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„Influence of Sustainability Assurance on Financial Performance of Austrian Firms"

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Abstract (English)

In the last years, companies started to publish non-financial information in addition to their financial reports. To increase the credibility of this data, companies have the possibility to adopt sustainability assurance. Apart from reliability enhancement, sustainability assurance is considered to also have other benefits for companies, potentially even financial advantages. This Master Thesis undertakes a quantitative analysis to determine whether assurance of sustainability reports has an impact on the financial performance of Austrian enterprises. The sample for this research consists of the 250 largest Austrian companies by revenue. Differences in the financial performance among companies with assured sustainability assurance and those without assured sustainability assurance were found. Moreover, companies adopting sustainability assurance reached better financial results.

Keywords: *sustainability assurance, Corporate Social Responsibility, sustainability, Austrian companies, financial performance*

Abstract (Deutsch)

In den letzten Jahren haben Unternehmen begonnen, neben Finanzberichten auch Nachhaltigkeitsinformationen zu veröffentlichen. Um die Glaubwürdigkeit dieser Daten zu erhöhen, haben Unternehmen die Möglichkeit, eine unabhängige Nachhaltigkeitsprüfung durchzuführen. Neben der positive Wirkung auf die Glaubwürdigkeit werden der Nachhaltigkeitsprüfung auch andere Vorteile für Unternehmen zugeschrieben, möglicherweise sogar finanzielle Benefits. Diese Masterarbeit unternimmt eine quantitative Analyse, um festzustellen, ob die Prüfung von Nachhaltigkeitsberichten einen Einfluss auf die finanzielle Leistungsfähigkeiten von Unternehmen hat. Die Stichprobe besteht aus den 250 umsatzstärksten österreichischen Unternehmen. Es wurden Unterschiede in der finanziellen Performance zwischen Unternehmen mit Nachhaltigkeitsprüfung und Unternehmen ohne Nachhaltigkeitsprüfung festgestellt. Darüber hinaus erzielten Unternehmen, die eine Nachhaltigkeitsprüfung einführten, bessere Finanzergebnisse.

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Abbreviations

CSES	Centre for Strategy & Evaluation Services
CSR	Corporate Social Responsibility
EBT	Earnings Before Tax
EFRAG	European Financial Reporting Advisory Group
EMAS	Eco-Management and Audit Scheme
ESG	Environmental, Social, and Governance
et al.	Et alia; and others
EU	European Union
FEE	Federation of European Accountants
G&A Institute	Governance and Accountability Institute
GAAP	Generally Accepted Accounting Principles
GRI	Global Reporting Initiative
IFAC	International Federation of Accountants
IFRS	International Financial Reporting Standards
IIRF	International Integrated Reporting Framework
ILO	International Labour Organization
ISAE	International Standard on Assurance Engagements
ISO	International Organization for Standardization
NFRD	Non-Financial Reporting Directive
org.	Organization
SME	Small and Medium Enterprises
UK	United Kingdom
USA	United States of America

1. Introduction

Corporate Social Responsibility (further referred to as CSR) and sustainability have probably become the most discussed issues in the business world of the 21st century. Accordingly, businesses and politicians have started to pay attention to the matter. As a result, the European Commission introduced several measures encouraging companies to be more socially and environmentally responsible, such as the Non-Financial Reporting Directive as of 2014 (European Commission, org., 2014) or the latest Corporate Social Reporting Directive (European Commission, org., 2021) admitted in 2022. Companies are as well increasingly involved in the matter as CSR activities are critical for the sustainability of firms. (Kim et al., 2019) Consequently, businesses often started to publish sustainability reports to disclose and communicate their progress in this field.

To strengthen the credibility of these reports, companies have the possibility to gain external sustainability assurance. (Quick & Inwinkl, 2020; Coram et al., 2009) Moreover, research also suggests other beneficial effects of assurance services. For instance, firms with assured sustainability reports often benefit from an improved reputation and better shareholder relations. (Velte, 2020) Garcia-Sánchez et al. argue that further benefits driving companies' incentives to introduce sustainability assurance are lower capital constraints, including lower information asymmetries or forecast errors. (Garcia-Sánchez et al., 2019) In addition, numerous studies reported positive effects on the financial performance of enterprises. (Kim et al., 2019; Aksik, Gal, 2019; Bauwhede, Van Cauwenberge, 2022; European Commission, org., 2017) Nevertheless, other researchers found sustainability assurance to be connected with no or only minimal positive financial and non-financial impacts on the reporting companies. (Fazzini, Dal Maso, 2016; Lajmi, Paché, 2020; Giel et al., 2013) Thus, findings on the effects attributable to sustainability assurance are inconsistent.

The aim of this Master Thesis is to contribute to the existing literature on the topic of sustainability assurance. More specifically, the effects of sustainability assurance on the financial performance of firms are investigated. The empirical focus of the research is on Austrian companies. Given this position, the research question for this study is as follows:

What impact does sustainability assurance have on the financial performance of Austrian firms?

First of all, data is collected from sustainability and financial reports of a sample of the 250 largest Austrian firms by revenue for the period between 2017 and 2021. Afterwards, the collected data is examined using Mann-Whitney U Tests, therefore, the research question is answered by a quantitative approach.

Studies analysing the topic of sustainability assurance often focus on common law English-speaking countries, such as Akisik and Gal (2019), Kim et al. (2019), Casey and Grenier (2019) or Coran et al. (2009). On the other hand, papers focusing on other geographical regions are more recent, for example, García-Benau et al. (2013) and Sierra et al. (2013) with the paper on the French case or Miralles-Quirós et al. (2021) focusing on Spain. Nevertheless, there is still a noteworthy absence of studies on this topic in Austria. The field is becoming even more significant with the continuously increasing rates of sustainability assurance in Austria. (KPMG, org., 2020) Therefore, it is possible to consider this Master Thesis as a preliminary study focusing on the effects of sustainability assurance on the financial performance of Austrian companies. Future research can, ideally, be based on the findings of this paper.

This Master Thesis is organised as follows:
Chapter 2 provides a literature review on the topic of CSR, sustainability reporting and assurance of sustainability reports. Also, this chapter introduces the effects of sustainability assurance on companies.
Chapter 3 develops a research question and hypotheses. Furthermore, it explains the used methodology and provides a depiction of the data.
Chapter 4 shows the results of the analysis and descriptives.
Chapter 5 discusses and concludes the empirical work. This part also summarises and further analyses the research findings. Afterwards, contributions of the study are provided. Finally, the chapter concludes by examining the limitations of the study and suggestions for future research.

2. Literature review

2.1. Corporate Social Responsibility

Society's acknowledgement of climate change, environmental issues, natural disasters, and scarcity of natural resources has been intensively discussed in the last few years. Nevertheless, the evolution of CSR is dated back already to the late 1930s. In 1938, Bernard was the first author to mention, although indirectly, the concept of CSR. The author highlighted that, in their decision-making processes, executives should not only consider economic aspects but also combine legal, moral, social, and physical elements. (Bernard, 1938)

Despite Bernard's contribution, CSR seems to have its origins in the 1950s, after the publication of an article by Donald K. David. David encouraged business leaders to start engaging in social affairs more actively, as businesses actually have three obligations:

- to conduct business in an effective manner;
- to make the business organization itself a good and just society;
- to operate in a respectful manner towards external communities and organizations (to be constructive).

David based his article on an ongoing discussion initiated years before writing his paper and contributed to rich debates on the topic in the following years. (David, 1949)

Carroll highlighted the contributions of Browen to the topic of CSR and Browen's book called "Social Responsibilities of the Businessman" was probably the most noteworthy literature from the 1950s. Here, the author argued that the actions of corporations have a tangible impact on society and, therefore, corporations need to take this impact into consideration. Furthermore, Carroll emphasized the numerous management and organizational changes mentioned in the book, such as the use of the social audit, social education of managers, or the development of business codes of conduct. Nevertheless, it remains unclear how many of his proposals were accepted in the 1950s. Browen is often called the "Father of CSR" because of his contributions to defining the CSR concept. (Carroll, 1999)

In the 1960s, researchers mainly attempted to provide a clear definition of CSR, especially due to numerous public movements and increasing social pressure towards businesses. Davis was one of the most renowned authors of that time. (Farcane & Bureana, 2015) For instance, Davis

defined the concept as the "decisions and actions of businessmen at least partially due to reasons other than technical and economic interest." (Davis, 1960, p. 70) Also, the author believed that the social responsibilities of a business are connected with its social power. In other words, when the amount of social responsibility activities of a firm decreases, the social power of that business decreases as well. (Davis, 1960)

In the late 1960s, the concept of stakeholders started to appear in the literature. Walton argued that intimate relationships between companies, society, and all social groups that could be affected by the actions of companies exist. (Walton, 1967)

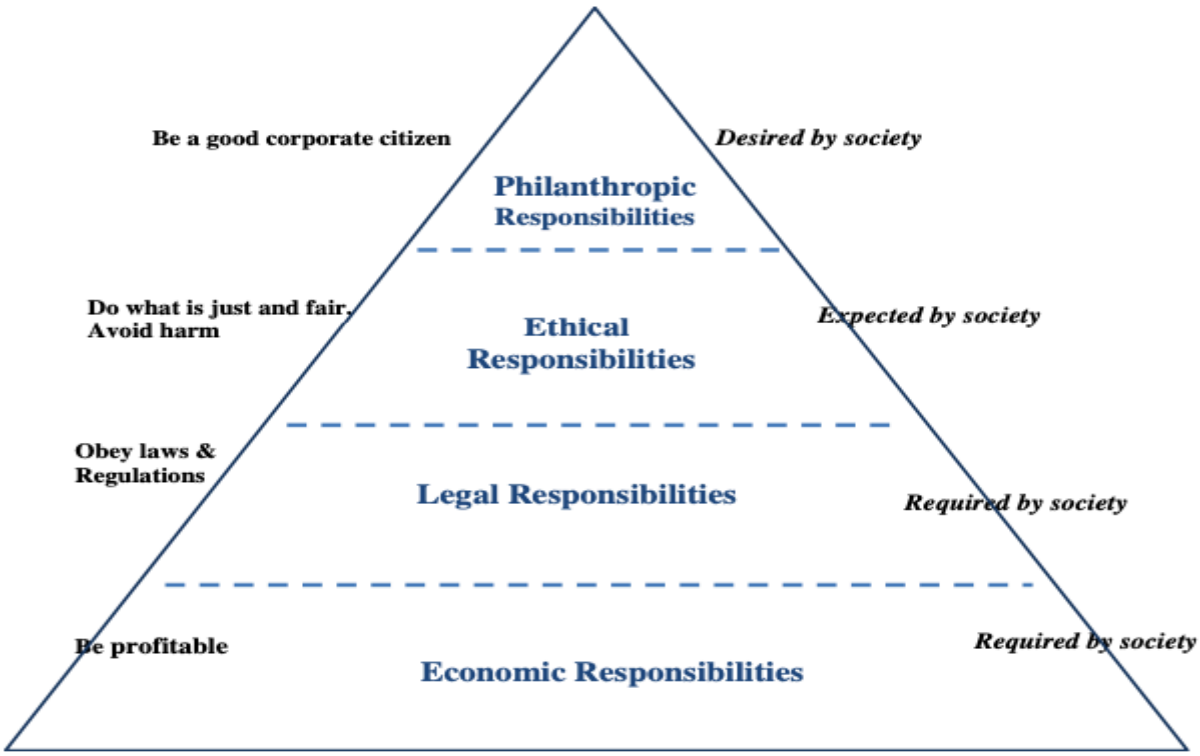
The first author to use the word "obligation" in the definition of CSR and, hence, contributed to the transformation of a vague concept to a more practical one was McGuire. According to the author, the idea of CSR exceeds economic and legal obligations and also involves obligations towards society. (McGuire, 1963)

The 1970s was a decade of talk, especially among academics. In 1979, Carroll presented a four-dimensional definition of CSR. Since then, it has become one of the most popular CSR definitions used both by practitioners and theoreticians already for several decades. It is often referred to as the first unified CSR definition. (Agudelo et al., 2019) Although originally published in 1979, later, in 1991, Carroll presented a graphical depiction of the four dimensions. The usefulness of this research has been supported by numerous empirical work. Indeed, the original 1991 article was cited more than 15 800 times. In the construct, Carroll argued that these four types of social responsibilities comprise an entity's CSR:

- Economic – society requires businesses to sustain themselves and to continue in their business operations;
- Legal – society expects businesses to obey regulations;
- Ethical – as laws and regulations are essential but may not be sufficient, society expects businesses to conduct their business operations in an ethical manner as well; and
- Philanthropic – historically, philanthropy has been one of the most used pieces of CSR definitions and the concept represents the desire of society for businesses to behave as good corporate citizens.

Figure *1* presents a graphical representation of Carroll's Pyramid of CSR. This graphical illustration brought several benefits as it is simple and intuitive to understand for its potential users. (Carroll, 1991)

Figure 1 - Carroll's CSR Pyramid



Source: Carroll (2016), p. 5

The Pyramid of CSR gained popularity, especially in the 1990s, and it was also during this period when CSR started to receive international interest. This fact can be explained by the globalization process, which significantly progressed during this time. For multinational corporations, CSR brought the possibility of coordinating the various challenges and opportunities of the globalization process. Although the significance of CSR grew stronger, the idea itself remained unevolved. (Carroll, 1999)

According to Elkington, businesses should try to balance their social, environmental and economic impact and the ideal way to achieve this goal is through long-term and effective partnerships with stakeholders, the private and the public sector. This concept is also referred to as the Triple Bottom Line. (Elkington, 1998) Whilst first conceived in the 1990s, its relevancy in the CSR discussion has remained until today. Elkington's idea is particularly

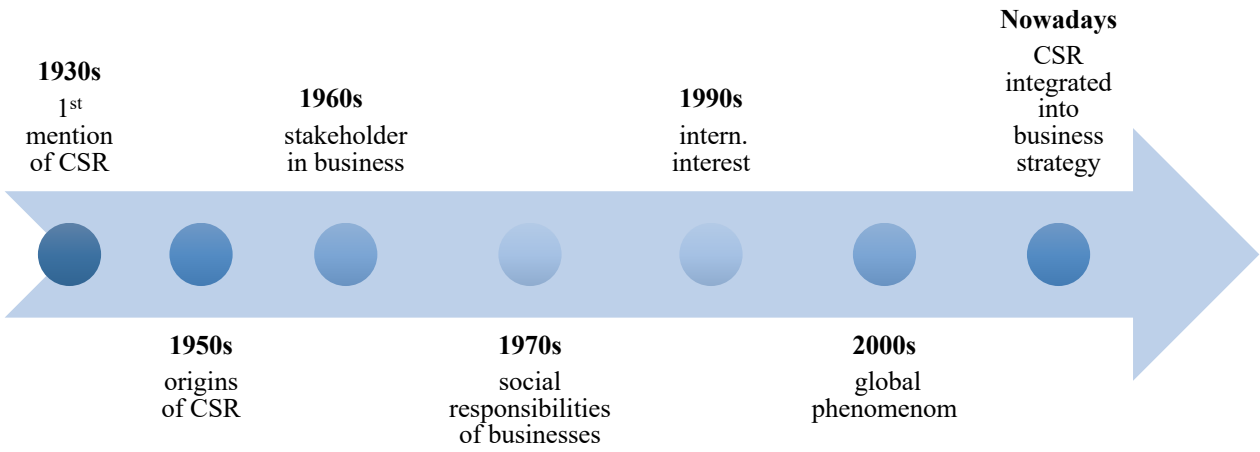
important as it indicates that businesses are able to combine their economic goals simultaneously with socially and environmentally responsible behaviour. (Agudelo et al., 2019)

In the 2000s, the CSR has already been seen as a global phenomenon. Especially the European Community has been known for its interest and contributions to the growth of CSR. (Carroll, 2008) The Community highlighted that CSR is not only of interest to companies but also to society as a whole. Indeed, according to the EU's Lisbon Strategy as of 2000, CSR can contribute towards achieving the strategic goal of "*becoming the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion."* (European Council, org., 2000, p. 2) CSR is, thus, able to benefit society as a whole. For enterprises, the concept can potentially improve access to capital, innovation capacity, customer relations and human resource management. Furthermore, enterprises implementing CSR contribute to the objectives of sustainable development and economic competitiveness set by the EU. (European Commission, org., 2011a)

According to the founders of the *Corporate Social Responsibility Movement*, Conley and Williams, this development may be considered the most vital change in the world of business over the last decades. Its consequences can be particularly seen in the voluntary activities of companies, mostly in the area of disclosure. Disclosure practices are widespread, including the implementation of environmental and/or social projects and independent sustainability assurance services. Moreover, an increasing number of investors subject their share purchases based on CSR filters or CSR engagements. As a result, CSR support services have been generated, such as various consultants, auditors, or communication specialists. The authors concluded that CSR is an ongoing decision-making process in which managers disclose social and environmental issues and then communicate which actions they took and why. (Conley, Williams, 2005)

Nowadays, the relevance of CSR in business is enormous. The concept has gone from a business opportunity to an expectation from the side of stakeholders. Furthermore, it has become necessary to integrate the concept into the business strategy in order to meet the demands and requirements of society and stakeholders. (Rodriguez-Gomez et al., 2020) The evolution of the CSR concept is illustrated in **Figure *2***.

Figure 2 - Evolution of CSR concept



Source: own compilation

Nevertheless, even today, there is no officially accepted definition of CSR. The main ones in use currently have been suggested by the European Union and the standard ISO 26000. Most other definitions are, however, similar and involve related concepts. (Hopkins, 2006) The Commission has defined CSR as "a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis." (European Commission, org., 2011a, p. 7)

ISO 26000 is a standard providing guidance on social responsibility for all types of organizations. Its goal is to assist enterprises with sustainable development. The standard gained its relevance not only for the definition it proposes but more due to the fact that it was developed by 450 experts from 99 countries and 40 international organizations. As of today, the standard has been adopted by more than 80 countries. (ISO, org., n.d.) ISO applies the following definition of CSR: "responsibility of an organization for the impacts of its decisions and activities on society and the environment, through transparent and ethical behaviour that:

- contributes to sustainable development, including health and the welfare of society;
- takes into account the expectations of stakeholders;
- is in compliance with applicable law and consistent with international norms of behaviour;

- is integrated throughout the organization and practised in its relationships." (ISO, org. 2010, p. 3)

Aligned with the EU, International Organization for Standardization (ISO) highlights that CSR positively influences enterprises' reputation, competitive advantage or potential to attract and retain employees, clients or customers. (ISO, org., 2010)

Although there is currently no consensus to be found among scholars, the majority of researchers believe that stakeholders will dominate the CSR topic during the next decades. In other words, stakeholders will gain more negotiating power and will increasingly cooperate on common concerns. Furthermore, consumers and employees are also expected to demand more corporate responsibility from enterprises as the association between corporate behaviour and quality of life will become clear. Interestingly, it is believed that the CSR agenda will continue to grow more promptly in developing countries rather than in the developed world. This expectation can be supported by the following two arguments: the economic progress of developing countries connected with supply chain pressures on environmentally and socially responsible behaviour from the side of developed countries. CSR issues expected to be dominant in the future are, for example, environmental sustainability, social inclusion, ethics, transparency or community development. (Chapagain, 2016; Carroll, 2015)

2.2. Sustainability reporting

In line with the increasing trend of corporate sustainability, the communication dimension of CSR started to play a vital role. Consequently, companies developed sustainability reporting in order to react to society's acknowledgement of the importance of socially responsible businesses. Indeed, the paper by Kristofik, Lament, and Musa reviewed companies' incentives behind sustainability reporting and confirmed that the primary one is the communication with stakeholders. The research question has been verified based on a literature review, with most papers stating that stakeholder communication is the fundamental motivation for sustainability reporting. (Kristofik et al., 2016)

Another paper highlighting the communication benefit of sustainability reporting is the study by Sweeney and Coughlan. The researchers perceived sustainability reports as one of the possible communication channels available for firms. Moreover, the paper showed differences

in reporting across industries and, hence, suggested that companies may adjust sustainability reports based on the expectations of their key stakeholders. Sustainability reporting may, therefore, be also used as a marketing communication tool. (Sweeney, Coughlan, 2011)

Similarly, Rourke stated that investors and shareholders expect to receive transparent information about a company's non-financial risks and liabilities. Reporting and disclosures of sustainability information, hence, supply stakeholders with extra and more precise information, allowing them to make smarter economic and social decisions. Faulty or missing information could contribute to stakeholders deciding on economic and social decisions not in their best interest, which also diminishes their utility. (Rourke, 2004)

Apart from these two functions, sustainability reporting has numerous other advantages for businesses. The existing research indicated impacts, such as enhanced corporate image and reputation, improved productivity, greater profits and earnings, cost reduction, or expanded client relationships. (Patten, Zhao, 2014)

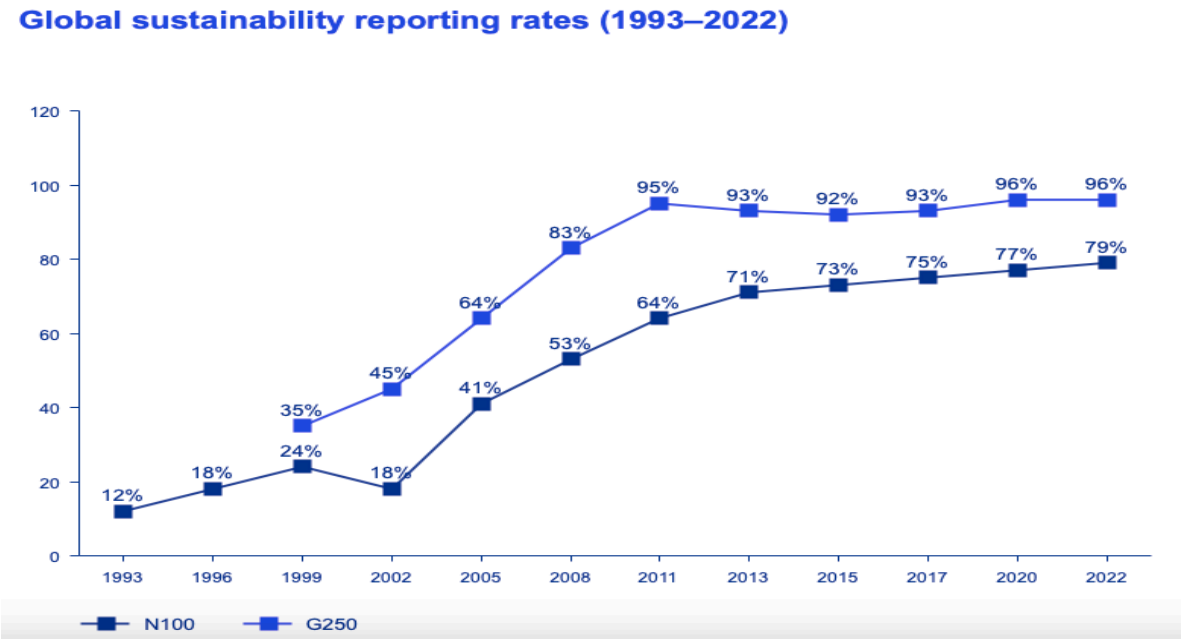
Taking the benefits of sustainability reports into consideration, it seems likely that an increasing number of companies would report on non-financial information. Indeed, the Governance and Accountability Institute (G&A), a leading consulting company on CSR, examined reporting trends of the USA's largest publicly traded companies. Its research revealed that the popularity of sustainability reporting continues to grow worldwide. In 2020, 92% of companies from the S&P 500 Index published sustainability reports. Whereas today's proportion of non-reporters is only 8%, the first G&A research from 2010 found 80% of S&P 500 non-reporters. From the Russell 1000 Index, 70% of enterprises published sustainability reports, up from 65% in 2019. Furthermore, the G&A Institute assumes that this trend will continue in the following years as well. (G&A, org., 2021)

From the statistics of KPMG displayed in **Figure *3***, it can be seen that from the sample of N100 companies (the top 100 companies in 52 countries and jurisdictions based on revenue), 80% reported on CSR. The survey further showed that companies continuously increase their reporting rates each year. From the G250 sample (worldwide 250 largest companies based on the 2021 ranking of Fortune 500), 96% reported sustainability information, the same as in 2020. Nonetheless, KPMG expects the reporting rate to further grow after the introduction of new regulations on non-financial reporting. It can be seen that the trend is continuous, starting in

1993 and sustaining even during the financial crisis of 2008-2009 and the Covid-19 pandemic during 2020-2021. (KPMG, org., 2022)

On the other hand, the survey found distinct geographical and sectoral differences. KPMG reported that the Asia-Pacific region reached sustainability reporting rates of over 90%. This score is followed by Europe with 82% and an increase of 5% compared to the previous year. This percentage is expected to further grow in the following years based on new regulatory activities in Europe, for example, the Corporate Social Responsibility Directive (CSRD). On the contrary, the reporting rate of the Americas reached 74%, with a decrease of 3%. This decline has been mostly influenced by the introduction of new countries in the survey data. For example, the rate of Latin America has been in decline since 2017, with a decrease of 12% during this period. Sustainability reporting in the Middle East and Africa has similarly dipped by 3% over the past years to 56% in 2022. Moreover, some countries and jurisdictions managed to achieve reporting rates over 90%, the survey mentioned, for example, Canada (94%), Ireland (95%), Sweden (98%), Germany (100%), South Korea (99%) or the UK (99%). (KPMG, org., 2022)

Figure 3 - Growth in sustainability reporting rates since 1993



Source: KPMG, org. (2022), p. 13

Traditionally, large manufacturing firms were more prone to report voluntarily on the loss of biodiversity. These firms are riskier from a biodiversity perspective and, consequently, more

sensitive to information about poor practices. KPMG, nevertheless, reported a positive trend in reporting across diverse sectors, even those considered less risky. More specifically, significant growth has been noted in the technology, automotive, media and telecommunications sectors. (KPMG, org., 2022)

2.2.1. Sustainability reporting concept

The concept of financial reporting is well-regulated by accounting rules, such as International Financial Reporting Standards (IFRS) or Generally Accepted Accounting Principles (GAAP) and the firm's financial performance is a widely discussed topic in the accounting and finance literature. The concept of non-financial reporting, on the contrary, is less restrictive, and also considerably less regulated by established regulations. (Erkens, et al., 2015; Tarquinio, Posadas, 2020) Indeed, even the designation "sustainability reporting" is highly subjective as there are several names to label sustainability reporting and reports. In fact, Harvard University found that only in the USA, 18 names are used:

Business & Sustainability report; Citizenship and Sustainability Report; Corporate Citizenship Report; Corporate Responsibility Report; Corporate Social Responsibility Report; Environmental, Social and Governance (ESG) Report; Global Citizenship Annual Report; Global Citizenship & Sustainability Report; Global Environmental & Social Impact Report; Global Impact Report; Global Responsibility Report; Impact Report; Integrated Sustainability Report and Annual Report; Responsible Business Report; Social Impact and Sustainability Report; Stakeholder Sustainability Report; Sustainable Impact Report

Although the titles are different, most of them contain words such as sustainability (43%), CSR (24%) or ESG (23%). (Filosa et al., 2021) In this Thesis, the label "sustainability reporting" and "sustainability reports", respectively, is preferred.

Furthermore, non-financial information involves a wider set of concepts and measures than financial information. As a consequence, no formally accepted definition has been yet proposed or referred to. (Erkens et al., 2015; Tarquinio, Posadas, 2020)

Erkens, Paugam and Stolowy analysed 787 articles published in 53 journals between 1973 and 2013, where the authors identified two main definitions of non-financial information in the

literature. The first dominant definition appeared in a special report to the Financial Accounting Standards Board (FASB) and was developed by Upton. (Upton, 2001) The second influential definition is from Barker and Imam. (Barker, Imam, 2008) The authors focus on different factors for identifying non-financial information and therefore, discrepancies between what is actually non-financial information may occur. For illustration, earnings forecasts would be taken for non-financial information under the first definition (earnings forecasts are presented outside the financial statements), whereas under the second definition, the same earnings forecasts would be considered as financial information (earnings forecasts are drawn from the financial statements).

These two definitions are as follows:
"Nonfinancial disclosures and metrics that include index scores, ratios, counts and other information not presented in the basic financial statements (i.e. presented outside)." The author distinguishes the location of the information (inside vs. outside) (Upton, 2001, p. 5)

"Non-accounting information drawn from outside the financial statements." The authors focus on the nature of the information and not necessarily on its location. (Barker, Imam, 2008, p. 313)

Based on their research results, Erkens et al. developed their own definition and characterized non-financial information as "disclosure provided to outsiders of the organization on dimensions of performance other than the traditional assessment of financial performance from the shareholders and debt-holders viewpoint." (Erkens, et al., 2015, p. 25) The authors included items related to social and environmental accounting, CSR, and intellectual capital disclosed not presented (outside) the financial statements. In this definition, it is vital to focus on the location of the information. (Erkens, et al., 2015)

Apart from that, Tarquinio and Posadas conducted a literature review with 351 articles exploring the term non-financial information from an academic's view. Even though the authors concluded the absence of a generally accepted definition, they also noted a common understanding regarding the meaning of this concept, which can be qualified as an institutionalization of the idea of non-financial information. (Tarquinio, Posadas, 2020)

In 2014, the interest of enterprises in the topic increased tremendously after the introduction of the EU Directive 2014/95/EU. As non-financial reporting became mandatory for certain entities, it was vital for EU enterprises to understand the term. Therefore, the Directive crucially affected the further development of this topic. (Tarquinio, Posadas, 2020) Interestingly, the 2014/95/EU Directive proposes some examples, nevertheless, it does not provide any precise definition of non-financial information. The European Commission only identified certain items connected to the meaning and stated that "non-financial information is generally seen as environmental, social and governance (ESG) information." (European Commission, org., 2013, p. 6)

Consequently, after this statement of the Commission, the relevance of ESG information increased and the number of ESG standards, rankings, and third-party providers has expanded as well, with currently over 600 ESG rankings available on the market. Due to such a high number of standards and no regulatory definition for ESG indicators, there are large discrepancies between the scores companies achieve. Although the overall objective of all ESG rankings is similar, differences in methodologies and metrics applied are responsible for the inconsistent sustainability credentials of companies. For illustration, Sustainalytics considers 250 ESG indicators, MSCI assesses 35 key ESG issues determined annually and S&P rates 130 sustainability topics. Therefore, the current situation can be concluded as not ideal. (Sipiczki, 2022)

2.2.2. Sustainability reporting theories

Research indicates that the drivers towards sustainability reporting differ as not only shareholders or investors are involved but all stakeholders. Research on sustainability management considers the following theoretical frameworks to be the most frequently used in literature:

- stakeholder theory;
- agency theory;
- legitimacy theory;
- institutional theory. (Hazaea et. al, 2021)

Stakeholder theory

Edward Freeman is probably the most cited author in the field of stakeholder theory. Freeman argued that it is necessary to develop a new conceptual framework, as the existing theories are inconsistent with the changes occurring in the business environment of the 1980s. Moreover, he stated that organizations are affected by or can affect certain groups and individuals – stakeholders, a concept which first appeared in the management literature in 1967. Therefore, in order to be successful in the current and future business environment, businesses need to take these stakeholder groups into consideration. Examples of categories of stakeholders are, for example, suppliers, local community organizations, owners, consumer advocates, customers, competitors, media, employees and environmentalists. (Freeman, 2010)

Reynolds and Yuthas suggested that it is a key theory for explaining the motivation of businesses to engage in sustainability. The authors also view CSR reporting as a continuing communication exchange between a company and the company's stakeholders. Furthermore, companies preparing sustainability reports already recognized the meaning of their reports to diverse stakeholders, not only their investors. Moreover, stakeholder theory was used as one of the frameworks for sustainability reporting. For example, the GRI reporting guidelines were highlighted for their recommendations, considering the interests of all stakeholders. (Reynolds, Yuthas, 2008) Moreover, ISO 26000 recognises in Clause 5 social responsibilities and engagement with stakeholders. (ISO, org., 2010) The research by Hermawan and Gunardi investigated banking firms listed on Indonesian Stock Exchange between 2010-2014. The findings of this study confirmed that all stakeholders are capable of influencing companies, which is the core idea of the stakeholder theory. More specifically, stakeholders were able to influence the performance of companies by means of social ownership, profitability, financial leverage, board of commissioners and independent commissioners. (Hermawan, Gunardi, 2019)

Legitimacy theory

The process of legitimation involves the use of symbols or changes in the organization's mission in order to connect the organization with social institutions and practices are believed to be legitimate. The assessment of legitimacy can be performed by examining the prevalent values and norms in a society. Nevertheless, legitimate actions cannot solely be defined as legal actions. Legitimacy involves three intersections and organizations should engage in actions that are intersected by all three: economically viable, legal, and legitimate. As social values change,

for example, with increasing emphasis on the responsibility of corporations to target their sphere of influence, modern business has been confronted with a crisis in legitimacy. In summary, businesses need to align their activities with the behaviour norms accepted by the social system they are part of. Finally, organizations need to communicate their activities to the society in form of a social reporting process. (Dowling, Pfeffer, 1975) Indeed, it seems that this theory may contribute to creating a solid and structured tool for understanding sustainability reporting. With improved understanding, a more critical public debate could be initiated. (Tilling, 2004)

Stakeholder and legitimacy theory should be viewed as overlapping concepts. While the theories have some differences, both theories are based on the interconnection between organizations and their environments. One of these differences is the explanation for introducing corporate sustainability and social disclosures, although both of the explanations plausibly explain the phenomenon. Stakeholder theory prioritises the interests of stakeholders who also have rights to information and businesses are accountable to fulfil these rights. On the other hand, legitimacy theory is one of the most common theories to explain corporate disclosures and it is based on the belief that management acknowledges the information need of society and, thus, must be this information delivered. (Van der Laan, 2009)

Agency theory

Agency was defined according to the founder of this theory as "a theoretical approached based on relation, i.e., a theory of relations in which one party is acting for the benefit of the other." (Mitnick, 1975, p. 2) These relationships are one of the oldest modes of social interactions and principally all contractual arrangements (such as employer – employee) have features of agency theory. This theory is often used in the economic literature regarding moral problems raised by agency relationships. More precisely, two problems need to be resolved:

- the principal and the agent have different and often conflicting desires and goals;
- the principal cannot easily verify what the agent does. (Eisenhardt, 1989)

Nevertheless, taking into consideration that the theory principles are old, research indicated that its interpretation power is limited in the modern days. Therefore, current business phenomena may not be satisfactorily explained using the agency theory. (Bendickson et al., 2016)

Institutional theory

There are different definitions of institutions available, nevertheless, the one developed by Scott seems to be widely cited: "institutions are social structures that have attained a high degree of resilience composed of cultural-cognitive, normative, and regulative elements that, together with associated activities and resources, provide stability and meaning to social life." (Scott, 2014, p. 47) The institutional perspective highlighted the importance of the social context where organizations function. All companies operate in and are affected by their environments. These environments are organized by themselves and are, thus, organized in different ways. Institutions are able to control, affect, and constrain behaviour by providing legal, moral, and cultural boundaries and, thus, defining acceptable and unacceptable behaviour of organizations. (Scott, 2014) As regards to sustainability reporting, institutional theory can plausibly explain the adoption of sustainability reporting due to the fact that institutional and social pressures influence the development of organisational practices. Therefore, as a response to institutional and societal pressures to publish sustainability information, companies had to react with the adoption of sustainability reports. (Herold, 2018) Nevertheless, studies indicated that this theory may become ineffective when multiple operations exist, for example, in multinational corporations or large companies due to the existence of external and internal environments. (Krajnovic, 2018)

2.2.3. Sustainability reporting guidelines

The primary motivation to standardise sustainability reporting is to enhance the transparency and comparability of the reported information across industries or even countries. Numerous guidelines lay down sustainability reporting, for example, the Global Reporting Initiative (GRI), the Standard ISO 26000, the International Integrated Reporting Framework (IIRF), the UN Global Compact, the Eco-Management and Audit Scheme (EMAS), or the EcoVadis Standard. Nevertheless, the frameworks vary significantly and, thus, diminish comparability in companies, between companies or between sectors and prevent assessments of business actions. It would, consequently, be beneficial to develop EU-wide or international guidelines for sustainability reporting. (Kristofik et al., 2016)

Global Reporting Initiative (GRI) reporting guidelines

Founded in 1997 as a non-profit organization in Boston, GRI became the most widely used sustainability reporting standard. Accordingly, the organization stated that "we are a catalyst for a sustainable future." (GRI, org., 2022, p. 1) So far, five versions of the framework have

been published. The 2000 version (G1) represented the first international reporting guideline. Afterwards, G2 was launched in 2002, G3 in 2006, G3.1 in 2011 and the latest version G4 in 2013. Especially version G3 has been relevant, as the framework's hierarchy of application was proposed. More specifically, levels A, B, and C should indicate the level of reporting criteria, enabling reporters to choose the appropriate level according to their experience and needs (A - beginners, C - advanced reporters). With the latest version, the organization tried to enhance the user-friendliness of the guidelines and their technical quality. Another contribution of this version was the introduction of the approach of material issues, allowing reporters to select material issues important for their sector and stakeholders. Lastly, G4 encourages reporters to introduce sustainability assurance to enhance the credibility of their sustainability reports. (GRI, org., 2013a) Indeed, already with the G3 version, the guidelines provide a framework for sustainability assurance. By offering criteria for the verification of GRI reports, GRI initiated the standardization process: accuracy, completeness, reliability, balance and fairness. (Brown et al., 2009)

Prior literature suggested that the GRI guidelines are primarily designed for the needs of large companies and can, thus, be too burdensome or even irrelevant for SMEs. Indeed, research associating company size with the GRI application level indicated that the proportion of SME firms reporting at level A (beginner) is significantly higher than the proportion of large companies. In other words, large companies are more likely to choose a higher reporting level than small companies. Furthermore, certain characteristics are found to influence also the reporting level used by a firm. More precisely, factors such as fixed assets or research and development expenditures are associated with the GRI level. On the other hand, capital intensity and employee productivity have no influence. These results may be also supported by the fact that large organizations possess the necessary financial and human resources and also experience increased pressure from stakeholders to act in a socially and environmentally responsible manner. (Nunez, Nunez, 2019)

ISO 26000 reporting guideline

Published in 2010, the standard has been representing documentation of corporate social responsibilities, including core issues and subjects suitable for organizations of any size or type. As of 2021, 88 countries adopted ISO 26000 as a national standard and 17 reported they were in the process of adaptation. Its popularity can probably be associated with the standard's development process, which involved 400 experts from 80 countries. The concepts of this

guideline are based on the Triple Bottom Line mentioned before. (Browens, 2011) Important to note is that ISO 26000 does not contain requirements and, thus, cannot be used for certification. The purpose of the standard is, indeed, to provide a voluntary guidance standard on CSR for all types of organizations. There are three core components of ISO 26000: stakeholders, core subjects and reporting. The standard refers to "stakeholders" as to all people and groups affected by the actions of the business, such as workers, consumers, investors, or suppliers. Furthermore, ISO 26000 sets seven subjects that businesses should address and also provides thorough guidance on each issue:

- "organizational governance – implementing accountability, ethics and transparency in the decision-making processes;
- human rights – the right to fair treatment and the elimination of discrimination and exploitation for all humans;
- labour practices – preventing unfair competition;
- environment – reducing and eliminating unsustainable patterns in production and consumption;
- fair operating practices – preventing corruption and encouraging fair competition and reliability;
- consumer issues – promoting sustainable economic and social development; community involvement and development – creating a sustainable society and increasing education." (ISO, org., 2018, pp. 8-18)

Businesses to implement ISO 26000 should firstly evaluate their performance in each of the seven subjects, secondly determine what their current practices are, and then set priorities. (ISO, org., 2018)

International Integrated Reporting Framework (IIRF)

Both the International Integrated Reporting Framework (IIRF) and ISO 26000 give guidance on CSR. Nevertheless, the difference between these standards is that the ISO 26000 Standard provides more detailed guidance on implementation in organizations and the IIRF proposes a more general framework. The publication was consulted with around 1,500 experts and was first published in 2013, followed by a revision in 2021. Integrated reporting is supposed to be a communication process of organizations on their value creation, preservation or erosion. Integrated reporting benefits all stakeholders in a company, as it explains how value is created, preserved or eroded over time. To prepare integrated reports, the framework provides a set of

seven principles: “strategic focus and future orientation, connectivity of information, stakeholder relationships, materiality, conciseness, reliability and completeness, consistency.” (Integrated Reporting, org., 2021a, p. 7) Furthermore, in addition to the basic principles of IIRF, the Commission also defined information that should be involved in Integrated Reports. Thanks to this pre-defined content, the quality of information is expected to increase and a more efficient approach is encouraged. (Integrated Reporting, org., 2021b) The eight content elements of Integrated reports and the questions that organizations must answer are illustrated in **Table *1***.

Table 1 - Content of Integrated Reports

Element	Question
Organizational overview and external environment	What does the organization do and what are the circumstances under which it operates?
Governance	How does the organization´s governance structure support its ability to create value?
Business model	What is the organization´s business model?
Risks and opportunities	What are the risks and opportunities that affect the organization´s ability to create value? How is the organization dealing with them?
Strategy and resource allocation	What and how does the organization want to achieve?
Performance	To what extent has the organization already achieved its strategic objectives for the period?
Outlook	What challenges and uncertainties is the organization likely to encounter while aiming for its strategy goals?
Basic of preparation and presentation	How are the matters to be included in the integrated report determined and quantified?

Source: Integrated Reporting, org. (2021a), pp. 38-48

According to the KPMG Survey of Sustainability Reporting, the use of integrated reporting will increase in the next years. Furthermore, it is expected that the IIRF will be incorporated into

regional and domestic regulations. Nevertheless, among the N100, the reporting rates of IIRF both in Eastern and Western Europe grew only by 1% (Eastern Europe from 14% in 2020 to 15% in 2022 and Western Europe from 13% in 2020 to 14% in 2022). The Middle East leads in integrated reporting with 55% and a 12% increase. Notable growth has been reported in Latin America and the Asia-Pacific region. (KPMG, org., 2022)

UN Global Compact

The UN Global Compact is a voluntary initiative which requires its members to implement, follow and report on the Global Compact's principles. Although the initiative does not belong to UN agency members, it is created by a network of 12,000 companies, civil society organisations and governments. In 2010, the UN Global Compact initiated a partnership with GRI to promote jointly CSR. Originally, the measure involved a set of nine principles, the tenth principle followed in 2004 and they can be divided into four spheres: human rights, labour standards, the environment and anti-corruption. Members of the network have committed themselves to improve annually the integration of the ten principles and to report this improvement to the United Nations on the basis of their annual reports and sustainable development reports. (UN Global Compact, org., 2021)

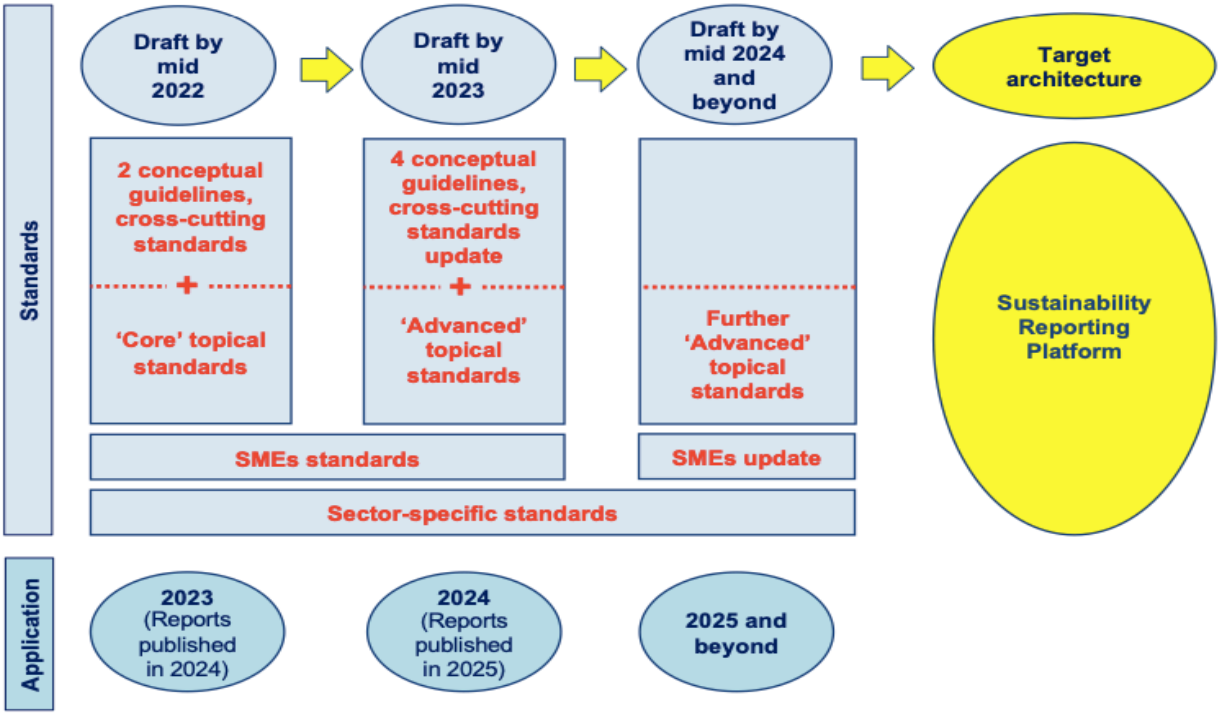
EU non-financial reporting standards

To address the issue of comparability, the European Commission proposed to introduce EU-wide non-financial reporting standards. The standards should be developed by the European Financial Reporting Advisory Group (EFRAG) which will closely cooperate with international reporting initiatives, such as GRI. The objective is to provide a reliable, high-quality, national or international framework for non-financial reporting. Indeed, on 25 June 2020, EFRAG was mandated to undertake preparatory work for the development of EU non-financial reporting standards. According to EFRAG, the organization aimed at representing diverse groups of stakeholders interested in non-financial information, such as the public and private sector, SMEs or civil society. Companies should report against the first set of standards for the reporting year 2023 (reports published in 2024). The first set should include provisional:

- guidelines for double materiality and quality of information;
- standards covering reporting structure, reporting area and materiality assessment.

The second set should be available for the reporting year 2024 (reports published in 2025). Moreover, specific standards should be developed for SMEs with the business model taken into consideration. (EFRAG, org., 2021) The standard-setting process can be seen in **Figure *4***.

Figure 4 - Standard setting plan



Source: EFRAG, org. (2021), p. 12

Eco-Management and Audit Scheme (EMAS)

EMAS is a voluntary scheme developed by the EU. Its development was initiated by the growing expectations of consumers to reduce the environmental impact of business activities. Introduced in 2010, it soon became one most credible environmental management system available on the market. Its credibility stems especially from the following elements:

- government supervision ensured compliance with environmental legislation;
- employee involvement;
- environmental indicators allow comparability across organizations and industries;
- disclosure of information through validated environmental statements;
- registration of environmental statements by a public authority after accredited verification.

Thanks to the design of this scheme, the EU believes that excellence in environmental performance will go from an external cost to a business advantage. (EMAS, org., 2011)

EcoVadis

EcoVadis provides a holistic rating of the sustainability performance of companies, including environmental, procurement and human rights impacts. The rating is adjusted to material issues according to the size, industry and location of each firm. Afterwards, the assessment is displayed in a zero to one hundred score and based on the success of the company, medals (bronze, silver, gold) can be acquired. Furthermore, companies receive guidance on their strengths and possible improvement areas so that they may increase their sustainability performance for the future. Currently, EcoVadis rates over 75,000 companies worldwide. (EcoVadis, org., 2022)

2.2.4. Sustainability reporting approaches

Sustainability reporting may be separated into two approaches:

- voluntary sustainability reporting, promoted mainly by corporations;
- compulsory sustainability reporting, promoted mainly by non-government organisations, trade unions, and pressure groups. (Kristofik et al., 2016)

The compulsory approach to sustainability reporting is usually associated with the transparency of these reports. According to the authors, the first research investigating the consequences of introducing sustainability disclosure regulations was the research by Ioannou and Serafeim. The results showed that the disclosure efforts of treated firms (firms that are covered by regulations) increased significantly in comparison to control firms (firms not covered by regulations). Furthermore, these efforts were driven by the motivation to improve the comparability and credibility of the sustainability reports. The economic effect of the introduced regulation was, consequently, examined as positive. The authors also suggested that, according to the study's estimates, the consequences of such regulations are value-enhancing for companies. The increased likelihood of introducing voluntary sustainability assurance to further improve comparability and credibility was also reported. (Ioannou, Serafeim, 2017) Proponents of compulsory reporting are also Lydenberg, Rogers and Wood who argued that it is inevitable to introduce a compulsory reporting approach (or at least to a certain extent) in a standardized layout. Mandatory reports will encourage competition on sustainability

dimensions across companies and industries, creating a more sustainable society. Only in this way will enterprises be able to respond to global challenges and the needs of the public. (Lydenberg, et al., 2010)

On the other hand, a frequently mentioned disadvantage of compulsory reporting is the cost associated with sustainability reporting. The Centre for Strategy and Evaluation Services (CSES) evaluated in its 2011 report the costs companies need to pay for sustainability reporting. Report drafting is responsible for the most costs, although the complexity of the company can highly influence the total expenses. Further costs are incurred on publication and potentially also external assurance. The report mentions costs for sustainability reporting for large companies between €155,000 and €604,0000; for smaller companies between €8,000 and €25,000. On the other hand, only a small number of companies tried to quantify the benefits. The main benefit may be seen in reporting transparently, increasing the credibility of companies and potentially the brand image of products. (CSES, org., 2011)

Naturally, literature provides numerous advantages and disadvantages of both models, which are summarised and illustrated in **Table *2***.

Table 2 – Approaches to sustainability reporting - advantages and disadvantages

Approach to sustainability reporting	**Advantages**	**Disadvantages**
Compulsory	• comparability; • promotion of socially responsible management practices.	• inflexibility; • individual nature of reporting entities not taken into consideration; • limitation to minimum regulatory requirements and neglect of analysis -> lower quality of information; • reporting costs.
Voluntary	• flexibility; • individual nature of reporting entities.	• voluntary selection of reporting periods; ratios; forms of presentation; • incomparability; • incompleteness.

Source: Kristofik et al. (2016), p. 163

Researchers have examined the effects of shifting from voluntary to mandatory sustainability reporting. Gatti et al. found that voluntary sustainability may provide opportunities for greenwashing actions and fraud. Nevertheless, consumers are already aware of the greenwashing phenomenon and, thus, are increasingly sceptical. Therefore, although sustainability practices have the potential to improve consumers' image of the firm and its CSR practices, a growing risk of worsening consumers' perception was reported. Furthermore, greenwashing may negatively influence the firm's general performance and reputation. In conclusion, the authors decided to support the discussion on approaches to CSR and emphasized the benefits of the mandatory approach, which will diminish the spaces for fraudulent CSR activities. (Gatti et al., 2019)

The impacts of mandatory sustainability activities were also investigated by Ioannou and Serafeim. Regulated CSR has the ability to improve the credibility of the reported data and, consequently, the economic performance in this research measured by Tobin's Q. The investigated companies benefited from the regulation despite additional incurred costs and, thus, may mandatory CSR enhance the value of firms. (Ioannou, Serafeim, 2011)

On the other hand, some scholars emphasized that mandatory sustainability activities may negatively influence firms and their financial performance. For example, Jayaraman and Wu attributed compulsory CSR to increased costs and reduced sensitivity of investment. Nevertheless, the authors admitted that even a mandatory approach may bring certain benefits to firms. (Jayaraman, Wu, 2018) Similar implications were found by Grewal et al. who showed a negative market perception of mandatory CSR, as investors expect sustainability reports to release more negative information about the firm than would otherwise be disclosed. This fact outweighs any positive effects of sustainability disclosure perceived by investors. (Grewal et al., 2019)

In conclusion, a dichotomy between the effects of compulsory sustainability reporting, especially on the financial performance of firms, was found. Despite this fact, the European Commission has decided to impose a mandatory non-financial directive, which will be introduced in the next section.

2.3. Non-Financial Reporting Directive 2014/95/EU

The European Commission has played a worldwide leading role in CSR since publishing its 2001 *Green Paper*. Thanks to this work, a wide debate was initiated on both the European and international level, as it involved the first CSR definition mentioned before. The Green Paper also argued that, according to a conducted survey, consumers wish to buy products produced in a socially responsible manner and, thus, could socially responsible business practices increase competitiveness on the market. Finally, the Commission concluded the importance of cooperation between public authorities and companies to find measures for implementing CSR. (European Commission, org., 2001)

The promotion of CSR has persisted ever since and continued with the initiative called the *European Alliance for CSR* in 2006. It identified 8 priority areas for the EU, including also the international dimension of CSR. The policy was responsible for improving the popularity of the field, and the number of EU companies preparing sustainability reports increased from 270 in 2006 to more than 850 in 2011. Overall, almost 200 companies and several employers' associations expressed support for the initiative's activities in the field of CSR. (European Commission, org., 2011b)

Nevertheless, the European Commission decided to further continue with its activities. One of the challenges remained that only 15 out of the 27 member states introduced national CSR policies. Furthermore, it was found that a great deal of companies was only insufficiently interested in social and environmental matters. For the first time, the need for improved disclosure of sustainability information was officially communicated in the paper *A Renewed EU Strategy 2011-2014 for Corporate Social Responsibility*. During this period, of 42,000 large EU companies, only 2,500 prepared sustainability reports. The European Commission consequently announced its plan to develop legislation motivating European companies to measure their environmental impact using a common methodology and also to prepare sustainability reports. (European Commission, org., 2011c)

After more than 10 years of debate on the topics of CSR, the NFRD was adopted in 2014, affecting the financial year 2017 for the first time. The Directive's goal was to improve the transparency of the provided social and environmental information. (European Commission, org., 2014) Therefore, it became a key component of the Commission's sustainability

ambitions. (Baumüller, 2021) The Directive helped standardise the format of sustainability reporting and, thus, contributed to increased transparency, comparability and even utility. Therefore, the Directive 2014/95/EU "fills a regulatory gap and improves the usefulness of the information generated by organisations obliged to prepare CSR reports." (Kristofik et al., 2016, p. 164)

The NFRD requires large EU **public interest entities** and **public interest parent companies** to publish non-financial statements relating to environmental, social and employee-related matters. Public interest companies are listed companies, credit institutions, insurance companies and other entities with significant public interest. Large entities are organizations with an average number of employees excessing 500 and a balance sheet totalling over EU 20 million or a net turnover over EUR 40 million (alternatively). (European Commission, org., 2014)

The Commission published two sets of non-binding reporting guidelines for entities obliged to report under the NFRD in 2017 and 2019. Among other principles, the guidelines focused more closely on the matter of material information. However, the NFRD proposed no concrete or binding definition of materiality in non-financial reporting. Despite this fact, the importance of materiality in non-financial reporting was clearly stated in the 2017 guidelines. (European Commission, org., 2017) Here, materiality was associated with the term widely used in financial reporting: "*material* means the status of information where its omission or misstatement could reasonably be expected to influence decisions that users make on the basis of financial statements of the undertakings." (European Union, org., 2013, p. 28) In other words, material information is such information, which could have an influence on the reporting users' decisions.

Moreover, the NFRD did not impose the use of a specific non-financial reporting standard, thus, companies were flexible in the implementation of the Directive´s provisions. Entities are, nevertheless, required to specify which framework has been followed. (European Commission, org., 2014) The possibilities enterprises have are described in the "Sustainability Reporting Guidelines" subchapter. Furthermore, the European Commission has made efforts to develop its own European non-financial reporting standards.

Nevertheless, undertakings are obliged to prepare non-financial statements "disclosing at least:

- environmental matters – the current and foreseeable impacts of the entity's operations on environment, health and safety, the use of renewable and non-renewable energy, greenhouse gas emissions, water use and air pollution;
- social and employee-related matters – the actions taken to ensure gender equality, implementation of fundamental conventions of the International Labour Organisation, working conditions, social dialogue, respect for the rights of workers, respect for trade union rights, health and safety at work, the dialogue with local communities, actions taken to ensure the protection and the development of local communities;
- respect for human rights, anti-corruption and bribery matters – information such as the prevention of human rights abuses or instruments fighting corruption and bribery." (European Commission, org., 2014, p. 2)

Statutory audits and audit firms are only expected to verify the existence of the information described above and to express their opinion regarding the outcome of the company's policies and the principal risks related to the company's operations. (European Commission, org., 2014)

Cuomo et al. tested the effects of the NFRD on firms' CSR transparency. According to the paper, the Directive had a positive influence on the number of organizations presenting sustainability reports. Further, companies that adopted sustainability reporting after the introduction of the NFRD reached lower systematic risk and cost of equity. Lastly, a positive association between the Directive and CSR transparency CSR and performance in companies was found. (Cuomo et al., 2022)

On the other hand, non-financial information reported under the NFRD was often considered by its users as unreliable, irrelevant and incomparable. One of the reasons could be that the legally prescribed verification of the existence of information was insufficient and further independent assurance was only voluntary. (European Commission, org., 2014)

Therefore, the Commission initiated a public consultation on the Directive, which was held in 2020, collecting 588 responses from both organisations and individuals. The results confirmed the previously mentioned deficiencies and also showed support from the side of stakeholders to extend the scope and reporting requirements of the NFRD. More specifically, 82% of the responders strongly encouraged a requirement for companies to use a common standard. 67%

of the respondents furthermore called for stricter audit requirements. Strong support from the respondents was also found for the disclosure of materiality assessment processes. (European Commission, org., 2020)

As a reaction to the deficiencies of NFRD, the Commission committed itself to a directive revision. On 21 April 2021, a Proposal amending the NFRD was publicised, suggesting:

- to expand the reporting requirement to additional companies;
- to require assurance of non-financial information;
- to specify more precisely the information to be reported;
- to ensure that the information is published as part of companies' management report. (European Commission, org., 2021, p. 5)

A provisional political agreement for the new Corporate Sustainability Reporting Directive (CSRD) was reached on 21 June 2022. To meet the growing needs of users, the scope of the new Directive requires all large undertakings (also non-listed) and all undertakings listed on regulated markets to provide reports. Furthermore, it applies to all entities listed on EU-regulated markets, including issuers from third countries. Consequently, more than 50,000 undertakings would fall under the scope. The application period has been announced as well and will be divided into three stages:

- 1 January 2024 for companies already falling under the NFRD;
- 1 January 2025 for companies that currently do not fall under the NFRD;
- 1 January 2026 for listed SMEs, small credit institutions and insurance entities. (Council of the EU, 2022)

Still, authors suggest that excluding unlisted from the scope results in omitting a significant proportion of specific economic sectors and, as a result, a substantial proportion of negative environmental impacts. More precisely, some sectors predominantly constraint of SMEs, for example agriculture or construction. Furthermore, it was estimated that in the EU, around 60% of the negative environmental impact was produced by the industrial activity of unlisted SMEs. As a result, the authors encouraged the European Commission to further expand the scope of the Directive to unlisted SMEs. To diminish the administrative burden accompanied by disclosure regulations, proportionate requirements and simplified reporting standards,

specifically for SMEs, should be developed. Therefore, it appears that the CSRD will require revisions in the future. (Bossut et al., 2021)

The proposal also introduces a progressive approach, which obligates entities to perform a limited assurance by a statutory auditor or an audit firm. Limited assurance usually provides a statement declaring that no matter has been identified to conclude material misstatement. Specifically, assurance engagements should test:

- the compliance of sustainability reporting with the existing Union sustainability reporting standards;
- the methods applied by the company to obtain the disclosed data;
- the mark up of the sustainability reporting by the company;
- the compliance with the requirements of Article 8 of the Taxonomy Regulation. (EY, org., 2021)

In addition, the Commission plans to adopt assurance standards for reasonable assurance of sustainability information in the future. The goal is to reach the same quality of assurance for financial and sustainability reports. (European Commission, org., 2021)

2.4. Sustainability assurance

The existing literature proposes various terms for describing the verification of non-financial information, for example, sustainability assurance, external assurance of sustainability reporting, CSR audit, or external assurance. (Bartoszewicz, Rutkowska-Ziarko, 2021) In this Master Thesis, the notion of sustainability assurance will be preferred.

The European Federation of Accountants (FEE) provides the following definition of assurance services: “assurance engagements enhance the credibility of information.” (FEE, org., 2002, p. 63) Furthermore, auditing has been defined as an “assurance engagement in which the credibility of information is enhanced to a high level." (FEE, org, 2002, p. 4) The term auditing is generally used for the context of financial reporting, whereas the term assurance for sustainability reporting. Based on this fact, it seems that the terms “assurance” and “auditing” are not homogenous.

The standard provider of the most frequently used sustainability reporting framework – the GRI organization, actively encourages sustainability assurance in order to enhance the credibility of the reports and proposes the following definition: "assurance is the outcome of an independent verification process, the term is often used interchangeably with the term verification. It is increasingly used to describe the evaluation and assessment services provided by independent accounting and other firms, usually based on specific assurance standards or frameworks." (GRI, org., 2013b, p. 14).

Furthermore, also AccountAbility provides a definition of the term assurance "an engagement in which an assurance provider evaluates and expresses a conclusion on an organisation's public disclosure about its performance as well as underlying systems, data and processes against suitable criteria and standards in order to increase the credibility of the information for the intended audience." (AccountAbility, org., 2008, p. 23) Interestingly, both of these terms highlight the role of assurance in increasing the level of credibility of the reported data for the users.

The market for sustainability assurance has been expanding since the 1990s. The growing interest towards these services may be explained by several reasons, the primary reason seems to be the increase in credibility. This credibility gap in sustainability reports can be a consequence of numerous influences:

- influence of corporate management over the contents and scope of sustainability reporting;
- insufficiency of reporting standards;
- insufficiency of stakeholder engagement;
- exclusion of or favouritism towards certain stakeholder groups. (AccountAbility, org., 2008)

Generally, information is deemed to be more credible if it has been verified by an independent third-party examiner. Therefore, both institutional and organisational pressures started to demand assurance of sustainability information in order to increase the credibility of the data. (Sonnerfeldt, Pontoppidan, 2020) The positive influence of sustainability assurance on the credibility of and confidence in sustainability reports has been also suggested by Quick & Inwinkl, 2020; Coram et al., 2009; Moroney et al., 2012. This impact started to motivate

companies to have their sustainability reports assured. (Simnett et al., 2009) Consequently, the demand for external assurance started to grow increasingly. (KPMG, org., 2022)

Non-financial reporting has only evolved into a mainstream practice over the last two decades, thus is sustainability assurance a rather new field for practitioners and scholars. In addition, as mentioned above, sustainability assurance is still of a voluntary nature. Despite this fact, research indicated that this service has already become a standard practice for large companies. According to a KPMG's 2022 survey, there is an increasing tendency towards assurance and of the world's 250 largest companies, 63% already invest in the assurance of sustainability information as of 2022. Furthermore, an upward trend was also observed in Austria: 59% of the largest domestic enterprises performed voluntary third-party assurance of their sustainability information. In comparison, in 2017, Austria placed below the international average with an assurance rate of 40%. (KPMG, org., 2022)

As sustainability assurance is still a novel practice, different standards can be used to perform the assurance service. Especially two standards for non-financial information have been dominant in this field, namely the International Standard on Assurance Engagements Other Than Audits or Reviews of Historical Information (ISAE) 3000 by the International Auditing and Assurance Standards Board and the AccountAbility's AA1000 Assurance Standard (AA1000AS). (Ergüden et al., 2017) These standards will be further researched in more detail.

2.4.1. Assurance standards

AA1000 Assurance Standard

AccountAbility is an international consulting firm based in the UK which cooperates with investors, businesses and governments. The AA1000 Assurance Standard (version 3) was published in 2020, and it is an internationally recognised standard for sustainability assurance. The organisation recognised three requirements vital for achieving high-quality sustainability assurance:

- consideration of suitable criteria and compliance with preconditions;
- conduct assurance engagement based on processes and practices in a credible, legitimate, and transparent way;
- publication of accurate assurance statements and conclusions. (Accountability, org., 2020)

ISAE 3000 Assurance Standard

The ISAE 3000 has been established to provide practitioners with guidance and basic principles for the performance of assurance services other than audits or reviews of historical financial information. Although approved in 2003, the practical implementation of the standard has been under review ever since. The first revision project was published in 2009, and a comments period was finished in 2011. The main issue areas included, for example, the distinction between reasonable and limited assurance or the competencies of assurance providers. The standard allows two levels of assurance to be provided:

- **Limited assurance:** a lower level of assurance, which should provide practitioners with the possibility of responding to users' requests for a lower level of assurance over specific items in sustainability reports. The objective of this assurance level is a reduction in assurance engagement risk to an acceptable level in the circumstances of the particular assurance service as a basis for a negative practitioner's conclusion. The evidence-gathering procedure involves collecting sufficient and appropriate evidence and understanding the matter and engagement circumstances. Nevertheless, the procedures are purposely kept "limited" in comparison with reasonable assurance procedures.

- **Reasonable assurance:** the highest level of assurance services, similar to the true and fair view in auditing. The objective of this assurance level is a reduction in assurance engagement risk to an acceptable level in the circumstances of the particular assurance service as a basis for a positive practitioner's conclusion. The evidence-gathering procedure involves:
    - understanding of the engagement circumstances;
    - assessing risks;
    - response to found risks;
    - further investigation using inspection, observation, confirmation, recalculation, reperformance, analytical procedures and inquiry;
    - evaluation of the obtained evidence. (IFAC, org., 2005)

Mock et al. examined a sample of 130 sustainability reports between 2002-2004 and 2006-2007 and reported differences in the level of assurance between assurance providers. The Big-4 audit

companies (Deloitte, E&Y, PWC and KPMG) often engage in a lower level of sustainability assurance. (Mock et al., 2009)

Both of these standards are developed for the verification of the credibility of sustainability reports. A brief by AccountAbility and KMPG researched the application and content of the standards and tried to answer whether they are conflicting, harmonious or complementary. The research argued that the standards are complementary based on the fact that they provide guidance to comprehensive and robust sustainability assurance services. On the other hand, neither of the standards is a substitute. Furthermore, the combination of both AA1000AS and ISAE 3000 is able to enhance the applied approach, methodology and also conclusion and consequently, the overall credibility is improved. This fact is likely to further improve the behaviour and trust of the company's stakeholders. Nevertheless, separate application of these standards is likely to deliver different results. In other words, the standards do not verify sustainability reports in the same manner. Lastly, although both have undergone intensive consultation processes, ISAE 3000 is largely based on the principles of audits of financial statements, AA1000AS was developed by a constituency of professionals, stakeholders, and the commercial community. (AccountAbility, org., 2005) Research has also found that the Big-4 audit firms tend to apply international standards, such as ISAE 3000, whereas other audit companies tend to apply AA1000AS more often. (Farooq, de Viliers, 2017; Mock et al., 2009)

Although form and content of assurance statements differ depending on the assurance standard applied, it is the end-product of all assurance services. (Gürtürk, Hahn, 2016) Thus, to consider sustainability reports as assured, the existence of an assurance statement can be taken as a prerequisite. The following **Table *3*** illustrates the minimum information to be included according to the ISAE 3000 and the AA1000AS.

According to the Directive 2014/95/EU, audit firms must only verify the publication of assurance statements and full auditing is not mandatory. Nowadays, the European Commission is committed to reviewing the Directive, and it also reviews the obligation of companies in the scope to perform a mandatory limited assurance of their sustainability reports. (European Commission, 2021) Consequently, it is vital to distinguish between verification and assurance, although many authors may use the terms interchangeably. The process of verification only involves an act of checking their completeness. On the other hand, assurance should be understood as an act of confirming the truthfulness of non-financial information. Nevertheless,

the two concepts are closely interconnected as to perform assurance, it is necessary to first verify the data. (Bartoszewicz, Rutkowska-Ziarko, 2021)

Table 3 - Content of assurance statements

ISAE 3000	AA1000AS
- title "independent assurance report"; - an addressee; - an identification of the level of assurance and the subject matter information; - applicable criteria; - a description of any significant limitations (if appropriate); - an identification of the responsible party and the measurer or evaluator if different; a description of their responsibilities; - a statement that the assurance service was performed in accordance with ISAE 3000; - a statement that the firm of which the practitioner is a member applies ISQC1, or other professional requirements; - a compliance statement that the assurance provider complies with the impendence and ethical requirements of the IESBA Code, or other professional requirements; - a summary of the work performed as the basis for the provider's conclusion; - the provider's conclusion; - the provider's signature; - the date of the assurance report; - the jurisdiction of the provider practices.	- intended users of the assurance statement; - responsibilities of the assurance provider and of the reporting organization; - reference to the assurance standard/s used, incl. the AA1000AS v3; - description of the scope, subject matter, the type, level of assurance; - description of criteria used; - description and sources of disclosures covered; - description of methodology; - limitations and approach used to mitigate limitations; - notes on the competencies and independence of the assurance provider; - name of the assurance provider; - date and place; - findings and conclusions concerning adherence to the AA1000; - findings and conclusions concerning the reliability and quality of specified performance information (for Type 2 assurance).

Source: AccountAbility, org. (2020), p. 31; IFAC, org. (2013), pp. 21-22

2.4.2. Determinants of sustainability assurance

Generally, the assurance market is still in its formative stage, although its importance is growing rapidly. Still, assurance can be a costly service, therefore, it is interesting to determine the factors connected to the adoption of sustainability assurance. Currently, there is only limited knowledge of the companies which demand this evolving practice. (Kolk, Perego, 2010) Also, to the best knowledge of the author, there is no existing literature concentrating on Austria.

After extensive research (Kolk, Perego, 2010; Bauwhede, Van Cauwenberge, 2022; Seguí-Mas et al., 2018; Zorio et al., 2012), the following determinants of adoption of sustainability assurance were identified:

- stakeholder-orientation vs. shareholder-orientation;
- operation in environmentally sensitive industries;
- size.

Stakeholder-orientation vs. shareholder-orientation

Research showed that organizations operating in stakeholder-oriented countries (countries where shareholders, as well as other stakeholders, are legitimately interested in the corporate activities of companies) are more likely to invest in sustainability assurance than firms operating in shareholder-oriented countries. (Simnett et al., 2007; Bauwhede, Van Cauwenberge, 2022; Kolk, Perego, 2010) More precisely, the shareholder model is based on the theory of the firm developed by Coase. In this model, shareholder wealth maximization is the objective of the business (Coase, 1937) This model is to be found in common law countries. In such a legal environment, demand for disclosing data on a firm's financial rather not environmental performance may be expected. On the other hand, the stakeholder model is predominantly present in code law countries. In these countries, businesses are expected to go beyond their economic goals and pursue also social responsibilities. (Kolk, Perego, 2010)

Operation in environmentally sensitive industries

Empirical research has been increasingly focused on the influence of industry sectors on the decision to invest in sustainability assurance. Indeed, some authors even argued that industrial activity is a determinant factor for choosing sustainability assurance. (Zorio et al., 2012) Furthermore, Simnett et al. found that companies operating in industry sectors with notable environmental and/or social impacts are more likely to experience environmental and/or social risks. Thus, these companies may wish to mitigate these risks and increase the credibility of the

reported information by purchasing sustainability assurance. (Simnett et al., 2007) Often, authors distinguish between “environmentally-sensitive sectors” and “non-sensitive sectors.” Environmentally sensitive sectors are industries with high social or environmental impacts, such as mineral extraction, oil and gas, energy, forestry, chemicals, construction materials or steel. (Seguí-Mas et al., 2018) The expectation is that firms operating in environmentally sensitive sectors are more likely to assure their sustainability reports. (Bauwhede, Van Cauwenberge, 2022; Birkey, et al., 2014; Seguí-Mas et al., 2018)

Size

Existing studies reported discrepancies between the effects of organization size on the presence of sustainability reporting. On the one side, larger firms communicate with a greater variety of stakeholders than smaller firms and are, thus, under increased attention and pressure to act according to the wishes of the general public. Therefore, larger firms are more likely to engage in more complex sustainability activities, including sustainability assurance. (Hart, Sharma, 2004) Similarly, Gallo and Christensen indicated that larger firms often possess the financial and human resources necessary for sustainability activities and are, therefore, more likely to engage in sustainability activities and assurance. (Gallo, Christensen, 2011)

In line with this argument, Simnett et al. argued that large companies are considerably more likely to assure sustainability reports compared to small companies. Here, company sales were used as a measurement for size. (Simnett et al., 2007) Also, Abdel-khalik views assurance as a control mechanism to compensate for the internal loss of control. The author stated that large companies are more probable to introduce assurance due to their organizational design, which is more likely to result in loss of internal control. Small companies typically have only one level of hierarchy, namely the owner or manager, who directly supervises business operations. On the other hand, large companies take a more pyramidal shape of hierarchy as delegation becomes necessary. Furthermore, the greater the number of employees, the more administrative layers in an organization and the higher probability of loss of control. Here, the author measured company size using the number of employees. (Abdel-khalik, 1993) On the other hand, other researchers suggested that firm size does not play a role in initiating sustainability activities. (Jin et al., 2018) Similarly, Cho et al. assumed that the choice to obtain sustainability assurance would be positively associated with firm size. Nevertheless, firm size was not significantly associated with the existence of assurance and, thus, was this hypothesis rejected. (Cho et al., 2014)

2.4.3. Quality of sustainability assurance services

As mentioned before, the objective of the CSRD is to reach the same level of financial and sustainability assurance. To achieve this goal, statutory auditors seem to be aware of the necessity of requiring "the same high level of standards, qualifications, objectivity, independence, ethics, quality assurance and oversight" as for financial assurance. (EY, org., 2021, p. 9) Despite this fact, current research has suggested differences in the quality of assurance services.

Firstly, it is necessary to clarify the term "Big 4" firms that will be used in this section several times. Big 4 are the world's four largest accounting firms: Deloitte, KPMG, PricewaterhouseCoopers/PWC and Ernst & Young/EY. These companies dominate the world's audit market and play a vital role in the economy as they report on the truth of financial statements. (Murphy, Stausholm, 2017)

It was argued that the Big 4 firms are able to provide a higher quality sustainability assurance compared to other assurance providers. This statement was supported by the fact that the Big 4 group assures in accordance with global assurance standards and complies with ethical and independence rules. Furthermore, these assurance providers are able to check and review the quality of their service as they have developed their own quality mechanisms. (Cuadrado-Ballesteros et al., 2017)

Mock et al. researched 130 international firms with assured sustainability reports out of which 67% of the investigated sustainability reports (assured) were published in the EU. The author found that the type of assurance statement, the reporting categories assured, the restriction of the usage of assurance statement and the application of assurance frameworks are associated with the type of assurance provider (Big 4 or Non-Big 4). More precisely, the Big 4 firms are less likely to express positive assurance. This finding can be supported by the fact that the Big 4 firms often have larger and more complex clients, hence, providing positive assurance is riskier. Due to this reason, these firms also tend to provide a lower level of assurance. Lastly, the Big 4 firms often use the GRI standards and are less likely to provide recommendations. (Mock et al., 2009)

Perego further investigated whether the choice of assurance provider can impact the quality of the assurance service. On the one hand, the author supposed that accounting firms (Big 4) have a competitive advantage and are more experienced as they provide financial audit services as well. Additionally, the size of these providers allowed them to develop internal mechanisms of control and, thus, ensure the quality of the assurance services. On the other hand, according to Perego, sustainability assurance prerequisites involved expertise in environmental and social matters, knowledge that other assurance providers (such as environmental consultation specialists) are more likely to have. Based on content analysis, the author indicated that when considering reporting format and assurance procedures, the Big 4 firms deliver a higher quality of assurance services than other assurance providers do. Reporting format involves various formal aspects, for example, references or clear responsibilities of reporter and assuror. Assurance procedures involve adherence to recognized approaches and assurance standards. Nevertheless, accounting firms provide recommendations and opinions of lower quality than other assurance providers since accountants are known for more conservative and cautious working procedures than other providers, such as environmental consultants. In conclusion, each provider has both strengths and weaknesses and companies should decide which aspects to prioritize when selecting an assurance provider. (Perego, 2009)

Deegan et al. argued that accounting firms usually take a more conservative and cautious approach to assurance services than other providers, such as environmental consultants. Nevertheless, other providers often deliver clearer and more precise conclusions than accounting firms. Apart from this, accounting firms are hesitant to comment on compliance matters. (Deegan et al., 2009)

In conclusion, there is no general consensus with respect to the quality and especially the quality differences between assurance providers. Irrespective of this situation, companies decide to seek sustainability assurance owing to its potentially favourable impacts. (Gürtürk, Hahn, 2016) The effects of sustainability assurance will be discussed in detail in the next section.

2.4.4. Effects of sustainability assurance

First research regarding the relationship between sustainability information and financial performance is dated back to the 1970s. More specifically, Alexander and Buchholz showed in their study that any negative or positive association with a firm's degree of social responsibility would immediately affect the current stock price. (Alexander, Buchholz, 1978)

Since then, various studies have dealt with the effects of a company's decision to seek a voluntary sustainability assurance. For example, Velte (2020) conducted a structured literature review indicating that sustainability assurance, particularly performed by a third party, should lead to an increase in firm reputation, improved shareholder relations, and higher firm value. Therefore, the author argued that top management should consider sustainability assurance as a beneficial tool for not only strengthening investor relations, but stakeholder relations in general. (Velte, 2020)

Furthermore, the study by García-Sánchez et al. empirically supported the statement that CSR disclosure diminishes companies' capital constraints, such as information asymmetries, information risks, and forecast errors. Apart from that, the authors highlighted that, thanks to the assurance of non-financial information, the above-mentioned positive effects on firms are intensified. Only an insignificant correlation was, interestingly, found between assurance quality and the positive effects of sustainability assurance. This finding emphasised that the availability of assurance is in itself considered positive by stakeholders, and the details of assurance seem to be irrelevant to them. In conclusion, the study argued that sustainability assurance is connected to a beneficial impact on investors' trust and firms' capital constraints. (García-Sánchez et al., 2019)

Similarly, Kuo et al. examined enterprises listed on the Taiwan Stock Exchange and the Taipei Exchange between 2010 and 2018, resulting in more than 800 firm-year observations. The research determined that the decrease in the cost of debt capital is greater, provided that sustainability reports have been assured. The reason behind this effect is that sustainability assurance reduces information asymmetries and investors' uncertainty. Additionally, it was found that all assurance providers (both the Big 4 and non-Big 4 firms) had an equally strong effect on the decrease in the cost of debt capital. (Kuo et al., 2021)

Apart from that, researchers have been increasingly focused on the relationship between assured sustainability information and firms' financial performance. Kim, Cho and Park (2019), for example, performed the first empirical study investigating these effects based on a large study sample. More specifically, the authors regressed the relationship between assured sustainability information and the financial performance of 5,040 large US companies from 2006 to 2016. The study showed a significantly better financial performance of firms with assured

sustainability reports, indeed, the coefficients were found to be five times bigger. The authors thus concluded a vital role of external CSR assurance in financial performance. (Kim et al., 2019)

Additionally, Akisik and Gal (2019) reported a positive relationship between financial performance and integrated reports assured by accounting firms. The study examined the financial performance of North American firms between 2011 and 2016, showing a significant and positive association, which can be additionally enhanced by an assurance of the reports. The authors generally highlight the value of an assurance of not only financial information but also non-financial information. (Akisik, Gal, 2019)

According to the European Commission, the amendment of Directive 2014/EU/95 will increase the resiliency of companies and they are expected to perform better both in financial and non-financial terms. (European Commission, org., 2017)

Regarding the EU area, 1,832 firm-year observations of 660 EU-listed companies reported a positive association between sustainability assurance and stock market value, supporting the hypothesis that sustainability assurance positively affects the value of large EU-listed companies. It also seems that the EU capital market participants appreciate the value of assurance services. (Bauwhede, Van Cauwenberge, 2022)

In the US, a study examined over 2,700 sustainability reports between 1993 and 2010. The findings implicated that companies currently not assuring their sustainability reports could experience economic benefits from external assurance. The benefits may be, more specifically, in the form of reductions in the cost of capital and minimalization of analyst forecast errors or dispersion. (Casey, Grenier, 2014)

An experiment by Coram et al. delivered findings regarding assurance of sustainability information and its effect on stock prices. Two groups of participants – 135 Chartered Accountants experienced in corporate finance and taxation, and a group of 39 members of the Securities Institute of Australia (a professional organization dealing with the matters of securities and financial services) were asked to indicate their belief whether the firm's stock price would improve or deteriorate based on the provided material. Firstly, the experiment

showed that the added value of sustainability assurance is context specific. Despite the perceived increase in the reliability of assured reports, stock prices only increase when the disclosure is positive. On the other hand, no difference is made when the disclosure of sustainability information is negative. (Coram et al., 2009)

Nevertheless, a similar study conducted in Spain concluded that the verification of sustainability reports is value relevant. In this case, the stock price assessment of investors was positively impacted by sustainability assurance at a 99% significance level. The results indicated that investors value the social commitment activities of firms. In other words, stock price assessments increased for firms with assured sustainability reports. (Miralles-Quirós et al., 2021)

Lastly, a sample of 17,050 firm-year observations from 40 countries showed that capital markets only value sustainability reports in connection with sustainability assurance. The act of simply publishing reports is not valued by investors. In addition to this, sustainability assurance is only considered as value relevant when the service is conducted by a Big 4 firm as opposed to an environmental specialist. In conclusion, the existence of sustainability assurance from a Big 4 provider enhances firm market valuation. (Clarkson et al., 2019)

Although research that supported the assumption of the positive relationship between assured sustainability reports and financial performance exists, several prior studies actually found no results, whereas others reported some positive effects of sustainability assurance. (Kim et al., 2019) These studies will now be introduced more closely.

Drawing on a sample of publicly listed Italian companies between 2008 and 2013, Fazzini and Dal Maso observed that CSR disclosures are generally appreciated by investors. Nevertheless, the study showed that investors do not gain any additional value from the external sustainability assurance itself and, thus, that CSR assurance does not have any significant impact on firm valuations. (Fazzini, Dal Maso, 2016)

In the French context, a study in the period between 2001 and 2011 showed that firms' market value is in fact negatively associated with the introduction of sustainability assurance. Although the presence of sustainability assurance positively influenced Tobin's Q, the influence was insignificant. The article argued that for shareholders, the cost of assurance services is decisive

because of the shareholders' belief that assurance does not add value to the enterprises' reporting. Overall, the findings suggested that shareholders do not appreciate sustainability assurance. Furthermore, the authors raised the question of why enterprises should be obliged by regulators to invest in costly sustainability assurance if such an activity is not valued or is even punished by the market. (Lajmi, Paché, 2020)

In Sweden, interviews were conducted with 28 Swedish companies, and the findings highlighted that sustainability assurance does not bring any additional value to sustainability reports and, moreover, enterprises need to pay high assurance fees. Companies reported enhanced credibility as the main motivation to seek assurance services. Nevertheless, it was found to be difficult to verify that sustainability assurance is actually a tool to increase the credibility of sustainability reports. (Park, Brorson, 2004)

Another paper, which does not support the benefits of assured sustainability reports, is the one by Gietl et al. The researchers concluded for STOXX Europe 600 firms that the existence of external sustainability assurance might negatively impact a firm's value, in this research measured by Tobin's Q. The findings highlighted that especially smaller and/or less profitable firms are more likely to be negatively influenced. On the other hand, for bigger and/or more profitable companies, no significant effects were identified. (Gietl et al., 2013)

Similarly, Cho et al. tested the impact of sustainability assurance on the market value of publicly traded USA firms. Although the researchers expected that assurance would be positively associated with the market value of reporting companies, the assurance variable was negatively signed and the hypothesis had to be rejected. Although firms adopt sustainability assurance to increase the credibility of their reports, their efforts are not valued by the USA investors. They are also likely to consider any assurance fees as unjustifiable costs. Furthermore, the authors believed that due to a lack of appreciation from the side of investors, sustainability assurance remains limited in the region. (Cho et al., 2014)

Although numerous studies have researched intensively the relationship between sustainability assurance and financial performance, the findings are inconsistent and researchers have not yet reached a consensus. Although most studies report a positive relationship (Akisik & Gal, 2019; Kim et al., 2019; Velte, 2020), some researchers showed no associations, and there are also studies outlining a negative relationship.

The research has been summarised and synthesised in **Table *4***.

Table 4 - Effects of sustainability assurance – prior research

Authors	Main Findings
Velte (2020)	Sustainability assurance can increase firm reputation, firm value and improve shareholder relations.
Garcia-Sánchez, et al. (2019)	Sustainability assurance intensifies the positive effects of sustainability reporting – lower capital constraints, such as information asymmetries, information risks and forecast errors.
Kuo et al. (2021)	Sustainability assurance diminishes information asymmetries and investors' uncertainty and, thus, reduces cost of debt capital.
Kim et al. (2019)	Sustainability assurance improves financial performance of firms, the coefficients were found to be 5x bigger than without assurance sustainability reports.
Aksik, Gal (2019)	Sustainability assurance by accounting firms enhances financial performance of companies.
European Commission, org., (2017)	Companies under Directive 2014/95/EJ obliged to perform sustainability assurance are expected to perform better in both financial and non-financial terms.
Bauwhede, Van Cauwenberge (2022)	Sustainability is positively associated with the stock market value of companies.
Casey, Grenier (2014)	Companies assuring their sustainability reports may experience economic benefits in form of a reduction in the cost of capital, reductions in analyst forecast errors or dispersion.
Fazzini, Dal Maso (2016)	Sustainability assurance does not bring any additional value to sustainability reports for investors, thus, assurance does not have any impact on the value of firms.
Coram et al. (2009)	The added value of sustainability assurance is context specific. Although the perceived credibility of sustainability reports improved, stock prices only grow when the disclosure is positive.

Authors	Main Findings
	No difference was reported when the disclosed sustainability information is negative.
Miralles-Quirós et al. (2021)	Sustainability assurance positively influences stock price assessment of investors.
Clarkson et al. (2019)	Sustainability assurance enhances firm value provided that the assurance service is conducted by a Big 4 auditor.
Lajmi, Paché (2020)	Sustainability assurance negatively influences firms' market value. For shareholders, the cost of assurance is decisive and the findings suggest that sustainability assurance is not appreciated (or even punished by the market.)
Park, Brorson (2004)	Sustainability assurance is connected with high fees and it does not represent any additional value to sustainability reports. It may be a tool to increase credibility but even this hypothesis is difficult to be verified.
Cho et al. (2014)	Sustainability assurance does not impact the market value of publicly traded enterprises. US investors do not value assurance and, furthermore, assurance fees are likely to be considered by investors as unjustifiable costs.
Giel et al. (2013)	Sustainability assurance may negatively impact firm value, here measured by Tobin's Q. Especially smaller and/or less profitable firms are more likely to be negatively influenced; bigger and/or more profitable ones were found to be only insignificantly influenced.

Source: own compilation

3. Research setting and method

3.1. Hypothesis development

In the previous chapter, the discrepancy between research on the effects of sustainability assurance on the financial performance of firms was pointed out. This inconsistency induces the author to take a closer look and enlighten this impact on firms operating in the Austrian market. In particular, this Thesis aims at exploring and answering the following research question:

What impact does a sustainability assurance have on the financial performance of Austrian firms?

Based on the research question and the literature review, the first step is to investigate whether there is a link between corporate financial performance and sustainability assurance in relation to the Austrian market. Then, the second step will proceed with testing whether this assumption is positive, meaning that assurance of sustainability reports has a positive impact on a firm's financial performance. Accordingly, this leads us to the following hypotheses:

H0: There is no impact of sustainability assurance on the financial performance of Austrian enterprises.
H1: There is a positive impact of sustainability assurance on the financial performance of Austrian enterprises.

The importance of non-financial information is rapidly growing, therefore, companies experienced pressure to increase the credibility of the reported data. As assured reports are generally considered more credible, companies started to be motivated to perform sustainability assurance. (Sonnerfeldt, Pontoppidan, 2020; Coram et al., 2009; Moroney et al., 2012) Furthermore, the literature connected sustainability assurance with other benefits as well, such as improved firm reputation or shareholder relations. (Velte, 2020; Garcia-Sánchez, et al., 2019) Yet, there are different views about the influence on a firm's financial performance. (Kim et al., 2019) An examination of the impact of sustainability assurance on the financial performance, particularly for Austrian companies, is currently missing. This Master Thesis aims at filling this research gap by trying to test the impact of sustainability assurance.

3.2. Method

For this Thesis, it was reasonable to conduct quantitative research. This type of analysis is based on the examination of relationships between variables measured numerically. To analyse the variables, various statistical techniques are available. (Saunders et al., 2012)

The data was tested using a quantitative method with a non-parametric test Mann-Whitney U Test in order to evaluate the hypothesis. Non-parametric tests are necessary in cases when the distribution of the analysed data is asymmetrical. Furthermore, it is one of the most widely used non-parametric tests for answering research questions regarding differences between the research groups. Based on these assumptions, the Mann-Whitney U Test appeared to be appropriate for this study. The method is also known as the Wilcoxon-Mann-Whitney test or the Wilcoxon sum of ranks test. The null hypothesis (H0) stipulates that the independent groups are homogeneous and have the same distribution, thus, they come from the same population. If a two-sided test is needed, the alternative hypothesis (H1) stipulates that the first group of data differs from the second group of data and, therefore, the null hypothesis is rejected. (Mann, Whitney, 1947; Nachar, 2008)

The implementation of the Mann-Whitney U Tests involved the analysis of two groups of researched data – companies with assured sustainability reports and companies without assured sustainability reports. These categories were analysed by comparing the averages and medians of the EBT and revenue scores reached during the period of 2017 and 2021. Therefore, especially the descriptive statistics of the calculations were crucial for driving conclusions. The first round of calculation involved the arithmetic means of revenue and EBT as a dependent variable. Due to the fact that for some companies not all information was found, the years with missing data were excluded from the analysis and the averages per company were calculated. The second round of calculation took the revenue from 2021 and 2020 as a dependent variable. The advantage of these scores was that missing data was eliminated. As for the independent variable, the existence of sustainability assurance was taken. The overall goal was to test the hypotheses of this Master Thesis.

For the analysis, a Microsoft Excel file was created, which simplified the research of the variables. The complete file with the collected data can be found in Appendix I.

One benefit of this test is that it can be even used for testing small data samples. Indeed, the Mann-Whitney U Test does not specify any upper or lower limit of data points necessary to perform the test. (Nachar, 2008) In this Master Thesis, the sample of companies with assured sustainability reports consisted of 52 observations and the sample without assured sustainability reports involved 198 observations.

3.3. Sample

This study restricted the variables to a uniform environment. Indeed, the motivation for selecting a single-country environment rather than performing a multi-country study was to eliminate potential macro-environmental differences that may exist among countries. Especially in the last few years, due to the Covid-19 pandemic, the diversity among countries may have been noteworthy. Therefore, the research specifically focused on the 250 largest Austrian organizations based on revenue as of 2021. To the best knowledge of the author, no official statistics examining the size of companies in Austria are published by the country. Therefore, the ranking of the TOP250 enterprises based on revenue from 9 June 2022 published by a financial magazine in Austria – Industriemagazin was assessed. The magazine is an Austrian monthly business magazine publishing since 1993. The ranking is based on objective criteria, as the accounting items used were extracted from the financial statements reported in the public business register.

This Master Thesis focused on the analysis of large companies. This decision can be supported by several facts. Firstly, assurance rates are low among small and medium-sized entities (further referred to as SMEs). Large companies are more probable to introduce assurance due to their organizational design, which is more likely to result in loss of internal control. Small companies typically have only one level of hierarchy, namely the owner or manager, who directly supervises business operations. On the other hand, large companies take a more pyramidal shape of hierarchy as delegation becomes necessary. Furthermore, the greater the number of employees, the more administrative layers in an organization and the higher probability of loss of control. Here, the author measured company size using the number of employees. (Abdel-khalik, 1993) A recent study from January 2023 investigated 460 EU SMEs with a total of 1,648 reports. The author reported a low assurance rate of 18.75%. (Somoza, 2023) Secondly, generally, large entities experience more pressure from society to be socially and environmentally responsible. Additionally, large companies often have more resources to

introduce voluntary sustainability assurance. Moreover, they face a greater amount of political pressure than smaller firms do. Therefore, several research conducted proved that firm size significantly influences the company's decision to assure its sustainability reports. For example, research performed by Simnett et al. (2009), Kilic and Kuzey (2018), Bauwhede and Van Cauwenberge (2022) or Casey and Grenier (2014) confirmed this hypothesis. Consequently, this paper did not examine SMEs and only focused on large companies.

The financial data was retrieved from Compass.at, the largest provider of business information in Austria. Additional information was also be gained from financial statements and companies' websites to supplement the missing data. The fiscal period between 2017 and 2021 was observed, the last year with available data at the start of this Master Thesis. The timeframe was chosen considering that the NFRD 2014/95/EU was required to be adopted by all EU member states by 31 December 2016, starting to affect the fiscal year of 2017. The data was examined using the software **IBM SPSS Statistics** and **Microsoft Excel.** The values had to be entered into the statistical software to be able to analyse the data. The last step was the interpretation of the findings. In terms of accessibility to data, the risks were minimized as the assurance statements (if existent) were available on the Internet and company websites published in the Top 250 document.

3.4. Variables

Dependent variable

There are different methods concerning the measurement and reflection of financial performance. Financial performance in this Master Thesis was measured by two indicators: Sales revenue and Earnings before taxes (EBT).

Sales revenue

The first financial performance measure that was used in this Master Thesis is the top line sales revenue. The general aim of probably all enterprises is to achieve the maximum profit at the lowest possible cost, aligned with future expansion and high sales. The sales of the company's products or services signify that the company progresses and is able to enlarge the wealth of its shareholders. Sales revenue is recognized by "income arising in the course of an entity's ordinary activities." (IFRS, org., n.d., Appendix) Afterwards, companies are able to record revenue from the sale. According to researchers, it is one of the most significant items in

companies' financial statements. (Huang, Marquardt, Zhang, 2015; Srivastava, 2014) Zhang recognised revenue as probably the most crucial matter confronting accountants. Furthermore, the author argued that revenue is significant for the decision making process of investors and growths or declines in a firm's revenue are indicators of the company's future prospects. Despite this research, sales revenues as a performance measure used to be ignored. Firms focused on alternative performance measures, but recent evidence showed that sales revenue is nowadays the most frequently used performance measure. (Zhang, 2005)

Earnings before taxes (EBT)

The second financial performance measure used is the EBT (earnings before taxes).

The use of EBT is especially useful in cases where comparability across legal forms or tax systems is needed. Often, this performance measure is also referred to as earnings from ordinary business activity as the earnings are adjusted for extraordinary earnings items. (Coenenberg et al., 2021) This indicator was chosen mainly because of its availability on the website Wirtschaftscompass. The website either extracts the data from the P&L statement (for companies obliged to prepare financial statements) or from other sources, such as journals, company websites, or telephone inquiries. Thanks to this fact, missing values were minimised compared to other indicators not available on Wirtschaftscompass.

Profit/income
± extraordinary items, discontinued operations
± income taxes

= **EBT**

Independent variable

CSR assurance is a dichotomous variable, which took a value of Y (YES) if the firm performed external CSR assurance. Otherwise, the variable took a value of N (NO). The sustainability reports were considered as assured if assurance statements were available. If an assurance statement could not be found on the company website published in the Top 250 document, it was viewed as non-existent. In addition, any level of assurance provided by an external assuror was viewed as existing sustainability assurance. **Table *5*** presents the availability of assurance statements for the analysed companies. Overall, 250 companies were researched, from which

52 companies published an assurance statement on their websites. In other words, 198 companies did not perform a sustainability assurance.

Table 5 - Availability of assurance statements

Availability of assurance statements	Number of firms	%
Firms analysed	250	100
Assurance statement available	52	21
Assurance statement not available	198	79

Source: Own compilation

Control variables

Following existing research investigating variables that influence firms' financial performance and CSR reporting, the following control variables were controlled for: firm size, headquarters, industry in which the enterprises operate, reporting standards and assurance providers. (Kim et al., 2019; Wang, Choi, 2013; Bauwhede, Van Cauwenberge, 2022).

Size

Different criteria can be used for measuring the size of enterprises, such as balance sheet total or turnover, but one of the most common is the number of persons employed. The European Commission classifies SMEs as enterprises with fewer than 250 persons employed and an annual turnover of up to €50 million. Large enterprises thus employ 250 or more persons and reach an annual turnover above €50 million. (Eurostat, org., 2016) Taking into consideration that this paper only investigated companies with turnover over €50 million (the lowest turnover was achieved by AHT Cooling Systems GmbH with €104 million), enterprise size was measured using the number of employees.

Headquarters

The following **Table *6*** summarises headquarters by country found in the data set and their stakeholder or shareholder orientation. It is assumed that companies domiciled in stakeholder-oriented countries are more likely to have their sustainability reports assured.

Table 6 - Headquarters by country overview

Stakeholder oriented countries	Shareholder oriented countries
Austria (AT), Germany (DE), Finland (FI), France (FR), Switzerland (CH), Italy (IT), Japan (JP), Netherlands (NL), Norway (NO), Russia (RU), Sweden (SE)	Australia (AU), United Kingdom (UK), Ireland (IE), Israel (IL), United States (US), South Africa (ZA)

Source: own compilation

Industry

Industry type was applied as a further controlling variable in this Master Thesis. To be able to assign the investigated companies to the correct industry sectors, a list of industry types was needed. The decisive factor was the information about the primary business activity of the investigated companies gained from their company websites and reports. Consequently, the industry sector categorization developed by the International Labour Organization (ILO) was used, which compactly but still comprehensively categorises industrial activities into 21 groups illustrated in **Table** *7*. The ILO cooperates with governments, employers and workers of 187 Member States and since 1919, it has been active in developing policies and programmes promoting decent work for both women and men and in setting labour standards. (ILO, org., n.d. a) In line with the existing research, these industry types may be also categorized into "environmentally sensitive" and "environmentally non-sensitive" sectors. From the list of industry types developed by the ILO and the description of environmentally sensitive industries by Seguí-Mas et al., the industry types were also grouped according to their environmental sensitivity.

Table 7 - Industry types

No	Industry type	Environmental sensitivity
1	Agriculture, plantations, other rural sectors	Non-sensitive
2	Basic Metal Production	Sensitive
3	Chemical industries (Chemical, pharmaceutical, rubber and tyre industries)	Sensitive

No	Industry type	Environmental sensitivity
4	Commerce (Wholesale and retail trades)	Non-sensitive
5	Construction	Sensitive
6	Education	Non-sensitive
7	Financial services, professional services (The financial services sector vary from country to country, but generally it includes the central bank; depository organizations such as banks, building societies or mortgage banks and companies; credit unions or credit cooperatives; insurance and pension funds; general financiers; cash management firms; and other engaged in financial intermediation or asset management)	Non-sensitive
8	Food, drink, tobacco	Non-sensitive
9	Forestry, wood, pulp, paper	Sensitive
10	Health services	Non-sensitive
11	Hotels, tourism, catering	Non-sensitive
12	Mining (coal, other)	Sensitive
13	Mechanical and electrical engineering (Manufacture and repairing of electrical and electronic products, such as engines, electrical products, consumer electronics, computers, mobiles phones and others)	Sensitive
14	Media, culture, graphical	Non-sensitive
15	Oil and gas production, oil refining	Sensitive
16	Postal and communication services	Non-sensitive
17	Public service	Non-sensitive
18	Textiles, clothing, leather, footwear	Non-sensitive
19	Transport (incl. civil aviation, railways, road transport)	Non-sensitive

No	Industry type	Environmental sensitivity
20	Transport equipment manufacturing (Manufacture of aircraft; aerospace equipment; railroad equipment; motor vehicles; auto parts; motorcycles; bicycles; ships)	Sensitive
21	Utilities (water, gas, electricity)	Sensitive

Source: ILO, org. (n.d. b)

Reporting Standard

Organizations have the possibility to choose from various sustainability reporting standards, for example, the ISO 26000, IIRF, UN Global Compact or GRI. According to the 2022 survey published by KPMG, GRI has been the most widely used reporting standard around the world. Indeed, Austria ranked number 4 (with 89%) among the top 10 countries by the number of N100 companies using the GRI standards for sustainability reporting (KPMG, org., 2022) Therefore, this Thesis controlled for reporting standards and it is expected that the majority of companies with Austrian headquarters report against the GRI standards.

Assurance provider

Finally, this Thesis also controlled for assurance providers. The following types of assurance providers were distinguished: the Big 4 firms (KPMG, E&Y, Deloitte, PWC) and other providers, such as third-party consultancy firms or environmental engineering firms.

4. Findings

4.1. Test analysis and results

Before starting with the statistical analysis, it is recommended to check the data for possible input errors or missing values. As missing values are regarded observations where no data value was found. There are several methods for handling missing values, one of which is listwise deletion. It is a conventional method based on the exclusion of missing data from the whole analysis for any of the variables. (Soley-Bori, 2013)

Because of the missing values, the arithmetic means of both dependent variables (turnover and EBT) were calculated. More specifically, the average values in the observed period 2017-2021 were computed and used for further analysis. In total, valid for processing were 164 cases without assured sustainability reports and 51 cases with assured reports. The summary of case processing can be found in **Table *8*** below.

Table 8 - Case Processing Summary Averages

Case Processing Summary

		Cases					
		Valid		Missing		Total	
	Assured	N	Percent	N	Percent	N	Percent
Revenue Avg 17-21	N	164	82,8%	34	17,2%	198	100,0%
	Y	51	98,1%	1	1,9%	52	100,0%
EBT Avg 17-21	N	164	82,8%	34	17,2%	198	100,0%
	Y	51	98,1%	1	1,9%	52	100,0%

Source: own compilation

In the next step, the data was examined for its normality distribution using the Kolmogorov-Smirnov normality test. The following hypotheses were tested:
H0: The dataset values are from the same continuous distribution.
H1: The dataset values are from different continuous distributions.

Results of the Kolmogorov-Smirnov test in **Table *9*** provided a p-value of <0.05 and, thus, the null hypothesis was rejected, suggesting that the dataset values are from different continuous distributions. Due to this fact, non-parametric analysis methods needed to be used for the evaluation of the data as they do not assume a normal distribution of the values. (Nachar, 2008)

Table 9 - Tests of Normality Averages

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Assured	Statistic	df	Sig.	Statistic	df	Sig.
Revenue Avg 17-21	N	,237	164	,000	,660	164	,000
	Y	,285	51	,000	,541	51	,000
EBT Avg 17-21	N	,255	164	,000	,586	164	,000
	Y	,307	51	,000	,450	51	,000

a. Lilliefors Significance Correction

Source: own compilation

Furthermore, it could be proceeded with testing the following hypotheses:

H0: There is no impact of sustainability assurance on the financial performance of Austrian enterprises.

H1: There is an impact of sustainability assurance on the financial performance of Austrian enterprises.

Therefore, a Mann-Whitney U test was conducted. The test presented a probability value (p) of 0.00 for both a revenue average of 2017-2021 and an EBT average of 2017-2021. The probability value was less than or equal to 0.05, so the result was significant, which means that the null hypothesis was rejected (***Table 10***).

Table 10 - Results of the Mann-Whitney U Test Averages

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Revenue Avg 17-21 is the same across categories of Assured.	Independent-Samples Mann-Whitney U Test	,000	Reject the null hypothesis.
2	The distribution of EBT Avg 17-21 the same across categories of Assured.	Independent-Samples Mann-Whitney U Test	,000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Source: own compilation

Therefore, it may be concluded that there is a statistically significant difference in the financial performance of Austrian firms with assured sustainability reports and without assured sustainability reports, regardless of the financial performance indicator used. Therefore, hypothesis 1 - There is an impact of sustainability assurance on the financial performance of Austrian enterprises - is accepted.

Examining the descriptives of the Revenue Average 2017-2021, see **Table *11*** below, it can be seen that the mean for revenue of companies with assured sustainability reports is significantly higher than those without sustainability assurance. More precisely, companies with assurance reached a mean of 2,352.65 (in Mio €) and organizations without assurance have a mean of 563.38 (in Mio €). Moreover, the median shows similar results in favour of sustainability assurance – 1,268.22 (in Mio €) and without sustainability assurance 294.68 (in Mio €). Consequently, the results suggest that companies with assured sustainability reports achieve higher turnover than those without sustainability assurance. The findings, hence, also indicate that there is a positive impact of sustainability assurance on the financial performance (measured with the revenue average) of Austrian enterprises.

Table 11 - Descriptives Averages Revenue 17-21

Descriptives

	Assured		Statistic	Std. Error
Revenue Avg 17-21	Y	Mean	2352,6531	542,048
		Median	1268,2200	
		Variance	14984654,4	
		Std. Deviation	3871,0017	
		Minimum	122,68	
		Maximum	23743,60	
		Range	23620,92	
		Interquartile Range	2468,36	
		Skewness	4,025	,333
		Kurtosis	19,402	,656

Descriptives

	Assured		Statistic	Std. Error
Revenue Avg 17-21	N	Mean	563,3847	50,6377
		Median	294,6800	
		Variance	420526,422	
		Std. Deviation	648,48009	
		Minimum	99,06	
		Maximum	4554,28	
		Range	4455,22	
		Interquartile Range	539,57	
		Skewness	3,048	,190
		Kurtosis	12,492	,377

Source: own compilation

Table 12 - Descriptives Averages EBT 17-21

Descriptives

	Assured		Statistic	Std. Error
EBT Avg 17-21	Y	Mean	195,3659	60,3622
		Median	79,9600	
		Variance	185823,542	
		Std. Deviation	431,07255	
		Minimum	-22,14	
		Maximum	2796,40	
		Range	2818,54	
		Interquartile Range	217,96	
		Skewness	4,863	,333
		Kurtosis	27,469	,656

Descriptives

Assured			Statistic	Std. Error
EBT Avg 17-21	N	Mean	27,4543	3,87010
		Median	9,2300	
		Variance	2456,339	
		Std. Deviation	49,56146	
		Minimum	-28,36	
		Maximum	393,40	
		Range	421,76	
		Interquartile Range	25,29	
		Skewness	3,968	,190
		Kurtosis	21,447	,377

Source: own compilation

Similar results can be derived from the descriptives of the EBT Average 2017-2021 in **Table *12*** above. Enterprises with sustainability assurance achieved a mean of 195.37 (in Mio €) and a median of 79.96 (in Mio €) while those without sustainability assurance have a mean of 27.45 (in Mio €) and a median of 9.23 (in Mio €). Again, the data implied that there is a difference between companies and those organizations that have their sustainability reports assured are more financially successful than those without sustainability assurance. The findings, thus, also indicated that there is a positive impact of sustainability assurance on the financial performance (measured with the EBT average) of Austrian enterprises.

Additionally, the test was repeated using Revenue from 2021 and 2020 as dependent variables. The benefit of this dataset was the elimination of missing values, see **Table *13***. Therefore, all 250 companies were part of this testing.

Table 13 - Case Processing Summary Revenue 21 & 20

Case Processing Summary

		Cases					
		Valid		Missing		Total	
	Assured	N	Percent	N	Percent	N	Percent
Revenue 21	N	198	100,0%	0	0,0%	198	100,0%
	Y	52	100,0%	0	0,0%	52	100,0%
Revenue 20	N	198	100,0%	0	0,0%	198	100,0%
	Y	52	100,0%	0	0,0%	52	100,0%

Source: own compilation

Furthermore, the data was tested for normality distribution using the Kolmogorov-Smirnov test. The hypotheses are as follows:

H0: The dataset values are from the same continuous distribution.

H1: The dataset values are from different continuous distributions.

From the analysis presented in **Table *14***, the significant value is 0.00. As the significance value is lower than 0.05, the H0 was rejected. The dataset values are not in a normal distribution.

Table 14 - Tests of Normality Revenue 21 & 20

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Assured	Statistic	df	Sig.	Statistic	df	Sig.
Revenue 21	N	,248	198	,000	,630	198	,000
	Y	,310	52	,000	,467	52	,000
Revenue 20	N	,242	198	,000	,633	198	,000
	Y	,256	52	,000	,628	52	,000

a. Lilliefors Significance Correction

Source: own compilation

When the datasets do not have a normal distribution, non-parametric tests need to be used. (Mann, Whitney, 1947) Therefore, a Mann-Whitney U Test was performed in order to determine whether Revenue 2021 and Revenue 2020 differ with the existence or non-existence of sustainability assurance. According to the results indicated in **Table *15***, there is a significant

difference between the revenue of companies with assured sustainability reports and the revenue of companies without assured sustainability reports.

Table 15 - Results of the Mann-Whitney U Test Revenue 21 & 20

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Revenue 21 is the same across categories of Assured.	Independent-Samples Mann-Whitney U Test	,000	Reject the null hypothesis.
2	The distribution of Revenue 20 is the same across categories of Assured.	Independent-Samples Mann-Whitney U Test	,000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is ,05.

Source: own compilation

The test presented a probability value (p) of 0.00 for both Revenue 2021 and Revenue 2020. The probability value is less than or equal to 0.05, so the result is significant, which means that the null hypothesis was rejected. Therefore, it may be again concluded that there is a statistically significant difference in the financial performance of Austrian firms with assured sustainability reports and without assured sustainability reports, regardless of the financial performance indicator used. Therefore, the hypothesis 1 - There is an impact of sustainability assurance on the financial performance of Austrian enterprises - is accepted.

The descriptive statistics of Revenue 21 imply that the mean of companies with sustainability assurance 2,789.93 (in Mio €) is higher than the mean of companies without sustainability assurance 578.73 (in Mio €). Similarly, organizations with assurance 1,231.20 (in Mio €) score a better median than those without assurance 311.75€ (in Mio €) , see **Table *16***. As a consequence, the data suggested a difference between the revenue of companies with assured sustainability reports and the revenue of companies without assured sustainability reports. Therefore, a positive impact of sustainability assurance on the financial performance (measured with Revenue 2021) of Austrian enterprises can be concluded.

Table 16 - Descriptives Revenue 21

Descriptives

	Assured		Statistic	Std. Error
Revenue 21	Y	Mean	2789,933	747,065
		Median	1231,200	
		Variance	29021573,4	
		Std. Deviation	5387,1675	
		Minimum	122,8	
		Maximum	35555,0	
		Range	35432,2	
		Interquartile Range	2775,0	
		Skewness	4,850	,330
		Kurtosis	27,681	,650

Descriptives

	Assured		Statistic	Std. Error
Revenue 21	N	Mean	578,729	49,5019
		Median	311,750	
		Variance	485186,497	
		Std. Deviation	696,5533	
		Minimum	104,2	
		Maximum	5035,7	
		Range	4931,5	
		Interquartile Range	452,5	
		Skewness	3,192	,173
		Kurtosis	12,970	,344

Source: own compilation

Again, the descriptives of Revenue 20 showed similar implications, see **Table *17***. Companies adopting sustainability assurance scored a mean of 2,044.87 (in Mio €) and those not adopting sustainability assurance 504.65 (in Mio €). The median of organizations with sustainability assurance is 1,130.85 (in Mio €) and the median of organizations without sustainability assurance is 277.15 (in Mio €). Therefore, a difference in revenue between companies with

assured sustainability assurance and companies with non-assured sustainability assurance was determined. Therefore, a positive impact of sustainability assurance on the financial performance (measured with Revenue 2020) of Austrian enterprises can be suggested.

Table 17 - Descriptives Revenue 20

Descriptives

	Assured		Statistic	Std. Error
Revenue 20	Y	Mean	2044,8673	410,15659
		Median	1130,8500	
		Variance	8747878,12	
		Std. Deviation	2957,68121	
		Minimum	101,40	
		Maximum	16550,00	
		Range	16448,60	
		Interquartile Range	2497,45	
		Skewness	3,175	,330
		Kurtosis	12,143	,650

Descriptives

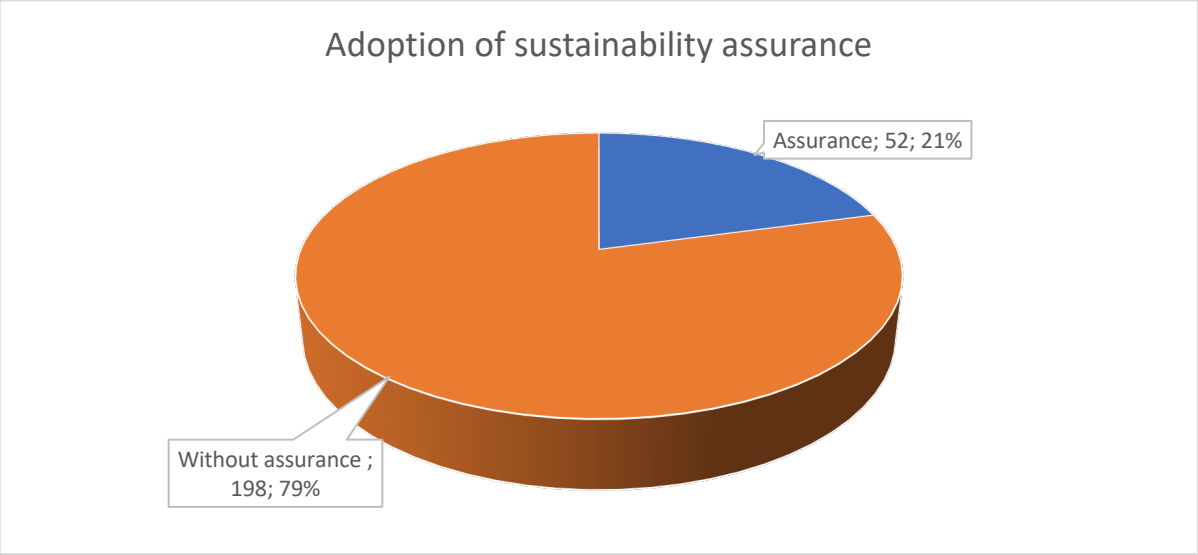
	Assured		Statistic	Std. Error
Revenue 20	N	Mean	504,6533	41,89811
		Median	277,1500	
		Variance	347579,461	
		Std. Deviation	589,55870	
		Minimum	91,10	
		Maximum	4279,00	
		Range	4187,90	
		Interquartile Range	405,23	
		Skewness	3,257	,173
		Kurtosis	13,830	,344

Source: own compilation

4.2. Descriptive statistics

The final pool of company observations is 250. 52 or 21% of firm observations have their sustainability reports assured, whereas 198 or 79% did not, see **Figure *5*** below.

Figure 5 - Adoption of sustainability assurance



Source: own compilation

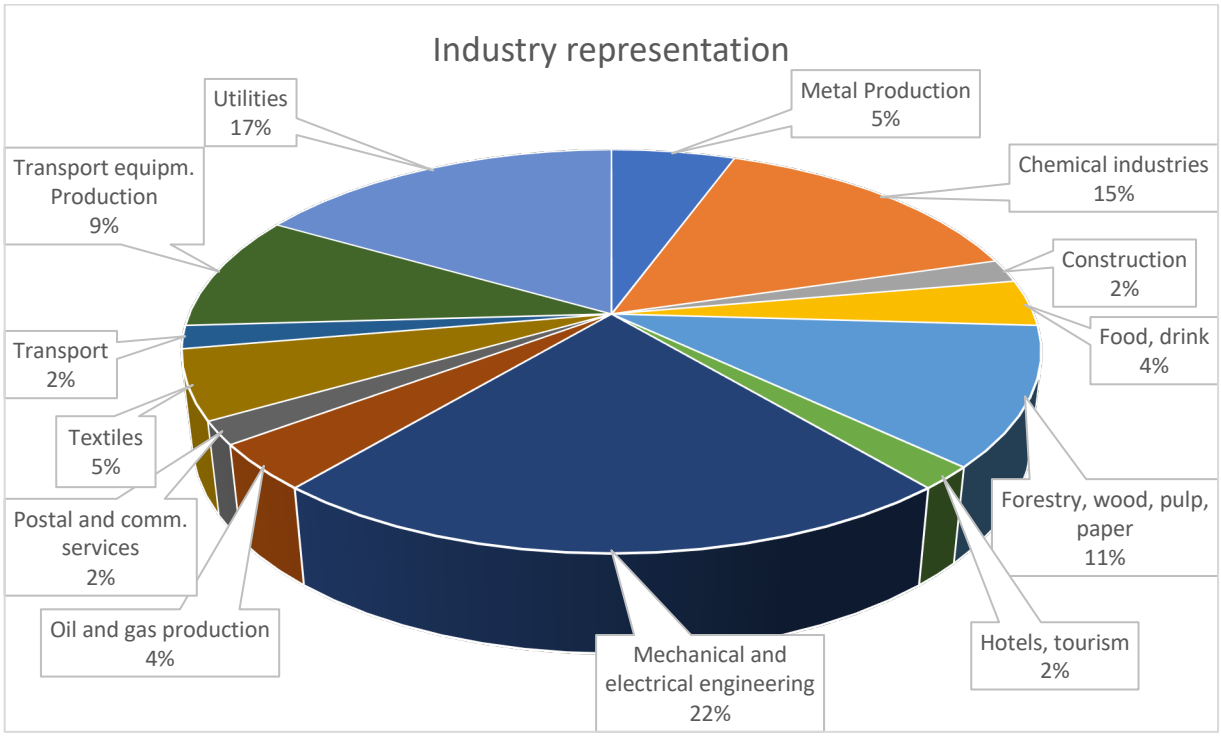
The ascertained assurance rate is considerably lower compared to the rate of 72% found by KPMG. (KPMG, org., 2022) To be more precise, the rate for the first top 100 companies in this research reached 34% or 34 company observations. This result can be probably explained by the research sample used. Whereas KPMG examined the largest 100 companies, the sample in this Thesis researched the largest 250 companies in the Austrian industry. Due to this reason, the statistics did not involve companies from sectors, such as financial, insurance or real estate. Moreover, businesses from the finance sector are known for their high assurance rates, as these companies are often under pressure to enhance their credibility. (Simnett et al., 2009)

Industry

Based on the primary business activities of the companies, the industries with the highest number of assured sustainability reports were found to be mechanical and electrical engineering (13 observations), utilities – water, gas, electricity (9 observations), chemical industries (8 observations) and forestry, wood, pulp, paper (6 observations). Moreover, the table further reveals that 87% or 45 of the companies assuring their sustainability reports operate in

environmentally sensitive industries, which is in line with the existing literature and expectations. More details about the industry representation can be found in **Figure *6*** below.

Figure 6 - Industry representation

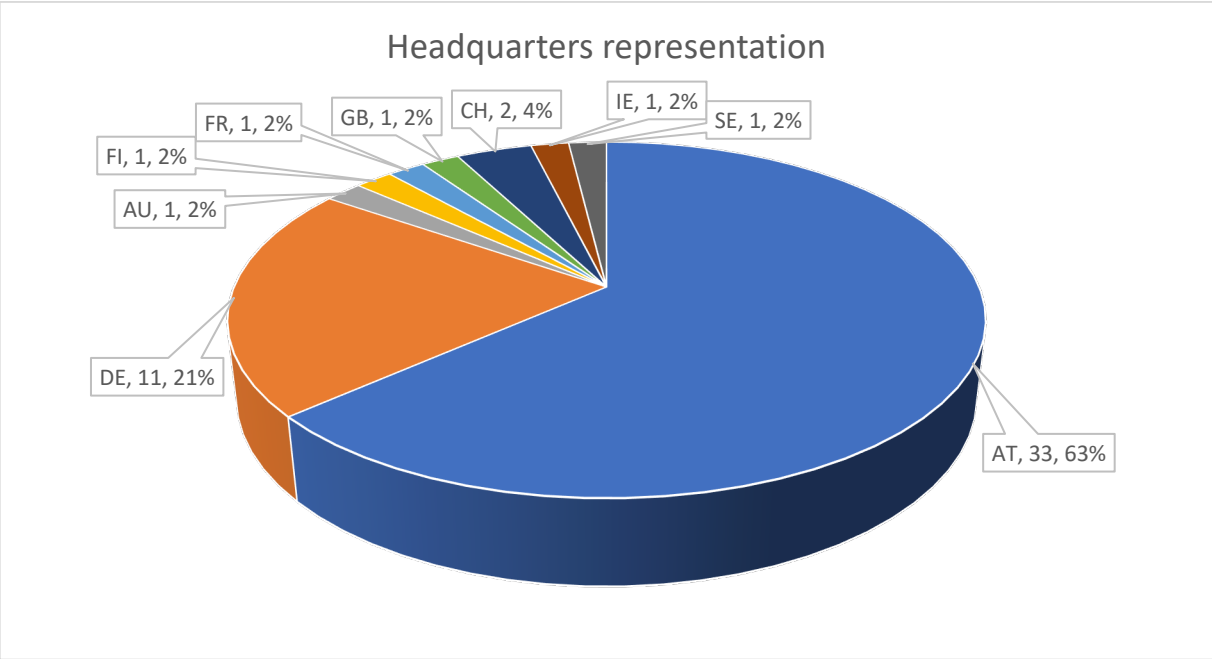


Source: own compilation

Headquarters

The summary can be found in **Figure** *7*. The majority of companies had their headquarters located in Austria. Another large group consisted of 11 companies with headquarters in Germany. Furthermore, Switzerland is represented by 2 companies. The rest of the countries – Australia, Finland, France, Great Britain and Ireland are each represented by one company.

Figure 7 - Headquarters representation

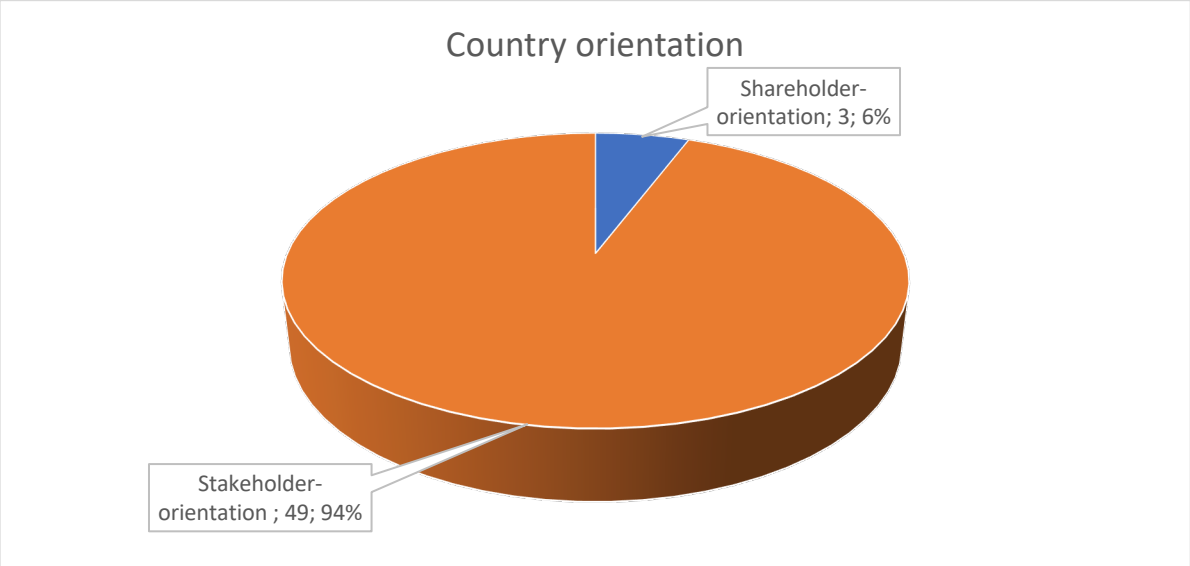


Source: own compilation

Stakeholder vs. shareholder orientation

In regards to stakeholder or shareholder orientation, the data in **Figure *8*** shows that 94% of companies with assured sustainability reports have their headquarters in shareholder-oriented countries.

Figure 8 - Country orientation



Source: own compilation

On the other hand, only 6% of the researched organization have headquarters located in stakeholder-oriented countries, more precisely in Australia, Ireland and the United Kingdom. The data is consistent with the existing literature arguing that companies from stakeholder-oriented countries are more likely to invest in sustainability assurance than firms operating in shareholder-oriented countries. (Simnett et al., 2007; Bauwhede, Van Cauwenberge, 2022; Kolk, Perego, 2010)

Reporting standard

As for the reporting standards, the vast majority of companies – 49 or 94% report against GRI standards. The results are consistent with those found in the KPMG 2022 survey, where 89% of the top 100 largest Austrian companies used the GRI standards. Other standards used by two companies are the Eco-Management and Audit Scheme (EMAS) and one company reports against the EcoVadis CSR ratings.

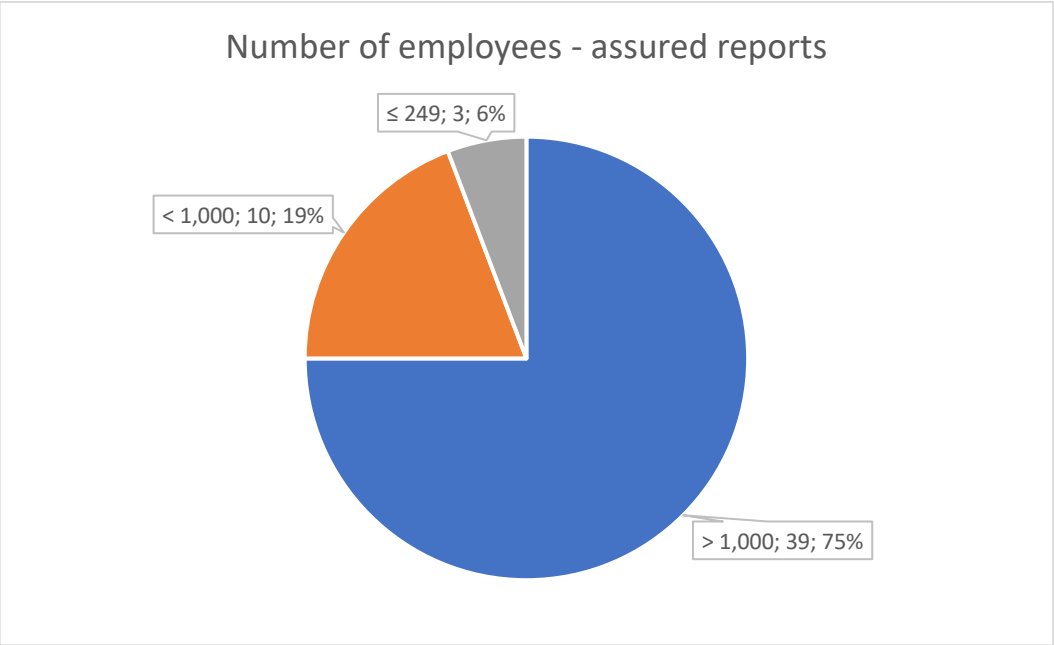
Assurance provider

Out of the 52 organizations with assurance, 38 companies (73%) decided to have their sustainability reports assured by the Big 4 firms (E&Y, KPMG, PWC and Deloitte) and 14 companies (27%) by Non-Big 4 firms or other providers. Moreover, 6 assurance services were provided by Quality Austria and 3 services by TÜV Austria. For one company – Wiener Stadtwerke Holding AG, the assurance provider remains unknown.

Size

The vast majority of Austrian companies (99.6%) belong to the category of SMEs. (KMU Forschung, org., 2019) A more detailed examination of company size, more precisely the number of employees and annual revenue could, thus, lead to relevant results for this study.

Figure 9 - Number of employees - assured reports



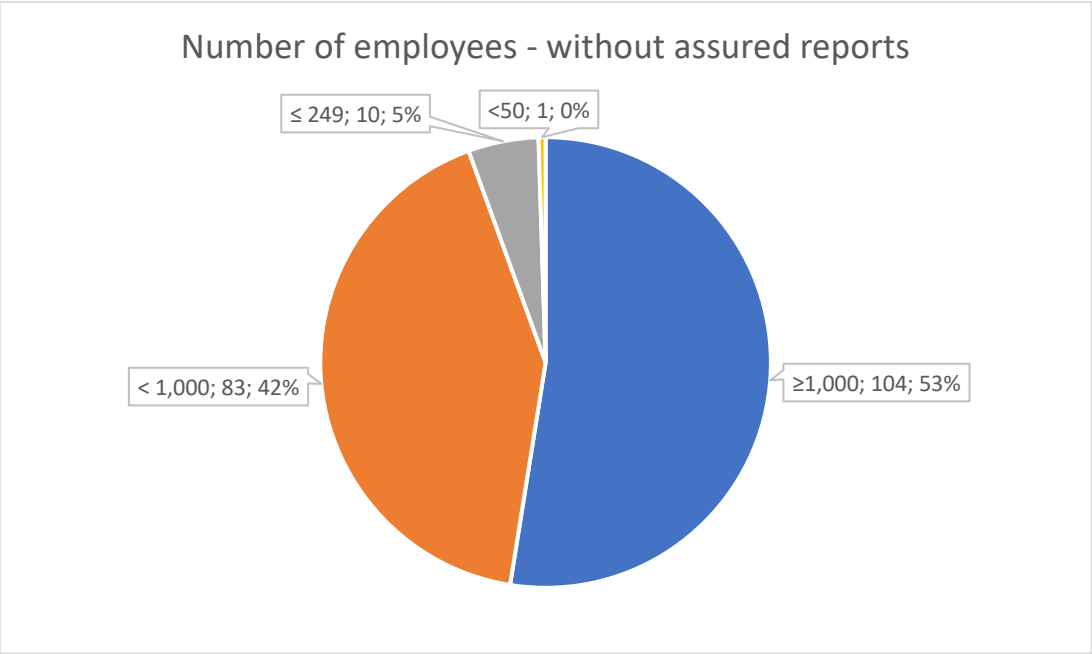
Source: own compilation

From the company observations with assured sustainability reports summarised in **Figure *9***, it can be concluded that 75% of the firms have more than 1,000 employees. Moreover, 19% of these organizations employ between 250 and 1,000 employees and only 6% less than 249.

Figure *10* demonstrates information about companies without assured sustainability reports. From the total of 198 organizations, 53% indicated employing more than 1,000 employees, 42% employ between 250 and 1,000, 5% between 249 and 51 and only one organization employs less than 50 employees.

From the observed sample, it can be inferred that the vast majority employs more than 1,000 employees. Furthermore, the results suggested that especially large organizations (with more than 250 employees) have their sustainability reports assured. This finding can be supported by a report from CSES, which states that typically large companies (with more than 250 employees) are likely to perform external assurance. The costs of external assurance in relation to staff numbers are substantially higher for smaller companies than for large companies. (CSES, org., 2011)

Figure 10 - Number of employees - without assured reports



Source: own compilation

5. Conclusions and final remarks

Over the past decades, societal and environmental issues have been increasing in importance. Therefore, companies had to react and, in addition to financial data, they started to publish non-financial information. However, the need for the credibility of this information also increased and, thus, companies introduced sustainability assurance. Apart from reliability enhancement, sustainability assurance is deemed to have other benefits for companies, potentially also financial advantages.

Different publications of researchers from the field of sustainability assurance have been examined in this Master Thesis. The literature, however, reports diverse results regarding the impact of sustainability assurance on the financial performance of organizations. Numerous studies reported positive effects on enterprises, for example, Kim et al., 2019; Aksik, Gal, 2019; Bauwhede, Van Cauwenberge, 2022 or European Commission, org., 2017. Nevertheless, other researchers found sustainability assurance to be connected with no or only minimal positive financial and non-financial effects on the reporting companies, such as Fazzini, Dal Maso, 2016; Lajmi, Paché, 2020; Giel et al., 2013. Thus, findings on the effects attributable to sustainability assurance are inconsistent. Furthermore, the majority of research has been

conducted in the English-speaking common law region and studies from other regions are only limited.

This Thesis answers consequently the following question: What impact does sustainability assurance have on the financial performance of Austrian firms? Therefore, quantitative research investigating the 250 biggest Austrian companies measured by turnover was conducted. The Mann-Whitney U Tests revealed a statistically significant difference in the financial performance of Austrian firms with assured sustainability reports in comparison to those without assured sustainability reports. The tests were repeated with several financial performance measures, such as averages of revenue reached in the period between 2017 and 2021, revenue reached in the individual years or averages of EBT scored between 2017 and 2021. Altogether, the results of this study support the first hypothesis and a positive impact can be concluded between the sustainability assurance and financial performance of Austrian enterprises.

With regards to the descriptive statistics, results are generally consistent with the expectations. The only inconsistency was found in connection with the assurance rate. The descriptive statistics show an assurance rate of 21%, which is considerably lower compared to the rate of 72% found by KPMG. (KPMG, org., 2022) Otherwise, the findings are in accordance with the existing literature. Aligned with the existing research, 87% of companies with assured sustainability reports operate in environmentally-sensitive industries. (Bauwhede, Van Cauwenberge, 2022; Birkey, et al., 2014; Seguí-Mas et al., 2018) Furthermore, 94% of these organizations report against GRI, whereas KPMG found a rate of 89%. (KPMG, org., 2022) Apart from that, 75% of the companies investing in sustainability assurance employ more than 1,000 employees and 19% employ between 250 and 1,000 employees. In other words, large companies were more likely to assure their reports. Lastly, nearly all companies with sustainability assurance have their headquarters located in stakeholder-oriented countries. This outcome is also supported by literature claiming that companies from stakeholder-oriented countries are more likely to invest in sustainability assurance than firms operating in shareholder-oriented countries. (Simnett et al., 2007; Bauwhede, Van Cauwenberge, 2022; Kolk, Perego, 2010)

The results have important implications for companies and practitioners. As the study revealed that assured sustainability reports enhance a company's financial performance, companies

should consider the potential benefits of sustainability assurance when deciding whether to adopt assurance or not. Practitioners could also take advantage of the findings to advertise their assurance services.

Although this Master Thesis provides contributions and implications, the results should be interpreted taking into consideration the following limitations. First of all, the analysis timeframe is focused on a short-term period, which covers only the fiscal years between 2017 and 2021. Therefore, it would be reasonable to repeat the study to better examine the effects of sustainability assurance on the financial performance of companies from a long-term perspective. Furthermore, the analysis involves the years 2020-2021, which are years significantly influenced by the crisis caused by the Covid-19 pandemic. The impact of the pandemic on the financial performance of enterprises is not uniform and one-way. Whereas some enterprises may have reported improvements in their financial performance, others possibly experienced a decline in their financial position. Nevertheless, studies showed that large enterprises were able to better cope with the effects of this crisis. (Spoz et al., 2021) This fact is supported by the Top 250 ranking according to which out of the researched 250 enterprises, the vast majority reached turnover below pre-corona levels.

Future research can focus on the adaptation of the Corporate Sustainability Reporting Directive (CSRD), which will require certain companies to perform an obligatory sustainability assurance of their sustainability reporting. It would allow comparing the impacts of voluntary and obligatory sustainability assurance on firms' financial performance.

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Appendix I

* Revenue 2021-2017 & EBT 2021-2017 in Mio €

Nr	Company	Staff	Ind.	HQ	Assured	System	Auditor	Rev. 21	Rev. 20	Rev. 19	Rev. 18	Rev. 17	EBT 21	EBT 20	EBT 19	EBT 18	EBT 17
1	OMV AG	22 434	15	AT	Y	GRI	E&Y	35 555,0	16 550,0	23 461,0	22 930,0	20 222,0	-1,0	-80,0	315,8	91,3	73,7
2	Voestalpine AG	50 300	2	AT	Y	GRI	Deloitte	14 900,0	11 267,0	12 712,2	13 560,7	12 897,8	4 870,0	875,0	3 453,0	3 298,0	1 486,0
3	Borealis AG	6 934	3	AT	Y	GRI	PWC	10 153,0	6 818,0	8 103,0	8 337,0	7 564,0	183,0	22,3	163,9	199,1	357,4
4	Mondi AG	26 400	13	GB	Y	GRI	PWC	7 723,0	6 663,0	7 268,0	7 481,0	7 096,0	541,5	213,3	455,9	323,0	118,3
5	Andritz AG	26 804	13	AT	Y	GRI	KPMG	6 463,0	6 699,6	6 673,9	6 031,5	5 889,1	1 998,1	677,5	953,8	1 070,2	1 267,9
6	ams-Osram AG	24 400	13	AT	Y	GRI	KPMG	5 039,1	3 504,3	1 885,3	1 426,3	1 063,8	439,6	280,9	180,9	304,2	400,6
7	Magna Steyr AG & CO KG	8 800	20	AT	N	N	N	5 035,7	4 279,0	5 783,9	4 757,9	2 914,9	119,4	56,2	113,9	187,6	69,6
8	Verbund AG	3 200	21	AT	Y	GRI	Deloitte	4 776,6	3 235,0	3 895,0	2 671,1	2 913,2	182,8	78,8	111,9	86,8	92,4
9	Wiener Stadtwerke Holding AG	15 379	19, 21	AT	Y	GRI	N	4 300,0	3 144,0	3 028,0	2 754,0	3 451,8	374,3	148,8	315,3	195,4	144,9
10	Alpla Werke Alwin Lehner GmbH & CO KG	22 100	9,3	AT	N	N	N	4 000,0	3 690,0	3 800,0	0,0	0,0	238,5	812,2	92,7	73,0	51,7
11	Wienerberger AG	17 624	5	AT	Y	GRI	Deloitte	3 971,3	3 354,6	3 466,3	3 305,0	1 496,6	298,0	641,0	300,0	213,6	-53,7
12	Infineon Technologies Austria AG	4 820	13	DE	Y	GRI	KPMG	3 898,0	3 109,0	3 114,0	2 960,0	2 539,0	129,0	-279,0	150,4	-166,1	198,9
13	Münze Österreich AG	217	7	AT	N	N	N	3 585,6	2 873,1	858,9	1 215,1	1 473,6	-2,6	-0,8	0,6	6,4	0,3
14	BMW Motoren GmbH	4 350	20	DE	Y	GRI	PWC	3 354,0	2 981,0	3 707,9	3 653,4	3 846,4	56,8	94,1	138,4	105,6	123,7
15	Henkel CEE GesmbH	10 350	3	DE	Y	GRI	PWC	3 114,0	2 919,0	2 999,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
16	Fritz Egger GmbH & Co. OG	10 300	9	AT	Y	GRI	KPMG	3 083,0	2 831,0	2 842,0	2 690,0	2 385,0	244,6	222,1	251,1	217,9	205,5
17	Mayr-Melnhof Karton AG	12 492	9	AT	Y	GRI	PWC	3 069,7	2 528,4	2 544,4	2 337,7	2 336,8	360,7	196,3	306,4	294,1	176,5
18	AGRANA Beteiligungs-AG	8 877	8	AT	N	N	N	2 901,5	2 570,0	2 480,0	2 443,0	2 566,3	168,3	127,1	55,7	158,1	202,5
19	D. Swarovski KG	27 000	18	AT	Y	GRI	E&Y	2 700,0	2 200,0	3 500,0	0,0	0,0	324,8	-230,3	645,7	1 042,5	699,9
20	RHI Magnesita GmbH	12 765	13	NL	N	N	N	2 551,0	2 259,0	2 992,0	0,0	0,0	8,6	60,2	49,8	51,3	176,2
21	EVN AG	7 126	21	AT	Y	GRI	LRQA	2 394,9	2 107,5	2 204,0	2 078,7	2 215,6	1 945,0	235,7	85,5	55,8	88,2
22	Blum Group Holding	8 570	9	AT	N	N	N	2 377,0	1 906,0	1 892,0	1 844,4	1 793,2	60,5	27,1	137,2	153,7	117,7
23	Prinzhorn Holding GmbH	9 538	9	AT	N	N	N	2 344,9	1 641,6	1 777,2	1 586,6	1 461,1	0,0	0,0	0,0	0,0	0,0
24	Greiner AG	11 015	3	AT	Y	GRI	Quality AT	2 274,0	1 930,0	1 675,0	1 631,0	1 579,0	0,0	0,0	0,0	0,0	0,0
25	Binder Beteiligungs AG	3 054	13	DE	N	N	N	2 257,0	1 603,0	1 381,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
26	Schmid Industrieholding GmbH	6 535	3, 5	AT	N	N	N	2 231,0	1 927,0	1 882,0	0,0	0,0	-72,9	-55,5	56,8	89,0	58,2
27	Lenzing Aktiengesellschaft	7 400	18	AT	Y	GRI	KPMG	2 194,6	1 632,6	2 105,2	2 176,0	2 259,4	366,4	257,3	373,5	355,7	325,5
28	Energie AG Oberösterreich GmbH	4 593	21	AT	N	N	N	2 145,2	1 843,7	1 813,5	1 625,9	1 686,7	13,6	19,8	-20,9	13,9	28,7
29	Pierer Mobility AG	5 249	20	AT	Y	GRI	KPMG	2 041,7	1 530,4	1 520,1	1 559,6	1 533,0	230,9	227,5	257,0	171,1	142,4
30	Heinzel Holding GmbH	2 411	9	AT	N	N	N	2 038,0	1 612,0	1 961,0	2 064,8	1 816,5	59,1	17,5	16,5	16,9	22,9
31	Sandoz GmbH	4 800	3	CH	Y	EMAS	TÜV Austria	2 026,6	1 976,3	1 695,5	1 651,4	1 582,4	143,6	85,1	133,1	111,1	6,1
32	Plansee Holding AG	11 000	3	AT	N	N	N	2 012,0	1 375,3	1 522,8	1 298,5	1 168,3	544,2	320,0	320,3	370,0	412,5
33	ETV Montana Tech Holding GmbH	11 600	13	CH	N	N	N	1 959,0	1 723,0	1 353,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
34	PALFINGER AG	11 733	13	AT	Y	GRI	PWC	1 841,5	1 533,8	1 753,8	1 615,6	1 471,0	187,6	166,7	258,7	214,5	177,1
35	NOVOMATIC AG	21 173	11	AT	Y	GRI	Deloitte	1 842,3	1 743,6	2 607,3	2 613,6	2 366,1	1 264,5	948,3	812,5	603,0	378,5
36	Energie Steiermark AG	1 938	21	AT	Y	GRI	KPMG	1 807,2	1 584,9	1 373,0	1 267,1	1 046,7	34,1	22,7	-10,1	-23,7	30,1
37	Boehringer Ingelheim RCV GmbH & CO KG	5 019	3	DE	N	N	N	1 752,8	1 478,8	1 448,6	1 296,7	1 234,8	0,0	0,0	0,0	0,0	0,0
38	AVL List GmbH	10 700	20	AT	N	N	N	1 600,0	1 700,0	1 950,0	1 752,5	1 553,4	277,6	135,6	148,0	206,5	177,9
39	AT & S Aktiengesellschaft	13 046	13	AT	N	N	N	1 590,0	1 188,2	1 000,6	1 027,9	991,9	78,2	64,4	36,4	58,6	91,8
40	AG	1 255	21	AT	Y	GRI	KPMG	1 586,7	1 130,4	1 286,2	1 238,7	1 099,1	27,9	-4,4	17,0	15,9	14,4
41	Umdasch Group AG	8 990	9, 2	AT	N	N	N	1 539,5	1 411,4	1 517,2	1 515,4	1 440,5	0,0	0,0	0,0	0,0	0,0
42	ENGEL AUSTRIA GmbH	3 031	13	AT	N	N	N	1 500,0	1 100,0	1 300,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
43	Robert Bosch Aktiengesellschaft	2 819	13	DE	Y	GRI	E&Y	1 401,0	1 225,0	1 396,0	0,0	93,0	15,6	51,0	55,0	81,7
44	AMAG Austria Metall AG	2 148	2	AT	Y	GRI	E&Y	1 259,4	904,2	1 066,0	1 101,6	1 036,2	184,4	280,6	173,2	176,4	380,0

Nr	Company	Staff	Ind.	HQ	Assured	System	Auditor	Rev. 21	Rev. 20	Rev. 19	Rev. 18	Rev. 17	EBT 21	EBT 20	EBT 19	EBT 18	EBT 17
45	KELAG-Kärntner Elektrizitäts-AG	1 590	21	AT	Y	ecovadis	KPMG	1 203,0	1 061,0	1 300,0	1 285,0	1 172,0	5,0	1,2	5,2	55,9	13,3
46	Montanwerke Brixlegg GmbH	499	2	AT	N	N	N	1 192,9	829,2	794,6	705,4	776,9	12,7	2,9	7,3	6,4	5,9
47	Semperit Aktiengesellschaft Holding	6 948	3	AT	N	N	N	1 182,2	927,6	840,6	878,5	875,2	147,3	188,8	141,5	195,7	389,5
48	Siemens AG Österreich	2 852	13	DE	Y	GRI	E&Y	1 172,1	1 338,7	1 794,1	2 536,1	3 072,5	0,0	0,0	0,0	0,0	0,0
49	Rauch Fruchtsäfte Gmbh & CO OG	2 050	8	AT	N	N	N	1 151,0	965,0	1 019,0	0,0	0,0	87,8	119,6	110,8	101,5	128,4
50	LEIPNIK-LUNDENBURGER INVEST AG	3 467	8	AT	N	N	N	1 093,0	1 078,0	1 021,0	0,0	0,0	106,4	155,8	155,4	144,0	144,2
51	MTB Beteiligungen	6 100	4	AT	N	N	N	1 074,0	867,5	992,1	953,1	868,1	0,0	0,0	0,0	0,0	0,0
52	ZKW Group GmbH	9 500	13	AT	Y	GRI	denkstatt	1 070,0	1 033,0	1 257,0	1 340,0	1 220,0	0,0	0,0	0,0	0,0	0,0
53	KNAPP AG	5 286	13	AT	N	N	N	1 060,6	1 061,0	1 080,1	954,3	709,6	299,0	229,2	-29,6	-63,3	12,1
54	Vorarlberger Illwerke Aktiengesellschaft	1 250	21	AT	Y	GRI	Quality AT	1 054,8	678,6	667,9	598,7	523,9	38,0	33,5	27,9	39,6	32,3
55	Pfeifer Holding Gmbh	2 005	13	DE	N	N	N	1 050,0	668,0	665,0	706,7	628,8	0,0	0,0	0,0	0,0	0,0
56	Kromberg & Schubert GmbH & Co. KG	243	20	DE	N	N	N	1 050,0	942,5	1 175,6	1 183,6	1 120,9	6,4	5,9	6,7	5,6	6,6
57	ZUMTOBEL Group AG	6 040	13	AT	Y	GRI	PWC	1 044,5	1 131,3	1 162,0	1 196,5	1 303,9	191,6	90,8	117,8	143,5	117,1
58	Frauenthal Holding AG	3 255	20	AT	N	N	N	1 024,1	874,0	951,3	954,6	904,5	262,7	213,9	62,9	66,3	84,5
59	FRONIUS INTERNATIONAL GmbH	6 100	13	AT	N	N	N	995,0	849,0	856,0	0,0	0,0	21,6	20,9	21,3	9,3	10,7
60	Berglandmilch eGen	1 435	8	AT	N	N	N	983,8	974,5	936,8	942,6	907,6	0,0	0,0	0,0	0,0	0,0
61	BRP-Rotax GmbH & Co KG	1 345	20	AT	N	N	N	979,9	837,5	726,3	653,9	622,9	0,0	0,0	0,0	0,0	0,0
62	Rosenbauer International AG	4 130	20	AT	N	N	N	975,1	1 044,2	978,1	909,4	847,6	18,3	-10,8	28,9	16,7	-7,3
63	KAPSCH-Group Beteiligungs GmbH	6 500	16	AT	N	N	N	958,5	1 137,9	1 093,8	1 145,0	1 111,2	56,6	38,8	115,2	75,5	-10,9
64	CNH Industrial Österreich GmbH	574	13	UK	N	N	N	957,5	758,9	734,4	641,3	581,8	10,4	5,0	21,5	2,5	4,8
65	BWT Aktiengesellschaft	4 260	3	AT	N	N	N	954,5	790,8	697,4	666,3	610,4	0,0	0,0	0,0	0,0	0,0
66	delfortgroup AG	3 165	9	AT	N	N	N	909,2	930,9	807,2	779,6	782,5	48,6	27,4	25,6	35,1	43,2
67	Innio Jenbacher GmbH & Co OG	2 000	21	AT	Y	GRI	KPMG	900,0	921,7	1 027,2		825,7	0,0	0,0	0,0	0,0	0,0
68	Glock Gesellschaft m.b.H.	2 320	13	AT	N	N	N	888,8	750,0	700,0	481,9	463,9	0,0	0,0	0,0	0,0	0,0
69	MIBA AG	7 520	20	AT	N	N	N	871,0	891,0	977,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
70	LINZ AG	3 208	21, 19, 17	AT	N	N	N	863,1	828,6	829,8	780,8	747,8	0,0	0,0	0,0	0,0	0,0
71	SWARCO AG	5 279	20	AT	N	N	N	827,1	757,6	755,7	689,2	675,2	0,0	0,0	0,0	0,0	0,0
72	TGW Logistics Group GmbH	3 800	20	AT	N	N	N	813,2	754,7	719,6	713,1	629,9	28,9	51,3	45,5	43,9	21,1
73	Mayr-Melnhof Holz Holding AG	1 850	9	AT	Y	GRI	PWC	806,0	627,5	669,0	684,0	553,0	133,3	58,6	100,5	115,6	89,6
74	WIG Wietersdorfer Holding GmbH	2 902	12	AT	N	N	N	799,0	720,0	707,0	0,0	0,0	57,1	44,8	31,0	39,0	22,5
75	Welser Profile Austria GmbH	2 320	13	AT	N	N	N	789,0	551,0	637,0	0,0	0,0	15,6	6,8	9,5	8,5	5,2
76	IFN Beteiligungs GmbH	4 082	13	AT	N	N	N	784,9	653,3	612,1	545,9	501,9	0,0	0,0	0,0	0,0	0,0
77	Doppelmayr Holding SE	3 192	20	AT	N	N	N	762,9	871,8	935,0	846,4	800,7	65,8	79,4	45,9	51,9	42,9
78	Constantia Industries AG	3 200	13	AT	N	N	N	758,0	719,1	810,5	757,6	709,8	47,2	42,6	65,2	54,1	62,8
79	Primetals Technologies Austria GmbH	1 292	2	UK	N	N	N	750,9	323,6	481,5	479,3	676,6	22,8	17,7	20,5	16,5	17,4
80	STIHL Tirol GmbH	770	13	DE	N	N	N	715,9	576,2	456,2	385,7	381,9	3,0	2,6	7,1	7,6	4,1
81	BRAU UNION Österreich AG	2 083	8	AT	N	N	N	707,1	773,8	755,1	732,2	707,1	0,0	0,0	0,0	0,0	0,0

Nr	Company	Staff	Ind.	HQ	Assured	System	Auditor	Rev. 21	Rev. 20	Rev. 19	Rev. 18	Rev. 17	EBT 21	EBT 20	EBT 19	EBT 18	EBT 17
82	Tyrolit - Schleifmittelwerke K.G.	4 000	13	AT	N	N	N	663,0	593,0	685,0	0,0	0,0	46,5	58,6	47,5	35,4	45,3
83	Hammerer Aluminium Industries GmbH	1 790	2	AT	N	N	N	649,0	455,0	497,0	530,7	493,0	10,7	5,4	-9,2	4,1	4,2
84	IGO Industries GmbH	3 559	2, 13	AT	N	N	N	625,0	611,0	602,3	570,1	524,1	123,5	64,1	53,2	40,6	32,4
85	Loacker Recycling GmbH	1 370	8	AT	N	N	N	621,2	628,1	706,8	0,0	0,0	12,7	30,9	25,4	23,5	27,8
86	Kuhn Holding Gesellschaft m.b.H.	1 539	13	AT	N	N	N	610,0	595,0	649,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
87	Rheinmetall MAN Holding	880	20	DE	N	N	N	609,9	577,4	521,2	402,4	366,2	39,3	15,3	22,3	65,2	51,7
88	Hasslacher Holding GmbH	1 868	9	AT	N	N	N	608,0	430,4	429,9	426,9	358,7	-30,5	-81,2	13,7	36,8	48,7
89	Sappi Austria Produktions-GmbH & Co. KG	954	9	ZA	N	N	N	598,0	564,0	704,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
90	B&R Industrial Automation GmbH	2 088	13	AT	N	N	N	588,5	514,5	561,1	586,7	512,9	9,6	7,7	28,9	36,8	52,1
91	Marcher Gruppe	1 711	8	AT	N	N	N	561,0	530,0	555,0	0,0	0,0	34,1	2,1	-0,1	8,9	12,4
92	Knorr-Bremse GesmbH	2 228	20	DE	N	N	N	556,0	501,0	502,0	0,0	0,0	53,2	36,6	14,9	19,2	11,7
93	POLYTEC Holding AG	3 585	3, 20	AT	N	N	N	555,9	521,9	627,1	636,4	676,4	-118,1	-80,6	65,4	8,3	19,3
94	Gebauer & Griller Kabelwerke Group	4 350	13	AT	N	N	N	553,0	462,0	581,0	0,0	0,0	295,4	57,8	52,4	61,9	36,5
95	MAN Truck & Bus Österriech GesmbH	1 959	20	DE	Y	GRI	E&Y	548,0	474,8	551,4	562,1	530,2	194,1	75,4	72,6	43,5	54,6
96	Jungbunzlauer Austria AG	473	3	CH	N	N	N	540,8	471,7	456,2	450,3	450,9	22,7	21,7	11,0	29,5	21,7
97	KEBA AG	1 755	13	AT	N	N	N	534,0	415,0	374,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
98	TREIBACHER INDUSTRIE AG	910	3	AT	N	N	N	529,0	450,0	660,6	411,4	217,9	13,2	-3,7	5,6	7,7	9,0
99	Berndorf Aktiengesellschaft	2 389	13	AT	N	N	N	528,5	460,4	659,9	707,2	661,1	94,9	81,8	107,9	106,8	0,1
100	Plasser & Theurer Gesellschaft m.b.H.	2 005	20	AT	N	N	N	500,7	581,5	476,1	483,4	518,6	86,5	55,7	84,9	132,1	92,2
101	M. Kaindl KG	320	9	AT	N	N	N	498,0	292,0	317,0	0,0	0,0	11,6	3,5	98,0	10,4	10,2
102	FACC AG	2 538	20	AT	N	N	N	497,6	526,9	653,1	781,6	747,6	73,8	62,0	63,3	79,9	65,1
103	Wacker Neuson Linz GmbH	917	13	DE	Y	GRI	E&Y	472,4	356,6	449,2	476,3	406,7	98,7	59,3	90,9	157,0	84,8
104	Grass GmbH	1 110	13	AT	N	N	N	467,0	204,5	205,2	215,9	208,0	30,3	7,2	19,1	3,3	4,0
105	Hirschmann Automotive GmbH	6 473	20	AT	N	N	N	458,0	374,0	404,0	0,0	0,0	183,1	81,3	104,7	128,1	116,9
106	Klinger Holding GmbH	2 494	13	AT	N	N	N	456,3	441,1	452,2	437,4	422,3	-53,6	-19,4	-31,9	-8,1	-28,8
107	MAHLE Filtersysteme Austria GmbH	1 750	13	DE	Y	GRI	PWC	425,1	393,7	495,2	561,5	585,1	130,9	90,4	90,8	74,7	55,6
108	SUNPOR Kunststoff Gesellstaft m.b.H.	188	3	AT	N	N	N	418,0	219,3	295,1	389,7	362,6	6,1	3,3	5,1	4,8	2,9
109	SKF Österreich AG	1 131	13	SE	N	N	N	418,0	338,5	425,7	402,0	367,4	5,0	69,1	20,7	9,7	5,7
110	Donau Chemie Aktiengesellschaft	1 120	3	AT	N	N	N	418,0	377,5	374,5	342,0	299,5	0,0	0,0	0,0	0,0	0,0
111	Getzner Textil AG Gruppe	1 476	18	AT	N	N	N	416,0	308,2	288,6	226,4	200,9	88,7	16,6	72,0	59,4	51,6
112	Stölzle - Oberglas GmbH	480	13	AT	N	N	N	415,0	330,0	335,0	0,0	0,0	-12,9	5,6	2,6	4,6	12,9
113	Takeda Austria GmbH	4 500	3	JP	N	N	N	412,0	561,8	525,6	531,9	514,4	84,5	76,1	57,6	40,4	34,1
114	Willhelm Schwarzmüller GmbH	2 150	20	DE	N	N	N	409,0	365,7	363,9	378,1	350,1	0,0	0,0	0,0	0,0	0,0
115	Eaton Holding (Austria) GmbH	962	13	DE	N	N	N	408,6	403,2	408,6	385,7	358,4	0,0	0,0	0,0	0,0	0,0
116	Thöni Industriebetriebe GmbH	880	13, 20	AT	N	N	N	405,0	292,0	288,0	0,0	0,0	18,8	18,6	7,4	12,6	4,8
117	Pöttinger Landtechnik GmbH	1 929	20	AT	N	N	N	404,9	363,4	382,2	360,1	311,5	9,5	14,8	5,4	7,3	6,9
118	Mars Austria OG	420	8	US	N	N	N	400,0	400,0	343,9	325,9	333,5	8,7	10,0	7,0	3,3	3,7
119	Essity Austria GmbH	560	9	SE	N	N	N	395,0	304,4	317,6	308,8	294,5	-2,9	9,7	-2,0	-3,0	1,3

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120	FunderMax GmbH	990	9	AT	N	N	N	395,0	378,8	391,1	378,5	361,9	0,0	0,0	0,0	0,0	0,0
121	Anton Paar Group AG	3 490	13	AT	N	N	N	390,0	387,0	409,0	0,0	0,0	68,8	100,9	8,4	7,6	8,9
122	Wittmann Battenfeld GmbH	2 250	13	AT	N	N	N	376,0	306,0	376,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
123	RAG Austria AG	201	21	AT	Y	GRI	Quality AT	375,0	247,5	372,8	498,4	435,1	16,0	17,2	9,5	8,3	12,1
124	Leier Holding GmbH	2 150	5	AT	N	N	N	365,0	293,2	241,6	207,9	179,3	0,0	0,0	0,0	0,0	0,0
125	NÖM AG	480	8	AT	N	N	N	363,9	346,3	344,5	344,6	350,8	33,6	27,7	26,5	32,3	19,6
126	HAUSER GmbH	1 229	13	AT	N	N	N	363,0	314,0	320,9	291,7	229,9	15,1	10,8	-2,6	-2,4	-5,5
127	Starlinger & Co GmbH	693	13	AT	N	N	N	356,0	303,2	263,2	245,8	253,4	0,0	0,0	0,0	0,0	0,0
128	EKB Elektro- und Kunststofftechnik GmbH 1	375	20	AT	N	N	N	355,5	326,3	254,4	220,3	186,0	8,1	4,6	4,9	3,8	16,9
129	Mayer & Co Beschläge GmbH	590	13	AT	N	N	N	353,0	233,1	227,4	221,4	223,9	-0,7	1,0	3,6	3,1	-2,8
130	LEGRO Group GmbH	1 752	13	DE	N	N	N	335,0	252,0	299,0	278,5	263,6	47,6	45,5	41,9	30,5	32,6
131	GE Healthcare Austria GmbH & Co OG	350	13	US	N	N	N	334,0	369,8	380,3	390,4	352,9	2,2	2,0	0,7	3,9	2,9
132	FREQUENTIS AG	2 157	16	AT	Y	GRI	BDO	333,5	299,4	303,6	285,8	266,9	129,3	104,1	69,4	89,0	79,0
133	Fröling Heizkessel- und Behälterbau GmbH	1 100	21	AT	N	N	N	330,0	220,0	140,0	0,0	0,0	18,5	20,0	27,6	37,2	24,3
134	DSM Austria GmbH	1 258	3	NL	N	N	N	329,2	340,7	334,4	327,1	292,4	13,4	11,5	5,1	5,8	5,6
135	Orasis Industries Holding	2 271	13	AT	N	N	N	321,0	260,0	298,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
136	Med-El Gesellschaft m.b.H.	2 200	13	AT	N	N	N	320,0	318,2	359,7	310,3	307,4	108,2	33,3	40,3	31,3	22,6
137	TRUMPF Maschinen Austria GmbH & Co. KG	592	13	DE	N	N	N	313,5	302,3	327,3	308,8	254,8	0,0	0,0	0,0	0,0	0,0
138	MELECS Holding GmbH	1 566	13	AT	N	N	N	310,0	283,3	285,2	263,5	227,9	84,7	57,1	49,2	37,0	31,2
139	SIG Combibloc GmbH & CO KG	350	9	CH	Y	GRI	PWC	307,4	289,1	302,0	283,3	269,9	8,1	9,8	5,9	7,5	10,3
140	SKB Industrieholding GmbH	492	13	AT	N	N	N	307,0	220,2	215,7	220,4	305,1	0,0	0,0	0,0	0,0	0,0
141	STIWA Holding GmbH	2 200	20	AT	N	N	N	306,5	259,9	261,4	255,8	206,9	0,0	0,0	0,0	0,0	0,0
142	Smurfit Kappa Nettingsdorf AG & Co KG	365	9	IE	Y	GRI	KPMG	303,8	224,4	254,7	302,4	264,5	34,2	32,4	3,6	16,8	-4,6
143	Meusburger Georg GmbH & Co KG	1 700	13	AT	N	N	N	302,0	261,0	291,0	0,0	0,0	11,4	13,9	15,5	18,2	12,8
144	Christof Industries Global GmbH	4 015	13	AT	N	N	N	300,0	301,0	350,0	0,0	0,0	7,5	6,5	4,1	3,9	5,3
145	TIGER Coatings GmbH & Co. KG	1 356	3	AT	N	N	N	299,0	256,0	300,0	0,0	0,0	43,7	51,1	44,5	48,4	51,2
146	EREMA Group GmbH	810	3	AT	N	N	N	295,0	212,8	190,3	155,8	130,9	37,2	13,9	17,1	11,3	9,7
147	SCHOELLER-BLECKMANN OILFIELD AG	1 267	15	AT	N	N	N	292,8	291,2	445,3	420,2	324,2	56,4	40,7	23,7	22,1	23,4
148	Wieland Austria GesmbH	593	13	DE	N	N	N	293,0	290,3	207,9	244,8	277,3	6,8	8,2	-1,3	-20,0	0,0
149	Röfix AG	767	5	AT	N	N	N	290,0	228,0	229,0	0,0	0,0	3,7	9,4	6,6	6,9	6,2
150	Stora Enso Wood Products GmbH	780	9	FI	Y	GRI	PWC	290,0	325,4	349,6	334,9	316,4	71,0	77,4	80,0	46,5	45,8
151	TroGroup GmbH	1 963	13	AT	N	N	N	288,9	246,3	238,0	0,0	0,0	40,3	5,2	9,0	33,0	36,9
152	Banner Batterien Österreich GmbH	805	13	AT	N	N	N	286,0	270,0	265,0	307,0	0,0	10,5	11,8	19,0	22,2	21,2
153	Pankl Racing Systems AG	2 193	20	AT	N	N	N	285,1	190,7	233,1	217,2	195,4	59,0	37,3	53,1	143,0	26,6
154	Metadynea Austria GmbH	240	3	AT	N	N	N	280,6	166,9	187,5	199,1	181,2	-5,1	1,4	3,0	0,6	-2,5
155	Senoplast Klepsch & Co. GmbH	718	3	AT	Y	EMAS	Quality AT	280,0	151,2	156,5	158,5	154,9	0,0	0,0	0,0	0,0	0,0
156	Miele Gesellschaft m.b.H.	668	13	DE	N	N	N	280,0	271,0	251,0	204,2	192,3	0,0	0,0	0,0	0,0	0,0

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157	Wolfram Bergbau und Hütten AG	340	3	AT	N	N	N	275,8	246,5	359,2	271,3	194,6	9,2	8,0	2,0	5,5	-1,8
158	Hirsch Servo AG	1 425	13	AT	N	N	N	274,0	241,6	228,8	113,9	97,4	24,5	11,5	10,8	9,1	13,7
159	Teufelberger Gesellschaft m.b.H.	1 320	3	AT	N	N	N	267,0	252,8	248,7	229,6	168,7	0,0	0,0	0,0	0,0	0,0
160	GANAHL AKTIENGESELLSCHAFT	1 624	9	AT	N	N	N	264,0	258,2	377,2	376,7	350,0	19,8	24,4	33,9	25,6	18,1
161	Münzer Bioindustrie GmbH	270	3	AT	N	N	N	259,9	266,9	250,2	245,9	256,2	14,2	7,4	4,1	3,3	0,7
162	FRUTAROM Savory Solutions Austria GmbH	180	8	IL	N	N	N	258,0	203,0	203,8	200,1	129,6	-9,4	17,3	-35,0	-10,1	-11,4
163	Johann Offner Beteiligungs-Gesellschaft m.b.H.	570	9	AT	N	N	N	250,0	176,1	196,2	193,2	184,2	1,4	7,6	6,2	2,7	1,3
164	ALCAR HOLDING GMBH	817	20	AT	N	N	N	248,8	270,3	275,9	283,8	285,5	9,9	7,5	25,7	17,1	16,3
165	Maschinenfabrik Liezen Beteiligungs GesmbH	969	13	AT	N	N	N	245,8	200,2	206,8	189,6	176,8	23,4	-31,2	37,9	32,0	-69,8
166	CoKG	800	3	US	N	N	N	245,0	236,4	174,9	212,3	207,7	36,2	4,0	11,9	14,8	2,4
167	SalzburgMilch GmbH	373	8	AT	N	N	N	244,9	229,2	228,9	221,2	207,1	12,9	3,1	-1,4	1,2	5,5
168	Josef Manner & Comp. Aktiengesellschaft	770	8	AT	N	N	N	240,0	217,2	222,1	209,9	203,5	0,0	0,0	0,0	0,0	0,0
169	SKIDATA AG	1 400	11	AT	N	N	N	240,0	259,0	303,0	0,0	0,0	43,0	39,7	32,6	26,6	35,1
170	Stahl- und Walzwerk Marienhütte GmbH	297	5	AT	N	N	N	239,3	180,1	202,0	207,4	176,9	5,9	12,3	11,3	13,2	30,0
171	Rupp Austria AG	720	8	AT	N	N	N	235,0	221,7	208,9	200,1	187,4	21,5	15,2	15,8	15,9	14,2
172	Vetropack Austria Holding Aktiengesellschaft	716	2	CH	N	N	N	233,0	209,9	208,6	196,4	182,9	3,0	0,1	2,7	0,6	7,6
173	Hydro Extrusion Nenzing GmbH	409	2	NO	N	N	N	230,4	174,3	204,7	220,1	198,2	0,0	0,0	0,0	0,0	0,0
174	Scheuch Management Holding GmbH	1 300	13	AT	N	N	N	228,2	236,6	215,6	207,0	191,5	51,7	49,8	51,4	31,1	19,9
175	Unger Stahlbau Ges.m.b.H.	1 200	5	AT	N	N	N	227,0	221,0	219,0	0,0	0,0	11,5	9,8	37,2	14,1	8,8
176	Bilfinger Industrial Services GmbH	1 422	3,15	DE	Y	GRI	PWC	226,0	199,1	248,3	0,0	0,0	63,7	55,6	53,1	47,3	52,2
177	S. Spitz GmbH	770	8	AT	N	N	N	226,0	250,0	250,0	0,0	0,0	4,6	-2,6	16,1	15,9	4,1
178	Lohmann & Rauscher GmbH	515	10	DE	N	N	N	225,0	142,9	135,1	131,6	132,6	9,9	1,4	1,8	4,1	5,3
179	Collini Holding AG	1 477	2	AT	Y	GRI	Quality AT	222,8	229,5	223,3	218,3	189,5	53,2	31,9	38,5	60,5	53,2
180	Let's Print Holding AG	800	16	AT	N	N	N	222,6	262,2	250,9	233,3	236,9	3,3	5,1	3,2	3,9	4,0
181	EV Group GmbH	990	13	AT	N	N	N	220,0	182,4	164,9	157,2	134,5	35,7	27,4	26,7	16,9	10,4
182	Energie Graz GmbH & Co KG	314	21	AT	N	N	N	220,0	205,6	191,2	182,8	182,8	0,0	0,0	0,0	0,0	0,0
183	Flextronics International Gesellschaft m.b.H.	801	13, 20	SG	N	N	N	216,6	226,7	214,9	181,5	162,6	11,8	7,6	2,2	-7,2	3,0
184	Rudolf Ölz Meisterbäcker GmbH & Co KG	971	8	AT	N	N	N	213,0	217,0	206,0	0,0	0,0	-0,9	7,1	14,5	12,7	9,9
185	LISEC Austria GmbH	1 151	13	AT	N	N	N	212,7	176,9	223,8	211,3	207,9	0,0	0,0	0,0	0,0	0,0
186	Gebro Holding GmbH	229	3	AT	N	N	N	212,0	208,0	198,0	0,0	0,0	3,9	5,6	12,0	18,8	21,0
187	TMS Turnkey Manufacturing Solutions GmbH 1	311	20	AT	N	N	N	211,4	135,5	235,6	146,9	209,7	-2,0	3,8	6,0	3,5	3,3
188	OMYA GmbH	440	3	CH	N	N	N	210,0	197,3	199,2	252,8	213,3	0,0	0,0	0,0	0,0	0,0
189	Salzburger Aluminium AG	1 003	2	AT	N	N	N	207,6	153,2	212,7	212,1	200,9	0,0	0,0	0,0	0,0	0,0
190	VFI GmbH	218	8	AT	N	N	N	207,3	198,2	184,5	165,2	157,9	0,0	0,0	0,0	0,0	0,0
191	Gmundner Molkerei	364	8	AT	N	N	N	207,0	205,5	197,5	194,8	197,0	4,0	4,8	2,5	3,7	7,4

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192	Schaeffler Austria GmbH	491	20	DE	Y	GRI	KPMG	205,0	170,4	221,6	237,4	238,3	9,3	7,3	9,1	11,0	14,7
193	Kremsmüller Gruppe	468	13	AT	N	N	N	205,0	170,0	300,0	0,0	0,0	3,8	-2,3	1,1	1,1	1,0
194	TUPACK Verpackungen Gesellschaft m.b.H.	383	3	AT	N	N	N	200,0	170,1	190,0	195,4	188,4	5,8	4,6	4,4	4,9	4,6
195	JOSKO-Scheuringer Holding GmbH	1 170	13	AT	N	N	N	200,0	181,0	171,0	0,0	0,0	21,7	20,8	27,6	57,2	18,1
196	SSI Schäfer Automation GmbH	1 900	19	DE	N	N	N	196,0	191,3	287,1	204,9	200,3	0,0	0,0	0,0	0,0	0,0
197	Synthesa Chemie Gesellschaft m.b.H.	530	3	AT	N	N	N	196,0	147,4	141,8	136,8	130,5	0,0	0,0	0,0	0,0	0,0
198	TCG UNITECH GmbH	1 020	20	AT	N	N	N	194,0	203,0	216,0	0,0	0,0	18,1	14,3	23,4	38,1	27,7
199	Ottakringer Getränke AG	777	8	AT	Y	GRI	Quality AT	192,5	181,3	242,4	242,4	218,6	8,4	7,0	6,4	4,7	8,6
200	Innsbrucker Kommunalbetriebe Aktiengesellschaft	736	17,21	AT	N	N	N	189,0	178,1	174,7	166,5	161,1	14,9	19,5	13,7	19,0	15,8
201	agru Kunststofftechnik GesmbH	636	3	AT	N	N	N	187,9	194,5	208,4	210,0	175,4	2,4	3,5	3,3	9,3	12,8
202	Allnex Austria GmbH	330	3	DE	N	N	N	187,0	143,9	154,9	171,6	173,2	8,7	16,9	11,6	13,6	14,2
203	Borbet Austria GmbH	829	20	AT	N	N	N	187,0	229,8	244,3	236,4	218,2	13,6	13,2	16,5	3,1	1,7
204	Radatz Wiener Fleischwaren GesmbH	390	8	AT	N	N	N	186,0	177,8	175,1	172,8	163,4	5,9	4,1	3,9	4,1	3,2
205	Lenze Austria GmbH	337	13	DE	N	N	N	184,0	168,0	173,0	0,0	0,0	4,2	7,0	13,6	1,5	1,0
206	Knill Energy Holding GmbH	1 440	13	AT	N	N	N	181,4	179,5	169,4	171,1	176,2	3,2	16,9	4,1	2,2	36,6
207	Bertsch Holdiing GmbH	310	13	AT	N	N	N	180,0	145,0	145,0	0,0	0,0	11,7	17,8	18,1	14,2	11,9
208	OMICRON electronics GmbH	952	13	AT	N	N	N	180,0	157,0	149,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
209	Backaldrin The Kornspitz Company GmbH	1 000	8	AT	N	N	N	173,7	156,3	168,3	157,9	148,5	0,0	0,0	0,0	0,0	0,0
210	Wintersteiger AG	1 037	13	AT	N	N	N	167,7	133,8	181,7	160,2	153,9	2,2	0,3	-1,5	3,5	3,0
211	HAINZL Industriesysteme GmbH	900	13	AT	N	N	N	166,0	155,0	161,0	0,0	0,0	5,0	12,0	7,9	7,4	7,6
212	Garant Tiernahrung	173	8	AT	N	N	N	164,7	135,3	128,4	128,8	121,9	6,4	5,5	6,6	7,3	5,6
213	IMR Metal Powder Technologies GmbH	20	2	AT	N	N	N	159,1	196,6	219,4	234,8	170,0	5,8	11,2	14,1	27,7	13,6
214	Axalta Coating Austria GmbH	300	3	US	N	N	N	158,3	134,4	143,7	143,4	128,1	-49,3	17,7	10,5	5,8	7,2
215	Nufarm GmbH	166	8	AU	Y	GRI	Bureau Veritas	157,1	156,3	168,3	163,6	147,5	1,4	3,5	6,7	8,2	4,7
216	Sandvik Mining and Construction G.m.b.H.	457	13	SE	Y	GRI	PWC	157,0	181,8	228,5	137,0	96,1	1,7	-3,6	-19,8	6,7	10,5
217	ABB AG	14 450	13	CH	N	N	N	155,9	136,2	148,0	160,1	240,1	0,0	0,0	0,0	0,0	0,0
218	ADA Möbelwerke Holding AG	2 550	18	AT	N	N	N	153,6	156,2	156,2	169,5	178,4	-244,3	91,5	184,8	135,8	97,0
219	BAYER Austria Gesellschaft m.b.H.	188	3	DE	Y	GRI	Deloitte	152,9	162,9	169,3	186,6	205,2	-39,9	-35,8	-27,5	-11,4	3,9
220	Adler-Werk Lackfabrik Johann Berghofer GmbH & Co KG	670	3	AT	Y	GRI	TÜV Austria	151,0	132,9	117,0	113,0	107,5	4,5	14,4	11,4	6,0	16,7
221	Röhren- und Pumpenwerk Bauer GmbH	266	13	AT	N	N	N	150,0	136,4	135,1	112,8	98,8	5,6	-3,3	1,6	4,5	5,7
222	Fleischwaren Berger Ges.m.b.H & Co KG	550	8	AT	N	N	N	150,0	144,3	146,6	142,4	141,0	0,0	0,0	0,0	0,0	0,0
223	Pollmann International GmbH	1 461	20	AT	N	N	N	150,0	154,7	181,4	171,6	165,0	4,4	3,3	5,2	3,0	0,6
224	Kostwein Maschinenbau GmbH	629	13	AT	N	N	N	149,3	143,0	157,2	180,1	162,2	27,0	21,4	10,6	16,8	10,7
225	Salinen Austria GmbH	387	3	AT	N	N	N	148,0	123,4	131,6	133,8	121,8	0,9	0,9	1,2	0,8	1,5
226	SANOFI-AVENTIS GmbH	150	3	FR	N	N	N	147,0	150,5	141,8	147,1	146,7	-0,8	18,1	10,4	9,5	-4,9
227	Leube AG	458	5	AT	N	N	N	145,0	128,2	94,9	91,9	74,7	13,2	8,9	2,7	5,7	-1,2
228	Fill GesmbH	854	13	AT	N	N	N	144,5	169,5	155,4	147,8	125,9	26,2	32,6	32,7	21,5	27,9

Nr	Company	Staff	Ind.	HQ	Assured	System	Auditor	Rev. 21	Rev. 20	Rev. 19	Rev. 18	Rev. 17	EBT 21	EBT 20	EBT 19	EBT 18	EBT 17
229	Salvagnini Maschinenbau GmbH	450	13	IT	N	N	N	140,0	129,1	130,4	113,5	106,2	0,0	0,0	0,0	0,0	0,0
230	ALSTOM Transport Austria GmbH	490	20	FR	Y	GRI	PWC	134,2	101,4	133,5	155,4	88,9	1,0	-6,4	13,4	13,7	16,0
231	Voith Austria GmbH	614	13	DE	N	N	N	134,1	119,0	118,0	0,0	0,0	5,4	7,1	9,6	6,6	7,5
232	Gebrüder Woerle Gesellschaft m.b.H.	366	8	AT	N	N	N	133,9	136,1	131,7	122,4	119,7	12,8	6,7	4,6	0,9	2,2
233	Hagleitner Hygiene International GmbH	1 300	3	AT	N	N	N	133,0	121,5	133,0	122,4	117,5	5,8	4,6	2,7	6,1	5,0
234	Astotec Holding	2 280	13, 20	AT	N	N	N	132,9	297,9	280,2	231,2	213,8	57,8	12,5	41,2	53,1	47,2
235	ENGIE Gebäudetechnik GmbH	540	13	AT	N	N	N	130,0	118,0	150,3	100,9	88,3	3,3	12,7	9,9	7,5	7,8
236	Empl Fahrzeugwerk Gesellschaft m.b.H.	602	20	AT	N	N	N	130,0	128,0	132,0	120,4	125,2	19,2	5,0	9,7	6,7	16,3
237	Sattler AG	660	18	AT	N	N	N	129,0	115,7	112,6	115,8	107,9	6,5	18,4	3,4	4,7	8,7
238	Stahl Judenburg GmbH	414	2	DE	N	N	N	128,0	91,1	123,5	131,4	118,8	5,9	-9,7	8,6	7,9	7,8
239	Rudolf Weinberger Holding	908	2	AT	N	N	N	128,0	121,9	120,5	121,8	118,5	15,2	14,2	5,2	7,0	4,9
240	Breitenfeld Edelstahl Aktiengesellschaft	332	2	AT	N	N	N	128,0	162,9	152,6	163,9	120,3	21,4	20,8	18,3	12,5	10,7
241	Imerys Villach GmbH	364	3	FR	N	N	N	124,4	100,0	116,4	130,7	119,5	-0,4	4,2	6,7	4,8	8,3
242	SILHOUTTE International Schmied AG	1 450	18	AT	Y	GRI	TÜV Austria	122,8	161,0	162,9	170,8	168,5	20,1	-28,1	10,6	25,9	36,1
243	GAW Group Pildner-Steinburg Holding GmbH	583	13	AT	N	N	N	119,0	104,0	123,0	0,0	0,0	5,1	5,5	4,2	5,0	9,5
244	Fischer Sports GmbH	478	18	AT	N	N	N	113,6	165,2	161,9	143,8	118,3	-13,3	7,3	16,4	13,9	0,2
245	Dormakaba Austria GmbH	600	13	CH	N	N	N	111,8	106,6	110,9	107,6	100,1	0,0	0,0	0,0	0,0	0,0
246	Wolford Aktiengesellschaft	1 091	18	AT	N	N	N	108,9	118,5	137,2	149,1	154,3	2,1	0,5	-1,5	2,3	4,2
247	HELLA Fahrzeugteile Austria GmbH	460	20	DE	N	N	N	108,3	95,6	102,2	99,7	89,5	0,0	0,0	0,0	0,0	0,0
248	UPM-Kymmene Austria GmbH	300	9	FI	N	N	N	106,5	129,8	134,4	129,1	173,0	5,3	4,2	2,6	4,3	3,9
249	Lukoil Lubricants Europe GmbH	130	20	RU	N	N	N	105,0	102,0	93,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
250	AHT Cooling Systems GmbH	860	13	AT	N	N	N	104,2	353,7	392,8	409,5	415,2	5,0	0,4	0,2	5,6	3,7