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Chapter 1

Sustainability accounting in the Covid-19 pandemic and post-pandemic times

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1.1. Introductory remarks

Uncertainty and unpredictability are the main characteristics of Covid-pandemic, whereas recovery is the keyword for post-pandemic time. The pandemic poses a massive challenge to the achievement of Sustainable Development Goals – SDGs (Wang & Huang, 2021), including corporate sustainability. Numerous limitations of corporate operation have caused many enterprises to focus only on survival, analysing only their financial results, giving up their environmental and social commitment (Zyznarska-Dworczak, 2022), showing greater attention to economic sustainability during the pandemic. At the same time, the Covid-19 crisis highlights the need for a resilient economy and business, particularly the need to strive for corporate sustainability and thus protect the business against future pandemics and other ESG (environmental, social and governance) risks.

The Covid-19 pandemic has caused extraordinary disruption to global economies and corporate finance. A post-pandemic recovery in business needs investments and financial system stability built on sustainable foundations, like sustainable investments, sustainable finance, and all instruments supported by sustainability strategy. Sustainability accounting may be one of these tools supporting a company's transformation (or re-transformation) into a sustainable one.

Sustainability accounting and accountability topics are presented by many researchers and practitioners, including management accounting and organisational decision--making, sustainability reporting frameworks and practices, ESG investments, as well as sustainability assurance. The research is positive (e.g., (Fernando & Lawrence, 2014; Huang, 2021; Zyznarska-Dworczak, 2018) and normative (e.g., (Bose, Dong, & Simpson, 2019; Lamberton, 2005; Raluca Ivan, 2009; Zyznarska-Dworczak, 2016, 2019, 2020)). Nevertheless, little was known about the role of sustainability accounting in times of pandemic, and the existing ones are mostly of a normative nature (e.g., Bui & de Villiers, 2021). Research in this area is of high importance because it may lead to further theoretical developments in accounting (Lodhia, Sharma, & Low, 2021), supporting management to develop more resilient businesses (Schaltegger, 2020a) by incorporating systems focused accounting influenced by science-based targets, with better accountability mechanisms and by additionally incorporating better education practices might lead to transformational changes (Cho, Senn, & Sobkowiak, 2022). The more that pandemic once again highlights that any new or revised concepts following or complementing the SDGs need to emphasise the interconnectedness of the diverse aspects of sustainable development (Hörisch, 2021). Therefore, new understandings of social and environmental values consistent with ecological principles and sustainable development may develop a sustainability accounting system.

This research aims to contribute to understanding the development of sustainability accounting in times of the Covid-19 pandemic and in times of post-pandemic. The thesis is that sustainability accounting is expected to strengthen corporate accountability during a crisis, like a pandemic, and thus helps companies prepare to manage ESG risks. This chapter indicates sustainability accounting's role in post--pandemic recovery, revealing that the expectations toward sustainability accounting have become even more complex.

The study is based on the literature review and bibliometric studies. The chapter is structured as follows: the second section presents the practice premises for the impact of the Covid-19 pandemic on sustainable development, while the third section presents how sustainability accounting research has developed during the Covid-19 pandemic, including the key changes and trends indicated by bibliometric tests conducted in the years 2020–2022. The chapter ends with conclusions in the form of postulates for the development of accounting

The research results help understand the directions of sustainability accounting development influenced by the pandemic. It reveals changes and thus strengths and weaknesses of sustainability accounting, indicating the expectations of how to support the post-pandemic recovery. The chapter presents scientific achievements in the sustainability accounting field during the Covid-19 pandemic.

1.2. Sustainable development in the Covid-19 pandemic

Covid-19 and pandemics are important influencing factors in the achievement of sustainable development goals (SDGs) and are also impacted by the realisation of SDGs (Hörisch, 2021). The coronavirus provides both challenges and opportunities for the practice of, and research into, accounting for sustainability (Lodhia et al., 2021) – on the one hand, in the face of many limitations of corporate operation, many enterprises focus only on survival, analysing only their financial results, putting aside their sustainability strategy. However, on the other hand, the pandemic increases the necessity for business settlements in line with the concept of accountability and sustainability (Zyznarska-Dworczak, 2022). This phenomenon is because decision--makers are expected to understand the Maslow's hierarchy of needs and the social determinants of health (Ryan, Coppola, Canyon, Brickhouse, & Swienton, 2020), and thus the balance of economic, social, and environmental corporate goals.

According to the research (Lodhia et al., 2021; Wang & Huang, 2021), the negative impact of the Covid-19 pandemic on corporate sustainability relates to the chosen SDGs in the following way:

- no poverty: increasing levels of poverty in the developed and developing world caused by the economic consequences of the virus;
- decent work and economic growth: financial market turmoil, industrial production interruption, commodity prices fall, and economic growth derailed;
- industry, innovation, and infrastructure: reduced infrastructure to withstand disasters and climate change;
- good health and wellbeing: mental health problems, the inefficiency of the health care system;
- clean energy: unstable power supply, low private sector investment;
- gender equality: women are more likely to be unemployed.

These factors contributed in particular to the sharp downturn in business activity. Caught companies with high debt ratios need financing, and sound debt management and debt transparency are critical to ensure that debt sustainability is finally regained and financial risks are constrained (Park, Lee, Park, & Han, 2020). Some corporations have been influenced hardly by pandemic problems and thus interrupted their plans and activities for sustainable development. Thus, the pandemic has threatened the achievement of the sustainable development goals, if only because of the difficulties in ensuring the financial stability of enterprises (Yoshino, Taghizadeh-Hesary, & Otsuka, 2021).

At the same time, as the pandemic shows, the external costs can become exceedingly large, not just for society but also for each company and each individual (Schaltegger,

2020b). The crisis may increase its importance because of the need to cope with the adverse effects of the crisis on society and the environment (Zyznarska-Dworczak, 2022). The Covid-19 pandemic has highlighted the urgency of sustainability goals (Coccia, 2020), and health, social inequality, and energy utilisation from renewable resources and sustainable technologies are the main aims for improving the environment, economic system, and public health in the long run (Wang & Huang, 2021). According to the research (Lodhia et al., 2021; Wang & Huang, 2021), the positive impact of the coronavirus pandemic on corporate sustainability relates to the chosen SDGs in the following way:

- industry, innovation, and infrastructure: stimulate productive investment, a pathway to economic post-pandemic recovery, and new career opportunities;
- good health and wellbeing: rebuild a healthy foundation, health awareness, lifestyle optimisation, and public health will have an increasing focus with various measures changing the way society has functioned in the past, for example, social distancing;
- clean energy: sustainable economic recovery, clean energy transition, increased demand for clean energy investment, reduced greenhouse gas emissions, an opportunity to redesign systems with renewable energy at the heart of the radical changes to society;
- sustainable cities and communities – a radical redesign could play a vital role in the post-corona recovery.

Moreover, considering the intergenerational dimension of sustainability, coronavirus compels decision-makers to plan from the long-term perspective (Hörisch, 2021). Stakeholders' expectations may force companies for the long-term managing when assessing how they treat employees, contractors, and suppliers and act responsibly when making decisions about pricing and the supply levels of goods and services, which help society respond to the health and economic aspects of the crisis (Mak & Ho, 2020). So, post-pandemic recovery needs business settlements in line with the concept of accountability (Zyznarska-Dworczak, 2022).

Considering the contradictory arguments against the impact of the pandemic on corporate sustainability, a sustainable recovery can be stated to respond to this crisis. Companies must continuously adapt to new and uncertain market conditions, including measurement of activities dedicated to sustainable development goals and making sustainable decisions. Thus, sustainability accounting may be at the core of any corporate recovery in times of Covid-19.

1.3. Sustainability accounting in times of Covid-19

The Covid-19 pandemic remarkably hits accounting and accountability. Professional accountants presented high flexibility to react to sudden changes in the company's day-to-day operations, legislative changes, staff shortages, and many other changes in business conditions. Moreover, they have been expected to help management decide how to reset the consequences of these changes and aid recovery. The main accounting considerations related to Covid-19 are the following (Zyznarska-Dworczak, 2022):

- bookkeeping during the lockdown in a virtual environment,
- record all transactions to new regulations rolled out by governments to help businesses survive,
- record untypical transactions resulting from a pandemic situation, like government assistance, material judgments and uncertainties, impairment of non-financial assets, onerous contracts provisions, insurance recoveries, lease contracts, defined benefit plans, going concerned, events after the end of the reporting period,
- forecast in uncertainty,
- apply for grants and develop a restructuring plan.

According to the A4S's research, accountants had the challenge of supporting companies for the 'here and now'; thus, Covid-19 raised the profile of accountants. Moreover, beyond the indicated duties, accountants are also expected to plan and prepare for their next test: building a sustainable economy (A4S, 2020). Recognising accountants' role in delivering a resilient future for the accountancy profession, accountancy bodies (like ACCA, CIMA, ICAEW, and ICAS) have set up a series of initiatives to contribute to this sustainable reset process while recognising the need to maintain standards, quality and trust in all that accountants do (A4S, 2020).

Moreover, the Covid-19 pandemic resulted in changes in the economic environment and work modes, which have direct effects on the design of judgment in accounting and decision making of preparers, users, and auditors/assurance providers of financial and non-financial information, including sustainability information and management information (Humphreys & Trotman, 2022). Moreover, the high levels of uncertainty caused by the outbreak of the Covid-19 pandemic have increased the stakeholders' demand for information (Rinaldi, 2022).

As a reaction to the Covid-19 pandemic, many researchers have called for a special role in sustainability accounting and reporting in this crisis. The bibliometric tests have been applied to indicate the research trends in sustainability accounting influenced by the Covid-19 pandemic. The bibliometric analyses were carried out based on the results from the database Web of Science in 2021 and 2022 (relating to the topics

'sustainability accounting' and 'Covid'). This chapter presents the comparison of these two bibliometric tests, showing the research trend and main conclusions from the current research.

The first test was conducted in January 2021, and the second one in March 2022. The bibliometric data cover accounting research conducted from 1945 to appropriately 2021 and 2022 by authors worldwide. The first test indicated the novelty of the situation – there was little scientific research on this subject, and new business conditions caused by the coronavirus have not been significantly reflected in accounting research and publications (Zyznarska-Dworczak, 2022). The first local database contained 26 research papers from 2020 and 6 from 2021, whereas one year later local database contained 133 research papers with a high citation index (see Table 1.1).

Table 1.1. Sustainability accounting research in pandemic and post-pandemic

Research	Research in 1.2020–02.2021	Research in 1.2020–03.2022
Research numbers	32 (2020 – 26, 2021 – 6)	133 (2020 – 34, 2021 – 86, 2022 – 13)
Citation statistics	87 (times cited) 3 (H-Index)	601 (times cited) 14 (H-Index)
Geographical area of research (over 70%)	1) Australia 2) Italy 3) England 4) Spain	1) Italy 2) Spain 3) Australia 4) England
Journals of publications	■ *Sustainability* (19%) ■ *Meditari Accountancy Research* (6%) ■ *Sustainability Accounting Management and Policy Journal* (6%)	■ *Sustainability* (18%) ■ *Environmental Science and Pollution Research* (4%) ■ *Meditari Accountancy Research* (3%)
Research area	■ environmental sciences, ecology (34%), ■ business economics (31%) ■ science technology (25%)	■ environmental sciences, ecology (44%), ■ business economics (38%) ■ science technology (33%)
Research related to sustainability accounting	■ (Biondi et al., 2020) ■ (La Torre et al., 2020) ■ (Bui & de Villiers, 2021) ■ (Park et al., 2020) ■ (Schaltegger, 2020a), (Schaltegger, 2020b) ■ (Tingey-Holyoak & Pisaniello, 2020)	■ listed in the left column + ■ (Hörisch, 2021) ■ (Lodhia et al., 2021) ■ (Powell & McGuigan, 2022) ■ (Tettamanzi et al., 2022)

Source: own elaboration based on Web of Science and Web Correlation – January 2021 and March 2022.

As indicated in Table 1.1, most research papers related to sustainability accounting in coronavirus times have been written by authors from Italy, Spain, Australia, and England – in both tests, these studies account for over 70% of all publications. Moreover, most publications appeared in such journals as *Sustainability* and *Meditari Accountancy Research* (in both tests), *Sustainability Accounting Management* and *Policy Journal* (test I), and *Environmental Science and Pollution Research* (test II). The research areas are mainly environmental sciences, ecology, business economics, and science technology. Due to the purpose of this article, further research has been focused on business economics and on research dedicated to sustainability accounting and its role in the times of Covid-19. Comparing the studies related to the research published in the period from January 2020 to March 2022, initial research posed new challenges both sustainability accounting related mainly accountants' response and possible reset by sustainability accounting, whereas, in the late 2021 and early 2022, more research emphasised a sustainable recovery of companies supported by accounting. The recent conclusions result from the corporate experience of operating in a pandemic, as shown by the latest research (Bui & de Villiers, 2021; Hörisch, 2021; Lodhia et al., 2021; Powell & McGuigan, 2022; Tettamanzi, Venturini, & Murgolo, 2022). According to them, in the post-Covid-19 era, there is an urgent need for:

1) recognising accountability as a fundamental premise of sustainability accounting,
2) monitoring, assessment, and reporting of external costs, of planned and actual business strategy, including the plan in case of new risks like new pandemic;
3) assessment and control of the company's activities for sustainable development,
4) support for the settlement of company responsibility in the accountability concept,
5) formulating strategic and management control systems in response to climate change issues and legitimacy,
6) the use of sustainability reporting to create value, effective disclosures of business and sustainability ethics,
7) reputation building and value creation, indigenous accounting,
8) regulatory support in developing countries towards the barriers to sustainability reporting,
9) sustainability accounting education to improve sustainability reporting practices,
10) support for the creation of political, social, and institutional relationships with shareholders and stakeholders,
11) inter-and transdisciplinary cooperation beyond academics and practitioners from natural and social sciences.

Most presented conclusions are normative and indicate the direction of the expected development of sustainability accounting in the post-coronavirus recovery. One of

them is a framework (Bui & de Villiers, 2021) to integrate accounting technologies in designing, delivering, and reviewing stimulus packages, thereby simultaneously enabling economic growth and social equity whilst addressing the climate crisis. In turn (La Torre, Sabelfeld, Blomkvist, & Dumay, 2020) examined the concept of accountability within the context of the Directive 2014/95/EU to offer a critique view for future mandatory non-financial reporting research. The dialogical accountability sustaining non-financial reporting is indeed crucial in rebuilding trust in the times of Covid-19 (La Torre et al., 2020), because the coronavirus has challenged the existing economic paradigm, it has caused non-financial issues will capture more attention of corporations, other institutions, civil society and governments (Lodhia et al., 2021). That is why accounting may be considered an instrument of accountability concept, and accountability is to be recognised as the fundamental premise of sustainability accounting and reporting. Sustainability accounting is expected to be a system of financial measures of economic, social, and environmental aspects, thus protecting shareholders' and stakeholders' interests. Thus, sustainability accounting is expected to provide transparency of corporate performance and thus contribute to a shift from short-term investments toward long-term sustainable decisions. Sustainability disclosure may be treated as a manifesto of a company's accountability and social value system, based on the institutionalised approach of sustainable development dedicated to stakeholders' expectations and the social contract with the company's environment (Czaja-Cieszyńska, Kordela, & Zyznarska-Dworczak, 2021).

1.4. Directions of sustainability accounting development

Corporate sustainability accounting and reporting seem to be going in an increasingly value-oriented direction that goes beyond the financial results and the creation of value for shareholders alone (Tettamanzi et al., 2022). However, the presented expectations towards accounting are not covered in practice at present – the current accounting and accountability mechanisms employed in economic stimulus programs and traditional environmental accounting approaches are inadequate and limited to achieving long-term sustainability change (Cho et al., 2022). So, to fulfil the forecasted tasks of sustainability accounting, it is necessary to reconstruct its existing corporate accounting system or build a new one – with a multidimensional and multi-faceted analysis of measurable and non-measurable information (Zyznarska-Dworczak, 2018). Nevertheless, changes extending the accounting subject require appropriate preparation and education of future accountants and auditors. Undertaking and understanding sustainable challenges require new methodologies and new ways of approaching accounting education (Cho et al., 2022), which fosters among accounting students and educators a relational orientation and ecological consciousness that encompasses compassion and openness to others, including non-human species and

nature. This will ensure that accounting graduates are better prepared for addressing future crises (Powell & McGuigan, 2022). The directions of the changes may be indicated as a result of inter- and transdisciplinary cooperation beyond academics and practitioners from natural and social sciences (Hörisch, 2021).

The impact of Covid-19 on business has highlighted the interconnection between non-financial and financial issues, thus enhancing the role of sustainability accounting. The chapter presents the positive and negative impacts of the coronavirus pandemic on corporate sustainability, and the main premises for the development of sustainability accounting. The pandemic has significantly raised the status of accountants by setting new tasks, together with those related to sustainable development. At the same time, the pandemic has revealed the gaps between the expectations and real opportunities of sustainability accounting development.

This research aims to reveal the impacts of the Covid-19 pandemic on sustainability accounting development and changes in this role during the two years of the pandemic. The coronavirus pandemic provides numerous opportunities for research into creating value through the accounting for non-financial matters, especially regarding sustainability accounting and reporting research (Lodhia et al., 2021), which has been confirmed by the bibliometric research carried out in 2021 and 2022. A rapidly growing interest in this research field is observed mainly in Italy, Spain, Australia, and England. The research results are presented mainly in *Sustainability*, *Meditari Accountancy Research*, *Sustainability Accounting Management and Policy Journal* and *Environmental Science and Pollution Research*. Most research is normative and indicates the direction of the expected development of sustainability accounting, noting at the same time that the current accounting system does not allow corporate accountability to be provided. Despite the growing scientific research in this field, there are still no solutions, and adequate preparation of staff in practice so needed in the post-pandemic sustainable recovery.

This research has several theoretical and practical implications. This chapter indicates that in the post-Covid-19 era, non-financial value built by corporate sustainability strategy is of higher significance and importance than before the pandemic. This research also contributes to the literature allowing us to know in depth the response of accounting practice and accounting science towards the corona-virus pandemic.

The study focuses only on corporate sustainability accounting development. Nevertheless, it is worth noting that accounting and accountability practices have also been used as governments' response to Covid-19 (more in, e.g., (Ahrens & Ferry, 2021; Haynes, 2020)). Such an approach may contribute to sustainability accounting development through in-depth theoretical reasoning.

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