/10.1016/j.jbusvent.2005.02.008.

Lee W.-J. (2020), *A Study on Word Cloud Techniques for Analysis of Unstructured Text Data*, "The Journal of the Convergence on Culture Technology", 6 (4), pp. 715–720; https://doi.org/10.17703/JCCT.2020.6.4.715.

Lestari N.I.G., Adhariani D. (2022), *Can intellectual capital contribute to financial and non-financial performances during normal and crisis situations?* "Business Strategy & Development", 5 (4), pp. 390–404; https://doi.org/10.1002/bsd2.206.

Li B., Siciliano G., Venkatachalam M., Naranjo P., Verdi R.S. (2021), *Economic consequences of IFRS adoption: the role of changes in disclosure quality*, "Contemporary Accounting Research", 38 (1), pp. 129–179; https://doi.org/10.1111/1911-3846.12638.

Li H., Wang W. (2014), *Impact of intangible assets on profitability of Hong Kong listed information technology companies*, "Business and Economic Research", 4 (2), pp. 98–113.

Ma S., Zhang W. (2023), *How to improve IFRS for intangible assets? A milestone approach*, "China Journal of Accounting Research", 16 (1), 100289.

Marchand P., Ratinaud P. (2012), *L'analyse de similitude appliquée aux corpus textuels: Les primaires socialistes pour l'élection présidentielle française*, Actes Des 11èmes Journées Internationales d'Analyse Des Données Textuelles (JADT), pp. 687–699.

Mehralian G., Rajabzadeh A., Sadeh M., Rasekh H. (2012), *Intellectual capital and corporate performance in Iranian pharmaceutical industry*, "Journal of Intellectual Capital", 13 (1), pp. 138–158.

Monteiro A.P., Soares A.M., Rua O.L. (2017), *Linking intangible resources and export performance: The role of entrepreneurial orientation and dynamic capabilities*, "Baltic Journal of Management", 12 (3), pp. 329–347; https://doi.org/10.1108/BJM-05-2016-0097.

Moorcraft B. (2020), *Lloyd's exec on how the world has pivoted towards intangible assets*, https://www.insurancebusinessmag.com/us/news/breaking-news/lloyds-exec-on-how-the-world-has-pivoted-towards-intangible-assets-232872.aspx.

Nemlioglu I., Mallick S.K. (2020), *Do innovation-intensive firms mitigate their valuation uncertainty during bad times?* "Journal of Economic Behavior & Organization", 177 (1), pp. 913–940; https://doi.org/10.1016/j.jebo.2020.06.004.

Nigam N., Mbarek S., Boughanmi A. (2020), *Impact of intellectual capital on the financing of startups with new business models*, "Journal of Knowledge Management", 25 (1), pp. 227–250; https://doi.org/10.1108/JKM-11-2019-0657.

Ognjanovic J., Dzenopoljac V., Cavagnetto S. (2023), *Intellectual capital before and during COVID-19 in the hotel industry: The moderating role of tangible assets*, "Journal of Hospitality and Tourism Insights", ahead-of-print; https://doi.org/10.1108/JHTI-10-2022-0488.

Pappu R., Quester P.G. (2016), *How does brand innovativeness affect brand loyalty?* "European Journal of Marketing", 50 (1/2), pp. 2–28; https://doi.org/10.1108/EJM-01-2014-0020.

Peters R.H., Taylor L.A. (2017), *Intangible capital and the investment-q relation*, "Journal of Financial Economics", 123 (2), pp. 251–272; https://doi.org/10.1016/j.jfineco.2016.03.011.

Petković M. (2022), *What Do the Biggest US Banks Disclosure About Green Intellectual Capital in the Period of COVID-19 Crisis?* "Ecologica", 29 (107), pp. 315–323; https://doi.org/10.18485/ecologica.2022.29.107.3.

Rangel-Perez C., Miquel-Segarra S., Musicco-Nombela D. (2022), *The strategic transfer of intangible assets via Twitter by Spanish listed companies in times of crisis*, "Romanian Journal of Communication and Public Relations", 24 (2), pp. 7–22; https://doi.org/10.21018/rjcpr.2022.2.341.

Riedel N., Spacek M. (2022), *Innovation options and profitability of pharmaceutical brand manufacturers*, "International Journal of Technology", 13 (4), pp. 890–899.

Rocha de Souza M.A., Lowen Wall M., de Morais Chaves Thuler A.C., Voth Lowen I.M., Peres A.M. (2018), *O uso do software IRAMUTEQ na análise de dados em pesquisas qualitativas*, "Revista Da Escola de Enfermagem Da USP", 52; https://doi.org/10.1590/s1980-220x2017015003353.

Sayed E., Mansour K., Hussainey K. (2022), *Intangible investment and non-financial performance of Egyptian firms: the moderating role of the COVID-19 pandemic*, "Journal of Financial Reporting and Accounting", ahead-of-print.

Shneor R., Vik A.A. (2020), *Crowdfunding success: A systematic literature review 2010–2017*, "Baltic Journal of Management", 15 (2), pp. 149–182; https://doi.org/10.1108/BJM-04-2019-0148.

Simarmata M., Sinaga S., Muda I. (2022), *The management company intangible assets governance in pharmaceutical industry*, "Journal of Pharmaceutical Negative Results", 13 (3), pp. 1628–1630.

Sriram R.S. (2008), *Relevance of intangible assets to evaluate financial health*, "Journal of Intellectual Capital", 9 (3), pp. 351–366; https://doi.org/10.1108/14691930810891974.

Uddin M.R., Hasan M.M., Abadi N. (2022), *Do intangible assets provide corporate resilience? New evidence from infectious disease pandemics*, "Economic Modelling", 110 (1), pp. 1–49, 105806; https://doi.org/10.1016/j.econmod.2022.105806.

Venieris G., Naoum V.C., Vlismas O. (2015), *Organisation capital and sticky behaviour of selling, general and administrative expenses*, "Management Accounting Research", 26 (1), pp. 54–82; https://doi.org/10.1016/j.mar.2014.10.003.

Watson A., Shrives P., Marston C. (2002), *Voluntary disclosure of accounting ratios in the UK*, "The British Accounting Review", 34 (4), pp. 289–313; https://doi.org/10.1006/bare.2002.0213.

Widy-Hastuty H., Saragih F., Muda I., Andri Soemitra S. (2023), *Valuation and quantification of assets, liabilities, and income in pharmaceutical company in Indonesia*, "Journal of Pharmaceutical Negative Results", 14 (1), pp. 59–67; doi.org/10.47750/pnr.2023.14.S01.07.

Wong J.B., Zhang Q. (2022), *Stock market reactions to adverse ESG disclosure via media channels*, "The British Accounting Review", 54 (1), 101045; https://doi.org/10.1016/j.bar.2021.101045.

Yao N. (Chris), Zhu W., Wei J. (2018), *Managing noise in signalling effectiveness: An empirical test of listed companies in China*, "Baltic Journal of Management", 14 (2), pp. 235–249; https://doi.org/10.1108/BJM-12-2017-0389.

Yong J.Y., Yusliza M.-Y., Ramayah T., Fawehinmi O. (2019), *Nexus between green intellectual capital and green human resource management*, "Journal of Cleaner Production", 215 (1), pp. 364–374; https://doi.org/10.1016/j.jclepro.2018.12.306.

Zainol A., Nair M., Kasipillai J. (2008), *R&D reporting practice: Case of a developing economy*, "Journal of Intellectual Capital", 9 (1), pp. 122–132; https://doi.org/10.1108/14691930810845849.

Zhang Z., Ye Q., Law R., Li Y. (2010), *The impact of e-word-of-mouth on the online popularity of restaurants: a comparison of consumer reviews and editor reviews*, "International Journal of Hospitality Management", 29 (4), pp. 694–700; https://doi.org/10.1016/j.ijhm.2010.02.002/.

Acknowledgments