

BIOFUELS, CARBON OFFSETTING, CLIMATE-RELATED FINANCIAL DISCLOSURES AND MATERIALITY IN SUSTAINABILITY REPORTING IN THE AIRLINE INDUSTRY

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ABSTRACT

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<p>Abstract</p> <p>The rapidly growing commercial aviation accounts for a significant share of global anthropogenic CO₂ emissions. Airline industry's contribution to climate change is continuing to increase, if drastic measures are not taken urgently. The global market environment and climate policies are tightening around aviation to reach ambitious commitments of carbon-neutral growth from 2020 onwards and halving industry emissions by 2050. Changing operative and macro environments force airlines to reassess how their operations and impacts are being portrayed to the public, especially to vital stakeholders such as investors and customers. Raising global sustainability awareness reflects the stakeholders' interests, and further to information expectations from airlines. Well conducted materiality assessments aid airlines to meet with these stakeholder expectations, and thus it is expected that changes in the society's and stakeholders' values and norms show in resultant materiality topics. Powerful stakeholders, such as investors, are also increasingly interested in how airlines manage climate-related risks and opportunities in order to learn how airlines ensure profitability of their operations now and in the future, especially as regulative and market changes force airlines to adapt and change their operations. Carbon offsetting and biofuels are viewed as the most crucial measures supporting the emission reductions in the airline industry. As the industry is stepping into the era of mandatory emission reductions, reporting on these topics is expected to increase. Airlines have, however, introduced these measures well before mandatory regulative requirements. The results of this thesis indicate that the generally perceived institutional, stakeholder and legitimacy theories go hand-in-hand with the external drivers airlines are exposed to. Specifically, the key findings show significant changes in airlines' reporting of studied topics at the event of important regulative or market changes, such as introduction of biofuels for aviation, or opening the European Union Emission Trading System (EU ETS) for airlines. Adoption of these measures and disclosing them in sustainability reporting is viewed through change management. Conversely, the weight between the studied materiality categories; social, environmental, economic and governance have stayed remotely the same, with emphasis on social issues.</p>	
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<p>Tiivistelmä</p> <p>Nopeasti kasvava kaupallinen ilmailu aiheuttaa merkittävän osan maailmanlaajuisista ihmisen aiheuttamista hiilidioksidipäästöistä. Lentoalan osuus ilmastonmuutoksesta lisääntyy edelleen, jos jyrkkiä toimenpiteitä ei toteuteta varovasti. Maailmanlaajuinen markkinaympäristö ja ilmastopolitiikka kiristyvät lentoalan ympärillä, jotta saavutetaan kunnianhimoiset sitoumukset hiilidioksidineutraalista kasvusta vuodesta 2020 eteenpäin ja alan päästöjen puolittamisesta vuoteen 2050 mennessä. Muuttuvat operatiiviset ja makroympäristöt pakottavat lentoyhtiöt arvioimaan uudelleen, miten niiden toiminta ja vaikutukset kuvataan etenkin tärkeille sidosryhmille, kuten sijoittajille ja asiakkaille. Globaalin vastuullisuustietoisuuden lisääntyminen heijastuu sidosryhmien tarpeisin ja edelleen lentoyhtiöiltä odotettuihin julkaisuihin. Hyvin suoritettut olennaisuusanalyysit auttavat lentoyhtiöitä vastaamaan näihin sidosryhmien odotuksiin, ja siksi on odotettavissa, että muutokset yhteiskunnan ja sidosryhmien arvoissa ja normeissa näkyvät raporttien olennaisuudessa. Voimakkaat sidosryhmät, kuten sijoittajat, ovat entistä kiinnostuneempia myös siitä, kuinka lentoyhtiöt hallitsevat ilmastoon liittyviä riskejä ja mahdollisuuksia ja kuinka lentoyhtiöt varmistavat toimintansa kannattavuuden nyt ja tulevaisuudessa, varsinkin kun sääntely- ja markkinamuutokset pakottavat lentoyhtiöt mukautumaan ja muuttamaan toimintaansa. Hiilidioksidipäästöjen vähentämistä ja biopolttoaineita pidetään tärkeimpinä toimenpiteinä, jotka tukevat lentoyhtiöiden päästövähennyksiä. Kun ala on siirtymässä pakollisten päästövähennysten aikaan, näiden aiheiden raportoinnin odotetaan lisääntyvän. Lentoyhtiöt ovat kuitenkin ottaneet nämä toimenpiteet käyttöön jo ennen pakollisia sääntelyvaatimuksia. Tämän tutkielman tulokset osoittavat, että yleisesti koetut institutionaaliset, sidosryhmä- ja legitiimiysteoriat kulkevat käsi kädessä lentoyhtiöihin kohdistuvien ulkopuolisten vaikutusten kanssa. Keskeisimmät havainnot osoittavat erityisesti merkittäviä muutoksia lentoyhtiöiden raportoinnissa vuosina, jolloin merkittäviä sääntely- tai markkinamuutoksia on tapahtunut, kuten biopolttoaineiden käyttöönotto ilmailussa tai Euroopan unionin päästökauppajärjestelmän (EU ETS) avaaminen lentoyhtiöille. Näiden toimenpiteiden käyttöönottoa ja raportointia vastuullisuusraporteissa tarkastellaan muutosjohtamisen avulla. Muutoksista huolimatta tutkittujen olennaisuusaiheiden välinen painoarvo on pysynyt samankaltaisena.</p>	
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1 INTRODUCTION

The global tourism industry has grown rapidly since the 20th century. Commercial aviation, being an important part of the tourism industry, has expanded at a staggering rate, and so have the industry-originated greenhouse gas emissions. According to the International Air Transport Association (2017), 3.8 billion passengers travelled by air, when in 2018 it was already 4.4 billion passengers (Air Transport Action Group, 2018). It is widely recognized that the aviation industry contributes to climate change through fuel combustion and resulted greenhouse gas emissions (Becken, 2019; Daley et al., 2008; Hooper & Greenall, 2005; Lynes & Dredge, 2006; Mak & Chan, 2006). Compared to countries, the aviation sector itself would place 8th among the largest emitting countries, accounting for 2 % of the global anthropogenic emissions (International Renewable Energy Agency, 2017).

Despite the greenhouse gas (GHG) emissions being reduced 50% since the 1990s (International Air Transport Association, 2020), the aviation industry comprises for an estimated 15% of the global oil market, meaning that by 2030 the aviation industry will account for 3.5% of all CO₂ emissions originating from energy use (International Energy Agency, 2019). Emissions from international aviation added up to 448 megatons (Mt) in 2010, whereas by 2020 the emissions are predicted to amount to 682-755Mt (International Civil Aviation Organization, 2016). Emissions from aviation differ from other industries as aircraft emissions are primarily emitted into the upper part of the atmosphere (Duval, 2007). There, traditional aviation fuels can be up to 10 times more environmentally harmful than they would be on the ground (Keller, 2001). Additionally, local air quality is negatively impacted from air transportation emitting particulate matter and nitrogen oxides. In addition to impacts on air quality and global emissions, the airline industry also contributes to biodiversity degradation and noise pollution. The industry also acts as a significant employer around the world, contributing to economy through salaries and taxes. (Daley et al., 2008; Hooper & Greenall, 2005) As the airline industry contributes significantly to global carbon emissions, it plays a key role in reaching Paris Agreement's international targets set in 2015 (International Renewable Energy Agency, 2017).

As the demand for commercial aviation increases, the need for sector wide, comparable reporting grows. With sector growth, interest towards industry sustainability increases, creating pressures for airlines to implement sustainability initiatives and report on them (Cowper-Smith & de Grosbois, 2010). GHG related regulation has impacted the value chain of airlines, as regulations have influenced taxation and cost of aviation fuels and will continue to do so in the future. Thus, investors may see indirect upstream and downstream emissions of airlines as significant liabilities. (International Renewable Energy Agency, 2017) Lack of monitoring, verifying, managing and reporting these emissions may set airlines

and their investors under significant economic risk as focusing only on direct emissions may give a misleading image of the company's GHG emissions.

As interest towards climate challenges and airline industry's contribution to these challenges grows, stakeholders are increasingly demanding more corporate GHG disclosures. Institutional investors are increasingly looking for non-financial information reported by companies and sharing that reported environmental, social and governance (ESG) issues have a significant influence on their investment decisions (Nelson, 2020). Investors are specifically interested in how airlines are performing against their competitors and what kind of actions are taken to adapt to tightening regulation. The expectations from stakeholders have resulted in a growing number of airlines reporting sustainability issues either in a stand-alone report or in an integrated report.

In the beginning of the 2000's the CSR reporting activity of airlines was lacking, but previous research shows that a large share of airlines started publishing sustainability information before the 2010s (Andersson & Jabkowski, 2013). However, in 2011, only 40% of the 46 largest airlines published a sustainability report (Heeres et al., 2011). In addition to airlines having a low reporting rate, consistent quality reporting has been lacking despite the fast growth-rate of the industry (Cowper-Smith & de Grosbois, 2010). Earlier research shows that especially sector-specific standards complicate coherent reporting and comparison between airlines' performance (Heeres et al., 2011). Despite the growing interest and increasing reporting activity, the number of airlines not reporting any GHG emission reduction initiatives is still surprisingly large to this day (Becken, 2019), indicating that airlines have not yet reacted to the risks of not disclosing comprehensive climate-related information.

Despite the impact of the industry on global emissions and the growing public interest towards climate issues, the research literature on sustainability reporting in the airline industry is very limited (Cowper-Smith & de Grosbois, 2010). Longitudinal qualitative research from the 2010-decade regarding airlines' general sustainability reporting is lacking, and especially studies focusing on driving motivations behind airlines' sustainability disclosures. The aviation industry is committed to carbon neutral growth from 2020 and reducing 50 % of the GHG emissions from 2005 levels by 2050. To achieve this, the industry needs to utilize fuel efficiency measures, new aircraft, carbon offsets and less emitting fuels. Of these measures, utilization of biofuels was found to best support long-term emission reductions (International Renewable Energy Agency, 2017). In fact, biofuels and market-based measures account for the majority of measures the International Civil Aviation Organization (ICAO) has planned for reducing aviation emissions (Lahti, 2019). The current technology is only able to process bio-fuel-blended fuels with certain concentrations. While the industry is waiting for more advanced technology, market-based steering methods are considered to play a significant role in emission reductions (Lahti, 2019). As the industry is aiming for carbon neutrality, emissions exceeding the 2019-2020 levels must be compensated with carbon offsets. However, it was noted already in the 2000's that

there is a need for carbon offsetting-related regulative measures and clearer instructions to guide and motivate airlines. (Ceron et al., 2007) It was also noted, that many of the offsetting projects lacked consistency in emission calculations, quality and verification. Concern has also been raised on whether offsets are being used to delay the necessary transition to low-carbon processes. (Eisenkopf & Knorr, 2009) However, carbon offsetting schemes have been developing since the 2000's and industry participation is still quite understudied. Carbon mitigating measures have been available for airlines for more than a decade, but no research has been conducted on when airlines have started to report about these measures. It is also unclear how many airlines have reported on carbon mitigation measures in which year. As the driver for sustainability reporting in the airline industry mirrors the generally studied motivations, the reasons for reporting should not be looked at solely from a sectoral point of view.

The novelty of this study lies in its originality. No similar research on airline's sustainability reporting has been conducted so far. The number of selected airlines for the study is vast, providing more information than other qualitative studies conducted on this topic. Connecting theory, external changes and developments within the airlines' reporting is an area that has not been looked at before, especially with the focus on biofuels, carbon offsetting, climate-related financial disclosures and materiality. Additionally, combining qualitative research methodology with some quantitative methods provides a new angle and more information on the studied topic. To complement the gap in current research, this thesis aims to study the development of 67 airlines' sustainability reports over the period of 2003-2019. The aim is to gain information on how reporting changes mirror the drivers and milestones in regulative and market environment, and to connect these events to the reporting developments. The focus on biofuels, carbon offsetting, climate-related financial disclosures and materiality is based on the author's personal interests. However, as the regulation around airlines' climate impacts is tightening, it is compelling to study how airlines have reported on chosen emission mitigation measures, climate risks and opportunities and materiality. Looking at the developments from a historical perspective gives insight in how airlines' reporting could change amid future developments in and regarding the industry.

This study focuses on selected attributes and their relation to external developments, and views airlines' motivations to react to these developments through three theories: institutional, stakeholder and legitimacy theory. Change management is presented as a tool for airlines to ensure the continuity of their operations. As the research material is vast, the thesis only focuses on general changes and selected topics in the sustainability reports, and only on the reporting practices and not on the CSR actions of the companies.

The primary research question is:

How has airlines' sustainability reporting changed, and is development associable to milestones and drivers in the sustainability and CSR scheme?

The secondary questions are:

How has materiality changed?

E. Vilén: Sustainability reporting in the airline industry

*When and possibly induced by what drivers have biofuels been introduced to the reports?
When and possibly induced by what drivers has carbon offsetting been introduced to the reports?*

When and possibly induced by what drivers has climate related financial disclosures been introduced to the reports?

The author believes this thesis will complement the current research about sustainability reporting development in the airlines industry and give a welcoming insight on the influence of global drivers and milestones to the sector's reporting. The results of airlines' motivations for reporting could assist future policymakers in assessing climate policy impacts, as well as airlines themselves in finding areas to gain competitive advantage from.

The thesis begins with an introduction and a background chapter, explaining definitions and limitations of the research. The second chapter defines CSR and sustainability reporting and introduces the study topics materiality, carbon offsetting, biofuels and climate-related financial disclosures. Theoretical concepts for sustainability reporting and change management are presented. The third chapter considers research methodology, methods and research design. The following chapter presents research results, which are discussed more in the fifth chapter. The sixth and the final chapter concludes the research and gives suggestions for further research.

2 CORPORATE SOCIAL RESPONSIBILITY AND SUSTAINABILITY REPORTING

2.1 Explaining CSR and sustainability

Sustainability and Corporate Social Responsibility (CSR), are commonly used terms to present organizations' ethical actions towards the surrounding environments. Nowadays the terms have been used largely as synonyms, but both have also various differing definitions. A precise definition of CSR does not yet exist, varying and competing definitions have been suggested for decades. Dahlsrud (2008) recognized 37 definitions used for the concept of CSR, which pinpoints the vast array of available and used definitions and interpretations. Many of the definitions overlap the basic principles of CSR but look at the issue from contrasting viewpoints and emphasize different issues. The definition of CSR can be dependent on a country's sociopolitical environment and is thus reliant on the context in which it is used and is evolved (Carroll & Brown, 2018). The stakeholder, economic, social, environmental and voluntariness dimensions are the most often used dimensions associated with CSR based on their occurrence (Dahlsrud, 2008).

The common negative perception of CSR describes it as a way for companies to increase performance, profits and please the stakeholders (Upadhaya et al., 2017; Kassel, 2012), however early definitions of CSR by Davis (1973) described CSR as "the firm's consideration of, and response to, issues beyond the narrow economic, technical, and legal requirements of the firm" (p. 312) and "decisions and actions taken for reasons at least partially beyond the firm's direct economic or technical interest" (Davis, 1960, p. 70). The conception of CSR with a broader purpose was also later supported by Carroll (1979), who perceived CSR as "the economic, legal, ethical, and discretionary expectations that society has of organizations at a given point in time" (p. 500). Discretionary was later specified to mean philanthropic, due to it being commonly perceived that way by the term users (Carroll, 1991), however the essence of the definitions is the growing emphasis on the impacts CSR has on the wider society beyond the corporations' interests. The development of the concept can be seen from the definitions of the two authors above, and according to Moon (2014), these two and a third definition represent the evolution of the description of the term. The third description was provided by Matten and Moon (2008), according to whom CSR stands for actions of the companies that "reflect business responsibility for some of the wider societal good" (p. 405). Yet they highlight that the emphasis of the responsible acts depends on the company's own decision making. To summarize the essence of CSR, Moon (2014) suggested that based on the various descriptions by scholars and users, the definition condensates to three aspects: being reliable (i.e. accountable), contributing to the wellbeing of the society and recouping the degravative impacts, and behaving responsibly.

There has been a discussion in the academic literature on which of the terms should be considered as the dominant main term. Karagiannis et al. (2019) perceive CSR as an 'umbrella concept', which considers and handles different theories and interpretations. Some suggest the opposite, viewing CSR as the more tapered concept with a narrow focus on corporate issues, such as improving corporate performance (Upadhaya et al., 2017; Kassel, 2012). The linkage between corporate social responsibility and corporate financial performance (CFP) has also been widely disagreed on. Some scholars suggest that there is a clear correlation (Moore, 2019; Lin et al., 2019; Upadhaya et al., 2017), while some see it as dependent on the industry. Karaman et al. (2018) for example, found no evidence on the correlation of CSR and CFP in the airline industry, but did recognize the possible positive correlation in other industries.

Studied motivations for companies to practice CSR activities vary among industries and sectors. The motives can be related to a market differentiation strategy, public image management, or they can be stemming from a regulative pressure. From the very beginning of CSR, it has been demanding to distinguish organizations practicing CSR to increase productivity and organizations acting responsibly to fulfill their responsibilities towards the society (Carroll, 2009). The EU Commission (2001) described CSR as something where companies voluntarily include the triple bottom line (TBL) aspects, social, environmental, and economic, in their functions and stakeholder interaction. Karagiannis et al. (2019) explain that this definition has been seen as a more managerial approach, according to which CSR can be used as a management tool by companies. They also state that besides the managerial view, CSR has been described as an ethical concept, where companies are required to practice ethical operations that contribute to the values of society while participating in the improvement of the lives of the people in said society.

Thus, CSR could be interpreted to include both business and societal aspects and as a concept not just for providing profits for shareholders, but for advocating long-term sustainable actions and operations which contribute to society at large.

Sustainability is just as vague a concept as CSR and there are multiple different variations of definitions used in the academic community. Not the first, but possibly the most cited definition for sustainable development was determined by the United Nations Brundtland Commission in 1987. The report "Our Common Future", or "the Brundtland Report" defined sustainability development as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations, 1987, p. 8).

The definition of the Brundtland Commission focuses on assuring resources for future generations, whereas CSR is more focused on preserving the resources for the current society (Kassel, 2012). More often, the intra-generationality of sustainability and the focus on current society has been seen as the most distinguished difference between the two terms.

Stemming from a concern towards the environment, sustainability has been widely adopted by businesses worldwide to portray their responsible actions towards society (Carroll & Brown, 2018). The term broadened due to Elkington's triple bottom line concept and him linking sustainability to it (The Economist, 2009). The triple bottom line is essentially about people, planet and profit (Elkington, 2005), meaning that the emphasis is on bringing economic prosperity, assuring conservation of the natural environment and wellbeing of the society.

Critique towards sustainability argues that the concept is too concerned about environmental issues and understates the need for economic and social prosperity. However, in their research Andersson & Jabkowski (2013) saw sustainability taking into consideration the firm's whole operating system, due to the Brundtland Report introducing more aspects than just the environmental, such as the social aspect for example. Kassel (2012) also considers that the definition of the Brundtland Report highlights the limited resources in the society, which reach beyond environmental resources, as the end recommendations of the Report emphasized the redistribution of various assets such as economic prosperity, technology and expertise. Conveying from the suggestions of Kassel (2012) and Andersson and Jabkowski (2013), sustainability could be considered to have a wider value base than only the TBL aspects. The difficulties with defining sustainability might lie in the fact that the terms sustainable development and sustainability are used interchangeably, and some see that the development in sustainable development is contradictory with the ideology that environmental preservation is emphasized without properly addressing the issues relating to increasing consumption and economic growth (Owens, 2003). According to Kassel (2012), the notable difference between the terms is set in the intra-generationality of sustainability and CSR's focus on the current society. Despite this common view, CSR for many companies is also reputation management and developing long-term plans and strategies for, not maximum, but optimal profits. Hence, the management of resources reaches further than just to the current society.

Although these two concepts originate from different backgrounds, the use of the terms have started to overlap in the academic literature. Some scholars even see that sustainability, being the strategic corporate social responsibility, leads to the end target of sustainable development (Papafloratos, 2018, as cited in Karagiannis et al., 2019). Currently these two concepts are increasingly used with the same meaning, which is why the terms are used interchangeably in this thesis.

2.2 CSR and sustainability reporting

This chapter introduces the history of CSR and sustainability reporting and discusses the state of sustainability reporting today. Motivations for disclosing sustainability information and study topics are presented as well.

2.2.1 The evolution of CSR and sustainability reporting

Elkington's triple bottom line aspects linked with sustainable development support the view that companies and organizations should practice responsible conduct. The society and stakeholders are increasingly expecting this responsible behavior from corporations. For companies, the responsible actions and strategies are best communicated in published reports, such as annual, sustainability, CSR and environmental reports.

There is a growing trend towards integrated reporting, where financial and non-financial information is merged. Some requirements have already been made by the European Commission (EC) in the form of Non-Financial Reporting Directive (NFRD). Besides mandatory requirements, there are various other reasons for issuing a sustainability report. The main theories explaining motivations behind reporting are institutional theory (IT), stakeholder theory (ST) and legitimacy theory (LT).

Traditionally, the CSR reports present non-financial information from companies and organizations that impose stakeholders to financial and social impacts. CSR reports are being progressively used by corporations to respond to the growing demand for accountability, corporate transparency and risk and opportunity-related information addressed by various stakeholders (KPMG, 2008). Despite the data collection and reporting being resource-intensive, it has developed into a corporate best practice and companies use it as a way to retain current investors and customers and to attract new ones (Rupley, Brown & Marshall, 2017). The history of financial reporting is far more extensive than the history of non-financial reporting. Still being in its infancy, non-financial reporting has only been developed into its current form during the 21st century. Sustainability reporting has its roots in the 1960s, but it started to properly evolve during the 1970s and 1980s (Ortas, 2011). In its early stages, CSR and sustainability reporting was more of environmental reporting, practiced by petrol and chemical companies that were under heavy public scrutiny due to environmentally degrading practices. These companies were prone to ecological incidents and environmental accidents, which induced NGOs and socially responsible investment (SRI) funds to address the need for more environmental disclosures. (Rupley et al., 2017) The publication of the Brundtland report in 1987 further addressed the need for comprehensive reporting including social and economic aspects in addition to environmental information. The Coalition for Environmentally Responsible Economies (CERES), formed in 1989, established ten environmental principles, which were

developed further into the Global Reporting Initiative (GRI) in 1997 (Rupley et al., 2017).

According to Marlin and Marlin (2003, as cited in Tschopp & Huefner, 2014), the current CSR reporting developed through three stages. In the first stage over thirty years ago, the reports were labelled as “green washing” and excluded relevant information in addition to not including measured data that was comparable. In the next stage, starting before the 2000s, large companies started to publish more accountable and measurable data. The final and third stage represents the current 21st century reporting, where the reports are based on multi-stakeholder inclusiveness and reporting frameworks (Marlin & Marlin, 2003, as cited in Tschopp & Huefner, 2014).

KPMG (KPMG 2005, 2008) showed that CSR and sustainability reporting practices escalated substantially among the largest 250 corporations between 2005-2011, indicating that sustainability reporting was becoming normative among large international companies (Tschopp & Huefner, 2014). The increase of the reporting practices has been partly due to emerged international organizations helping and guiding reporting companies. The Sustainability Accounting Standards Board (SASB) was established in 2012 and provides industry-specific instructions on material financial risks and opportunities that are essential to the company and its stakeholders. These risks and opportunities also include those of sustainability nature. (Rupley et al., 2017) The framework by the International Integrated Reporting Committee (IIRC) has further assisted the reporting practices of corporations to evolve towards integrated reporting (Rupley et al., 2017).

2.2.2 CSR reporting today and mandatory requirements

From the start of the largest companies reporting on environmental aspects to current day reporting, CSR and sustainability reporting has become more mainstream and a norm in corporate reporting. Roughly three quarters of 4900 corporations publish sustainability reports, and 60% or more of all industry sectors report on sustainability issues according to a recent study conducted by KPMG (2017). The study also revealed that the assurance of reported sustainability information has increased significantly among the world’s 250 largest companies by revenue, the G250 companies, indicating that large and medium-sized companies increasingly value accountability of the information they report (KPMG, 2017). The expanding interest of stakeholders and society towards the responsibility and sustainability of companies have shown that reporting can no longer be about communication or marketing. Heeres et al. (2011) highlight that it is more about “basing concrete, measurable actions in a robust corporate sustainability strategy that’s integrated with a company’s overall goals” (p. 3). In other words, the emphasis should be put on more efficient use of resources, compliance with laws and regulations and meeting the needs of the stakeholders, specifically the customers.

Global pressures towards corporations motivated the development of issuing a separate sustainability report, and now there is a growing trend among companies to incorporate CSR information in their annual reports. The environmental issues are progressively seen as exposing the company to a financial risk, which is why the line between traditional financial and non-financial reporting is becoming ever finer. Integrating the non-financial and financial information into a single report, to an integrated report (IR), upholds that when done correctly, sustainability can be embedded into a corporate strategy and into performance (Heeres et al., 2011). The IR combines social, governance, economic and financial features of the firm (Rupley et al., 2017). When standalone financial reports are commonly aimed at investors and other shareholders, the IR is for the larger group of stakeholders. Where traditional financial reporting focuses on providing historical information, the IR introduces both the past data and related orientation for the future. The need for integrated reporting has also been acknowledged in the regulatory bodies. In 2014, the European Commission (EC) set a directive for non-financial reporting, NFRD, requiring that all large public-interest companies (PIEs) with more than 500 employees include non-financial information in their financial reporting from 2018 onwards (European Commission, 2019b). This covers an estimated 6000 organizations in the EU, and already 78% of the largest companies integrate both non-financial and financial information annually (KPMG, 2017). Furthermore, in 2019 the EC published guidelines for reporting climate-related financial disclosures, which take into consideration the 2017 recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD). TCFD underlines reporting disclosures on the climate-related financial risks and opportunities (TCFD, 2020). The EC has left a proposal on reaching the requirements of the NFRD to other categories of PIEs, such as companies with over 250 employees (European Commission, 2020). The development of the NFRD indicates that the regulation towards integrated reporting is expanding and that in the future companies publishing only one report will become the new norm.

2.2.3 Voluntary disclosures, stakeholder, institutional and legitimacy theories

Usually the non-financial information, or the NFI-report, is in the Review by the Board of Directors in the annual report and is signed by the Board, so mandatory reporting does not single handedly explain why many companies publish standalone sustainability reports or additional metrics beyond the NFRD requirements. Other voluntary reasons and drivers for issuing a sustainability report are related to economic performance, public image management, stakeholder management, improving efficiency and pure ethical reasons. CSR reports are essentially used by different stakeholders for various purposes. Investors may use it to make decisions on ESG-investments, governments to assess new regulations, NGOs to advocate responsibility and sustainability, financing bodies to find risk disclosures related to non-financial issues. The reporting company can utilize the reports for resource management, employee motivation or to simply act ethically.

(Tschopp & Huefner, 2014) For many companies, the reporting of sustainability aspects is still of voluntary nature and may lead to discrepancies between the expectations of corporate management and stakeholders.

The motivation for voluntary environmental disclosures can be found in the external pressures, institutional pressures and aim to meet the values and expectations of different stakeholder groups, in order to gain legitimacy for the company's operations (Tavares & Dias, 2018). Kuo et al. (2016) distinguish that academics have raised 5 main motivations for reporting: "market and financial strategies, stakeholder pressure, image enhancement, regulation compliance and good corporate citizenship" (p. 185). Institutional theory (IT), legitimacy theory (LT) and stakeholder theory (ST) aim to explain why companies issue a sustainability report from different viewpoints. IT, ST and LT are closely related, each contributing and complementing each other. All three theories are often found as systems-oriented perspectives, meaning that the focal entity simultaneously influences the system in which it operates, as it is also affected by that same system (Andersson & Jabkowski, 2013). For example, airlines have impacts on the societal system, such as job creation and participation in the economy through salaries and taxes, as well as various environmental impacts. Similarly, actors in the surrounding society, such as consumers, investors and governments, influence the airlines through certain demands which determine whether the airline company is accepted as part of the society or not.

Institutional theory aims to explain why there is so called isomorphism among companies, even if they operate in completely different organizational environments (Tavares & Dias, 2018). This means that companies and organizations tend to become more alike by their organizational structures. This can be due to organizations following prosperous practices of a succeeding company, e.g. an organization which has gained legitimacy and approval of its stakeholders by disclosing CSR issues in its reports. Essentially institutional theory explains that the drivers for companies and organizations to publish sustainability reports do not exclusively originate from the stakeholder demands, but also from institutional influences, such as climate performance rating organizations and governments (Herold, 2018), which represent the norms and values in the surrounding societal system. Eventually, these values and norms develop as behavioral guidelines for the agents in the societal system. Sheehy (2012) sees that sustainability can act as a global self-regulative tool, which the multinational corporations have adopted themselves. However, it is not certain how effective it is globally as there still lacks standardization of sustainability and CSR disclosures among corporations (Andersson & Jabkowski, 2013).

DiMaggio and Powell (2000) distinguished three isomorphic processes: normative, coercive and mimetic isomorphism. Normative isomorphism occurs as a result of developing values and norms of society. Coercive isomorphism takes place when the organization is being pressured by powerful stakeholders, especially those that the company depends on (Herold, 2018), such as investors or regulators. Lastly, mimetic isomorphism relates to given examples of companies

and organizations copying each other to repeat their fruitful ways (DiMaggio & Powell, 2000). This way institutional theory explains that due to the phenomenon of isomorphism companies endorse CSR and sustainability reporting practices. Institutional theory does not, however, explain why heterogeneity exists among organizations, which could be due to companies being exposed to varying expectations and pressures depending on their stakeholders and organizational model (Herold, 2018).

As stated, institutional theory does not explain why companies heterogeneously report sustainability issues. The motivations need to be looked at from other academic perspectives as well. Legitimacy theory is similar to institutional theory, as it postulates that companies and organizations aim to assure that their operations are within the society's values and norms. Brown & Deegan (as cited in Tavares & Dias, 2018) explain that this is how "social contract" formulates between companies and the society around them. To avoid a legitimacy crisis, social disclosure must be kept at current levels. By doing so, organizations aim to prove that they are worth the support of their stakeholders. The leading motivation is the fear of not being allowed to continue to operate (Deegan & Unerman, 2011). It is believed that institutional legitimacy can be gained by complying to institutional norms for a considerable amount of time (Tavares & Dias, 2018). When a social norm or value is institutionalized, it creates certain guidelines for action which generate similar responses from companies to gain legitimacy (Herold, 2018). Thus, according to legitimacy theory, airlines could be disclosing CSR issues to convince stakeholders that the company is meeting their expectations and simultaneously answer to the institutionalized norms and values of the surrounding operative environment and institutional agents. Ultimately, this strategy leads to financial stability or even growth when the airline can convey an image of itself as socially responsible and gain positive external reputation. Sustainability reporting can thus be seen as a tool for marketing and maintaining a certain public image, as companies can use it to communicate their vision, values and performance, as well as a tool for empowering the corporate strategy and profitability (Karagiannis et al., 2019).

Stakeholder theory relates to legitimacy theory. As a part of the social system, organizations must show that they operate within the society's values and norms, or otherwise their legitimacy could be substantially affected. According to Huang & Kung (2010), when expanding their strategies, organizations need to consider all stakeholder groups to not risk losing any of their support. It is also crucial to examine the nature and path of influence of the different stakeholders. Stakeholder theory, first introduced by Freeman (1983), essentially aims to provide a framework for stakeholder classification based on the power they hold. Stakeholders are defined as: "any group or individual who can affect or is affected by the achievement of an organization's objectives" (Freeman, 1983, p. 46). By stakeholders Freeman refers to any internal or external stakeholder who has a stake in the company and is affected by it or influences it. Balancing the various expectations from stakeholders is essentially about survival, which is determined

by skillful stakeholder management and their acceptance in the long-term. Stakeholder theory leads to stakeholder management, in which companies try to identify their stakeholder groups' differentiating needs and expectations. By providing a comprehensive sustainability report, airlines are responding to their stakeholders' expectations of the company's operations and ethics. Herold (2018) links institutional theory and stakeholder theory, explaining that both theories can complement each other in explaining the internal and external pressures which affect sustainability reporting, as external pressures from stakeholders can influence the institutional motivation of the company. He suggests that to fully explore how actors influence operations in the organizational field, stakeholder and institutional theories should be merged.

Evidently, all theories relate on some level to economic success of the company. Some authors have been against the linkage between CSR and corporate financial performance (CFP), such as Karaman et al. (2018) who suggested that there was no notable correlation between sustainability reporting and CFP in the aviation industry. However, various studies have suggested that in general, that is not the case. The Aflac survey (Aflac, 2019) conducted in 2019 showed that CSR initiatives affect the purchasing decisions of 77 % of customers and the decision-making of 73 % of investors. In 2020, 91 % of investors were influenced by the ESG information reported by companies and failing to provide these disclosures can cause a significant risk of losing access to capital markets (Nelson, 2020). Most of the world's largest companies and organizations publishing a sustainability report shows that management of the largest operators in business also believe that CSR matters to investors (KPMG, 2017). Positive relations between economic performance and sustainability reporting have been found regarding, for example, credit ratings and debt cost (Bauer & Hann, 2010). Orlitzky, Schmidt, and Rynes (2003) found that there was a correlation between lower corporate risks and sustainability reporting and Gelb, Henry and Holtzman (2007) showed a clear correlation between airlines' financial performance and the extent of their voluntary disclosures.

2.2.4 Change management

This thesis has explained motivations for sustainability reporting through institutional, stakeholder and legitimacy theories. Motivations for change in corporate sustainability behavior and reactions to changes in the external sustainability scheme, however, can be explained through change management.

As the business environment is constantly evolving and demands from stakeholders have begun to drift ever more towards sustainable commitments of the company, the changes require companies to introduce alterations and developments on their activities. According to Hashim (2013) change management takes place when an organization is changing its current activities and operations to adapt to external and internal changes, while still gaining profits. The alterations could concern employees, technology, production modes, organizational

structure, or governance. The aim of change management is to sustain the existence of the organization in the long-term. Hashim (2013) also clarifies that the motivations or drivers for change can be divided into external and internal. External drivers are, for instance, society's changed values, actions of competing companies, national regulations and policies or change in stakeholder demands. Internal drivers can for example be innovations regarding manufacturing, products or designs and changes in corporate management. The ability to adapt to the internal and external changes in the organizational environment is a key factor for the organization's survival. Companies that do not show sufficient reaction to changes, are more prone to risks and the impacts of external influences (Soufre, 2017).

To achieve environmental, social and governance sustainability, corporations need organizational change management to reach all operations of the company. This includes, for example, increasing resource efficiency of technology, re-evaluating used raw materials and organizational processes (Doppelt, 2010). Change management with sustainability in organizations has been viewed as top-down and inside-out (Doppelt, 2010), meaning that it highlights controlling and managing as well as measuring, while being driven by development and alterations from the inside (Soufre, 2017). Sustainability can be used as a guidance tool when implementing organizational changes, according to Soufre (2017). Soufre (2017) revealed that sustainability was used to guide corporate changes regarding process developments, innovations, stakeholder communication and designs, such as introducing product life cycle analysis and integration with strategy.

Lozano, Nummert and Ceulemans (2016) clarify the meaning of change management for sustainability reporting. According to them, organizational change management for sustainability (OCMS) and sustainability reporting (SR) are linked, both reinforcing each other. Reporting can act as an incentive for organizational change as well as change for sustainability can help develop the processes of reporting. They see that sustainability itself can act as a driver for organizational changes, including data and performance indicators, corporate strategy, and the upcoming reporting season. Lozano et al. (2016) explain that ultimately, the motivation for the first sustainability reports have come from within the company, whereas the subsequent reports have had some external drivers combined with internal motivations. They highlight multiple objectives of the reporting companies for sustainability reports, such as: making sustainability performance more visible, evaluating sustainability, promoting the means taken for sustainability, increasing dialogue with stakeholders and elevating the reputation of the company as a sustainable entity.

The airline industry today is facing rapidly changing regulation, evolving and competitive markets, developing technological innovations and ever-growing interest from stakeholders. To match this turbulent environment, airlines need to adapt and fully utilize organizational change. By managing the change in the company and its external environment, airlines mitigate climate-related

physical and transition risks especially but can also better attain their competitiveness in the market. By acquiring new innovations and technology, integrating sustainability into strategy and re-evaluating their focus areas are ways to control change and steer it towards a direction beneficial for the company. This thesis considers change management as a tool for companies to adapt to the ever-evolving market and regulative environment of the airline industry. As explained, sustainability reporting acts as a way for airlines and companies in general to catalyze change in the organization. For example, when conducting a stakeholder analysis, it may come to light that stakeholders consider zero-carbon initiatives as vital, leading to statements regarding carbon offsets. Additionally, increased sustainability statements can be induced by ongoing organizational change for sustainability.

2.2.5 Reporting standards and guidelines

There are multiple varying guidelines and frameworks available for CSR and sustainability reporting. These include: GRI Standards by the Global Sustainability Standards Board, OECD Guidelines for Multinational Enterprises by the Organisation for Economic Co-operation and Development, UN Global Compact's Communication on Progress (COP) by the United Nations, Integrated Reporting Framework by the IIRC, Sustainability Accounting Standards by SASB, CDP Questionnaire and Reporting Guidance by the Climate Disclosure Project (CDP), ISO2600 standards by the International Organization for Standardization, FTSE4Good by the FTSE Group, Task Force on Climate-related Financial Disclosures by the Financial Stability Board (FSB), AA1000 Series by AccountAbility, and Dow Jones Sustainability Index, just to name a few. Evidently the number of available frameworks and guidelines is large, over 30 to be precise (EcoAct, 2019) and deciding on which to follow is a tedious task for many organizations. By using reporting frameworks, the companies ensure that they are reporting according to the global trends and are thus more resilient towards change. Following a framework also allows companies to rearrange their data collection systems and get guidance on which ESG information is relevant for increasing the accountability of reported information (KPMG, 2017). Some frameworks, such as the TCFD and CDP, focus more on the environmental and governance issues, while other frameworks, such as the IIRC, GRI and SASB integrate all ESG aspects (The Conference Board, 2018). Some frameworks also align their requirements in order to make it more fluid for companies to qualify for more than just one framework and can include the necessary frameworks. Companies can suffer from information overload, where there are many metrics in the industry to report, and different stakeholders have raised many various issues. The issue with information overload, oftentimes deriving from the lack of use of reporting frameworks, is two sided: on one hand the relevant information might still be lacking and does not serve all end users of the report (KPMG, 2005), and on the other hand the reports can get too extensive as companies aim to cover all issues raised by their stakeholders. By following a reporting framework and carrying

out a materiality assessment, the companies can focus on the most material aspects to a greater degree and provide more readable and user-friendly reports which serve most stakeholders.

AA1000 Series, The GRI Standards, and the UN's COP are all international standards and most popular among reporting companies. All three integrate both social and environmental aspects. (Koerber, 2009) Currently, the GRI G4 Standards remain as the most used framework for reporting (KPMG, 2017). This can also be seen in the airline industry, as Becken (2019) found that nearly half of the largest 58 airlines referred to the GRI, FTSE4Good or Dow Jones Sustainability Index. Additionally, 19 out of 58 airlines had disclosed information through the CDP and four airlines had a reference to TCFD.

2.3 Sustainability and CSR reporting in the airline industry

As the public interest towards airlines' corporate sustainability practices has increased, the scrutiny towards certain industries has grown concurrently. The rapidly growing airline industry has received attention due to the degrading impacts on the social and natural environments (Karaman et al., 2018). Research on sustainability reporting of the airline industry is scarce, but the limited studies conducted so far show that despite the increased public attention, sustainability reporting in the industry is still inconsistent and lacks comparable cross-sectional metrics.

2.3.1 The history of CSR and sustainability reporting in the airline industry

The roots of sustainability reporting in the airline industry reach far back to the turn of the millennium. For example, SAS and Lufthansa have published environmental or CSR reports already from 1995 onwards (Stevenson & Marintseva, 2019). However, it was noted early on that the units used in environmental indicators were inconsistent (Mak & Chan, 2006). Both Mak and Chan (2006) and Mak et al. (2007) studies concluded that a minority of airlines published standalone environmental reports, and benchmarking across the industry is problematic due to differing definitions of environmental performance. The ranging variety of reporting practices raised the need for industry-wide standardized measurement frameworks and reporting guidance to assist with unifying the units and metrics used for efficient comparisons of airlines' performance.

Mak and Chan (2006) also found that airlines from the more developed countries of Asia Pacific were more prone to environmental consciousness than the airlines from less developed countries. The comparative research of European and Asian airlines conducted by Mak et al. (2007) revealed that airlines from only 12 countries had issued environmental reports continuously, eight airlines from Europe and four from Asia Pacific publishing. A minority of the airlines mentioned environmental conservation or compliance with laws and regulations.

Additionally, airlines' statements about quantitative metrics related to discharges and health and safety were scarce. Evidently, during the first decade of the century the CSR reporting activity of airlines was limited, but research shows that most of the airlines did start sustainability reporting during that time (Andersson & Jabkowski, 2013). After the 2000s the transition towards increasing reporting practices was visible.

In 2011, Heeres et al. studied the 46 largest airlines in the world and found that less than 40% of the Top 100 airlines published a sustainability report. However, they noticed that the number of reporting airlines increased with 15% in 2010 compared to 2009. They concluded that the change was partly due to the industry changing towards privatization, which forced the airlines to please various stakeholders' needs. However, they found that not all airlines report on the same sustainability indicators, and when they do, there is a variance in how airlines define them. Like Mak and Chan (2006) and Cowper-Smith and de Grosbois (2011), Heeres et al. (2011) also pointed out the need for sector-specific reporting standards due to the lack of common definitions and metrics. The authors stated that the quality and level of disclosure was enhancing, however, there was still a need for improvement. For example, despite the development and growing number of reports, the reports still overemphasized environmental aspects over social and economic aspects. The qualitative content analysis of airlines' CSR reports by Cowper-Smith and de Grosbois (2011) showed that as of January 2009 only 14 out of 41 airlines had published CSR reports on their websites and they came to the same conclusion as Heeres et al. (2011) that there was a stronger emphasis on environmental dimensions and environmental indicators, especially indicators related to emission reductions were most widely reported. Earlier research by Lynes and Andrachuk (2008) however, claimed that despite reports focusing greatly on environmental aspects, there was a noticeable change towards sustainability reporting, where also social responsibility was becoming significant. Conversely, the research of Kemp & Vinke (2012) suggested that there were more activities related to social and economic dimensions than the environmental dimensions, although they studied the whole aviation industry instead of airlines in particular.

Despite a growing number of reports, the amount of consistent quality CSR reporting was miniscule compared to the size and growth rate of the industry, according to Cowper-Smith and de Grosbois (2011). For example, Cowper-Smith and de Grosbois (2011) highlighted a phenomenon of airlines reporting their commitment towards a certain CSR goal, but having no actual measures to express the commitment. The authors also pointed out that some airlines reported initiatives required by law, which raised the question whether reporting mandatory initiatives might give the reader a false image of the airline's CSR activities. In addition to inconsistencies in reported initiatives and indicators, integration of financial and non-financial information was scarce, most reports not linking the positive impact of efficiency efforts to profit (Heeres et al., 2011) and only 33% of companies reporting a CSR issue in their financial reporting (Kemp & Vinke,

2012). The study of Heeres et al. (2011) also showed, that only 37 % of the reports were verified, and that verification does not ensure a complete report, although, verified reports proved to be more mature than non-verified.

One of the largest issues labelling the sustainability and CSR reporting during the 2000's was the lack of reporting standards. Even though the use of reporting frameworks increased during the decade (Andersson & Jabkowski, 2013), the sectoral focus and precise metrics were still missing. Without the existence and use of sectoral reporting standards, it is complex for companies to know what and how to measure their sustainability performance. It also makes it difficult for investors, shareholders, customers and other stakeholders to make informed decisions about the company. The variety of disclosures is surprising according to some studies, since it could be expected that climate issues would be material to all actors in such an environmentally heavy impact industry as the airline industry, and if one airline could provide quantitative sustainability information, it should be possible for the others as well (Eccles et al., 2011).

2.3.2 Motivations for CSR and sustainability reporting in the airline industry

Studies from the previous decade suggest that economic and financial reasons are a key motivator for environmental and sustainability commitment (Lynes & Dredge, 2006; Lynes & Andrachuk, 2008; Kuo et al., 2016). Lynes and Andrachuk (2008) found that the studied companies saw value in environmental management through gaining financial profits. Economic benefits were two-fold: prompt savings from eco-efficiencies and long-term savings from sustainable investments, and increased revenues due to accountability and positive environmental reputation. Companies avoided environmental taxation by switching to more sustainable operations and changing the operational setting. In addition, economic benefits were gained through competitive advantage by introducing environmentally friendly operations to the market and gaining larger market share (Lynes and Andrachuk, 2008; Kuo et al., 2016), and through increased efficiency due to boosted employee pride. The connection between airlines' financial performance and economic prosperity was also found by Gelb, Henry and Holtzman (2007). They found a clear correlation between airlines' financial performance and the extent of their voluntary disclosures. Conversely, Karaman et al. (2018) claimed in their study of GRI-based reports that sustainability reports do not have a major impact on reporting airlines' economy. Government, shareholders, customer base and employees are seen as the most crucial target audience for sustainability reports (Kuo et al., 2016), and one explanation for the negative correlation of company value and reporting could be that investors do not see the value of sustainability reporting (Karaman et al., 2018) due to inconsistent reporting practices (Mak & Chan, 2006; Cowper-Smith & de Grosbois, 2011; Heeres et al., 2011). Without standardized reporting, investors, creditors and customers are

unable to make comparisons and due to varying use of units and metrics, it is more difficult for them to make informed decisions. Karaman et al. (2018) also found that growth and profit were not connected positively to the economic value of the company, however the size of the company and debt to assets ratio were found to be beneficial. Public image is related to the size of the company, as larger corporations have significant public visibility, thus emphasizing the need for portraying a sustainable public image. This is related to the legitimacy theory, as to survive and attain their success, companies are required to have their operations legitimated by their stakeholders. Karaman et al. (2018) also point out that with increased company size, comes increased resources for data collection and reporting. Total debt to total assets ratio and leverage affect reporting due to the airline industry depending highly on external debt. Thus, it is possible that the companies publish sustainability information as they are pressured by their creditors and investors to do so (Karaman, et al., 2018).

Cultural influences have an effect on motivations, especially regarding environmental commitment, as demonstrated by Lynes and Dredge (2006) in their study of Scandinavian Airlines (SAS). According to them, both external and internal factors, such as attitudes, values and beliefs both inside the company and outside in the surrounding society impact the internal decision-making of SAS. Lynes and Andrachuk (2008) continue with a similar message, suggesting that CSR was notably impacted by external culture, while internal factors such as management attitudes and company economy were referred to primarily affect environmental responsibility. This was partly supported by Kuo et al. (2016) who found that management culture and systems impacted a company's CSR as a whole. They also suggested that stakeholder communication and transparency towards the government were reasons behind reporting, indicating that companies aim to prove their legitimacy and claim their spot in society by coming across as "good corporate citizens".

When it comes to reasons why companies would restrain from reporting, Kuo et al. (2016) found that reporting was found to be resource consuming and complex and some companies were not comfortable with publishing unfavorable information. Especially in those airlines which did not report, managers found sustainability reporting as unnecessary.

2.3.3 CSR and sustainability reporting in the airline industry today

Airlines started to report about sustainability especially during the 2000s, and their sustainability reporting practices have been evolving ever since. The number of airlines issuing a sustainability report is growing and so is the content of reports in general. However, the shortcomings related to report quality, consistency and common indicators are still present in today's reporting.

It was reported already in the beginning of the 2010s that airlines emphasized emission reduction initiatives in their reports (Heeres et al., 2011) and currently the majority of the leading airlines report on the same efforts. However, the number of airlines not reporting anything on GHG emission reduction initiatives is still surprisingly large according to Becken (2019). Her research revealed that in the airline industry, the reporting practices especially related to carbon reductions are still insufficient and inconsistent. She found that only 35 airlines of the studied 58 have made statements about GHG emissions and as the standardization of measurements is lacking, comparing efficiency among airlines is especially difficult. Becken highlights that without commonly used measurements, units and indicators it is demanding to perceive what is material to the company and what impacts reported sustainability efforts have.

Airline companies are increasingly constructing sustainability reports according to the GRI reporting framework (Taskinsoy & Uyar, 2017). The GRI sector specific standards are still under way, which leaves the airlines to decide which standards to report on. Only a minority of airlines publish other than the general industry specific targets set by the International Air Transport Association, and those that do report more on emission reductions, have low quality of their statements (Becken, 2019).

The sustainability and CSR reporting of airlines has developed significantly from the early 2000s to the end of the second decade of the century. However, required sector-wide reporting standards for the airline industry are still lacking, which partly causes the sustainability reporting of airlines to suffer from deficiencies and inconsistencies raised by scholars 10-15 years ago to this day (Ceron et al., 2007; Mak and Chan, 2006; Cowper-Smith & de Grosbois, 2011; Heeres et al., 2011). Industry-wide reporting frameworks and guidance would aid airlines themselves as well as their various stakeholders to compare, benchmark and make informed decisions about airlines' sustainability performance and management. Comprehensive information assists information users to estimate whether sustainability related issues are going to expose the company to risks which would affect the company and its shareholders, investors, and creditors financially.

Compared to research conducted on the topic, the novelty of this thesis lies in its lengthy timescale and number of airlines and reports, whereas many previous studies have focused on the issues at the time of the study. In contrast to recent studies, this thesis aims to answer *why* airlines report on selected topics, whereas previous research aims to answer *how*. Focus is set on materiality, bio-fuels, carbon offsetting and climate-related financial disclosures, of which only materiality has been included in previous airline-specific longitudinal studies. Many previous studies have focused on airlines reporting according to a certain framework, whereas this thesis includes all reports regardless of the followed framework. In this thesis there has not been an extraction of reports made according to certain reporting frameworks, instead all reports are analyzed.

2.4 Explaining materiality, biofuels, carbon offsetting and climate related financial risk disclosures

This chapter introduces the chosen study topics: materiality, biofuels, carbon offsetting and climate-related financial disclosures. These topics contribute to the emission reduction measures airlines are committed to conduct in order to achieve its climate commitments. In addition to being chosen based on the author's personal interest, these topics mirror the change in the operating and macro environments of airlines and sustainability trends in the industry. Materiality assessments represents the changing attitudes and expectations of stakeholders, and the reported materiality shows which aspects both airlines and its stakeholders find important.

2.4.1 Materiality

Materiality as a term has its roots in the early 20th century appearing in accounting and auditing contexts (Torelli, Balluchi & Furlotti, 2020). The common understanding of the history of materiality is that it has been exclusively associated with financial information. Organizations focusing on sustainability have, however, raised an issue of including ESG aspects in the determination of materiality but it has led to disagreements over the correct definition and has kept the two streams of materiality, financial and non-financial, separate. (Jebe, 2019) New regulation and changing market environments have forced companies to reconsider which non-financial information is vital and what to report.

Materiality principle has been considered as the most vital principle in CSR disclosures, assisting in the process of discovering which sustainability issues to report to cover the company's most significant ESG impacts (Torelli et al., 2020; Global Reporting Initiative, 2018). At its very core, materiality means that companies have a requirement to report material information, however the precise definition is disputed. Materiality is viewed as a driver for the selection of issues to be reported in both sustainability and integrated reports, complimenting the needs and expectations of all stakeholders (Torelli et al., 2020).

Material information is something that could affect the decision-making of information users, especially those using the information for financial decision-making (Edgley, 2014). Materiality ensures that investors are not imposed to information overload, as all possible information is not necessary for an investor. Jebe (2019) explains that what is necessary however, is investment protection. Investors use this security provided by materiality reporting companies to assess whether an entity is a safe investment or not. Jebe (2019) also notes that materiality is used by both non-financial and financial reporting regimes for reporting obligation purposes, however, every organization carries its own definition of materiality.

There are few organizations providing sustainability reporting frameworks and standards providing key principles for the reporting, as described in the previous chapter. However, not all of them provide a definition for materiality, nor practical means of determining it. Examples of such organizations providing materiality definitions are the GRI, the UN, the IIRC, AccountAbility and SASB. For example, the GRI (2016) defines materiality as something indicating the company's significant impacts on economy, environment and society, or essentially affecting stakeholders' decision-making. The International Integrated Reporting Council (IIRC) defines materiality as information determining a company's ability to create value in the short-, medium- and long-term (International Federation of Accountants, 2015). SASB (2017) defines materiality as information that is "reasonably likely to impact the financial condition or operating performance of a company and therefore are most important to investors", thus underlining that both purely financial and ESG factors can have a financial impact for a company.

The study of Jebe (2019) suggests that both the GRI and IIRC leave great responsibility for the reporting organizations to decide and determine what aspects to include in their reports, however they frame the decision-making process around materiality. The GRI and SASB have, on the other hand, considered a sector-specific definition of materiality (Eccles et al., 2012), abating the reporting of industry-relevant issues. Jebe (2019) highlights that both GRI and IIRC see materiality of sustainability reporting as a separate form from the materiality of financial reporting, even though the IIRC promotes integrated reporting. Both the GRI and the IIRC base their materiality suggestion to stakeholder engagement, which is considered as an implicit aspect of determining materiality. GRI, unlike any other sustainability reporting framework or standard highlight a multi-stakeholder approach in conducting a materiality analysis. The latest GRI Standards, evolved from G4 Guidelines, clarify that a topic is material if it fits well for at least one of the two criterion dimensions: 1) the topic is significant in terms of the organization's impact on environment, society or economy 2) the topic significantly affects stakeholders' decision-making (Global Reporting Initiative, 2016).

The IIRC Framework determines that especially the stakeholders can provide valuable information on factors impacting the company's value creation both short- and long-term. Stakeholder engagement has been a tool for companies to determine materiality themselves in the absence of specified guidance, which some companies put forth in the form of materiality matrices in their reports (Eccles, et al., 2012).

Torelli et al. (2020) found that especially "direct and indirect external pressures, social-environmental impact of the core business, stakeholder expectations, and the behavior of competing companies" (p. 479) have a significant impact on management decision-making regarding voluntary disclosures. This shows that stakeholder engagement has a notable effect on sustainability reporting and especially in deciding what is material. Global sustainability movements can be seen in stakeholder attitudes, competitors' behaviors and in the overall operating environment, which all impact the sustainability reporting of a company. Those

companies that actively analyze materiality without stakeholder engagement miss out on vital communication, whereas those companies that actively participate in stakeholder engagement and consider as many stakeholder groups as possible ensure they meet the needs of their stakeholder groups and produce an informative report. Fortunately, organizations such as the GRI and the IIRC are increasingly emphasizing stakeholder engagement as a part of sustainability reporting. Evidently, Torelli et al. (2020) found that there is a positive correlation with GRI Standards implementation and the use of the materiality principle.

As described, materiality aids investors in obtaining a correct understanding of the financial situation and future risks of the company. Jebe (2019) specifies that investors see sustainability aspects affecting economic efficiency, reduction of costs, risk management and opportunities, highlighting the need for sufficient disclosures for financial decision-making. For companies, there is a challenge in determining which ESG factors have the most impact on value creation (Eccles et al., 2012) especially as the non-financial reporting field lacks regulation. Materiality analysis and a materiality matrix provide companies with an overview of the relevant issues to their business and which aspects among them are the most significant (Torelli et al., 2020).

After conducting a materiality assessment, the company can elaborate and deepen the topics to be reported knowing it is disclosing issues that are of most importance to stakeholders and are also vital for the company. Thus, the process leads to the reporting content satisfying both internal and external parties.

As stakeholders become increasingly aware of sustainability and climate issues, they require airlines to take responsibility of their impacts and act on them, ideally, the material issues for the company evolve simultaneously. Materiality presented in sustainability reports shows how companies and their stakeholders respond to global sustainability trends and should showcase the weight of issues stakeholders find important.

2.4.2 Biofuels

The International Energy Agency (2019) estimates that the aviation industry will account for 3.5 % of the global emissions generated from energy use by 2030, which equates to an increase of one percentage unit from today's amount. The growing industry requires ways to cut its carbon emissions in order to mitigate its contribution to global warming. In addition to improving energy efficiency, alternative fuels provide means for cutting carbon emissions.

The first blended biofuel induced flight was flown already in 2008 by Virgin Atlantic, and the use of biofuels is likely to see a progressive increase as the IEA expects biofuels to account for an estimated 20% of the industry's fuel demand by 2040 (International Energy Agency, 2019). Currently, most airlines still utilize hydrocarbon fuels like jet fuel for energy production. According to IEA (2019) currently used jet fuel could be blended with Sustainable Aviation Fuels (SAF) such as biofuels to achieve lower emission amounts from fuel combustion. Aviation biofuels are said to be the only truly working option to achieve the aviation

industry's commitments to halving CO₂ emissions by 2050 and carbon-neutral growth from 2020 (International Renewable Energy Agency, 2017).

Achieving the aviation industry's climate commitments requires a staggering increase in production of biofuels, commonly called bio-jet fuel (Hitchcock, 2019). These fuels are derived from animal fats or vegetable oils and are thus more sustainable than the traditional jet fuel. (International Renewable Energy Agency, 2017) So-called second-generation biofuels, such as renewable diesel and SAFs have been introduced more recently to complement first-generation biofuels such as corn ethanol and biodiesel (Hitchcock, 2019). With second-generation biofuels no modifications are needed for the engines to process these fuels.

The CO₂ mitigating effect of biofuels is not as simple despite the common belief. Becken (2019) clarifies that the role of biofuels in mitigating carbon emissions is more complex, varying due to multiple different crops used. Becken (2019) states that biofuels emit carbon dioxide to the atmosphere similarly to other fuels and suffer from other issues as well. For example, palm oil-based biofuels often have an even larger carbon footprint than traditional petroleum fuels. Technical issues also emerge more easily with first-generation biofuels, as current non-modified engines can't process high blend ratios. (International Renewable Energy Agency, 2017) The production of biofuels requires energy for transporting and processing, leading to e.g. corn ethanol having the GHG profile equivalent to roughly 40 % of fossil fuels' profile. Also, when burned, biofuels emit more CO₂ to the atmosphere than a decaying natural material as some of the carbon is being stored in the environment in the decay process. Additionally, biofuel crops require the use of land and play a part in eradication of natural carbon sinks.

The aviation industry is, however, increasingly committed to using alternative fuels, which can be seen from long-term contracts made by airlines and their biofuel producers, according to the IEA (2019). The trend of increased use of and commitment to biofuels indicates that the industry is considering and taking concrete measures towards mitigating its contribution to climate change, despite the sustainability of biofuels still being under debate.

2.4.3 Carbon offsetting

Carbon emanates to the atmosphere through two anthropogenic sources: from burning fossil fuels and from impoverishing the ecological carbon stocks, such as forest mass. The carbon imbalance in the atmosphere is increasing due to anthropogenic CO₂ production outweighing the ability of natural carbon sinks to absorb carbon. (Becken & Mackey, 2017) CO₂, as a greenhouse gas, plays a key role in global warming. Emissions from commercial aviation have continued to increase with a staggering rate as the sector grows rapidly. The Paris Agreement by the United Nations Framework Convention on Climate Change (UNFCCC) requires all member parties to join in convention to mitigate climate change and oblige to nationally determined contributions (United Nations Framework Convention on Climate Change, 2020).

However, as the majority of the emissions from aviation are emitted to the international air space, the responsibility for those emissions belongs to no single country (Cames et al., 2015), and are thus not covered by the Paris Agreement. As the aviation emissions count for just over 2.5 % of global GHG emissions (International Energy Agency, 2019), mitigating the industry's carbon emissions is vital. The aviation industry has agreed to halve its 2005 CO₂ emissions by 2050 (International Energy Agency, 2019), and among biofuels and fuel efficiency, carbon offsetting plays a major role.

Carbon offsetting relates to an activity where carbon emissions are eliminated in order to compensate for emissions being released somewhere else (Carbon Neutral, 2017). This can be achieved by abolishing emissions, curtailing them or by avoiding them completely. Some airlines have actively been participating in carbon markets, such as the European Union Emissions Trading Scheme (EU ETS) where they can buy or sell rights for emitting CO₂. Becken & Mackley (2017) note that some airlines are also offsetting carbon voluntarily, by offsetting as a company or giving the opportunity to their customers, underlining that there are, however, obstacles due to differing national regulations and discrepancies in measuring emissions. Becken (2019) found that among the 58 studied airlines, 28 referenced carbon offsetting, while only 13 tried to quantitatively present the impact of their offsetting measures. This shows that during the timeframe of the study, 2017-2018, nearly half of the airlines had found carbon offsetting vital enough to report on. However, as carbon offsets have been around in the form of cap-and-trade programs already for more than a decade, there is room for more airlines to take on these initiatives.

The Kyoto Protocol, adopted in 1997 and applied in 2005, set a base for the GHG emission permit market, introducing a so-called cap-and-trade system where signatory states are required to comply to national emission quotas (Eisenkopf & Knorr, 2009). Carbon offsetting was first introduced to the tourism and transport section in 2002, when customer carbon offsetting programs were initiated to allow customers to purchase carbon offsets (Rosenthal, 2009). In 2009, British Airways became the first airline to receive the accreditation from the United Kingdom's Quality Assurance Scheme for Carbon Offsetting (British Airways, 2009).

The first obligating carbon offsetting system was introduced in 2012, when airlines serving the EU were included in the EU ETS, requiring airlines to monitor and verify, as well as report their CO₂ emissions and trade permits against those emissions. The EU ETS system has since aided with 17 million tonnes of yearly CO₂ reductions in the aviation industry. (European Commission, n.d.)

The aviation industry has made a commitment to carbon neutral growth from 2020 onwards, which is supported by the newest market-based mechanism Carbon Offset and Reduction Scheme for International Aviation (CORSIA) adopted in 2016. CORSIA requires the aviation sector's emissions exceeding the 2019-2020 base levels to be compensated (International Air Transport Association,

2020). This is carried out by acquiring carbon credits to attain the carbon neutrality of growth. It is possible that through having to offset excess carbon emissions, the usage of other ways to eliminate CO₂ emissions increases. For instance, the study of Chao et al. (2019) suggests that the implementation of CORSIA could lead to increased demand of biofuels.

2.4.4 Climate-related financial disclosures

In the summer of 2019 the government of the UK stated that by 2022 climate related governance, risk and target disclosures will be expected to be reported in accordance with the Financial Stability Board's Task Force on Climate Related Financial Disclosures (TCFD) by all listed companies and large asset owners (HM Government, 2019). TCFD is a task force group brought together in order to help companies disclose climate related information for investors, creditors, insurers and lenders in order to present how the company manages climate related risks and opportunities now and in the future (TCFD, 2019). Disclosing especially climate change related risks is ranked high on the investors' agenda, having a significant effect on their investment decisions (Nelson, 2020). The TCFD recommendations include disclosures on strategy, governance, risk management and targets and metrics. Climate related financial disclosures aid stakeholders to understand what kind of physical and transitional risks and opportunities a company may face. Transitional risks and opportunities are those related to the transition towards a low-carbon economy, and physical are those related to climate change and global warming (TCFD, 2019). These climate risks can be realized as financial risks as investors are exposed to situations where their investments could be lodged to an entity quickly losing its value, a so-called stranded assets situation. Investors also aim to have a comprehensive picture of the financial situation of their investments and make sure that they are resilient to changes and profitable also in the future.

Many companies have not yet realized that climate change has implications on their operations in the very near future, instead they have considered the effects only in the long-term (TCFD, 2019). Increasing research and public knowledge, however, is changing those assumptions, prompting the reconsideration of nearly every investment. Companies disclosing coherent and comprehensive information of climate-related risks and opportunities will be expecting allocation of capital towards their business, whereas capital providers investing in climate eschewing activities can be expecting lower returns (TCFD, 2019). A study conducted by KPMG (2017) revealed that only three years ago 72 % of the top 100 companies by revenue, the N100 companies, and 52 % of the world's 250 largest companies by revenue, the G250 companies, did not see climate issues as having any financial impact. However, the number of companies implementing the TCFD recommendations has been on the rise, which indicates that companies and providers of capital are increasingly seeing climate issues as having financial impact.

In 2016 JetBlue was the first airline to conduct an ESG report according to the TCFD recommendations (EcoAct, 2020), but no comprehensive study has been conducted on the total number of airlines reporting according to the recommendations. The TCFD recommendations are not to be disclosed in sustainability reports but in annual financial reports. As this thesis studies integrated reports as well as standalone sustainability reports, it gives a directional view of the commonness of airlines' TCFD reporting.

3 DATA AND METHODOLOGY

This section introduces the research context and limitations, which textual data was used for analysis, instruments for collecting the data, as well as methods for analysis. Methodological choices are described and validated.

3.1 Research methodology

This empirical study has been conducted using a qualitative research methodology, namely the content analysis method, combined with quantitative research elements to supplement and support the interpretive research. The qualitative research methodology is chosen for this study due to the aim of broadening the understanding of the sustainability reporting of the airline industry and reasons behind those reporting practices and changes within them. For qualitative research, it is characteristic to observe research material, propose arguments and aim for explaining and understanding certain phenomena (Tuomi & Sarajärvi, 2018). This study introduces some quantitative research elements to complement the qualitative aspects and to gain more detailed information about the studied material. Whilst qualitative research aims to analyze material in text form, quantitative research produces numerical data of the material and interprets phenomena based on the produced information (Heikkilä, 2014). In this study conclusions are drawn based on resultant quantitative data and the reasons behind certain topic developments are discussed through the influences of airlines' external operating environment. This thesis uses both qualitative and quantitative methodologies as it first studies how airlines define certain topics in their reports, and then by utilizing airlines' definitions, studies how often airlines refer to these topics, producing numerical data and interpreting it through theories. As quantitative research is not able to process its variables in a social and cultural context (Silverman, 2001, as cited by Eriksson & Kovalainen, 2008), the combination of interpretive qualitative and numerical quantitative research methods is justifiable. A comprehensive view enables a thorough inspection of the reasons behind certain phenomena, exactly what this thesis aims to do. The categorization of this study as a qualitative research is based on its ontological assumptions that society, people, and world phenomena are connected and have a relationship, whereas in quantitative research it is common to perceive the social world as a separate function (Eriksson & Kovalainen, 2008).

The research design is longitudinal (Adams, 2007) and of comparative nature. A research design refers to the choices made to identify and acquire such data and evidence that is able to answer research questions not only in a convincing way, but also enabling various other alternative ways to answer these ques-

tions (Eriksson & Kovalainen, 2008). As the presented research questions are explanatory, as to investigate causes of certain actions or phenomena, longitudinal design is required to explore and describe the development of airlines' reporting practices over time. Comparative design is included to be able to compare results between airlines and reporting years and to answer the research questions.

This study discusses possible reasons behind research findings, thus following an inductive approach. Inductive approach, or inductive reasoning, refers to presenting generalized conclusions based on observations or findings (Adams, 2007). Characteristic to inductive reasoning, this study begins from empirical research and develops to theoretical results, thus not testing a hypothesis but utilizing theory to interpret the results.

To distinguish observations from the research results, defined research methods must be determined. A research method consists of those practicalities which are used to produce observations and of those rules, which are used to further interpret the observations for them to be eligible to be considered as leads. (Heikkilä, 2014) As mentioned, this thesis uses content analysis method. Content analysis, a commonly used research technique, falls under the categorization of critical research and is a form of critical hermeneutic approach, an interpretive social analysis. Characteristic for critical research is that it emphasizes the social construction of reality and power issues while centralizing around language. It is also political in nature. From a practical point of view, in critical research the data is analyzed simultaneously with the data-collection, as is also done in this study during the phase of collecting keywords from airlines' reports. (Eriksson & Kovalainen, 2008) The conceptual tools for critical research have been utilized in this thesis: focus on language, interpreting human behavior with emphasis on internal and external social relations.

Content analysis focuses on the frequencies within the text, such as number of keywords and contents of the text. This study uses classification as a tool for organizing material, namely categorizing data and counting the frequency in which certain key words appear in the chosen material (Tuomi & Sarajärvi, 2018). Content analysis includes three applications, which are conventional, directed, and summative (Hsieh & Shannon, 2005). This thesis introduces conventional and summative content analysis, meaning that categories for coding are taken from the studied text material and includes keyword counting, comparing, and interpreting the results (Hsieh & Shannon, 2005).

3.2 Data collection

The research methods are presented by describing the specific ways the data has been collected and analyzed in this thesis.

The research was conducted by collecting sustainability, CSR, and environmental reports from the years 2003-2019 of 67 pre-selected commercial airlines. The reports were collected online from the companies' websites (Appendix 1).

Altogether 440 complete PDF reports were collected for the analysis. Exclusions applied to non-English reports and those which were not in PDF-format. The collected reports represent secondary textual data, which exists already prior to this research. This textual data is considered as a suitable analysis object as the author believes it represent information sensitive to the context, thus enabling interpretations of its backgrounds. The reason for such a vast number of reports stems from the requirement of aligning the theoretical framework with the research method: in order to be able to analyze and describe the developments and reporting practices of the whole industry, an extensive sample size is required. Additionally, the problematics with qualitative research include how to set a defined theoretical framework in the beginning of the research and produce certain observations with methods and interpret those observations through a limited perspective, especially as it is characteristic for qualitative research to observe and interpret the findings through many different lenses. Thus, collecting material that enables as many kinds of observations as possible is vital. Heikkilä (2014) concludes that due to the nature of qualitative research, ideal research material is naturally occurring data, such that is already existing and does not disturb its object, a method called unobtrusive measures. Hence, in this study the research material is collected from airlines' own websites.

Airlines' reporting practices vary, as some disclose their sustainability information in a separate report, while some integrate financial and non-financial information between the same pages. Hence, the identified units of analysis were annual, sustainability, CSR and environmental reports. Annual reports were chosen in the case no sustainability, environmental or CSR report was available and sustainability issues were disclosed in the annual reports, forming integrated reports. If an airline had sustainability information reported in both the annual report and in a separate sustainability, CSR or environmental report, both were included to ensure the right content was being analyzed. The availability and type of report was collected to a coding frame (Appendix 1). The reports themselves were saved as PDFs and named after the airline and the reporting year.

Every collected report was browsed through for materiality assessment. This was done by using the CTRL+F command and by inspecting the contents of the reports. Airlines that had reported materiality in their sustainability, environmental or annual report, were marked into a separate sheet (Appendix 2). A python code generated to find and calculate the number of pre-determined keywords was used as an analysis tool. The code was generated to be able to read text in PDF-format, thus from the sections where the materiality assessment was written or presented in a copiable materiality matrix, the text was copied to a separate Word-file and saved in PDF-format and named after the airline and the reporting year. Altogether 155 materiality assessments were saved.

3.3 Conducted analysis

In qualitative research, the study material is viewed and analyzed from a theoretical perspective, while determining which aspects of the material is relevant concerning the theoretical framework and research questions. The studied material is reduced to raw observations, which are yet again reduced by combining them. By doing this, certain key aspects which can be applied to the whole study material are created. (Heikkilä, 2014) Following this approach, the keywords used in this thesis were collected and created by reading the reports to be analyzed. The complete sustainability, CSR, environmental and/or annual reports were analyzed per studied topic, namely biofuels, carbon offsetting and climate-related financial disclosures to learn how airlines defined and reported these issues themselves. The search was conducted using the CTRL+F command to determine how and by using which words, airlines define, for example, biofuels. The found definitions, hereinafter keywords, were simultaneously collected to coding frames, each representing one study topic: biofuels, carbon offsetting, climate-related financial disclosures or materiality (Appendix 3). Said coding frames were done in Excel-sheets.

For materiality assessments every single report was searched for materiality analysis. From these sections where airlines reported about materiality or presented a materiality matrix, the texts were copied as described in 3.2. Airlines had most often categorized material issues under four sub-categories: social, environmental, economic and governance. Following the categorization by the airlines, keywords under these categories were collected to a coding frame under the same categories (Appendix 4). By doing this, it was possible to study how frequently airlines referred to these materiality categories. To ensure exclusivity of the categories, no keyword was included in more than one sub-category.

In addition to mentioned research topics, to gain general information from the reports to produce context for the results, the use of reporting frameworks and guidelines was studied as well. Sub-categories were formed based on airlines own reporting practices and the following sub-categories were formed: GRI, TCFD, ISO2600, SASB, FTSE5Good, OECD Guidelines, AA1000, DSJI and CDP. Keywords under these sub-categories were also collected to a coding frame and can be found in appendix 5.

The limitations of qualitative research often concern limited resources and the amount of research material. For the research sample to be eligible to represent the whole industry, considerable amount of reports from an extended time horizon had to be considered. Due to the large number of reports, quantitative research elements were required to be able to analyze the reports in a reasonable timeframe. Quantitative analysis uses statistical connection to argument and explain certain phenomena (Heikkilä, 2014). To enable this, the material is converted to a table form. To generally describe the process, the contents were ana-

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lyzed by using an analysis tool: a python code to scan the reports by given keywords and to create numerical data tables presenting the occurrence of the keywords under sub-categories at a given year. This data is then illustrated in graphs to visualize the development of the frequency of topics through the research time horizon. This enables visual observation of when the studied topics started to occur and peak in sustainability reporting, or when the number of chosen aspects increased or decreased in materiality assessments. The python code was used to determine the frequencies of which airlines had referred to the above-mentioned keywords. It is created to be able to read texts in PDF-formatted files and compare words in those texts to given keywords, namely the ones presented in appendices 3, 4 and 5. Extracted materiality PDFs were analyzed with collected materiality keywords, and complete reports were analyzed with reporting standards and frameworks keywords and keywords related to carbon offsetting, biofuels and climate-related financial disclosures. The code calculates the number of times a certain keyword occurs per studied airline and year. The result from the analysis was high quality numerical data, presenting the frequency of each keyword occurring in each year between 2003-2019 per studied airline. This numerical data was turned into a Pivot-table and illustrated with graphs to observe the development of the frequency of a certain topic. For example, in the case of biofuels, all biofuels-related keyword occurrences per airline and year was collected to the same Pivot-table. The same was done for other topics and materiality sub-categories.

With general information about airlines reporting practices, Excel-functions such as 'COUNTIF' were used in the sheet in appendix 1 to calculate how many had published information in an annual report instead of a separate report, and 'COUNTA' to calculate how many has reported per given year. The same principles were applied to counting airlines reporting about materiality. Similarly to other topics, these were then illustrated as graphs.

4 RESULTS

This chapter presents the key findings from the conducted analysis. Airlines’ general sustainability reporting practices are presented first, from where the focus will be set on the secondary research questions regarding materiality, biofuels, carbon offsetting and climate related financial disclosures. Not all airlines had published their 2019 reports at the time of data collection, and thus results from 2019 do not represent all of the airlines. Airlines whose 2019 reports were included are found in appendix 1.

4.1 Sustainability reporting in the airline sector

The research results indicate that a majority of the studied airlines are increasingly recognizing the importance of sustainability in reporting practices. The results show that in 2003 the number of reporting airlines was six, when in 2017 it was 43 (Figure 1). This figure also illustrates the number of integrated, sustainability, CSR or environmental reports per year. In 2018 the number of reporting airlines declined by 3, and in 2019 the number of airlines was 14. The small number of reporting airlines in 2019 is due to not all airlines having published their reports in the time of this study.

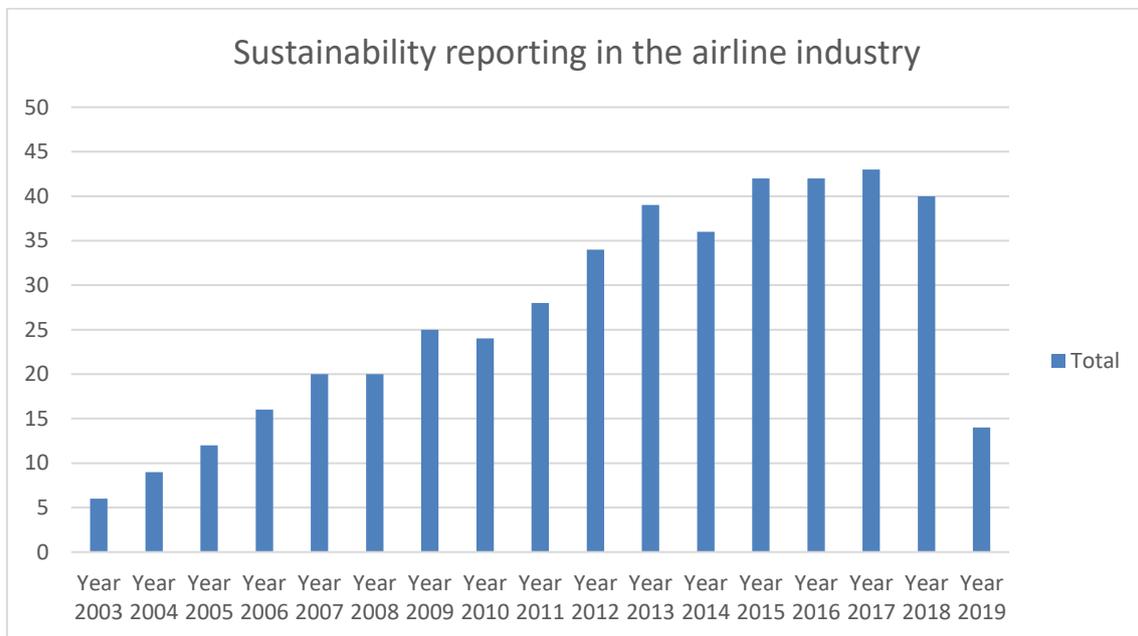


Figure 1. Number of airlines publishing an integrated report or a sustainability, CSR or environmental report per year

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22 % (15) of the airlines had either no reports available from 2003-2019 or they were not in English, while 78 % (52) had sustainability information available either in an annual report, an integrated report or in a separate sustainability/CSR report (Appendix 6). This is an improvement to Heeres et al. (2011) study, where they found that only 38 % of the Top 100 airlines published corporate social responsibility information. However, as the frequency of publishing reports vary annually, it is noteworthy that the findings of Heeres et al. (2011) refer to one reporting year, whilst this thesis studies airlines that have published a report any time between 2003-2019.

Eight airlines had published only integrated reports since 2003 and 25 airlines had published sustainability information only in sustainability or CSR reports. Reporting sustainability information in a stand-alone report has become slightly more common towards the end of the 2010s. For many airlines, the practice of reporting sustainability information, varied through the years between an integrated and standalone sustainability report. Singapore Airlines and SAS have reported CSR issues in all 17 years, while Air Baltic, China Eastern and United Airlines have reports available only from one reporting year. Only one airline, Avianca, had all its reports in another language than English and was thus excluded.

Of the studied airlines, most reporting airlines were European and Asian, namely 30 % were Asian and 28 % European, while 19 % were North American and 6 % South American (Figure 2). Middle Eastern and Oceanian airlines both accounted for 6 % of the reporting airlines.

All airlines had referred to a reporting guideline or framework in at least one reporting year, however, most references to a reporting framework or guideline were found from 2017 reports (Figure 3). Most referred reporting guidelines were United Nations' Global Compact Communication on Progress (31,7 %) and the GRI (24,8 %). Least referred guideline was FTSE4Good (0,4 %).

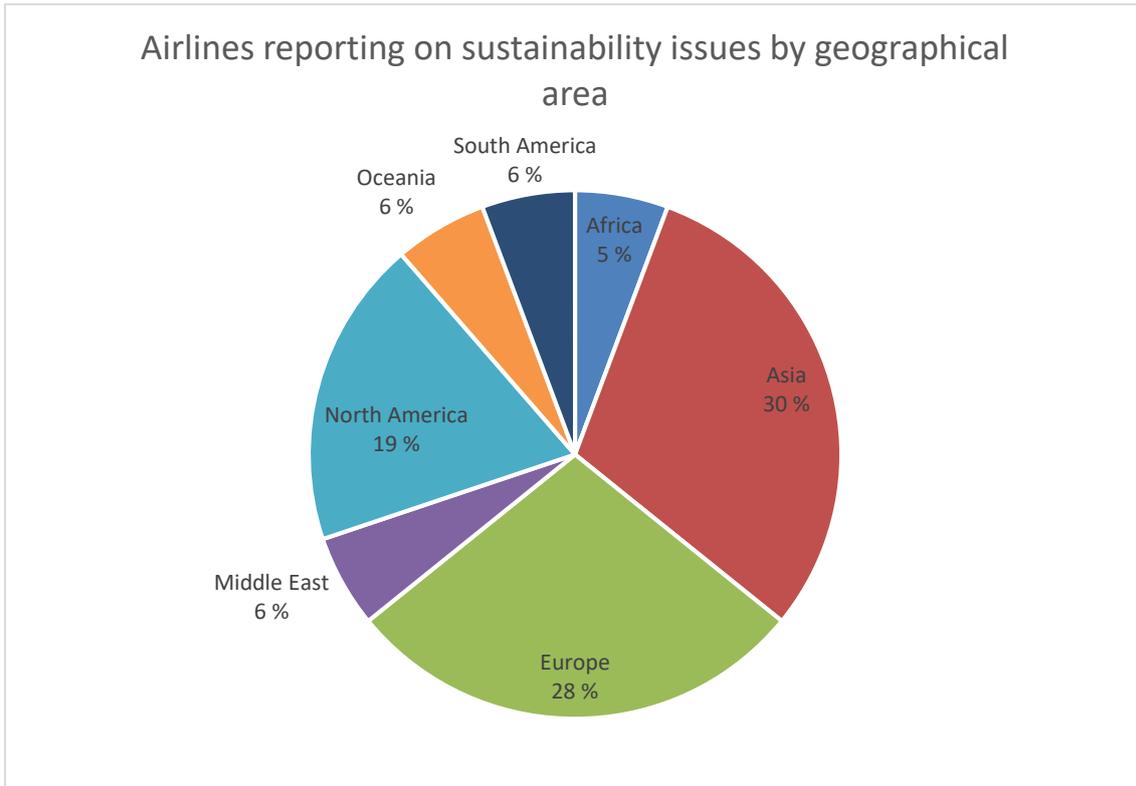


Figure 2. Share of studied reporting airlines by geographical area

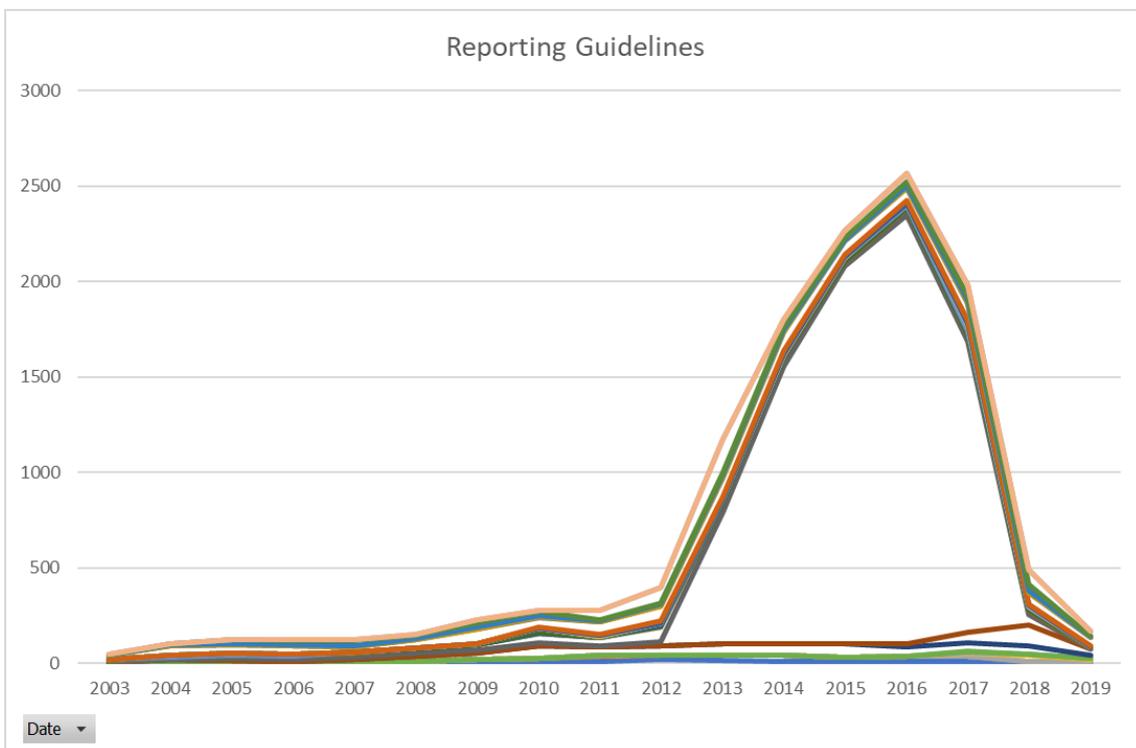


Figure 3. Frequency of keywords related to sustainability reporting guidelines and frameworks

4.2 Materiality

Of those 53 airlines who had published sustainability information between 2003-2019, 38 disclosed materiality in at least one reporting year, while 15 had no references to materiality in any year (Appendix 7). All reports disclosing materiality were from 2004 onwards as no materiality assessments were found from the 2003 reports. Additionally, no materiality assessments were found from studied airlines' reports from years 2005 and 2007. Most materiality assessments were conducted in 2015-2018, accounting for 61 % of all found materiality assessments from the studied airlines. From 2004, 2006 and 2008 only one materiality assessment was found from each year.

The share of airlines disclosing materiality follows the share of airlines publishing a sustainability report. 34 % of the studied airlines disclosing materiality were Asian and 26 % European (Figure 4). 19 % of the materiality assessments were from North American airlines, and Oceanian and South American both accounted for 8 %. Middle Eastern airlines accounted for only 5 % while none of the African airlines reported on materiality.

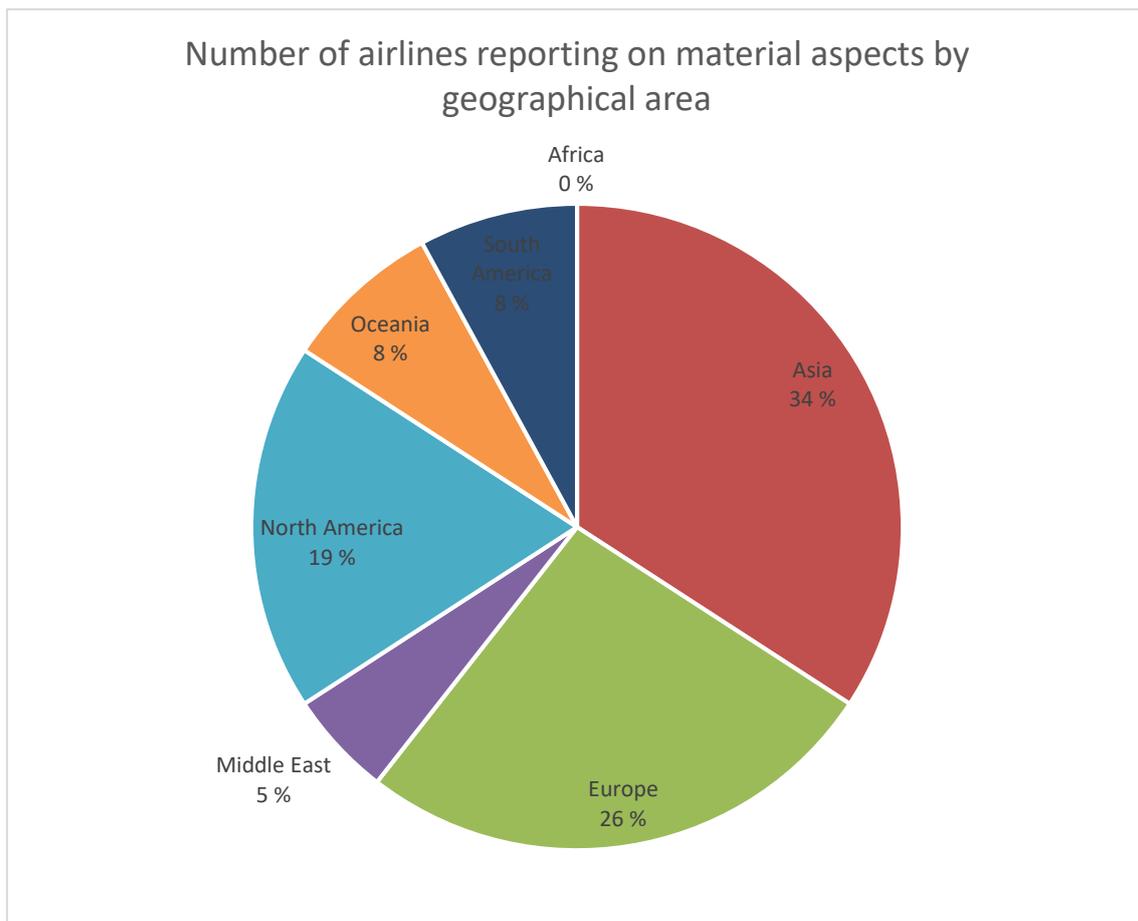


Figure 4: Share of studied airlines reporting on materiality by geographical area

This chapter investigates how materiality sub-topics “environmental”, “economic”, “governance” and “social” have developed in more detail. The sub-topics “environmental”, “economic” and “social” all have further sub-categories following the reporting practices of the airlines. In the environmental sub-topic, the sub-categories are divided as “emissions”, “energy and fuels”, “effluents and waste”, “water”, “biodiversity” and “other”. In economic, the sub-categories are “competitiveness”, “economic risk”, “economic impact”, “performance” and “other”, and in social the sub-categories are “stakeholders”, “human rights”, “health and safety” and “other”. The “governance” sub-category has no further sub-categories as this was not done by the airlines. (Appendix 4)

Summarizing all the sub-categories indicates that environmental keywords have increased in the sustainability reports between 2004-2019. Drawing from Figure 5, the results show that the number of environmental keywords was over seven times higher in 2018 than what it was in 2004. Results from 2019 are not applicable due to not all reports having been published at the time of this study.

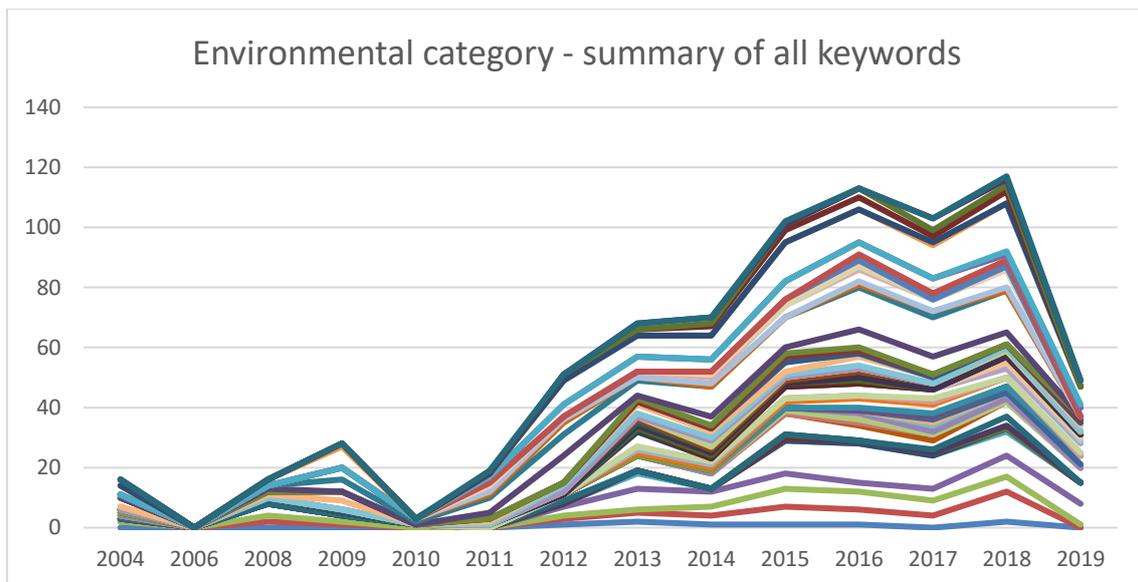


Figure 5. Frequency of all keywords in the environmental category

Keywords in the “emissions” subcategory have increased significantly in materiality assessments when comparing the first half and the second half of the research time horizon. Between 2004 and 2011 emission-related keywords appeared 18 times, while between 2012 and 2019 the keywords appeared 94 times. The keywords have peaked in 2016, accounting for 16 % of all appearances between 2004-2012. In 2017 and 2018 the frequency decreased, as the combined number of hits reached 19, eleven in 2017 and eight in 2018 to be specific.

The “energy and fuels” category follows the same trend as in “emissions”, the amount keywords that appeared between 2004 and 2011 was 24 altogether, while between 2012 and 2019 it was 157. Most significantly the frequency has increased during 2015-2018, accounting for 57 % of all keyword hits from 2004-

2019. The lowest number of keyword hits occurred in 2004, 2006 and 2008, following the number of materiality assessments. Similarly, the frequency of keywords related to effluents and waste, have increased towards the end of the 2010s with 88 % of the keyword hits occurring during 2012-2019. The highest peak for the keywords took place in 2018 with 25 hits, while zero keywords were found from 2006 and 2010 reports.

Water-related keywords have peaked significantly in 2018, accounting for 26 % of all the keyword hits. The frequency of the keywords has steadily increased towards 2019, 87 % of the keyword occurrences taking place in the second half of the research time horizon. This applies to biodiversity-related keywords as well, as 90 % of hits occurred in 2012-2019, with the highest frequencies in 2015-2018.

Concluding the results regarding environmental materiality aspects, it is evident that the frequency of how many times airlines refer to these keywords as well as the variety of environmental material aspects have increased, especially during the second decade of the century. The importance of environmental aspects is increasing, as can be observed from Figure 5.

Keywords related to economic material aspects have increased exceptionally since 2012, as keyword hits from 2012-2019 account for 98 % of all hits from the research time horizon (Figure 6). The frequency of keywords has reached peaking points in 2016 and 2018, with a slight decline in 2017. The overall trend is, however, that airlines are referring more frequently to economic aspects in their materiality assessments.

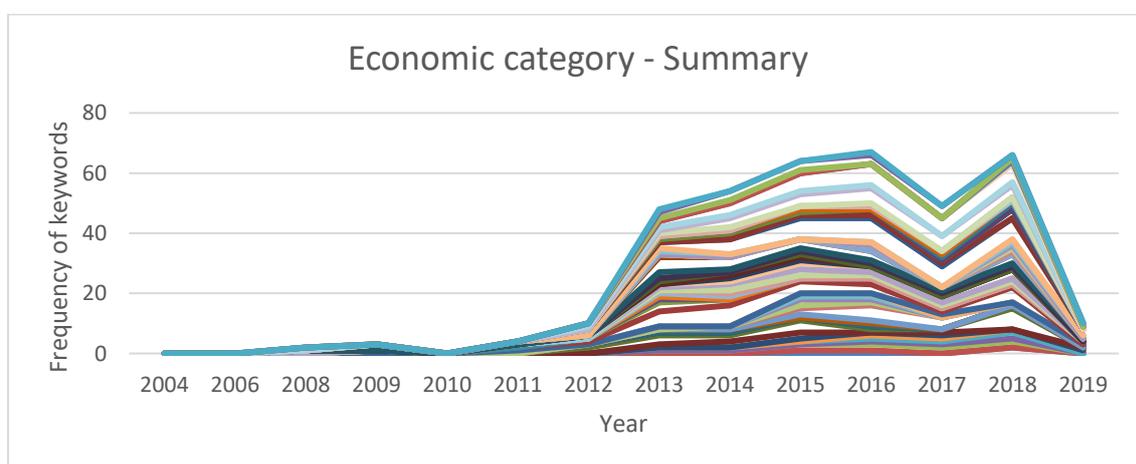


Figure 6. Frequency of all keywords in the economic category

Further investigation into the economic materiality sub-categories “competitiveness”, “economic risk”, “economic impact” and “performance” suggest that all categories have increased progressively from 2012 to 2019, except keywords related to economic risk. This category’s keywords have peaked in 2013 and stayed on the same level until 2017 and decreasing significantly in 2018. Keywords from all economic sub-categories have low occurrence in 2004-2011, similarly to other categories.

The governance category keywords reflect the prevailing frequency trend, also increasing towards the ends of the 2020s. The tipping point towards the highest peak of 2018 begins from 2013, with relatively low frequency in the preceding years, less than ten hits per year (Figure 7).

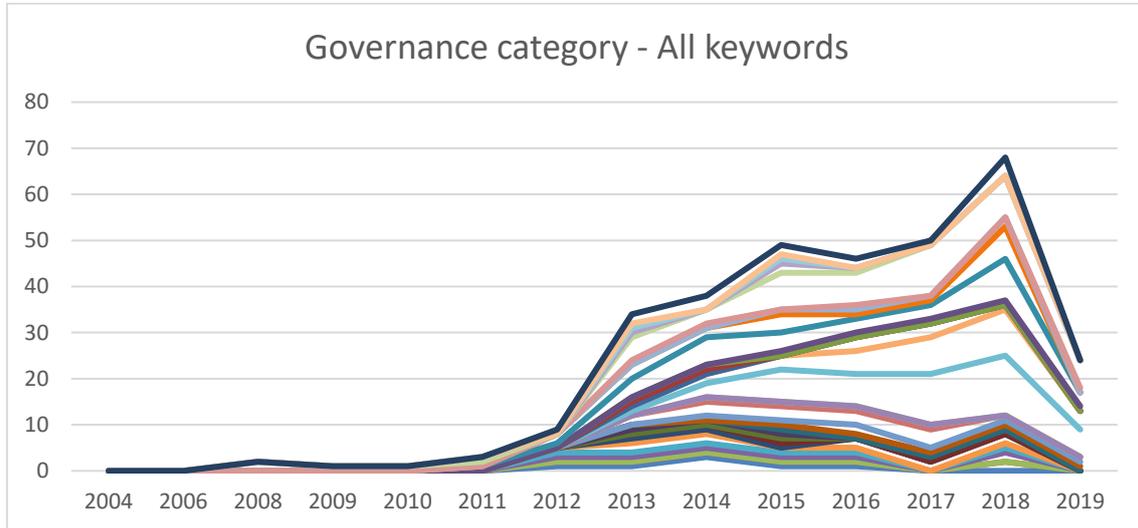


Figure 7. Frequency of all keywords in the governance category

Keywords related to social material issues have, alike other categories, increased towards 2019 and peaked in 2018 (Figure 8). Considering all sub-categories “stakeholders”, “human rights”, “health and safety” and other keywords, the increase of occurrence in the second half of the research period has been extensive. During 2004-2011 the keywords related to social materiality occurred 65 times, while during 2012-2019 altogether 1172 hits were found. 2004 and 2006 reports provided no findings related to social materiality, but in 2008 and 2009 airlines referred to social materiality aspects altogether 43 times. Most increased category after 2012 has been “human rights”, with only 11 keyword occurrences before 2012, and 230 occurrences from 2012 onwards. Same orientation applies to other sub-categories, as the occurrence of keywords under the “stakeholder” category were 13 times higher from 2012 onwards, and “health and safety” 15 times higher.

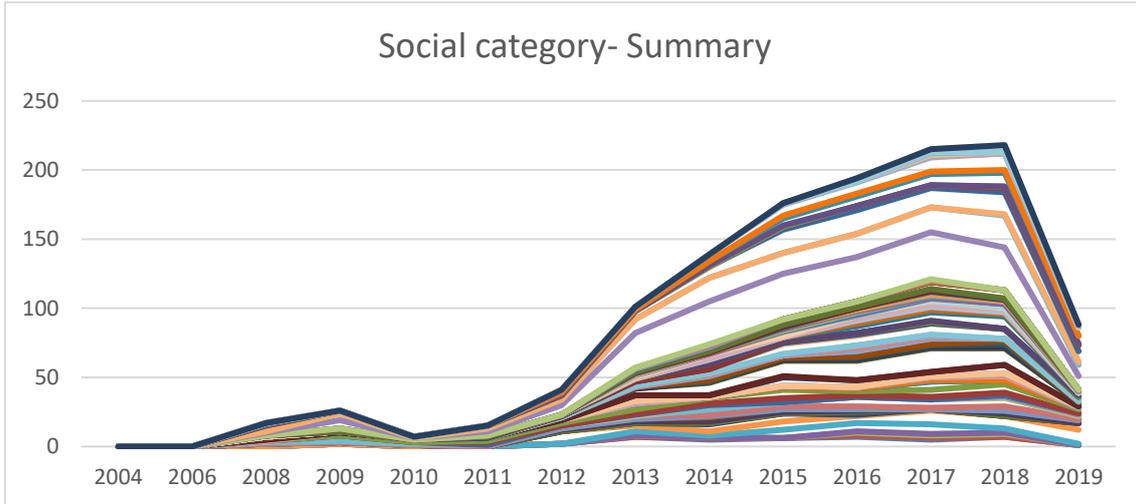


Figure 8. Frequency of all keywords in the social category

4.3 Biofuels

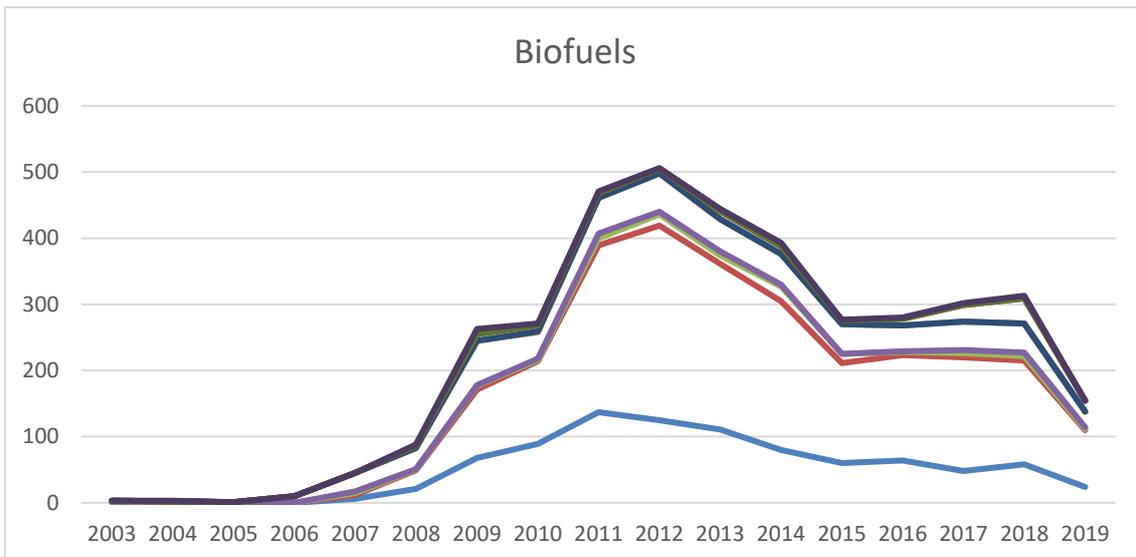


Figure 9. Frequency of keywords related to biofuels

Reporting about biofuels has started to spike from 2008, reaching over 500 keyword occurrences in 2012, the year with most references to biofuels. 70% of the keywords related to biofuels (appendix 3) were found from reports from 2012 or after. However, after the 2011-2012 high years, the reporting about biofuels has declined to the 2009-year level with roughly 300 occurrences per year. Altogether 47 Airlines referred to biofuels at least once during the 16-year research time period, which is 89 % of the airlines that had published a sustainability or CSR report. In 2018 the frequency was in a slight increase, with 312 occurrences.

The airline with the most references to biofuels is KLM, with 646 keyword references during 2003-2019. Icelandair and Copa Airlines made the least references to biofuels, with just 1 reference per airline during the whole studied timeline.

4.4 Carbon offsetting

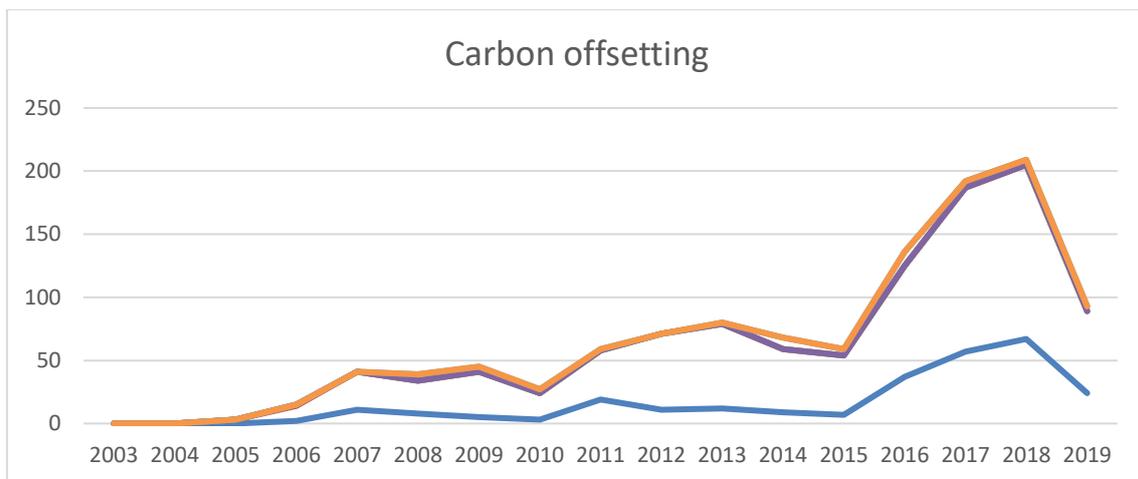


Figure 10. Frequency of keywords related to carbon offsetting

Airlines have started to include carbon offsetting topics in their reports in the beginning of the 2000s. In 2005 Singapore Airlines' and Qantas' reports included carbon offsetting-related keywords three times. Keyword references related to carbon offsetting (appendix 3) have been remotely low before 2016, under 100 keyword occurrences per year (Figure 10). This changed in 2016, as the frequency of which airlines referred to carbon offsetting increased from 59 in 2015 to 136 in 2016. In 2018, the number of times airlines referred to carbon offsetting was 209, which has so far been the year with most carbon offsetting references.

Referring to carbon offsetting has centralized to the 2010s as 80 % of the keyword occurrences were found from reports from 2012 or after. The airlines that had most references to carbon offsetting were Cathay Pacific with 102 references and Air Asia with 101 references during the 2003-2019 research period. China Southern and Southwest had only one reference during the study time horizon, while 10 airlines had zero references to carbon offsetting during the whole study time horizon.

4.5 Climate-related financial disclosures

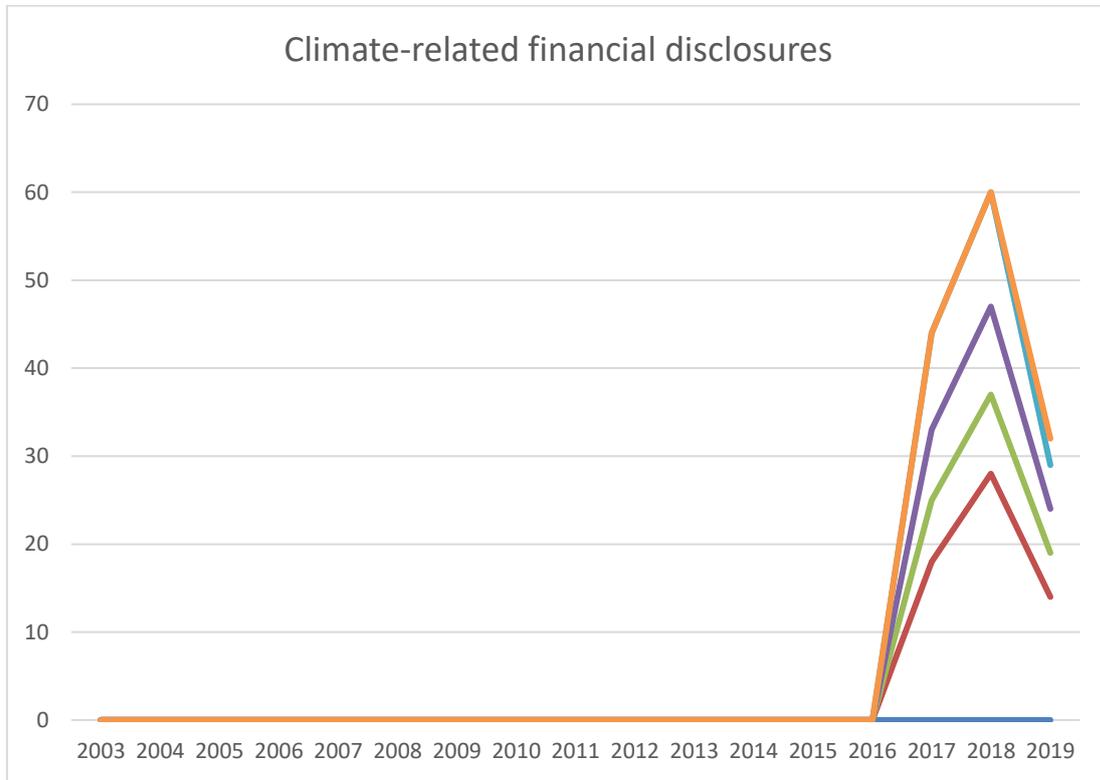


Figure 11. Frequency of keywords related to climate-related financial disclosures

All keywords related to climate-related financial disclosures (appendix 3) were found from reports published in or after 2017 (Figure 11). Airlines referred to keywords related to climate related financial disclosures altogether 136 times, the most hits taking place in 2018. However, only nine airlines had referred to these keywords: Air New Zealand, All Nippon Airways, Cathay Pacific, China Airlines, Delta Airlines, EVA Air, JetBlue, Qantas and Virgin Australia. China Airlines had most references to climate-related financial disclosures with 39 keyword occurrences, while the least references were made by Qantas, with only one reference to climate-related financial disclosures.

As TCFD guidelines apply to the annual report, this thesis does not consider those non-integrated annual reports that do not disclose other sustainability information. The results implicate the number of those integrated or sustainability reports which do disclose sustainability information alongside with climate-related financial disclosures.

5 DISCUSSION

This section interprets and discusses the research results and presents possible motivations and drivers behind trends found in the keywords frequencies. The motivations and drivers are drawn from market and legislative changes which have occurred during the research timeframe.

5.1 How has materiality changed?

All categories and the frequency of keywords distinctively follow the number of materiality assessments conducted and published in the airlines' reports. More reports with materiality assessments equals more keyword hits, and the number of materiality assessments has been rising annually. Concludingly, materiality has gained increased importance, especially during the current decade, while the studied environmental, economic, social and governance categories have all reflected the development.

The growing number of materiality assessments could be explained through institutional theory, as airlines' stakeholders have started to demand more disclosures on sustainability, and airlines have had to re-evaluate which aspects are most material to them and their stakeholders. Normative isomorphism explains that as the values in society change and evolve, airlines must adapt to those demands to ensure profitability of the company in the future. As investors and customers are vital stakeholder groups for airlines, according to coercive isomorphism, the pressure from a powerful stakeholder has significant impact on the reporting practices of the company. Reflecting the study of Edgley (2014), who reported that material information is especially crucial for those stakeholders using the information for financial decision-making. As Jebe (2019) also stated, investors seek financial security for their investments through companies' materiality disclosures. Changing and evolving external expectations could explain why materiality assessments have increased, especially as airlines must balance multiple demands from stakeholders to maintain the legitimacy of their operations. This could mirror what Heeres et al. (2011) also pointed out, that as the industry has been going through privatization, the investors now hold greater power over the airlines and thus put them under pressure to produce certain information. Conversely, as the CSR of airlines have had to develop from business operation management to the creation of shared value (Porter & Kramer, 2006), conducting a materiality assessment could have been viewed to serve a wider group of stakeholders.

The development of sustainability reporting standards and frameworks could also have played their part in the growing number of materiality assessments. As most materiality assessments were found from 2015 onwards, and the

GRI was one of the most referenced reporting frameworks, the development could be associated with the development of GRI Standards and the materiality principle. The previous versions of the GRI Guidelines, namely G1, G2, G3/G3.1 referenced to stakeholders only a few times (Grushina, 2017). However, in G4, launched in 2013, all stakeholders were recommended to be included in the reporting process. For the GRI Standards, the materiality principle has not changed, although some clarifications were made regarding the criteria by which companies decide whether an issue is material or not as described in section 2. The GRI Standards, emphasizing materiality assessments and materiality matrixes, was launched in 2016, which could explain why most of the materiality assessments reported were found in reports from 2015 onward. Institutional theory explains that as more airlines see how competitors reporting according to the GRI perform, and what type of feedback they receive from their reports, they too aim to adopt the same reporting practices. This could explain why certain standards and frameworks are more popular than others. Additionally, ST explains the possible connection between stakeholder engagement and growing importance of materiality disclosures. When stakeholders are truly heard and communicated with in the materiality assessment processes, companies gain information of aspects stakeholders find most vital and are pressured into showing and ensuring that their operations are within the frames of these aspects. It could be that airlines have realized their legitimacy might be at risk unless they change their ways of reporting to match with the expectations of their relevant society.

Despite that the number of materiality assessments has increased, the weight of the studied materiality topics has remained approximately the same. To highlight the weight of the studied topics, during the whole 2003-2019 study time horizon, social keywords occurred altogether 1237 times, whereas environmental 755, economic 377 and governance 325 times. When looking into results from the last three years 2017-2019, keywords in the social category have occurred 521 times, in the environmental category 269, in the governance category 142, and in the economic category 125 times. This is somewhat against the findings of Heeres et al. (2011) and Cowper-Smith and de Grosbois (2011), according to whom there has been a stronger emphasis on environmental issues within sustainability reporting. However, Kemp and Vinke (2012) suggested that social and economic dimensions were increasingly represented in the airlines' reported sustainability activities. As none of the mentioned authors focused on purely materiality disclosures, the results could indicate that despite emphasized social aspects in the materiality assessment, airlines still feel the need to report more on environmental issues in the rest of their reports. Also as the categorization and the number of keywords per category is solely based on the reporting of airlines themselves, the findings of this study could indicate two things: (1) airlines have more keywords to describe material social aspects and (2) the airlines and their stakeholders emphasize social issues over environmental. Additionally, as environmental aspects have been challenging for the airlines to report due to lacking sector-specific standards as described in section 2, social materiality aspects could have been an easier focus for the airlines. Despite growing interest towards

airlines' environmental sustainability, the lack of an industry-specific reporting framework is holding comprehensive, comparable environmental reporting back.

To answer the research question: *How has materiality changed?* The results show that the number of airlines reporting materiality has increased, but the weight between materiality topics has not changed significantly. Reporting materiality has gained importance, which could be due to external pressures from the stakeholders and the society, as well as increased support in the form of reporting standards and frameworks. If approximate reported materiality among airlines would be different if all airlines reported according to a reporting framework and conducted materiality assessments based on stakeholder engagement remains unanswered

5.2 When and possibly induced by what drivers have biofuels been introduced to the reports?

The results show that reporting about biofuels has started to rise from 2008, the year the first biofuel utilizing flight was flown. Additionally, most of the keyword occurrences were found from 2012 reports or after, indicating that biofuels entering the market and being available for use has seemingly increased reporting about them. Increased reporting frequency indicates that airlines have deemed it necessary to ensure stakeholders that they are reacting to the trend of biofuels as to guarantee that their operations are developing and their aims are valid in regards of sustainable aviation. By doing this, according to legitimacy theory, airlines aim to show that their operations are within the values of the society. Maintaining legitimacy is also a financial decision, as customers are being convinced that the airline they decide to purchase tickets from is a good choice. On the other hand, investors feel more secure about their investments, as they see that the airline they invested in is taking actions to not fall off the sustainability wagon. Additionally, airlines aim to achieve competitive advantage over their competitors. Utilizing as well as reporting about biofuels could lure in new investors.

Whether it is that airlines have utilized biofuels, or they plan to do so, interest towards biofuels as a way of cutting emissions has increased despite the fact that after the high frequency years of 2011-2012 the reporting about biofuels has declined. This could indicate that biofuel use has grown as a self-evident factor for airlines, and thus reporting about them does not create as great of an added value as it did in 2011-2012. In 2018, the frequency slightly increased, which could be due to the impact of government policies, also playing a role through national regulations. Currently, the most dominant governmental programs regulating and promoting biofuels are the EU's Renewable Energy Directive, the US Renewable Fuel Standard Program, and International Civil Aviation Organization's (ICAO) "Basket of Measures" to mitigate climate change (Hitchcock, 2019).

The first keyword occurrences seen in the results have taken place in 2005-2006. This could be due to the US Renewable Fuel Standard Program (RFS 2), first implemented in 2005 and reviewed in 2007, which is a national policy in the US obligating traditional petroleum fuel refiners and importers to biofuel-blending. It requires a certain share of the petroleum transportation fuels, including aviation jet fuel, to be replaced or reduced by biofuels. Refiners may also purchase renewable identification numbers (RINs), certain credits that can be used for compliance. (United States Environmental Protection Agency, 2017) Essentially, biofuel and other SAF producers benefit from RINs through selling credits, as do airlines as the end-users due to lower emissions from the combustion of biofuel-mixed jet fuel. Lower emissions reduce the airlines' possible sanctions and the amount of emissions they need to offset.

The revised Renewable Energy Directive (RED II) was agreed on in 2018 by the European Commission, European Parliament, and European Council. The Directive's aim is to ensure that a minimum of 32 % of EU's energy consumption is produced from renewable energy sources and energy generated from renewable sources will account for 14 % of the energy consumed in ground transportation (European Commission, 2019a). While this does not directly affect the airline industry, the Directive promotes the use of SAF in the aviation industry. Part of the RED II includes phasing out the first-generation biofuels and making way for the second-generation fuels, which are also more engine friendly.

In 2016, the ICAO Assembly adopted two commitments: 2 % of fuel efficiency improvement yearly through 2050 and carbon-neutral growth from 2020 (Hitchcock, 2019). To achieve this goal, ICAO presented a "basket of measures" strategy, which includes technological improvements, fuel consumption and emission reducing operational strategies, Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), and utilization of SAF's (International Civil Aviation Organization, 2019). With SAF's, the aim is to increase the usage of SAF, lower prices and secure genuinely sustainable production. The implementation of CORSIA with the obligation to compensate excess emissions, might increase biofuel use, as airlines aim to avoid costly compensations (Chao et al., 2019). As these regulations impact the airline industry with biofuel and other SAF promoting initiatives, the slight increase in biofuel-related keyword frequencies in 2018 could be due to regulative pressure and related upcoming obligations. The implementation of CORSIA is expected to increase disclosures about carbon-mitigation measures, among which biofuels play a significant role. This reflects the core idea of institutional theory, that motivations for sustainability disclosures do not originate purely from stakeholder demands but are also driven by institutional influences.

To answer the research question: *When and possibly induced by what drivers have biofuels been introduced to the reports?* It is evident that availability in commercial use has induced introduction of biofuels into sustainability reporting of airlines especially in the early first decade of the century. Later, in the first half of the 2010s the frequency of keywords declined, perhaps due to established use of biofuels and issues related to the first-generation biofuels and the food industry.

Along with the introduction of second-generation biofuels, other SAF's and bio-fuel-promoting regulation, it seems that the biofuels are on a slight increase towards the end of the 2010s. The slight increase of biofuel disclosures amid introduction of regulative measures reflects coercive isomorphism, according to which airlines adapt especially to the political influences conveyed by regulations.

The problematics with national regulation lie with the fact that airlines are not directly under any national jurisdiction and thus the responsibility of emissions is not laid on any country's shoulders. National regulation can only impact airlines indirectly through regulating fuel production. Thus, industry-specific regulation is increasingly needed.

The above chapters explain why airlines have been utilizing biofuels and expect that this development is seen in the sustainability reports. However, through different theories concerning sustainability reporting, the reasons why airlines disclose biofuel issues in their reports can be explained. As seen above, regulation on traditional petroleum-based fuels could have had a significant impact on why biofuels have entered the market and made their way into sustainability reports. Essentially, the key reasons for sustainability commitments are economic. As airlines aim to avoid costly compensations, they also want to simultaneously indicate to their investors that they are taking steps to mitigate risks concerning jet fuels and high emissions, following the motivations presented in the stakeholder theory. By deploying biofuels, airlines utilize change management to adapt to changes in their operating environment. This change from jet fuels towards biofuels and other SAF's is then published to the public in order to gain legitimacy from stakeholders, as postulated by the legitimacy theory. Following institutional theory, airlines who have not yet reported about their biofuel use, are motivated to do so as they see that reporting airlines gain competitive advantage and approval from stakeholders. Additionally, they are being increasingly set under regulative pressure. This way more airlines in the industry introduce biofuels into their sustainability reports, reflecting mimetic isomorphism.

5.3 When and possibly induced by what drivers has carbon off-setting been introduced to the reports?

In the 2000's airlines were conducting voluntary offsets by giving their customers an option to offset emissions from their purchased flight, but as the results of this thesis shows, reporting about carbon offsetting was not common among the airlines before the mid-2010s. The lack of external pressure and the novelty of carbon-offsets in the airline industry have most likely affected the scarcity of the carbon offsetting related keywords.

EU serving airlines were included in the EU ETS from 2012 which gave airlines the possibility to trade emission permits while requiring airlines operating

in Europe to manage and report their emissions, as described in section 2.4.3. The inclusion to EU ETS could provide an explanation why the frequency of studied carbon-offsetting-related keywords made a slight incline from 2010 levels to 2014 levels. Airlines introducing carbon offsetting measures and disclosures right away have noticed a chance for gaining competitive advantage over their competitors, as new climate activities could improve their public image. However, for airlines not operating in Europe, the carbon offsetting activities have been purely voluntary before the end of the 2010s. This is about to change, as CORSIA requires aviation companies to offset emissions exceeding 2019-2020 levels.

Biofuels and carbon offsetting as carbon mitigation measures are linked, as CORSIA requires exceeding emissions to be compensated from 2021 for the industry emissions to stay on the 2019-2020 level, airlines may try to lean on other emission-mitigating options, such as biofuels, to avoid costly compensations (Hitchcock, 2019). The adoption of CORSIA could have set a movement of carbon mitigation measures among airlines as a way of change management. Despite the requirements of CORSIA applying to pilot phase participating airlines from 2021 onwards, preparing for the new era of climate change awareness has required airlines to assess their options with maintaining emission levels on or under the 2019-2020 level. Adapting to upcoming requirements mirrors change management practices, as airlines are changing their current practices and introducing alterations to their operations to match the expectations and requirements of the macro environment. Increasing reporting about carbon offsetting towards the end of 2010 could be viewed as airlines' aim to affect external stakeholders and create a perception that risks related to upcoming changes are taken into consideration, and that the airline will be a safe investment now and also in the future.

To answer to the research question: *When and possibly induced by what drivers has carbon off-setting been introduced to the reports?* Carbon-offsetting disclosures in airlines' sustainability reports have been scarce during the first decade of the century due to lack of regulative pressure, but minority of the airlines have voluntarily disclosed their carbon offsetting efforts already since 2005. Following the application of the Kyoto Protocol in 2005, it is hardly a coincidence that the first disclosures on carbon offsetting have appeared during the same year.

Previously presented IT and LT provide possible explanations to why airlines have started and continued to report on carbon offsetting measures. As some of the airlines have started reporting voluntarily already before the aviation industry was included in the EU ETS system, legitimacy theory could explain that those airlines have noticed a chance for gaining competitive advantage through conveying a climate friendly public image. This way, companies are aiming to prove to their stakeholders that they are worth their support and hence ensure that their operations are allowed to continue in the future. As legitimacy theory relates strongly to stakeholder theory, carbon offsetting disclosures before regulative obligations could be interpreted as a way to show all stakeholders that despite the airline industry being known for its environment depriving impacts, the airline company is giving the customers a chance to influence. As mentioned, before 2012 the carbon offsetting activities were mainly directed at customers,

whereas after 2012 airlines have been forced to take on the responsibility themselves.

Institutional theory explains why airlines' carbon offsetting disclosures started to rise after 2012, as the powerful stakeholder group, namely regulators and policymakers, obligated airlines to verify, monitor and report their emissions and trade carbon allowances against these emissions. This has further increased after ICAO's ambitious climate commitments were adopted in 2016, after which the most significant increases in carbon offsetting disclosures took place.

5.4 When and possibly induced by what drivers have climate related financial disclosures been introduced to the reports?

With climate-related financial disclosures, the linkage between regulative pressure and reported topics is more evident. As the results show, all related keywords were found from 2017 onwards, indicating that the TCFD has had the largest impact on airlines reporting practices regarding climate-related financial disclosures. The TCFD recommendations were released in 2017, giving guidance for companies on how to disclose risks and opportunities related to climate change, an issue some creditors and investors had been long waiting for. Only nine airlines were found to have reported on these issues. Reports from these airlines include integrated annual reports and sustainability reports. However, it does not include non-integrated annual reports, and thus the results represent those airlines who have mentioned climate-related financial disclosures in their integrated annual or sustainability reports. Nevertheless, the results show that adopting the TCFD recommendations are not yet common among airlines. It is however worth noting that as the TCFD recommendations have been solely voluntary for airlines, motivation for introducing these disclosures into their reporting stems from external drivers.

As climate-related financial disclosures mostly affect creditors' and investors' decision-making, it is plausible that these powerful stakeholders have been a forceful driver for the airlines. As mentioned in previous chapters, disclosing especially climate-related risks is high on the investors' agenda (Nelson, 2020). By having this information available, investors can estimate if their investments are at risk of turning into stranded assets. This phenomenon is strongly linked to coercive isomorphism, where companies develop their practices due to pressure from powerful stakeholders. The clear relationship between powerful institutional pressures and the research results strengthen the linkage to institutional theory. Additionally, including these disclosures to the corporate reports relates to utilizing change management as a means to adapting to the evolving environment and demands from stakeholders, to ensure continuation of profit gain. Additionally, incorporating the TCFD recommendations could have shown airlines that managing climate-related issues could, in fact, be improved. As presented

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by Lozano et al. (2016) organizational change management for sustainability and sustainability are linked and reinforce each other. Thus, implementing certain reporting practices can incentivize organizational change.

To answer the research question: *When and possibly induced by what drivers have climate related financial disclosures been introduced to the reports?* Airlines have only started to consider these recommendations in their reporting in the past few years, potentially due to institutional and stakeholder pressures. However, this is expected to change in the coming years, as the NFRD is to be reviewed with suggestions of turning TCFD recommendations mandatory. The NFRD has already included these recommendations as a voluntary option, but it is now also under consideration whether the NFI is to be included in the management report to enhance the linkage between financial and non-financial information. (Climate Disclosure Standards Board, 2020)

6 CONCLUSION

This section concludes the research findings and answers the main research question: *How has airlines' sustainability reporting changed, and is development associated to milestones and drivers in the sustainability and CSR scheme?*

The research reveals that sustainability reporting practices of airlines have increased during the study timeline, especially during the last decade, and changes related to materiality, biofuels, carbon offsetting and climate-related financial disclosures go hand-in-hand with external drivers, such as changes in the values and expectations of the society or changes in the regulative environment. The number of reporting airlines and thus the number of integrated, sustainability, CSR and environmental reports have increased, especially during the last four years, of which 2019 does not represent the full number of reporting airlines. As the number of sustainability and integrated reports grow, so does the materiality assessments, indicating that airlines are increasingly focusing on providing concentrated information to all stakeholders, based on actual issues raised by them. Increase of materiality assessments and stakeholder inclusiveness suggests that sustainability reporting frameworks and standards influencing airlines' sustainability reporting. There is a noticeable link between expanding emphasis on materiality and stakeholder engagement within the GRI framework and growth of materiality assessments in airlines' sustainability reporting. Despite the growth of materiality assessments, the weight between materiality topics social, environmental, economic and governance, have remained somewhat similar. Social issues are still disclosed most, environmental issues being the second most disclosed topic. Despite the impact of sustainability reporting frameworks, standards and trends promoting integrated reporting, the results indicated that reporting sustainability information in a stand-alone report has been slightly increasing compared to reporting in an integrated report. Overall, the increase in sustainability reports mirrors the growing interest of stakeholders towards airlines' corporate responsibility, as well as shifts in society's focus on sustainability in the form of changing regulations. The presented theory framework including institutional, legitimacy and stakeholder theories, gives valid explanations of why airlines have increasingly incorporated these aspects into their reporting practices.

Biofuels and carbon offsetting were introduced to the sustainability reporting of airlines' already in the beginning of the 2000's, with significant incline towards the end of the 2010's. There were notable increases in the frequency of keyword occurrences related to biofuels and carbon offsetting in the years of regulative or market changes. Growing stakeholder interest towards emissions from the aviation industry could be assumed to be the drivers for increased disclosures, however regulative and market changes fuel the transition towards carbon-neutral industry. Climate-related financial disclosures were introduced in 2017,

along with the establishment of the TCFD recommendations. However, a minority of the airlines included these disclosures into their reporting. In this thesis the adaptation and developing operations is viewed as change management practices. Whereas change management can be inside-out or outside-in, in this thesis outside-in influences are considered as the main impact to airlines.

Airlines' sustainability reporting has undoubtedly increased, it has become more homogenic, as global trends have influenced airlines to include common topics to their reports, and aviation industry stakeholders demand similar issues. Institutional theory explains that homogenization inside an industry mirrors aspect that resonate with stakeholders and bring economic prosperity to the company. Airlines' reporting is progressively based on reporting frameworks and includes a materiality assessment more likely today compared to the first decade of the century. More importantly, the airline industry is answering to the demands of a changing sustainability scheme. Induced by regulative and market changes, airlines are reporting more about emission reduction measures. The results and the following discussion reveal that sustainability in the aviation industry is, indeed, associable to global sustainability trends and drivers, despite some airlines reacting and adapting faster than others.

This research focused solely on the airline industry. The sample size was relatively large, and included airlines from most relevant regions, enabling a sample representing the situation in the industry. The quantitative research aspects assisted in the analysis, especially when the sample size was relatively large, and thus exclusions due to large amounts of reports were not necessary. Restrictions were mainly related to capabilities of the analyzing code. The underlying research aimed at creating an image of general development of sustainability reporting in the airline industry whilst also focusing on smaller niche topics bio-fuels, carbon offsetting and climate-related financial disclosures.

The results of this study could be utilized by airlines themselves to identify reporting aspects that could provide them with competitive advantage. As including TCFD recommendations is still scarce among airlines, including these disclosures could induce ESG investors interest towards the airline. For academia, it is noteworthy that no such research has been conducted so far, and the results of this thesis bring new insights and complement the current literature. Furthermore, the results are an indication that sustainability reporting of airlines reflects generally perceived motivations from presented theories.

6.1 Suggestions for future research

As longitudinal research regarding the sustainability reporting of airlines is scarce, more research could be directed towards the reporting practices in the aviation industry. As this research gave a general description of how the studied topics have emerged to sustainability reporting of airlines, the author noted a few interesting topics that could possibly be studied further in the future. It would be

interesting to study how airlines report on emissions and if they comply to the requirements of the reporting framework they follow. Comparison between airlines emissions reporting according to the same reporting framework could assist in providing industry-specific benchmarks and help in observing how well airlines comply to the requirements of the reporting frameworks. It will be interesting to observe how carbon mitigating measures and climate change efforts evolve in airlines' reporting, as we are stepping into the era of mandatory carbon reductions. Additionally, as the connection between CFP and sustainability reporting has been raised multiple times in this thesis, especially the influence of climate-related financial disclosures to airlines' financial performance could be studied further in the future.

This research did not focus on the assurance of sustainability reports, which is linked to the use of GRI guidelines (Andersson & Jabkowski, 2013), however as the regulation regarding sustainability reporting is evolving, assurance services are expected to gain more importance in the future. It would be interesting to continue the research of Heeres et al. (2011) and study if the assurance of sustainability disclosures increases, and whether these assurances would also have tangible impacts on CFP.

6.2 Limitations

A reliability issue regarding the categorization of the searched keywords exists. As the biofuels, carbon offsetting and climate-related financial disclosures categories were non-existent pre-research, it is uncertain whether someone else would categorize keywords related to these issues similarly. As the materiality categories environmental, social, economic and governance were drawn from the studied reports, the possibility of someone else categorizing these differently is minimal. However, as keywords related to the other categories were also drawn from the reports, it could be expected that a person reassembling this study would connect, for example, aviation biofuels with SAF's similarly.

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APPENDICES

Appendix 1. The coding frame for content analysis. Letter A indicating that the sustainability information is found from an annual report, C representing sustainability, CSR or an environmental report, C/A representing that the information is found from both reports and X indicating that there is no English version available.

Airlines	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	Comment
Aeroflot		A	A	A	A	A	A	A	X	A	A	A	A	A	A	A	A	
Aerolineas Argentinas																		No reports available
Aeromexico		C	C		X		X	X										
Air Asia		A	A	A	A	A	A	A	A		A	A	A					
Air Baltic	A																	
Air Berlin																		Business discontinued
Air Canada		C	C	C	C	C	C	C	C									
Air China		C	C	C		C	C	C	C	C	C							
Air France-KLM (Air France & KLM)		C		A	A	C	C	C	C	C	C	C	C	C	C	C		No report available from 2017
Air India		A	A															
Air New Zealand	C	C	C	C	C													
Alaska Airlines		C	C				C	C			C							
Alitalia																		No reports available
All Nippon Airways - ANA	A					A	A	A	A	A	C	C	C	C	C	C	C	
American Airlines (American & US Airways)		C	C	C	C	C	C	C	C	C	C	C	C					

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Austrian Airlines																		No reports available
Avianca		X		X	X	X	X	X	X	X	X							Reports not in English
Brussels Airlines (Sabena)																		No reports available
Cathay Pacific	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C		
China Airlines		C	C	C	C	C	C	C										
China Eastern					C													
China Southern	C	C		A	C	C	C											
Copa Airlines		C	C	A	X	A	A	A	A	A	A	A	A	A				
Delta Air Lines (Delta & NorthWest)		C	C	C														No reports available from 2009-2015
EasyJet	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A			
Egypt Air		A	A	A														
Emirates Airways		C	C	C	C	C	C	C	C									
Etihad Aviation			C				A	C	C	C								
Ethiopian Airlines			A	A	A													
EVA Air		C	C	C	C	C												
Finnair	C	C	A	A	A	A	A	C	C	C	C	C	C	C				
Flybe																		Business discontinued
Garuda Indonesia		C	C	C	C	C												
GOL		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C		
Hainan Airlines		C	C	C	C													
Hawaiian Airlines																		No reports available

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IAG (British Airways)					C		C	C		C	C	C	C	C				
IAG (Iberia)		C	C	C	C					A	C	C	C	C	C	C	C	
Icelandair		A	A	A	A	A	A	A	A	A	A	A	A	A				
Japan Airlines	A	A	A	A	A	A	A						C	C	C			
JetBlue			C	C														
Korean Air	C		C	C	C	C	C	C	C	C			C	C	C	C	C	
LATAM	X	X	C	C	C	C	C											
LOT																		No reports available
Lufthansa Group (incl. LH, LX, SN & OS)	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
Malaysia Airlines																		No reports available
Norwegian		C/A	C/A	A	A	A	A	A	A	A	A							
Pegasus																		No reports available
Qantas			A	A	A	A	A	A	A	A	A	C	A		A			
Qatar Airways		C	C	C	C													
Ryanair	A	A	A	A	A	A	A	A										
SAS	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Saudia																		No reports available
Singapore Airlines	C	C	C	C	C	C	C	C	A	A	A	A	A	A	A	A	A	
South African Airways			A	A	A	A	A	A	A									
Southwest		C	C	C	C	C	C	C	C	C	C							
Srilankan Airlines		A	A	A	A		A					A						
Swiss (Swissair)																		No reports available
TAP Portugal					C	C	C	C	C	C	C	C						
Thai Airways		C	C	C	C	C	C	C										

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Turkish Airlines		C	C	C	C	C	C												
United Airlines (United Airlines & Contiental)												C							
Virgin America																			No reports available
Virgin Atlantic		C	C	C	C	C	C	C	C										
Virgin Australia		C	C	C	C	C	A	A	A	A	A	A	A	A					
WestJet							C	C	C	C									
Xiamenair																			In picture form

Appendix 2. The coding frame for materiality assessments. Letter Y indicating that the materiality assessment is found from a report, letter N indicating that no assessment was available. Empty cells indicate non-available reports.

Airlines	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003
Aeroflot		N	N	N	N	N	N	N		N	N	N	N	N	N	N	N
Aerolineas Argentinas																	
Aeromexico		Y	Y														
Air Asia		Y	Y	Y	N	N	N	N	N		N	N	N				
Air Baltic	N																
Air Berlin																	
Air Canada		Y	N	Y	Y	Y	Y	Y	N								
Air China		N	Y	Y		Y	Y	N	N	N	N						
Air France-KLM (Air France & KLM)		Y		N	N	Y	N	N	N	Y	Y	Y	N	Y	N	N	
Air India		N	N														
Air New Zealand	Y	Y	Y	Y	Y												
Alaska Airlines		N	Y				Y	Y			Y						
Alitalia																	
All Nippon Airways - ANA	N					N	N	N	N	N	N	N	N	N	N	N	N
American Airlines (American & US Airways)		Y	N	N	N	N	N	N	Y	Y	Y	N	N				
Austrian Airlines																	
Avianca																	
Brussels Airlines (Sabena)																	
Cathay Pacific		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	Y	
China Airlines		Y	Y	Y	Y	Y	Y	N									
China Eastern					Y												
China Southern	Y	Y		N	N	N	N										

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Copa Airlines		Y	N	N		N	N	N	N	N	N	N	N	N			
Delta Air Lines (Delta & North-West)		Y	Y	Y													
EasyJet	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N		
Egypt Air		N	N	N													
Emirates Airways		Y	Y	Y	N	N	N	Y	Y								
Etihad Aviation			N				N	N	Y	N							
Ethiopian Airlines			N	N	N												
EVA Air		Y	Y	Y	Y	Y											
Finnair	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N			
Flybe																	
Garuda Indonesia		Y	Y	Y	Y	Y											
GOL		Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N		
Hainan Airlines		N	Y	Y	N												
Hawaiian Airlines																	
IAG (British Airways)							Y	N		N	N	N	N	N			
IAG (Iberia)		Y	Y	Y	Y					N	N	N	N	N	N	N	N
Icelandair		N	N	N	N	N	N	N	N	N	N	N	N	N			
Japan Airlines	N	Y	Y	N	N	N	N						N	N	N		
JetBlue			N	N													
Korean Air	Y		Y	Y	Y	Y	Y	Y	N	N			N	N	N	N	N
LATAM			Y	Y	Y	Y	Y										
LOT																	
Lufthansa Group (incl. LH, LX, SN & OS)	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N			
Malaysia Airlines																	
Norwegian		Y	Y	N	N	N	N	N	N	N	N						
Pegasus																	
Qantas			N	Y	Y	N	Y	N	N	N	N	N	N		N		
Qatar Airways		N	N	N	N												
Ryanair	N	N	N	N	N	N	N	N									
SAS	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N
Saudia																	
Singapore Airlines	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N
South African Airways			N	N	N	N	N	N	N								
Southwest		Y	Y	Y	N	N	N	N	N	N	N						
Srilankan Airlines		N	N	N	N		N					N					
Swiss (Swissair)																	
TAP Portugal					Y	N	N	N	N	N	N	N					
Thai Airways		Y	Y	Y	Y	Y	N	N									
Turkish Airlines		Y	Y	Y	Y	Y	N										
United Airlines (United Airlines & Contiental)												N					
Virgin America																	

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Virgin Atlantic	N	N	N	N	N	N	N	N	N								
Virgin Australia	Y	N	N	Y	Y	Y	Y	Y	Y	N	N	N	N	N			
WestJet						N	N	N	N								
Xiamenair																	

Appendix 3: Keywords searched from all complete reports, categorized to carbon offsetting, biofuels and climate-related financial disclosures.

Carbon offsetting
carbon offsetting
offsetting
carbon compensation
compensating emissions
CO ₂ compensation
GHG emission compensation

Biofuels
biofuels
Biofuel
biodiesel
biogas
alternative fuel
bio based fuels
fuels from biomass
SAF
Sustainable Aviation Fuels
SAF's
alternative aviation fuel

Climate-related financial disclosures
climate-related financial risk and opportunities
TCFD
Task Force on Climate-related Financial Disclosures
Task Force on Climate-related
Climate-related financial
Climate related financial

Appendix 4: Keywords related to materiality, categorized to economic, governance, environmental, and social aspects.

Emissions						
Other	emis- sions	energy	fuels	efflu- ents and waste	water	bio- diver- sity
climate change	emission reduc- tion	energy	biofuels	waste	water man- age- ment	biodi- ver- sity
sustainability	low-car- bon flights	energy use	fuel man- agement	hazard- ous waste	water	
eco-efficiency	GHG emis- sions	energy effi- ciency	fuel effi- ciency	waste manage- ment		
ecoefficiency	GHGs	energy con- sump- tion	fossil fuel consump- tion	effluents		
noise pollu- tion	carbon offset- ting	energy conser- vation	renewa- ble fuels	recy- cling		
environment preservation	carbon neutral- ity	renewa- ble elec- tricity		spills		
environmen- tal conserva- tion	zero car- bon	heating				
environmen- tal manage- ment	air emis- sions	electric- ity use				
noise	CO ₂ re- duction					
green office	carbon					
marine sci- ence	Air qual- ity					

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climate science	pollution					
environmental compliance	offsetting					
conservation	CO ₂					
climate policy						
sustainable consumption						
plastic						
non-sustainable resources						
resource consumption						
environmental grievance						
environmental assessment						
environmental legislation and regulation						
airtraffic management						
climate change mitigation						
single-used plastics						
plastics						
products and services						
eco-friendly						
fleet renewal						

Economic				
Other	Performance	Impact	Risk	Competitiveness

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transparency	economic performance	indirect economic impact	risk evaluation	market competitiveness
community involvement	indirect economic performance	socio-economic impact	risk management	market development
Investor communications	financial performance	economic impact	financial risk	market presence
customer services	financial operating performance	economic responsibility		competitive behaviour
destination promotion	operational efficiency	economic footprint		competitiveness
culture	service efficiency			brand image
business support	operational costs efficiency			corporate image
sustainable sourcing	indirect economic value			fair competition
global connectivity	profit growth			
cargo services				
economics				
procurement				
profit				
low costs				
low fares				
financial viability				
business continuity				
cost-efficiency				
operational cost				
investments				
presence				
sales				
exchange rates				
oil price				
socially responsible investment				
turnover				
profitability				
investment				
capital management				

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economic growth				
GDP				
public finances				
trade				
export				

Governance material issues
Regulatory compliance
ethical business practices
ethical business policies
transparency and disclosure
sustainable governance
sustainable procurement practices
stakeholder engagement
risk evaluation
regulation compliance
sustainable development strategy
fleet management and planning
Code of Conduct
supply chain management
risk management
anti-gratification
anti gratuity
corruption
anti-corruption
compliance with laws and regulations
strategic strengths and weaknesses
business strategy
supply chain sustainability
governance
transparency
anti-competitive
fair trade
supplier
sustainable sourcing
sustainability assessment
supplier relationship
fleet management

Social

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Other	Health and Safety	Human rights	Stakeholders
training	occupational health and safety	diversity	community
whistleblowing	passenger safety	equality	community development
industrial relation	cabin crew safety	equal opportunities	stakeholder engagement
responsible marketing	work-life balance	labor rights	labour practice
management relations	work/life balance	human rights	stakeholders
corporate culture	quality of life	non-discrimination	employees
public welfare	safety	rights	customers
voluntary work	health	equal remuneration	investors
protection of customer information	working conditions	nondiscrimination	creditors
education		accessibility	employee engagement
knowledge sharing		accessib	customer engagement
disaster relief			customer experience
recruitment			care for people
poverty alleviation			labor-management
privacy			labour relations
freedom of association			labor
public policy			employee experience
social impact			employee brand image
marketing communication			human resources
industrial relations			colleague relations
ethical code			workforce
customer data			customer satisfaction
punctuality			communities

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competence development			regional contributions
terrorism			future generations
public or sectoral bodies			generation
development programme			personal information
earth			customer relationship
sustainable tourism			net-promoter score
feedback			philanthropic
humanitarian response			good neighbor
			talent
			talent attraction
			talent retention

Appendix 5: Keywords related to reporting frameworks and guidelines searched from all complete reports

Reporting frameworks and guidelines	TCFD	GRI	ISO26000	SASB	FTSE4 Good	OECD Guidelines	AA1000	Global Compact	DJSI	CDP
Reporting framework	TCFD	Global Reporting Initiative	International Organization for Standardization	SASB	FTSE Group	OECD Guidelines	AA1000	Global Compact	Dow Jones Sustainability Index	CDP
Reporting guideline	Task Force on Climate-related Financial Disclosures	GRI Standards	ISO26000	Sustainability Accounting Standards		Organisation for Economic Co-operation and Development		Communication on Progress	DJSI	Climate disclosure project

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	Financial Disclosures									
Reporting guidance	Financial Stability Board	G4	ISO 2600	Sustainability Accounting Standards Board						
		G3								

Appendix 6. The 52 airlines who had published a sustainability, CSR, an environmental or an integrated report between 2003-2019 and the 15 airlines which did not have published reports between 2003-2019, or the reports were not available in English or the business was discontinued and thus reports were not found.

Airlines reporting	Airlines not reporting
Aeroflot	Aerolineas Argentinas
Aeromexico	Air Berlin
Air Asia	Alitalia
Air Baltic	Austrian Airlines
Air Canada	Brussels Airlines (Sabena)
Air China	Flybe
Air France-KLM (Air France & KLM)	Hawaiian Airlines
Air India	LOT
Air New Zealand	Malaysia Airlines
Alaska Airlines	Pegasus
All Nippon Airways - ANA	Saudia
American Airlines (American & US Airways)	Swiss (Swissair)
Cathay Pacific	Virgin America

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China Airlines	Xiamenair
China Eastern	Avianca
China Southern	
Copa Airlines	
Delta Air Lines (Delta & NorthWest)	
EasyJet	
Egypt Air	
Emirates Airways	
Etihad Aviation	
Ethiopian Airlines	
EVA Air	
Finnair	
Garuda Indonesia	
GOL	
Hainan Airlines	
IAG (British Airways)	
IAG (Iberia)	
Icelandair	
Japan Airlines	
JetBlue	
Korean Air	
LATAM	
Lufthansa Group (incl. LH, LX, SN & OS)	
Norwegian	
Qantas	
Qatar Airways	
Ryanair	
SAS	
Singapore Airlines	
South African Airways	
Southwest	

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Srilankan Airlines	
TAP Portugal	
Thai Airways	
Turkish Airlines	
United Airlines (United Airlines & Contiental)	
Virgin Atlantic	
Virgin Australia	
WestJet	

Appendix 7: The 38 airlines which had reported material issues in at least one report and the 15 airlines which had not reported material issues in any of their sustainability, CSR, environmental or integrated reports.

Have reported on materiality	Have not reported on materiality
Aeromexico	Aeroflot
Air Asia	Air Berlin
Air Canada	Air India
Air China	All Nippon Airways - ANA
Air France-KLM (Air France & KLM)	Egypt Air
Air New Zealand	Ethiopian Airlines
Alaska Airlines	Icelandair
American Airlines (American & US Airways)	JetBlue
Avianca	Qatar Airways
Cathay Pacific	Ryanair
China Airlines	South African Airways
China Eastern	Srilankan Airlines
China Southern	United Airlines
Copa Airlines	Virgin Airlines
Delta Air Lines (Delta & NorthWest)	WestJet
EasyJet	
Emirates Airways	
Etihad Aviation	
EVA Air	
Finnair	
Garuda Indonesia	
GOL	
Hainan Airlines	

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IAG (British Airways)	
IAG (Iberia)	
Japan Airlines	
Korean Air	
LATAM	
Lufthansa Group (incl. LH, LX, SN & OS)	
Norwegian	
Qantas	
SAS	
Singapore Airlines	
Southwest	
TAP Portugal	
Thai Airways	
Turkish Airlines	
Virgin Australia	