

Corporate Disclosure of Vaccine Producers After Covid-19 Disease



Silvia Fissi, Elena Gori, and Alberto Romolini

Abstract The Covid-19 emergency has rapidly changed the pharmaceutical sectors. A small group of companies have realized the first Covid-19 vaccines in a short time, starting the global distribution of their products. This process has necessarily relevant effects on the global performance of vaccine producers by rapidly improving their global and financial results. In this perspective, the vaccine makers are called upon to provide clear disclosure in their reports regarding their corporate performance and the effects of the vaccine development. The aim of this paper is to investigate whether or not the vaccine producers have changed their disclosures to underline the effects of Covid-19 vaccine production. The research uses a content analysis of the reports provided by the vaccine producers in the last two years (2020 and 2021). After selecting the companies, the research collects the reports of each vaccine producer, such as social and sustainability reports. The data collection will be extended to secondary sources, aiming to obtain a clear picture of the corporate disclosure. The results contribute to opening a discussion about the corporate disclosure of Covid-19 vaccine producers. The need to provide a clear representation of global performance in this sector contributes to the global dialogue about the pharmaceutical sector based on empirical data and analysis. The study has the limitation of being based on an analysis of reports linked to a recent phenomenon; we argue that this research needs to be repeated in the near future after the end of the Covid-19 global emergency. This research has an exploratory nature as, to the best of our knowledge, no previous studies have focused on corporate disclosure of Covid-19 vaccine producers.

Keywords Covid-19 · Vaccine · Pharmaceutical · CSR · Social reporting · Disclosure

S. Fissi · E. Gori
University of Florence, via delle pandette, 9, 50127 Florence, Italy
e-mail: silvia.fissi@unifi.it

E. Gori
e-mail: elena.gori@unifi.it

A. Romolini (✉)
International Telematic University Uninettuno, Corso Vittorio Emanuele II, 39, 00186 Rome, Italy
e-mail: a.romolini@uninettunouniversity.net

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1 Introduction

The Covid-19 outbreak created a rapid international emergency after the detection of a new form of coronavirus in the Chinese city of Wuhan. The first case emerged at the end of 2019 and suddenly the emergency spread to more than 114 countries in a few months. On March 11, 2020, the WHO (2020) communicated that Covid-19 was a global pandemic event and, starting from April 2020, many countries in Europe, Asia, Africa, and America rapidly decided to start lockdowns. With a situation never experienced before globally, millions of people were obliged to stay in their homes, living, communicating, and working with the support of new Internet technology tools. In this sense, the impact of Covid-19 has no precedent in history, considering the number of people involved and the countries affected by the virus (Macnamara 2021). Previous emergencies, such as SARS and MERS, did not have similar dramatic effects in terms of human health risk and impacts on the economy and social environment.

During the emergency, many countries needed to deal with a huge number of economic, environmental, and social problems (Rahdari and Anvary Rostamy 2015). In this scenario, private and public companies are experiencing increasing demand from stakeholders for greater disclosure and accountability (Sassen and Azizi 2018). This context appears more complicated for the vaccine producers which are involved in critical work to fight the virus and reduce its negative effects. The design and implementation of sustainable development models and sustainability reports represent a possible response to stakeholders' needs for all kinds of organizations (Leal Filho 2018) and especially for the vaccine producers.

These companies could increase the disclosure of their reports in order to become more accountable for the economic, environmental, and social impacts of their activities (Hahn and Kühnen 2013). In this sense, they will be become more able to respond to stakeholders' expectations, as traditional financial reports do not provide the information required. Companies have indeed started to publish sustainability reports using voluntarily disclosure (Bebbington et al. 2014) as a tool to create dialogue and engagement with their stakeholders (Manetti and Toccafondi 2012).

Looking to previous researches, we can argue that corporate social responsibility (CSR) and social reports are not a recent issue. The first studies on this topic came from the USA in the 1920s (Gay 1927; Donham 1929). These authors constantly referred to the responsibility of businessmen and to the importance of management science as a potential trigger for social wellbeing created through corporate activity. Nonetheless, a univocal and universally accepted definition of CSR has not yet been constructed (Carroll 1999; Thomas and Nowak 2006), and only in recent years have a precise role and a specific evaluation been given to "socially responsible" businesses (Garriga and Melé 2004).

The Covid-19 emergency has rapidly changed the pharmaceutical sectors. A small group of companies (AstraZeneca—UK and Sweden; BioNTech—Germany; Glaxo Smith Kline—UK; Johnson & Johnson—USA; Moderna—USA; Novavax—USA; Pfizer—USA; Sanofi—France) have realized the first vaccines in a short time, starting the global distribution of their products. Moreover, the global vaccine campaign has created a relevant debate about, from one side, the quality and safety of vaccines (Karlsson et al. 2021) and, from the other, the benefits for the pharmaceutical companies in terms of revenues. Indeed, this process has necessarily relevant effects on the global performance of vaccine producers by rapidly improving their global and financial results. Previous studies have also discussed different topics regarding the success of the national vaccine campaigns. Lindholt et al. (2021) identified different factors affecting individual choices regarding people’s adherence to national vaccine campaigns, while Machingaidze and Wiysonge (2021) analyzed the problems of access to vaccines in low- and middle-income countries.

In this perspective, the vaccine producers are fully involved in the necessity to disclose the environmental, social, and economic effects of their activities; this necessity is currently more urgent if we consider the role of and attention paid to their work during the recent “pandemic years”. In other words, vaccine producers feel the need to disclose to global stakeholders the effects of their activities with the aim of obtaining a full legitimization of their role in the Covid-19 emergency. However, to the best of our knowledge, no previous study has analyzed corporate disclosure in this context.

The aim of this paper is to investigate whether or not vaccine producers have changed their disclosures to underline the effects of Covid-19 vaccine production.

The following sections of this paper are organized as follows. After the literature review, the authors discuss the research method applied in this study and the results of the empirical analysis. Finally, the paper presents the conclusions of this work, underlining its limitations and some possible future research opportunities.

2 Literature Review

In recent years, the need to pay greater attention to sustainability and a demand for a higher level of accountability and transparency regarding the effects of companies’ activities on societies and ecosystems have become a fundamental challenge for all types of organizations operating in the public and private spheres (Schaltegger et al. 2014). In this situation, companies have been integrating their traditional reporting with non-financial information such as social, environmental sustainability, and governance information (Kolk 2004, 2010). In the European Union (EU), this situation is also a result of a normative path that started with the Non-Financial Reporting Directive (Directive 2014/95/EU) and with a proposal, in the year 2021, of a new Corporate Sustainability Reporting Directive.

Currently, approaches to non-financial reporting differ. In many cases, this type of reporting appears in the form of addenda to more traditional financial statements.

More recently, non-financial reports have been built as standalone annual reports. Generally, we can argue that non-financial reports are often prepared voluntarily with the aim of demonstrating coherence between business behaviors and social and environmental sustainability (García-Sánchez et al. 2013).

In recognition of the different approaches used in corporate sustainability reports, it is possible to find several studies focused on different topics of sustainability reporting such as the content, scope, and structure of the reports (Beloe et al. 2006; Slater 2008; Manetti 2011). Reporting practices also differ if we look to the national context. In this perspective, scholars have developed national-level researches over the last 10 years. National-level studies have focused on Austria (Langer 2006), Bangladesh (Sobhani et al. 2009), Canada (Davis and Searcy 2010), Germany (Gamerschlag et al. 2011), Greece (Skouloudis et al. 2010), Italy (Perrini et al. 2006; Secchi 2006), Norway (Vormedal and Ruud 2009), Sweden (Hedberg and von Malmberg 2003), Switzerland (Stiller and Daub 2007), and Thailand (Ratanajongkol et al. 2006). If we analyze the object of the previous studies, we can argue that the majority are focused on assessing the quality of CSR disclosure by evaluating the CSR reporting of stock exchange listed companies. In this type of research, authors apply different analytical approaches such as content analysis, benchmarking analysis, case studies, and so on. However, scholars have reached similar results: the quality of CSR disclosure is quite far from acceptable levels. It needs to be seriously improved to meet international standards and promote effective engagement with stakeholders, instead of merely seeking social legitimacy and increased credibility.

Studies on social reporting are also conducted with regard to different sectors of companies' activities. Dabic et al. (2016) analyzed the academic research on industry-based CSR practices. They identified some sectors that have been widely analyzed, discovering some trends in the study of specific sectors. Unfortunately, they also discovered that the studies are not well distributed between the different industries. In particular, scholars' attention to the practices of the pharmaceutical sector in the field of social reporting research is limited (Cook et al. 2018). Despite the importance of pharmaceutical companies in society and their contribution to individual and public health, studies about increasing corporate responsibility transparency and social accountability are relatively scarce. Some exploratory studies on this industry are very recent and were provided by Cook et al. (2018) and Demir and Ming (2019). For this reason, to the best of our knowledge, it is possible to identify a gap on the pharmaceutical industry. If we consider the role of the pharmaceutical companies in the market and above all in society and the importance of these companies in the prevention of the spread of Covid-19, we understand the need to know more about disclosure in this context and to fill this knowledge gap in the next years.

3 Method

Considering the novelty of the topic, this research has an exploratory nature. Accordingly, we adopted a qualitative approach that is particularly suitable when little is known about a certain phenomenon (Lune and Berg 2017).

The research is exploratory in nature and focuses on sustainability reports produced by companies involved in vaccine production during the Covid-19 emergency. In particular, it considers seven companies that have distributed Covid-19 vaccines in Western countries, in particular in the USA and EU. Specifically, the companies are AstraZeneca, Pfizer, Novavax, Moderna, Johnson & Johnson, GSK, and BioNTech.

The research is structured as follows: First, the authors identify the companies involved in the vaccine production in the EU and USA. After that, the research collects the reports of each vaccine producer such as social and sustainability reports. The reports considered are the last ones published in the years 2020–2021.

From a methodological point of view, the study uses two steps: the first is a content analysis of the reports collected, while the second is an analysis of secondary sources, aiming to obtain a clear picture of the corporate disclosure.

The content analysis is conducted manually in two different ways with the aim of individuating some keywords linked to Covid-19 disclosure. In the first one, the keywords selected are: “Covid-19”, “Covid-19 pandemic”, “Covid-19 vaccine”, “pandemic”, and “vaccine”. The research considers all the disclosures provided by sustainability reports, discovering the total amount of keywords selected. Moreover, the authors conduct a specific analysis of the CEOs’ or presidents’ letters in order to discover the impact of Covid-19 vaccine production on the strategy of each company.

In the second method, the authors conduct a content analysis starting with the collection of the sections of the reports where each company discusses the topics “Covid-19” and “vaccine”. Moreover, considering that the Sustainability Accounting Standards Board (SASB) model represents a standard generally applied in the pharmaceutical sector, especially in the industry version “Biotechnology & Pharmaceuticals”, we identify some material sustainability topics to investigate in the reports. The topics are also identified according to previous researches discussed in the “Introduction” and “Literature Review” sections.

4 Results and Discussion

4.1 *An Overview of Vaccine Producers*

The research starts with an overview of the seven companies involved in Covid-19 vaccine production. They are all listed companies on different stock exchanges such as London and New York. The companies are based substantially in three countries, the USA, the UK, and Germany, and we observe the presence of one company,

Table 1 Effects of vaccine production on total revenues

Company	Country	Total revenues 2021 (in millions of euros)*	Total revenues 2020 (in millions of euros)*	Variation in total revenues 2021–2020 (%)
AstraZeneca	UK and Sweden	35.9	25.5	41
BioNTech	Germany	18,900	482.3	3,819
GlaxoSmithKline	UK	40.2	40.2	0
Johnson & Johnson	USA	90,147	79,393	14
Moderna	USA	17,755	771.8	2,200
Novavax	USA	1.1	0.45	144
Pfizer	USA	78.1	40.3	94

*The value change is calculated at the date of May 16, 2022

BioNTech, that is active in the European pharmaceutical industry. We conducted an analysis through the annual reports of these companies, comparing the results of the years 2021 and 2020. In particular, we analyzed the consolidated financial reports with the aim of observing the effects of vaccine production on total revenues.

The effects on the financial results are very significant (Table 1): if we look at the total amount of revenues, we can observe that the most of the companies, except for GlaxoSmithKline, experienced strong growth in these performances. The reason for this difference is that GlaxoSmithKline applied for authorization to sell Covid-19 vaccines only at the beginning of 2022. In this sense, we consider the effects of the vaccine production in the 2022 reports. On the other hand, BioNTech and Moderna demonstrate a huge growth of revenues and, in this sense, we can observe that the vaccine production has totally changed their business models.

4.2 Corporate Social Disclosure on Covid-19 Vaccine Production

The analysis of corporate social reports demonstrates that the majority of companies (75%) publish a standalone report for social reporting, while, in the other cases, we observe that some information about these topics is integrated in the annual reports and the corporate websites (Table 2).

The corporate social reports have various titles, of which the most frequently applied seems to be the “sustainability report”. Regarding the standard applied in the reporting, the analysis shows the general use of different standards with particular attention to the Global Reporting Initiative (GRI), the SASB Index, and the United Nations Global Compact (UNGC). The standards are globally accepted for sustainability disclosure and are used with a “hybrid approach”: in other words, each company refers to different standards for each single report. The reports also

Table 2 Corporate social reporting analysis

Company	Sustainability report title	Standard	Pages	Assurance	Specific section
AstraZeneca	Sustainability report 2021	Not available	35	Yes	No
BioNTech	Sustainability report 2020	GRI, SASB Index, UNGC	70	No	No
GlaxoSmithKline	ESG performance report 2020	SASB Index, GRI, UNGC	37	Yes	No
Johnson & Johnson	Health for humanity report	GRI	117	Yes	Yes
Moderna	Impacting human health. 2021 ESG report	SASB	37	No	No
Novavax	Not available	–	–	–	–
Pfizer	Environmental, social and governance report 2020	SASB, GRI, the task force for climate-related financial disclosure	52	Yes	No

have different dimensions in terms of pages: from 35 to 217. Moreover, only one report, published by BioNTech, was not submitted to an external assurance entity in order to verify the application of the accountability principles. This approach can guarantee the quality of the information reported to the external stakeholders. Finally, the general reporting practice is to offer information about the activities of the companies during the Covid-19 emergency in different parts of their reports; only one company (Johnson & Johnson) decided to create a specific section dedicated to Covid-19 disclosure.

The analysis of the reports is enriched by a study of the contents (Table 3). The research has the goal of understanding the disclosure about the role of each company during Covid-19 emergency in a quantitative way. The most frequently used term is “vaccine” (284), which is followed by “Covid-19” (211) and “pandemic” (138); this result confirms the attention of pharmaceutical producers to the disclosure of their role during the health emergency. Moreover, it confirms that social reporting changed after this event with some “terms” that no one had used in previous reports. The other results can be interpreted in the same way with the terms “Covid-19 vaccine” and “Covid-19 pandemic” repeated, respectively, 107 and 103 times in the reports.

The final stage of the analysis is the study of the CEOs’ and/or presidents’ letters with the aim of understanding whether Covid-19 vaccine production is becoming part of the business strategy (Fig. 1). The word cloud again shows how the reports have changed, as one of the most frequently used terms is now “Covid”. In this sense, the pandemic emergency and vaccine production represent the biggest challenges for the future of each company.

Table 3 Keywords analysis of the corporate social reports

Company	Covid-19	Covid-19 pandemic	Covid-19 vaccine	Pandemic	Vaccine
AstraZeneca	7	6	2	5	3
BioNTech	10	7	46	6	82
GlaxoSmithKline	12	2	0	20	86
Johnson & Johnson	126	38	46	71	77
Moderna	39	42	0	26	3
Pfizer	17	8	13	10	33
Total	211	103	107	138	284



Fig. 1 The word cloud

4.3 Sustainability Topics for Vaccine Producers

The research was extended to an analysis of the main topics used in the reports to disclose information related to the role of vaccine producers during the pandemic. For this purpose, in a first step, we conduct a content analysis starting with the collection of the sections where each company discusses the topics “Covid-19” and “vaccine”. In the selected sections of the reports, the research aims to identify the disclosures about topics directly connected with the Covid-19 health emergency and the role of the vaccine producers in helping preserve global wellbeing.

For this aim, the authors consider the SASB model applied to “Biotechnology & Pharmaceuticals” (SASB 2018). In more detail, we identify some material sustainability topics that are directly connected with Covid-19 to investigate in the reports. The selected topics used as “keywords” in the content analysis are “clinical trial”, “access to vaccine”, “vaccine litigation”, “vaccine safety”, and “employee recruitment, development & retention”. These keywords were identified while also considering the previous studies discussed in the “Introduction” and “Literature Review” sections.

The research reveals that the topics discussed more often in the reports concern the protection of employees during the pandemic emergency and the process of the clinical trials. The section dedicated to employees' roles during the development of Covid-19 vaccines aims to disclose the efforts provided in a short time period in response to the health emergency. Moreover, the reports aim to demonstrate the procedures and methodologies applied to protect employees from Covid-19 infection during work hours in the corporate buildings and during periods of working at home. After that, the reports often present a detailed summary of clinical trial procedures with specific attention given to the quality and security of vaccine development and production.

The reports also present each company's strategy for ensuring access to Covid-19 vaccines in low–middle income countries. As global companies, the vaccine producers demonstrate efforts to distribute their products in countries where access to Covid-19 vaccines is difficult or nearly impossible.

The least disclosed issue, however, is “vaccine safety”, if this type of information is provided in the sections of the reports dedicated to the clinical trials and product development of the Covid-19 vaccine. The aim of this approach is to ensure affordability and reliability of vaccines diffusion.

Finally, we do not find any information about litigation after the vaccine distribution. This result could be due to the short amount of time that has passed since the marketing of this pharmaceutical product. Probably, we can argue that in the next few years the reports will be obliged to present information about this topic too.

The analysis performed is summarized in Table 4, which shows the topics discussed in the sustainability reports of vaccine producers according to the SASB model.

Table 4 Sustainability topics for vaccine producers

Company	Clinical trial	Access to vaccine	Vaccine litigation	Vaccine safety	Employee recruitment, development and retention
AstraZeneca		X			X
BioNTech	X	X		X	X
GlaxoSmithKline	X	X			X
Johnson & Johnson	X	X		X	X
Moderna	X	X		X	X
Pfizer	X				

5 Conclusion

The Covid-19 emergency represents a global pandemic never experienced before in terms of the number of people and the countries involved. The need to fight this unknown virus has determined the rapid development of vaccines, especially in the USA and EU. The vaccine production has rapidly changed the future and the business models of pharmaceutical companies involved in Covid-19 vaccine production. These companies, after receiving authorization for Covid-19 vaccine commercialization, have experienced a rapid growth in sales and, more generally, in financial performance. Consequently, this research shows that all the listed companies involved in Covid-19 vaccine production demonstrate a huge growth of revenues and a substantial modification of company size and business models.

In this context, vaccine Covid-19 producers play a fundamental new role in global society related to the contribution offered in the long fight against the virus. This new role also determines a new need for disclosure regarding the environmental, social, and economic effects of their activities during the recent “pandemic years”. Through an exploratory study, this paper provides the first results about the disclosures of vaccine producers through corporate social reports. According to the SASB model, the analysis reveals that the main topics discussed in the reports are the clinical trials, linked to the whole process of vaccine development and production, the efforts of the companies to protect employees during the pandemic emergency, and the strategies for ensuring global access to vaccines, especially in low- and middle-income countries. The general conclusion is that these companies have substantially changed their approach to the disclosures after the Covid-19 emergency. The content analysis conducted on the social reports of vaccine production companies shows that the words related to Covid-19 are frequently disclosed in all the reports. This type of information has become a basic approach in disclosures, with the aim of showing the efforts in this field.

From a theoretical perspective, this research provides results in two different directions. Firstly, it aims to understand more about the corporate social responsibility and accountability of pharmaceutical companies. Despite the relevant role in public health played by these companies, the pharmaceutical sector remains under-investigated in the area of corporate social reporting. Secondly, it provides the first results concerning the corporate social reporting of Covid-19 vaccine producers. At the same time, the paper also has some managerial implications for pharmaceutical companies. In fact, the managers of this industry have an opportunity to better understand different accountability approaches and best practices for sustainability reporting during and after the pandemic period.

This research has some limitations, that, at the same time, could be seen as opportunities for future development. First, the paper presents an analysis of the effects of vaccine production on the financial results considering only the amount of total revenues. In the near future, we argue that studies should consider other financial and non-financial variables and data. Moreover, researchers should try to study the composition of revenues in more depth in order to isolate the effects of Covid-19

vaccine sales on the total revenues. Finally, future studies could consider a whole time period of observation including some years after the introduction of the vaccine.

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