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# The impact of the COVID-19 pandemic on social and environmental reporting and financial performance of airlines operating in the UK

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**Abstract**

**Purpose**
The COVID-19 pandemic has had an unprecedented impact on almost all sectors, but the airline industry has been globally most affected. Although recent years have witnessed an increase in attention to corporate social responsibility reporting, the disclosure within the airline sector has been historically limited. This paper explores the impact of the COVID-19 pandemic on social and environmental reporting and financial performance of airlines operating in the UK.

**Methodology**
The paper applies content, textual, and financial analysis to 16 company-year observations covering two fiscal years, 2018 and 2020, of eight airlines operating in the UK. A coding structure is based on the Global Reporting Initiative guidelines. NVivo is employed for textual comparative analysis.

**Findings**
The research reveals that social disclosures exceeded environmental disclosures in the period before and during COVID-19. However, the pandemic has shown a significant increase in environmental rather than social disclosures. The study evidences the dominating themes of social and environmental disclosure, showing changes between 2018 and 2020. The study finds the extent of negative impact of COVID-19 on airlines' financial performance. A period of crisis prompts companies to release more information, with a positive correlation between higher debt levels and increased disclosure.

**Originality**
The findings complement the emerging empirical evidence on the impact of COVID-19 on CSR reporting and demonstrate how challenges posed by the COVID-19 crisis affect the disclosure practices in the airline industry.

**Keywords**
CSR disclosure; environmental and social reporting; sustainability; airline industry; COVID-19; financial performance

## 1. Introduction

The COVID-19 pandemic, with more than 762 million confirmed cases and more than 6.8 million reported deaths globally at the time of writing (World Health Organization, 2023), has had an unprecedented global impact on the environment and almost every sector (Cho *et al*., 2021; Schaltegger, 2021; García-Sánchez *et al*., 2020; Elmarzouky *et al.,* 2021). From education to health, from financial and business performance to mental health and wellbeing, the pandemic has had a severe and disruptive effect which cannot be underestimated (Sayed et al., 2022; Shen *et al*., 2020; Abhayawansa and Adams, 2021). COVID-19 has challenged the resilience of organisations (Nasih et al., 2022), significantly altered the societal consciousness of the world (He and Harris, 2020; Raimo *et al*., 2021), and emphasised the role of corporate social responsibility (CSR) in mitigating the damages of the crisis (Grech, 2020; Umar et al., 2022).

One of the most impacted sectors globally and in the UK during the pandemic is the transportation industry, specifically air travel (Abhayawansa and Adams, 2021). Due to national lockdowns and airports closures globally, the airlines' business strategy, resilience, employee engagement, and financial performance have been significantly challenged. Passenger flights have experienced the hardest impact of the pandemic. The number of passengers travelling through UK airports in 2020 fell by 223 million, an annual decline of 75% (Kollewe, 2021). easyJet (2020, 58-60) reported a total of 302,912 flight cancellations in 2020 compared to 3,699 cancellations in 2019. The British Airways commented that "In British Airways' 100-year history, the airline had never experienced a crisis of this magnitude" (British Airways, 2020, 5).

The aviation sector is of strategic and economic importance to the UK. Prior to COVID-19, "air transport contributed at least £14 billion to national GDP, and more than 130,000 direct jobs across the UK" (Parliament UK, 2020). The recovery from the COVID-19 pandemic is the slowest comparing to other crises. Total demand for air travel (measured in revenue passenger kilometres) in July 2021 was still down 60% below June 2019 levels (IATA, 2021b). The airline industry has significant social and environmental impacts.

This paper contributes to a limited literature on CSR reporting in the airline industry (Ilkhanizadeh and Karatepe, 2017) and responds to calls to investigate how challenges posed by the COVID-19 crisis affect the reporting practices in the airline industry (Rinaldi *et al*., 2020; Okumus *et al*., 2020). Whilst some studies have examined the impact of COVID-19 on risk reporting, tourism, and operations (e.g. Abhayawansa and Adams, 2021; Vinod, 2020; Flynn *et al*., 2020; Baum and Hai, 2020), we assess the impact of the pandemic on CSR disclosure and financial performance of the airline companies operating in the UK before and during the COVID-19 crisis. Two main questions guided this research: (1) How did the airline companies disclose social and environmental information before and during the pandemic? (2) What was the impact of COVID-19 on the financial performance of the airlines operating in the UK?

The remainder of the paper is organised as follows. Section 2 reviews the literature on CSR reporting in the airline industry and the impacts of COVID-19. Section 3 discusses the research methodology. The research findings are presented in Section 4. Section 5 draws conclusions, limitations, and suggests future research ideas.

## 2. Literature review

### *2.1 Theoretical Framework*

This study employs legitimacy theory as the main theoretical framework. When applied to corporate reporting, legitimacy theory suggests that disclosure is a means of responding to environmental, economic, social, and political factors while legitimising corporate actions in the eyes of society and stakeholders (Cormier and Gordon, 2001). Legitimacy theory is predicated on the notion that business operates in society through a social contract, in which it agrees to perform socially desired actions in exchange for societal approval of its objectives and ultimate survival (Khlifi and Bouri, 2010). Organisational legitimacy is not a universal concept because the perception of an organisation and its actions as legitimate is socially conditioned and subject to changes in the social environment in which the organisation operates. An organisation can use social and environmental disclosure as a tool to meet the demands of society, while reaffirming their legitimate actions or inactions (Freedman and Jaggi, 2005). In times of crisis, such as during COVID-19, by disclosing social and environmental information, companies try to communicate this to different stakeholders, emphasising that they meet their expectations and reassuring them of their effectiveness in order to maintain their legitimacy even in uncertain times. Legitimacy theory is applied to assess the non-financial and financial impact of the COVID-19 pandemic on the social and environmental reporting and financial performance of airlines operating in the UK.

### *2.2. CSR reporting in the airline industry: Pre-COVID-19 context*

Recent years have witnessed an increase in attention to the social and environmental impacts of business among multinational corporations (Alotaibi and Hussainey, 2016; Gulko and Hyde, 2022; Tilt, 2016), an improved CSR disclosure trend (e.g. KPMG, 2020; Michelon *et al*., 2015), and an increased engagement with CSR reporting among airline companies (Kuo *et al*., 2016; Karagiannis *et al*., 2019). Disclosure within the airline sector has been historically limited, particularly with regard to economic and environmental indicators (Ringham and Miles, 2018). The implementation of CSR reporting has been slower in the airline industry. This is disproportionate to the big size of the sector and the potential impact its businesses have on society (Cowper-Smith and de Grosbois, 2011). Prior research shows limited CSR disclosures by airlines in the areas of renewable energy consumption, carbon emissions, water consumption, noise pollution, employee welfare, diversity, and inclusion (Cowper-Smith and de Grosbois, 2011; Lynes and Andrachuk, 2008).

According to KPMG (2020), the Transport and Leisure sector demonstrates the second lowest sustainability reporting rate of 71 percent among all industries. Although the airline industry provides economic benefits to the tourism system, it contributes towards climate change, air quality, noise pollution, and other negative environmental impacts. As a result, there is an increasing pressure on airlines to improve their engagement with CSR initiatives and reporting. Aviation professional bodies also play an important role in supporting airlines with standards and guidelines for airline safety and sustainability (ICAO, 2021; IATA, 2021a).

Research on the airline industry demonstrates a positive trend in CSR disclosures, but further improvements are possible (Lee *et al*., 2018). Mak *et al*. (2007) provide evidence that European airlines, UK inclusive, disclose more significant information relating to employee engagement, sustainability, and community development issues as opposed to Asian-based airlines. Lynes and Andrachuk (2008) found a favourable shift from environmental to social reporting among airlines. A wider recognition of CSR by airlines and a better engagement with CSR activities in an environmentally responsible way can improve their corporate image, customers' loyalty, and financial performance (Lee *et al*., 2018).

### *2.3. Social and environmental impacts of the COVID-19 pandemic*

In 2019, the world experienced an outbreak of a pneumonia, subsequently named as a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Ciotti *et al*., 2020). The sporadic spread of SARS-CoV-2 globally has caused the demise of thousands of people leading the World Health Organization to declare it as a pandemic in 2020 (WHO, 2019). Special protocols such as handwashing, wearing of face masks, social distancing, lockdowns, and stay home policies have been implemented around the world. The effects of the pandemic have been enormous with governments developing recovery strategies.

From the social perspective, COVID-19 has caused unprecedented impacts on the wellbeing of business stakeholders. As the pandemic displaced most vulnerable persons, Gould *et al*. (2020) noted that in mitigating the excesses of pressure on employees and customers' mental health and wellbeing, partnerships with local charities were one of the prime approaches to mitigating the social impact of the pandemic. Although employee furlough has been a normal practice for companies to save revenue in times of crisis (Lee and Sanders, 2013), the pandemic has left the aforementioned with no option but to force many workers out of work. The prolonged lockdowns and travel restrictions have had a serious ramification effect on the whole psychology and mental health of many employees in the supply chain of organisations (Szulc and Smith, 2021).

The COVID-19 pandemic measures, such as lockdowns and promotion of remote working, have drastically reduced public and private commuting, which in turn, had a positive impact on air/noise pollution and a reduction in carbon emissions (Zambrano-Monserrate *et al*., 2020). However, the carbon footprint of personal protective equipment (PPE) usage and disposal have had a huge environmental impact on the UK, contributing a total of 106,478 tonnes of CO2 (Rizan *et al*., 2021). The management of these medical supplies have led to a collapse of once very effective waste management chains in the UK (WHO, 2020).

### *2.4. COVID-19 pandemic and the airline industry*

The global COVID-19 restrictions imposed for tourism purposes and categorisation of tourist destinations heavily destabilised the airline industry (Vinod, 2020). The early effects of these measures resulted in many airlines seeking for bailout and financial aid from the UK government (Financial Times, 2020). Travel restrictions have drastically reduced the passenger turnover (Garrow and Lurkin, 2021), resulting in an unprecedented impact on financial performance (Gittens, 2020). For instance, easyJet Group reported a loss before tax of £1,273 million in 2020 (2019: profit of £430 million) (easyjet, 2020, 56-58).

The role of sustainability has increased during COVID-19, "with 94% of customers thinking about sustainability more than or as much as before" (easyJet, 2020, 17-19). The pandemic required airlines to reconsider their CSR strategies to mitigate the damages (Grech, 2020). In such difficult times businesses are expected to implement CSR activities to support their supply chains (Raimo *et al*., 2021). Reporting on such CSR activities is crucial for stakeholder engagement and business transparency in times of crisis (Luo *et al*., 2017).

Recent research on the impact of the COVID-19 pandemic on the airline industry have focused on the areas such as air transport mobility (Nižetić, 2020), people, economy, and environment (Debata *et al*., 2020), global airline industry (Maneenop and Kotcharin, 2020), governmental support post-COVID-19 (Abate *et al*., 2020), airline employment (Sobieralski, 2020), and risk reporting (Abhayawansa and Adams, 2021).

As the UK airline industry contributes to carbon emissions and other environmental challenges (Ringham and Miles, 2018), the social dimension of CSR reporting has become critical during COVID-19 due to the social construct and wellbeing of stakeholders in the supply chain. The pandemic has sparked diverse CSR response to the crisis, affecting the way CSR is reported (Lorenzo *et al*., 2021). The extent of CSR communication by companies during the pandemic calls for a review of reporting practices as a way to provide holistic information on the impact of COVID-19 (García-Sánchez *et al*., 2020). This study contributes to the literature by conducting a comparative analysis of differences in CSR disclosure practices by airlines before and during the pandemic.

## 3. Data and Method

We examine social and environmental disclosures based on corporate reports of eight airlines operating in the UK. The period covers the year 2018 as the time of pre-COVID-19 and the year 2020 as the period during COVID-19.

### *3.1. Sample*

A total of sixteen (16) companies were extracted from the database of all airlines operating in the UK and registered with the Association of UK Airlines and the Civil Aviation Authority (CAA) (Airline UK, 2021). The criteria for inclusion comprised (1) the availability of annual reports 2018 and 2020 and (2) whether it is a commercial passenger flight airline, categorised as full service carrier, low cost carrier, or charter airline (CAPA, 2021). We focused on airlines operating commercial passenger flights as the most affected by COVID-19: air traffic decreased by 97% in 2020 (House of Commons Committees, 2020). After removing six companies classified as cargo flight airlines and two small regional airlines, the final sample consisted of eight airlines that met the above criteria (Table 1).

[Table 1 near here]

### *3.2. Data*

The data set comprises 16 company-year observations covering annual reports for two fiscal years 2018 and 2020 from eight airline companies. Annual reports are widely used as a reliable source of information (e.g. Guthrie and Mathews, 1985; Gulko *et al*., 2017; Abraham and Shrives, 2014) to examine the content of social and environmental disclosures communicated by companies. Narrative information from the strategic reports and CSR sections were analysed.

### *3.3. Content analysis*

To examine social and environmental disclosures applying the legitimacy theory, we employ a content analysis as a well-established method (e.g. Beattie *et al*., 2004; Bouten *et al*., 2011; Devi Mahadeo *et al*., 2011; Dunne *et al*., 2007). Content analysis uses categorisations of contents in a systematic and replicable way (Krippendorff, 2004). Although the use of words, sentences and pages are widely used, words in isolation are unlikely to provide a sound basis for coding, whereas pages might add unnecessary unreliability (Milne and Adler, 1999). We selected sentences as the main unit of analysis to enable a more accurate categorisation of the disclosure content (Joseph and Taplin, 2011).

We created a coding structure adopting the Global Reporting Initiative (GRI) guidelines (2013) with two broad categories, environmental ('E') and social ('S'). The GRI framework is widely accepted as a global framework in CSR reporting (e.g. Bouten *et al*., 2011). We extracted a total of 1,393 sentences in 2018 and 1,880 sentences in 2020 from the annual reports, and categorised into two groups, environmental and social disclosure statements (Table 2).

[Table 2 near here]

To define a disclosure index of social and environmental sub-categories, we followed the GRI reporting principles designed to assist organisations in identifying material aspects. The environmental category covers twelve aspects: Material, Energy, Water, Biodiversity, Emissions, Effluent and Waste, Products and Services, Compliance, Transport, Overall, Supplier Environmental Assessment, Environmental Grievance Mechanism. The social category includes four aspects, which are Labour Practices and Decent Work, Human Rights, Society, and Product Responsibility.

The validity of the content analysis is ensured by both co-authors discussing and double-checking the coding and interpretation (Krippendorff, 2004; Abhayawansa and Adams, 2021).

### *3.4. Keywords analysis*

Additionally, we conducted the keywords search of the full text of the annual reports 2018 and 2020 for each company. The keywords used to explore disclosure changes between 2018 and 2020 were 'social', 'environmental', 'sustainability', 'covid', 'coronavirus', 'impact', 'risk', and 'uncertainty'. Being not influenced by a specific analytical framework, we were mainly guided by what companies disclosed. The choice of keywords was broadly informed by the aim to explore changes in the disclosure of these terms by companies in stable times, 2018, and during COVID-19, 2020. Using the PDF search function, we constructed a comparative table of the number of times these words were used.

### *3.5. Most common words analysis*

An additional analysis included the most common words used in companies' annual reports, an established method of investigating the weight given to a particular word relative to other words (Joseph and Taplin, 2011). Following the approach by Brooks and Schopohl (2018) of textual data analysis, the CSR sections from the annual reports were uploaded to NVivo 12 Pro software. The search algorithm considers and counts each word separately so that an answer composed of two words is counted by each word (e.g. the answers 'operational performance' would be counted under 'operational' and 'performance'). NVivo allowed a structured textual analysis of 2018 and 2020 reports and a cross-comparison between companies (Leech and Onwuegbuzie, 2011). A series of word clouds were generated by using 'word frequency - run query' function in NVivo comparing between companies and years. We used the "stop word list" tool in NVivo to isolate irrelevant words such as 'also', '2018', '2019', '2020', 'percent', and company names.

### *3.6. Financial measures*

The airline industry faced the hardest conditions because of the impact of COVID-19. We analysed the changes in the financial performance of the sample companies using financial measures of profitability, leverage, and liquidity (Table 3). We retrieved company-level financial data from annual reports. The measures were computed for the eight airlines for two financial years to examine changes in financial performance between the study periods.

[Table 3 near here]

## 4. Findings and Discussion

### *4.1. The overall disclosure trend*

In both 2018 and 2020 years, the overall volume of social reporting exceeded environmental reporting. As shown in Figure 1, the total number of social disclosures was 1,000 in 2018 (1,042 in 2020) as opposed to a total of 393 in 2018 (838 in 2020) of environmental disclosures. The average social disclosure was 125 in 2018 (130 in 2020) compared to the average environmental disclosure of 49 in 2018 (105 in 2020). This result contradicts some previous arguments that airline companies report more on environmental than social topics in their CSR reports (Cowper-Smith and de Grosbois, 2011).

[Figure 1 near here]

The results imply that the COVID-19 pandemic saw a significant increase in the volume of environmental rather than social disclosures in 2020, with 113% and 4% respectively (Figure 2).

[Figure 2 near here]

At company level, the volume of environmental reporting was increased by all companies between 2018 and 2020. The majority of the companies reduced their social disclosures between 2018 and 2020, albeit the volume of social disclosures was still higher than environmental for all but one company.

In what follows, a more detailed analysis is provided on the volume and themes of the disclosed information, focusing separately on environmental (see 4.2.) and social (see 4.3.) disclosures.

*4.2. Environmental disclosure*

A larger volume of environmental reporting was made by all companies in the sample, with the total level of environmental disclosures increasing from 393 in 2018 to 838 in 2020 (+113%). Three out of eight companies demonstrated a substantial increase in disclosures of environmental information, with +463% for Jet2, +369 for easyJet %, and +282% for British Airways (Table 4). The lowest increase was recorded for Ryanair (+10%) and TUI (+2%). The findings support prior research indicating an upward trend in total environmental disclosures (Mak and Chan, 2007), though this can also be due to the influence of COVID-19. At company level, the number of environmental disclosures varied from 8 to 112 in 2018 and from 42 to 333 in 2020.

[Table 4 near here]

The information relating to carbon emissions, recycling, waste management, noise pollution dominated the disclosures of almost all the sampled companies. This finding supports prior research environmental disclosure themes (Kuo *et al*., 2016; Cowper-Smith and de Grosbois, 2011; Lynes and

Andrachuk, 2008). We screen the disclosure against the GRI (2013) framework and evidence that the airlines mainly commit to six out of the twelve categories, namely energy, emissions, effluent and waste, compliance, overall, and supplier environmental assessment. Between 2018 and 2020, the disclosure increased for all but one area. Emissions and energy disclosures rose by 197% and 35% respectively.

There was a slight difference in the content of environmental disclosures between 2018 and 2020 (Figure 3). The highest proportion was attributed to emissions related information, rising from 37% in 2018 to 51% in 2020. Energy accounted for 38% in 2018, but decreased to make up 24% in 2020. The same shares were attributed to waste, with 7% in both years.

[Figure 3 near here]

Emissions, composing carbon and noise pollution, dominated the total environmental disclosures. The increase in carbon disclosure in 2020 can be explained by the global and regional targets of moving towards net zero or carbon neutral in 2050. As the airline industry is the highest contributor to carbon emissions, the results evidence some common strategies adopted by companies to mitigate climate change challenges. The highest level of emissions disclosure by easyJet can be attributed to factors such as its tourism-focused business model and investments in new generation fleets. The results show that energy sources such as solar and electric power for back-office operations and for all-electric flight piloting for airspace dominated energy disclosures (Chiaramonti and Goumas, 2019). Effluent and Waste index presents several approaches to recycling of paper and plastic waste adopted by the companies. We complement the findings of Pitt and Smith (2003) on waste management strategies in the UK aviation industry by showing the increasing commitment of airlines to waste management. For example, airlines have adopted a robust technology-based approach to reducing paper waste as well as recycling initiatives, and customer loyalty programmes.

In terms of regulatory compliance, all but two airlines increased their reporting on compliance with the requirements of regulatory bodies and reporting frameworks. The disclosure on supplier environmental assessment, which relates to the environmental impact of suppliers' business, declined in 2020 for five companies. The results show that many airlines are working collaboratively with suppliers to eliminate non-recyclable products from supply chain based on high risk areas.

*4.3. Social disclosure*

The total level of social reporting increased by 4%, from 1,000 in 2018 to 1,042 in 2020, in line with prior reports (e.g. Kuo *et al*., 2016; Karagiannis *et al*., 2019). However, five out of eight companies decreased their social information between 2018 and 2020 (Table 5). An opposite increased disclosure was noted for three companies. For Ryanair, the increase was mainly attributed to the reporting on the health and safety measures to protect customers and employees. For Virgin Atlantic, the increase was attributed to the employee job retention and redundancy scheme. At company level, the number of social disclosures ranged from 64 to 219 in 2018 and from 75 to 206 in 2020. The content of social disclosures changed between 2018 and 2020, largely influenced by the impact of COVID-19.

[Table 5 near here]

Information relating to employee wellbeing and diversity dominated the disclosures of the sampled companies (Cowper-Smith and de Grosbois, 2011). More specifically, we analyse the disclosures against the GRI (2013) framework and evidence that the airlines mainly adhere to three of the four social categories, namely labour practices and decent work, human rights, and society. Between 2018 and 2020, disclosures related to society and human rights increased by 10% and 2% respectively, whereas reporting on labour practices and decent work decreased by 5%.

The uppermost shares of the total social disclosures in both years were attributed to labour practices and decent work category, comprising nearly three-fourths in 2018, albeit declining to 62% in 2020 (Figure 4). The second largest proportion was related to information about society, rising from 19% in 2018 to 20% in 2020. Human rights information accounted for the same share of 13% in both years.

[Figure 4 near here]

The results demonstrate that labour practices and decent work dominate the social disclosure of all companies, although three airlines increased reporting in this category in 2020. The key topics reported by the companies included: (1) training programmes and funded apprenticeship for staff, (2) STEM education for pilots and engineers, (3) health and safety measures, (4) diversity and inclusion, (5) special needs and disability assistance, (6) fatigue risk management systems and wellbeing. This outcome supports prior literature on mental health and wellbeing (White and Van Der Boor, 2020; Gould *et al.*, 2020). Mental health and wellbeing disclosures increased in 2020 due to the impact of the pandemic on both employees and passengers, including factors such as travel restrictions, airport closures, lockdowns, employee furlough, and remote working.

Half of the companies showed a growth in reporting on human rights between 2018 and 2020. Human right disclosures in 2018 focused on: (1) eradication of modern slavery in supply chains, (2) enhancing GDPR practices, (3) compliance with labour laws, (4) whistleblowing system development, and (5) recognising labour groups. We note differences in the content of human right disclosures in 2020. Additional topics reported in 2020 included: (1) retention strategy and redundancy programmes, (2) campaigning against discrimination and racism, (3) consultations with labour unions, (4) unfair market competition, and (5) training for modern slavery detection and prevention.

The society disclosures were found to be down for all but two airlines in 2020. The key areas in the society category in 2018 include: (1) charity partnerships, (2) local community engagement, and (3) employee volunteerism for social development. While this disclosure was repeated in 2020, the pandemic forced companies to additionally report information relating to repatriation flights, delivery of personal protective equipment (PPE's) and test kits to the UK in an attempt to contribute to the fight against the pandemic.

### *4.4. Keywords*

The keyword frequency analysis confirms the content analysis findings. The term '*environmental*' was used 113% more frequently in 2020 than in 2018, while the use of '*social*' had a less steep increase of 18% in 2020 (Table 6). This correlates with the previously mentioned higher increase in environmental than social disclosures. The use of the term '*sustainability*' saw a considerable upward trend of 301% in 2020, implying the increased focus on sustainability by airlines.

During COVID-19 the airlines increased using the word '*risk*' by 33% in 2020. The word '*uncertainty*' was mentioned more than two times often in 2020 than in 2018. We note a significant rise of 49% in the use of the word '*impact*' in 2020. The keyword '*covid*' was used 799 times in 2020. At company level, we found a consistent increase in the use of the three words '*impact*', '*risk*', and '*uncertainty*'. The above finding could suggest that in the period of crisis, companies report more on areas relating to risks and uncertainty to mitigate any impacts through enhanced communication with stakeholders.

[Table 6 near here]

*4.5. Word cloud of top 30 most commonly used words*

We analysed the top 30 most commonly used words in the CSR sections of 2018 and 2020 annual reports and cross-comparing between the airlines, weighted by the number of occurrences. As observed in Figure 5, in 2018 the highest relative importance was placed on words '*aircraft', 'colleagues', 'fuel', 'environmental', 'employees'*. Other dominant words used in 2018 include '*costs', 'financial', 'emissions', 'safety', 'business', 'training', 'staff', 'management', 'sustainability', 'carbon', 'people', 'team'*. Some shifts in the dominant words can be noticed in 2020, with the highest relative importance placed on '*management', 'carbon', 'training', 'aircraft', 'financial', 'people', 'employees'*. Words, such as '*business*', '*emissions*', '*sustainability*', '*colleague's*, '*fuel*', '*safety*', '*support*', were also dominant in 2020. It 2020 we found the words '*climate'* and '*covid'* weighted among the top 10.

In 2018 the common words were more often linked to social rather than environmental aspects. In 2018, for social, the commonly used words include '*customers', 'passengers', 'people', 'employee', 'safety'*, while for environmental, the words used were '*fuel', 'emissions', 'carbon'*. In comparison, the commonality of words used in 2020 shows an increase in the use of environmental aspects as opposed to 2018. In 2020, for social, the commonly used words include '*impact', 'risk', 'employees', 'safety', 'passengers', 'training'*, which are not frequently used in 2018. As for environmental, the words used were '*carbon', 'emissions', 'fuel'*.

Overall, we found a bias in commonly used words towards social disclosures in 2018 and towards environmental disclosures in 2020.

[Figure 5 near here]

*4.6. Financial performance and links to disclosure*

The COVID-19 pandemic has had an extraordinary impact on the financial performance of airlines in the UK and globally. The average revenue shows a radical decline of 46%, from $8,746 million in 2019 to $4,705 million in 2020 (Figure 6). At company level, all airlines experienced considerable revenue declines, with the exception of Ryanair, Jet2 and Wizz Air, which had less impact on financial results with a fiscal year ending on 31 March. In 2020, five of the eight companies reported losses, ranging from -$736 million to -$4,762 million.

[Figure 6 near here]

In what follows, we present a brief financial analysis of profitability, leverage, and liquidity of the airlines in 2018 and 2020.

Figure 7 shows that the average return on assets as a measure of profitability experienced a downward trend, from 9.77% in 2018 to 4.9% in 2020. The airlines collectively suffered a loss of $12,096 million in 2020 and a decrease in total assets.

[Figure 7 near here]

Due to an increase in total debts in 2020, the average debt-to-asset ratio increased from 73.4% in 2018 to 85.2% in 2020 (Figure 8). The year 2020 was the first critical year of the pandemic for the airline industry. The total collective debts' level increased by 33% in 2020, ranging between 3% and 78%. The extraordinary level of uncertainty in the economic, operational performance, and financial conditions required measures for adapting to the unprecedented conditions.

[Figure 8 near here]

In terms of liquidity risk management, all companies continued adopting the going concern basis in preparing the financial statements. The average liquidity (current ratio), as a measure of a company's ability to pay short-term obligations, reduced from 0.91 in 2018 to 0.74 in 2020. At company level, the current ratio for 2020 was alarmingly less than 1.00 for six out of eight companies. COVID-19 led to significant factors that are outside of the airlines' control, but the airlines took a range of actions to stabilise business at time of crisis. Examples include renegotiation of existing financing arrangements, waiving dividend payments, and restricting the remuneration of Executive Board members.

Figure 9 illustrates that the level of leverage corresponded to the average social and environmental disclosure, with a positive correlation between these two variables, the correlation coefficient of 1. When the level of debts rose in 2020, the volume of disclosures increased. The results might suggest that when companies perceive to be in financial difficulties, they increase the level of communication as part of mitigation strategies. In line with prior research (e.g. Mia and Al-Mamun, 2011; Gulko *et al*., 2017), our finding contributes to the literature by providing evidence in the context of CSR disclosure in the airline industry. Disclosure could act as a mechanism to maintain the company's reputation and strengthen the stakeholders' satisfaction (Cassely *et al*., 2021).

[Figure 9 near here]

## 5. Conclusion and suggestions for future research

The airline industry is most affected by COVID-19 from a probability of default (S&P Global, 2020). In response to the research calls, the present study set out with the aim of exploring the impact of the COVID-19 pandemic on social and environmental reporting and financial performance of the airlines operating in the UK. Using the legitimacy theory and applying content, textual, and financial analysis to the annual reports 2018 and 2020, we contribute to the CSR literature by investigating how disclosure practices in the airline industry differ in a stable period and a period of crisis, COVID-19.

The results demonstrate that the overall volume of social disclosure is higher than environmental in the period before and during COVID-19. Although social disclosures dominated in 2018 and 2020, the actual content of social disclosures changed significantly throughout the period of the pandemic. The uppermost share of the total social disclosures was attributed to labour practices and decent work category, albeit declining between 2018 and 2020. During a period of crisis the volume of environmental disclosure by the sampled companies increases more than social, with +113% and +4% respectively. Whilst emissions related information dominated the total environmental disclosures, its proportion rose from 37% in 2018 to 51% in 2020. At a time of extreme uncertainty, COVID-19, there is a significant increase in the use of sustainability, risk, and uncertainty related words in annual reports. For example, the words '*sustainability*', '*environmental*', and '*uncertainty*' were used by 301%, 113%, and 133% more often in 2020 than in 2018 respectively.

We further found the extent to which COVID-19 has had a negative impact on the financial performance of the airlines operating in the UK. It is important for investors to be more vigilant in assessing financial risks and investment opportunities in this time of uncertainty. The crisis prompts companies to release more information. The level of social and environmental disclosures may correspond to the changes in financial performance (e.g. the rising level of debts during financial uncertainty). For managers, in a crisis of this magnitude in the aviation sector, it is important to maintain stakeholder confidence through transparent disclosure about CSR initiatives, which, in turn, could bring competitive advantage. This research can be of interest to academics, researchers, practitioners, investors, and regulators, as the conceptualisation from this research can inform future research designs.

The following potential limitations of this study present opportunities for future research. *First*, the study is exploratory in nature and has focused on a single industry, hence the results cannot be generalisable to other industries or contexts as it can distort understanding (Tilt, 2016). Future studies may extend this research by exploring a wider range of industries affected by COVID-19, such as hospitality. *Second*, the sample airlines may not necessarily represent all airlines, but we provide a useful contribution in the depth of the analysis. Future studies may compare and contrast the UK findings with the disclosure practices of airlines operating in other countries (e.g. USA). *Third*, this study is based on annual reports. Additional research could examine other sources of information such as companies' websites or social media announcements. *Fourth*, further research is needed to explore the strategies implemented by airlines globally, especially social initiatives, in mitigating the negative impact of the pandemic on their financial stability. *Finally*, a key area for future longitudinal research is to better understand post-COVID-19 impacts on the airline industry in the UK and globally. Additionally, pre-COVID-19 period could be extended to include earlier periods.

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Table 1. Final sample of airlines

| **Company / Trading name** [a] | **Airline Service** [b] | **Revenue (million)** [c] | | | | **Net Profit/Loss for the year (million)** [c] | | | | **Fiscal Year End Date** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **2020** | **2019** | **2018** | **2017** | **2020** | **2019** | **2018** | **2017** | |
| Norwegian Air Shuttle / **Norwegian** | LCC | NOK 9096 ($1,066) | NOK 43,522 ($4,957) | NOK 40,266 ($4,634) | NOK 30,948 ($3,772) | -NOK 23,040 (-$2,700) | -NOK 1,609 (-$183) | -NOK 1,454 (-$167) | -NOK 1,794 (-$206) | 31-Dec |
| Ryanair DAC / **Ryanair** | LCC | € 8495 ($9,307) | € 7,697 ($8,648) | € 7,151 ($8,811) | € 6,648 ($7,107) | € 649 ($711) | € 885 ($994) | € 1450 ($1,787) | € 1,316 ($1,407) | 31-Mar |
| TUI Airways Limited / **TUI** | CA | € 7,944 ($9,301 | € 18,928.1 ($20,611) | € 19,524 ($22,601) | € 18,535 ($21,882) | -€ 3,139 (-$3,675) | € 532 ($579) | € 819 ($948) | € 761 ($898) | 30-Sep |
| British Airways / **British Airways** | FSC | £4,001 ($5,461) | £13,290 ($17,548) | £13,021 ($16,667) | £12,271 ($16,587) | -£3,489 (-$4,762) | £1,109 ($1,464) | £2,091 ($2,676) | £1,383 ($1,770) | 31-Dec |
| Jet2.com Limited / **Jet2** | LCC | £3,585 ($4,431) | £2,964 ($3,880) | £2,392 ($3,369) | £1,729 ($2,161) | £116 ($143) | £140 ($183) | £111 ($156) | £77 ($96) | 31-Mar |
| EasyJet Switzerland SA / **easyJet** | LCC | £3,009 ($3,861) | £6,385 ($7,850) | £5,898 ($7,695) | £5,047 ($6,757) | -£1,079 (-$1,385) | £349 ($429) | £358 ($467) | £305 ($408) | 30-Sep |
| Wizz Air Hungary Ltd / **Wizz Air** | LCC | € 2,761 ($3,025) | € 2,319 ($2,605) | € 1,948 ($2,400) | € 1,571 ($1,680) | € 281 ($308) | € 123 ($138) | € 275 ($339) | € 246 ($263) | 31-Mar |
| Virgin Atlantic Airways Limited / **Virgin Atlantic** | FSC | £868 ($1,185) | £2,927 ($3,865) | £2,781 ($3,560) | £2,629 ($3,554) | -£539 (-$736) | £55 ($73) | -£38.4 (-$49) | -£65.6 (-$89) | 31-Dec |

Notes:
[a] - included into the final sample
[b] - based on CAPA - Centre for Aviation. Full service carrier (FSC), Low cost carrier (LCC), Charter airline (CA).
[c] - original data is based on annual reports 2018 and 2020. The data is converted to USD as the common global currency. The conversion was based on the currency rate on the fiscal year end date of the annual report using the FXTOP currency converter; rounded to the nearest $.

Table 2. Coding examples

| | |
|---|---|
| Environmental | |
| Example: | "New aircraft models added to the airline's fleet, have improved fuel efficiency and therefore reduce the environmental impact of the airline's operations." |
| Social | |
| Example: | "Following the introduction of the Apprenticeship Levy Scheme by the Government, British Airways became a registered employer provider for apprenticeship schemes in 2018, allowing direct delivery of funded apprenticeship programmes to employees." |

Table 3. Financial measures

| Variable | Measurement [a] |
|---|---|
| Profitability | ROA (%) = Net profit/total assets |
| Leverage | Debt-to-assets ratio = Total liabilities/total assets |
| Liquidity | Current ratio = Current assets/current liabilities |

Notes
[a] – data obtained from annual reports 2018 and 2020

Table 4. Environmental disclosures 2018 and 2020

| Company | Year | Environmental disclosure [a] | | | | | | | | | | | | Total [b] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MAT | EN | WA | BIOD | EMS | E&W | P&S | COM | TRANS | ORL | SEA | EGM | |
| **British Airways** | 2018 | 0 | 4 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 11 |
| | **2020** | **0** | **21** | **0** | **0** | **15** | **3** | **0** | **1** | **0** | **2** | **0** | **0** | **42** |
| | (+/-)% | | ↑ | | | ↑ | ↑ | | | | ↑ | ↓ | | +282% |
| **easyJet** | 2018 | 0 | 22 | 0 | 0 | 36 | 5 | 0 | 1 | 0 | 0 | 7 | 0 | 71 |
| | **2020** | **0** | **71** | **0** | **0** | **168** | **30** | **0** | **22** | **0** | **41** | **1** | **0** | **333** |
| | (+/-)% | | ↑ | | | ↑ | ↑ | | ↑ | | ↑ | ↓ | | +369% |
| **Jet2** | 2018 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 8 |
| | **2020** | **0** | **12** | **0** | **0** | **18** | **7** | **0** | **5** | **0** | **3** | **0** | **0** | **45** |
| | (+/-)% | | ↑ | | | ↑ | ↑ | | ↑ | | ↑ | | | +463% |
| **Norwegian** | 2018 | 0 | 21 | 0 | 0 | 16 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 39 |
| | **2020** | **0** | **20** | **0** | **0** | **49** | **6** | **0** | **3** | **0** | **11** | **0** | **0** | **89** |
| | (+/-)% | | ↓ | | | ↑ | ↑ | | ↑ | | ↑ | | | +128% |
| **Ryanair** | 2018 | 0 | 43 | 0 | 0 | 40 | 10 | 0 | 2 | 0 | 16 | 1 | 0 | 112 |
| | **2020** | **0** | **32** | **0** | **0** | **70** | **4** | **0** | **0** | **0** | **17** | **0** | **0** | **123** |
| | (+/-)% | | ↓ | | | ↑ | ↓ | | ↓ | | ↑ | ↓ | | +10% |
| **TUI** | 2018 | 0 | 7 | 0 | 0 | 31 | 3 | 0 | 1 | 0 | 14 | 3 | 0 | 59 |
| | **2020** | **0** | **6** | **0** | **0** | **35** | **1** | **0** | **3** | **0** | **15** | **0** | **0** | **60** |
| | (+/-)% | | ↓ | | | ↑ | ↓ | | ↑ | | ↑ | ↓ | | +2% |
| **Virgin Atlantic** | 2018 | 0 | 21 | 0 | 0 | 7 | 3 | 0 | 0 | 0 | 9 | 9 | 0 | 49 |
| | **2020** | **0** | **15** | **0** | **0** | **49** | **0** | **0** | **6** | **0** | **11** | **0** | **0** | **81** |
| | (+/-)% | | ↓ | | | ↑ | ↓ | | ↑ | | ↑ | ↓ | | +65% |
| **Wizz Air** | 2018 | 0 | 29 | 0 | 0 | 8 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 44 |
| | **2020** | **0** | **25** | **0** | **0** | **26** | **9** | **0** | **1** | **0** | **4** | **0** | **0** | **65** |
| | (+/-)% | | ↓ | | | ↑ | ↑ | | ↑ | | ↑ | | | +48% |
| **Total [c]** | 2018 | | 150 | | | 145 | 27 | | 8 | | 42 | 21 | | 393 |
| **Total [c]** | **2020** | | **202** | | | **430** | **60** | | **41** | | **104** | **1** | | **838** |
| **Total [c]** | (+/-)% | | +35% | | | +197% | +122% | | +413% | | +148% | -95% | | +113% |

Notes:

[a] - categories of environmental disclosure based on GRI (2013) guidelines: MAT – Materials, EN – Energy, WA – Water, BIOD – Biodiversity, EMS – Emissions, E&W – Effluent and Waste, P&S – Products and Services, COM – Compliance, TRANS – Transport, ORL – Overall, SEA – Supplier Environmental Assessment, EGM – Environmental Grievance Mechanism

[b] - number of sentences disclosed in annual reports by company

[c] - number of sentences disclosed in annual reports by category

Table 5. Social disclosures 2018 and 2020

| Company | Year | Social Disclosure [a] | | | | Total [b] |
|---|---|---|---|---|---|---|
| | | LP & DW | HR | SOC | PR | |
| | 2018 | 81 | 21 | 13 | 0 | 115 |
| **British Airways** | **2020** | **77** | **13** | **5** | **3** | **98** |
| | (+/-)% | ↓ | ↓ | ↓ | ↑ | -15% |
| | 2018 | 144 | 40 | 35 | 0 | 219 |
| **easyJet** | **2020** | **70** | **44** | **71** | **21** | **206** |
| | (+/-)% | ↓ | ↑ | ↑ | ↑ | -6% |
| | 2018 | 64 | 4 | 13 | 0 | 81 |
| **Jet2** | **2020** | **61** | **2** | **12** | **0** | **75** |
| | (+/-)% | ↓ | ↓ | ↓ | | -7% |
| | 2018 | 75 | 12 | 27 | 0 | 114 |
| **Norwegian** | **2020** | **67** | **9** | **34** | **5** | **115** |
| | (+/-)% | ↓ | ↓ | ↑ | ↑ | +0.9% |
| | 2018 | 46 | 6 | 17 | 0 | 69 |
| **Ryanair** | **2020** | **88** | **18** | **15** | **0** | **121** |
| | (+/-)% | ↑ | ↑ | ↓ | | +75% |
| | 2018 | 129 | 45 | 18 | 0 | 192 |
| **TUI** | **2020** | **138** | **23** | **11** | **16** | **188** |
| | (+/-)% | ↑ | ↓ | ↓ | ↑ | -2% |
| | 2018 | 40 | 1 | 23 | 0 | 64 |
| **Virgin Airlines** | **2020** | **77** | **8** | **23** | **3** | **111** |
| | (+/-)% | ↑ | ↑ | | ↑ | +73% |
| | 2018 | 99 | 4 | 43 | 0 | 146 |
| **Wizz Air** | **2020** | **67** | **18** | **36** | **7** | **128** |
| | (+/-)% | ↓ | ↑ | ↓ | ↑ | -12% |
| **Total [c]** | 2018 | 678 | 133 | 189 | 0 | 1000 |
| **Total [c]** | **2020** | **645** | **135** | **207** | **55** | **1042** |
| **Total [c]** | (+/-)% | -5% | +2% | +10% | | +4% |

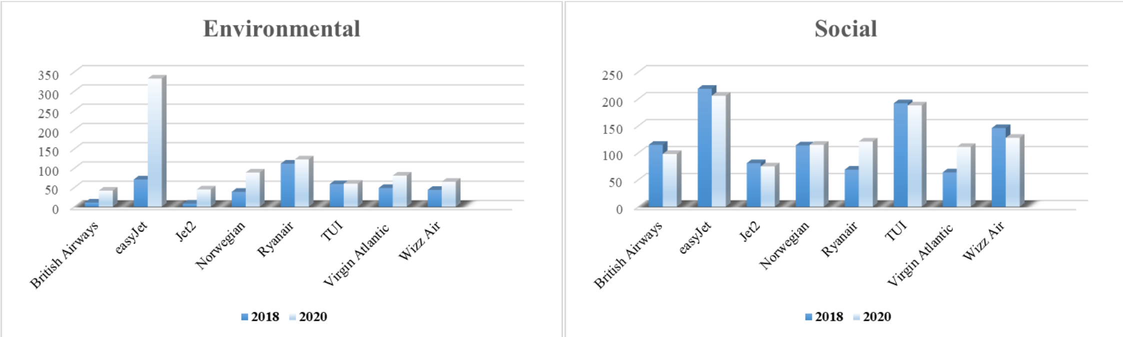
Notes:
[a] - categories of social disclosure based on GRI (2013) guidelines: LP & DW – Labour Practices and Decent Work, HR – Human Rights, SOC – Society, PR – Product Responsibility
[b] - number of sentences disclosed in annual reports by company
[c] - number of sentences disclosed in annual reports by category

Table 6. Keywords

| | **Year** | **Social** [a] | **Environmental** [a] | **Sustainability** [a] | **Covid** [a] | **Coronavirus** [a] | **Impact** [a] | **Risk** [a] | **Uncertainty** [a] |
|---|---|---|---|---|---|---|---|---|---|
| **Total** [b] | 2018 | 182 | 137 | 82 | 0 | 0 | 471 | 1179 | 66 |
| **Total** [b] | **2020** | **215** | **292** | **329** | **799** | **44** | **703** | **1562** | **154** |
| **%(+/-)** | | +18% | +113% | +301% | +/-0% | +/-0% | +49% | +33% | +133% |

Notes:
[a] - number of times the word was mentioned in annual reports across sample companies
[b] - total number of times the word was mentioned by keyword

Figure 1. Environmental and social disclosures 2018 and 2020 by company




| Company | 2018 | | | | 2020 | | | |
|---|---|---|---|---|---|---|---|---|
| | Environmental ($N$ = 393)[a,b] | | Social ($N$ = 1000)[a,b] | | Environmental ($N$ = 838)[a,b] | | Social ($N$ = 1042)[a,b] | |
| | $n$ | %[c] | $n$ | %[c] | $n$ | %[c] | $n$ | %[c] |
| **British Airways** | 11 | 2.8% | 115 | 11.5% | 42(↑) | 5.0% | 98(↓) | 9.4% |
| **easyJet** | 71 | 18.1% | 219 | 21.9% | 333(↑) | 39.7% | 206(↓) | 19.8% |
| **Jet2** | 8 | 2.0% | 81 | 8.1% | 45(↑) | 5.4% | 75(↓) | 7.2% |
| **Norwegian** | 39 | 9.9% | 114 | 11.4% | 89(↑) | 10.6% | 115(↑) | 11.0% |
| **Ryanair** | 112 | 28.5% | 69 | 6.9% | 123(↑) | 14.7% | 121(↑) | 11.6% |
| **TUI** | 59 | 15.0% | 192 | 19.2% | 60(↑) | 7.2% | 188(↓) | 18.0% |
| **Virgin Atlantic** | 49 | 12.5% | 64 | 6.4% | 81(↑) | 9.7% | 111(↑) | 10.7% |
| **Wizz Air** | 44 | 11.2% | 146 | 14.6% | 65(↑) | 7.7% | 128(↓) | 12.3% |
| **Average**[d] | **49** | | **125** | | **105** | +113% | **130** | +4% |

Notes
[a] - the data analysis is based on the annual reports 2018 and 2020.
[b] - $N$ is the sum of sentences disclosed in annual reports.
[c] - the proportion out of the total. The percentages are rounded; using the exact figures, they add up to 100.0%.
[d] - average number of sentences

Figure 2. Average disclosure trend in 2018 and 2020

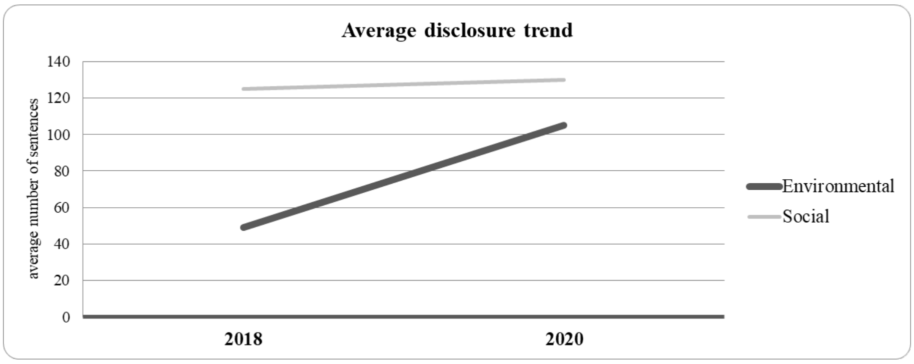


Figure 3. Key categories of environmental disclosure

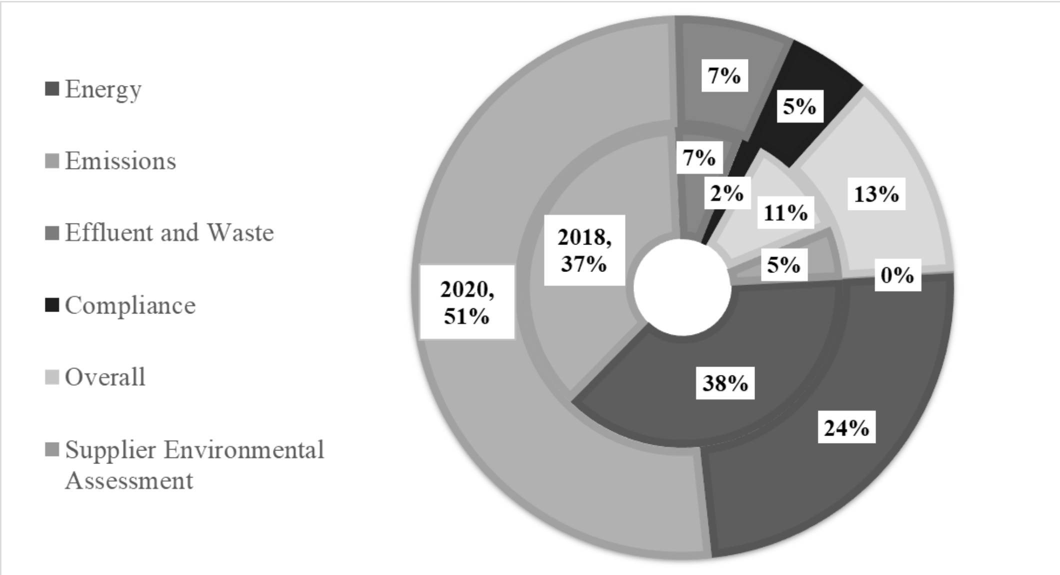


Figure 4. Key categories of social disclosure

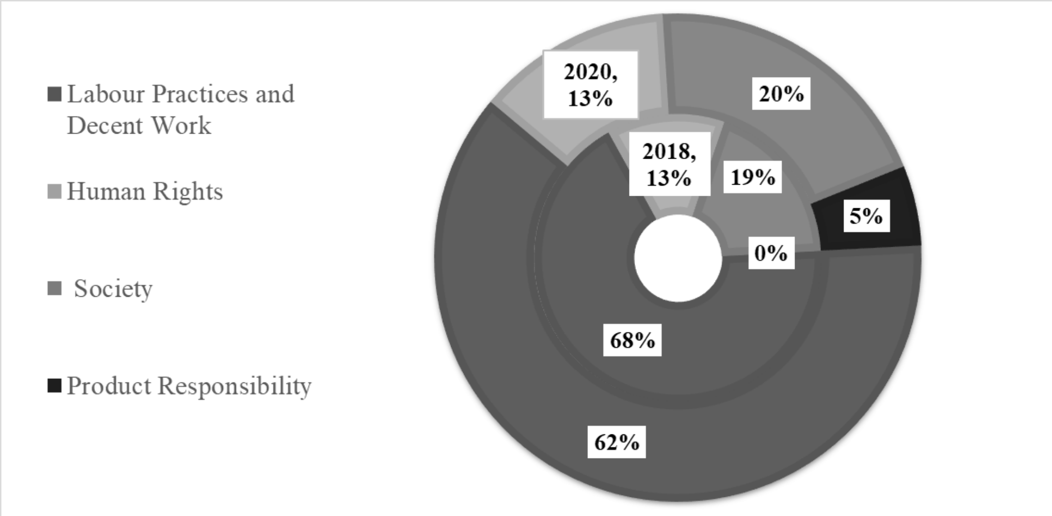


Figure 5. Word Cloud of top 30 most commonly used words by company/by year

easyJet 2018


easyJet 2020


British Airways 2018


British Airways 2020


Jet2 2018


Jet2 2020


Norwegian 2018


Norwegian 2020


Ryanair 2018

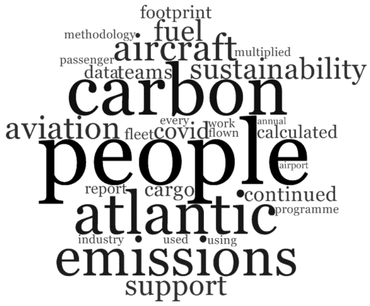
Ryanair 2020



| TUI 2018 | TUI 2020 |
|---|---|

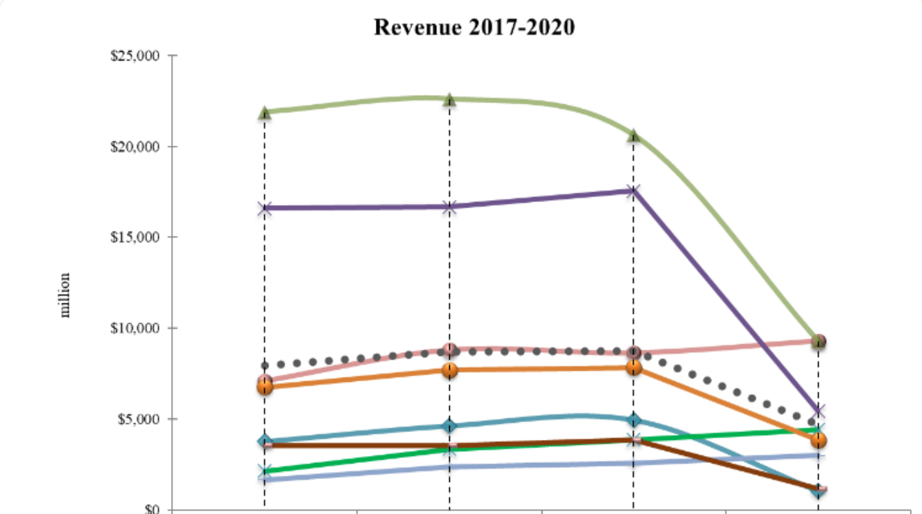


| Virgin Atlantic 2018 | Virgin Atlantic 2020 |
|---|---|

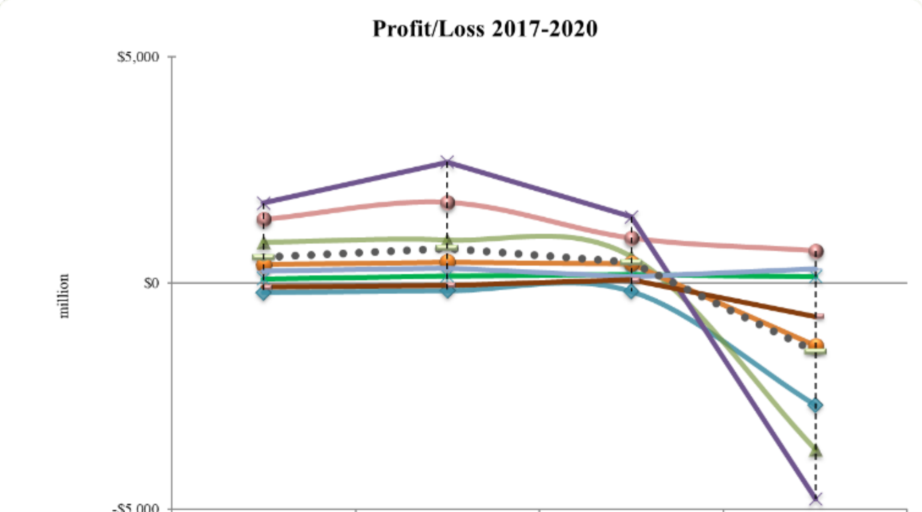




| Wizz Air 2018 | Wizz Air 2020 |
|---|---|


Figure 6. Revenue and profit 2017-2020




| | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|
| Norwegian | $3,772 | $4,634 | $4,957 | $1,066 |
| Ryanair | $7,107 | $8,811 | $8,648 | $9,307 |
| TUI | $21,882 | $22,601 | $20,611 | $9,301 |
| British Airways | $16,587 | $16,667 | $17,548 | $5,461 |
| Jet2 | $2,161 | $3,369 | $3,880 | $4,431 |
| easyJet | $6,757 | $7,695 | $7,850 | $3,861 |
| Wizz Air | $1,680 | $2,400 | $2,605 | $3,025 |
| Virgin Atlantic | $3,554 | $3,560 | $3,865 | $1,185 |
| AVERAGE | $7,938 | $8,717 | $8,746 | $4,705 |




| | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|
| Norwegian | -$206 | -$167 | -$183 | -$2,700 |
| Ryanair | $1,407 | $1,787 | $994 | $711 |
| TUI | $898 | $948 | $579 | -$3,675 |
| British Airways | $1,770 | $2,676 | $1,464 | -$4,762 |
| Jet2 | $96 | $156 | $183 | $143 |
| easyJet | $408 | $467 | $429 | -$1,385 |
| Wizz Air | $263 | $339 | $138 | $308 |
| Virgin Atlantic | -$89 | -$49 | $73 | -$736 |
| AVERAGE | $568 | $770 | $460 | -$1,512 |

Notes:
Original data is based on annual reports 2018 and 2020. The data is converted to USD as the common global currency. The conversion was based on the currency rate on the fiscal year end date of the annual report using the FXTOP currency converter; rounded to the nearest $.

Figure 7. Profitability

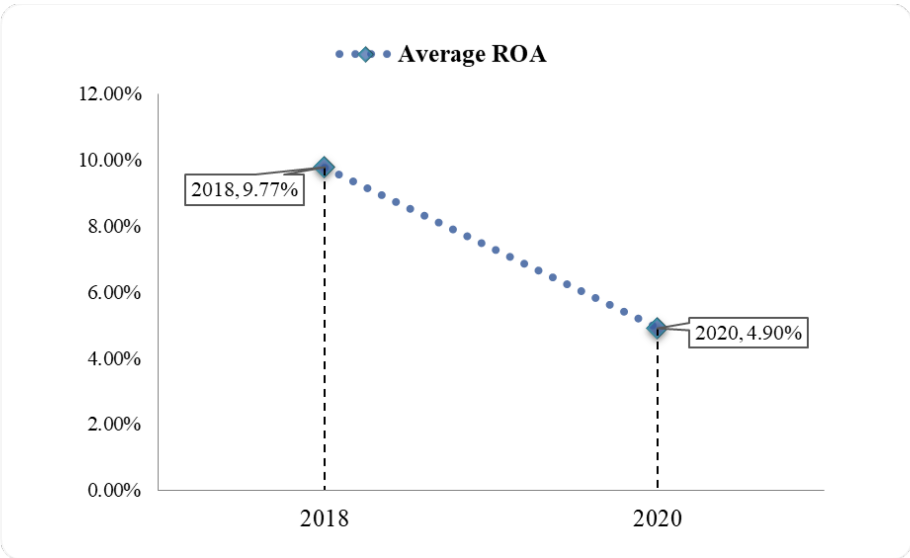


Figure 8. Leverage

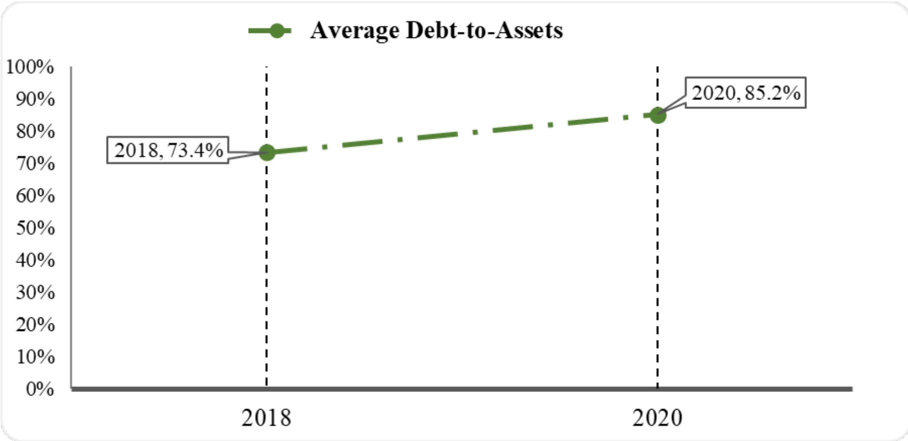


Figure 9. Relationship between leverage and disclosure