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The Impact of Sustainability Accounting and Reporting Disclosure Before and After Coronavirus: (Aviation Companies of Seven Asia Countries)

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Abstract— *The study addresses the pressing need to address the impact of sustainability accounting and reporting disclosure before, during and after the coronavirus. It focuses on the impact of sustainability accounting and reporting disclosure on listed businesses in seven Asian countries and analyzes data from the annual reports of 30 aviation companies for five fiscal years from 2018 to 2022 and observed 150 reports. Descriptive and regression are the methods used to analyse the data. The study examines the factors affecting sustainability disclosure, including profitability, risk management effectiveness, stakeholder engagement, and preparedness for future crises. The findings reveal that sustainability disclosure has gradually increased over the years, indicating a growing emphasis on economic, social, and environmental reporting. The findings accepted that risk management effectiveness shows a positive effect on sustainability disclosure and preparedness for future crises has a significant positive influence on sustainability disclosure. However, Profitability and stakeholder engagement have a negative and insignificant effect on sustainability disclosure. The objectives are accessing independent variables and conducting comparative analysis. The motivation is to understand the post-COVID-19 effects of sustainability accounting. The study's limitations are reliance on secondary data sources, focus on specific countries and organizations, and variables. The research contributes to the existing literature by providing insights into the determinants of sustainability accounting and reporting in the post-pandemic recovery phase and regulatory framework.*

Keywords— *Sustainability Accounting and Reporting; COVID-19 pandemic; Comparative Analysis; Resilience; Stakeholders Engagement.*

I. INTRODUCTION

The COVID-19 pandemic has presented unprecedented challenges to global economies and societies, highlighting the critical need for sustainability and resilience in the face of future crises (Cho et al., 2022), (Hassan, Elamer, Lodh, et al., 2021). Sustainability means addressing current requirements while preserving the potential of future generations to meet their own needs. Achieve long-term well-being and resilience, it entails implementing behaviors that support environmental preservation, social responsibility, and economic viability in a balanced manner by United Nations, (1987) (Keeble, 1988), (Harlem Brundtland, 2013). As businesses and organizations navigate the post-coronavirus recovery phase, there is a growing recognition of the significance of sustainability accounting and reporting disclosure in achieving long-term economic, social, and environmental (ESG) goals (Lodhia et al., 2021).

The COVID-19 pandemic has had a profound and long-lasting impact on the air transport industry, with significant changes in supply, demand, and regulation. The recovery of the industry will depend on various factors, including the lifting of travel restrictions, consumer confidence, and economic recovery (Suau-Sanchez et al., 2020). Significant determinants of passengers' desire to travel during and after the pandemic included agreeableness, affect, fear, and the perceived threat posed by COVID-19 (Lamb et al., 2020).

The pandemic has upended the world in ways we never thought possible, and as companies struggle to adapt to the new normal, one thing has become clear: sustainability accounting and reporting practices are more important than ever before (Di Vaio et al., 2022). The ability of an organization to collaboratively generate economic value over an extended period while integrating all stakeholders, safeguarding the environment and people, and promoting community well-being is referred to as sustainability (Tommasetti et al., 2020).

In today's rapidly changing and interconnected world, organizations face the challenge of not only generating profits but also ensuring their long-term survival. Simply focusing on profit-making is no longer sufficient, as technological advancements and the cyclic nature of the global economy have made it clear that businesses cannot operate in isolation (Gao et al., 2023). The pursuit of profit often comes at the expense of natural resources and hinders societal development (Pratiwi et al., 2020). This highlights the inadequacy of traditional financial accounting and reporting methods and emphasizes the need for organizations to report on their ESG impacts (Ozili, 2021), (Wachira, 2017).

Furthermore, in terms of business profitability, resilience, and survival, it provides valuable insights into enhancing business resilience during exogenous shocks. The primary focus is on the immediate impact of the COVID-19 pandemic, which should explore long-term implications for profitability, post-crisis recovery strategies, and how firms can thrive after disruptive events (Nguyen et al., 2023).

The combination of economic expansion and population growth has exerted significant pressure on scarce natural resources, leading to environmental degradation. This necessitates a shift away from traditional business practices

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and extends to the realm of accounting and reporting (Panneels, 2023). The growing awareness among various societal groups calls for a new era of public reporting that goes beyond conventional financial reporting (Nguyen et al., 2017). It becomes evident that financial reporting alone is insufficient. Non-financial reporting, such as social responsibility reporting, requires adaptation and an expanded approach to information disclosure (Hassan, Elamer, & Roberts, 2021)

Despite this initiative, companies still tend to decide the type of information to be disclosed in their financial statements; hence low sustainability accounting and reporting systems seem to be pervasive among companies. As stated in the Great 20 Countries (G20) summit, "We've witnessed the profound impact of the COVID-19 pandemic, alongside other pressing issues such as climate change. These crises have resulted in economic setbacks, a rise in poverty rates, a delay in global recuperation efforts, and a significant obstacle to advancing the Sustainable Development Goals."(G20. (2022). G20 Bali Leaders' Declaration, 2022).

This research focuses on sustainability accounting and its effects on post-coronavirus recovery and organizational performance. It has exposed vulnerabilities in global economies and societies, emphasizing the need for resilience and sustainability to mitigate the impact of future crises.

The motivation behind this study stems from the vulnerabilities exposed by the pandemic and the need for resilience and sustainability in mitigating the impact of future crises and staying home or quarantined. The study also aims to provide valuable insights for regulators and policymakers in developing frameworks to ensure companies provide detailed information on their sustainability performance to the public.

The objective was to understand the effect of various independent factors, including profitability (PT), risk management effectiveness (RME), stakeholder engagement (SE), and preparedness for future crises (PFC), on sustainability disclosure (SD) and comparative analysis.

The findings of this study the effect of sustainability accounting and reporting disclosure factors varies over the years. The study reveals that preparedness for future crises has demonstrated a constant positive and significant effect on sustainability accounting and reporting indicating its significance in promoting sustainability practices. Also, risk management effectiveness shows a positive and significant effect on sustainability accounting and reporting. However profitability and stakeholder engagement showed a negligible impact and insignificant effect on sustainability accounting and reporting disclosure, These results emphasize the need for businesses to actively engage with stakeholders and be prepared for future challenges to promote sustainable practices. Finally, the study contributes to the promotion of sustainable practices and resilience in the face of future challenges.

II. Literature Review And Hypotheses Development

Businesses started to see the value of fully reporting qualitative, quantitative, and financial information about their environmental effects in the early 1990s. According to 1993 empirical research by Gray et al., the public is aware of the negative repercussions of corporate development and demands constant reporting. A company's annual report is a major source of information on its long-term success.

The ideas of the study's dependent and independent variables were covered in this part. It also looked at pertinent ideas and their presumptions about how the dependent and independent variables relate to one another.

A. Sustainability

The term "sustainability relates to the idea of addressing current demands without sacrificing the capacity of future generations to address their own needs". It involves adopting practices that support environmental protection, social responsibility, and economic viability in a balanced manner, aiming for long-term well-being and resilience United Nations. (1987),(Keeble, 1988). The Brundtland Report, also known as the Brundtland Report or "Our Common Future" by the World Commission on Environment and Development, served as the foundation for the notion of sustainability. The paper focuses on the significance of sustainable development and the necessity to strike a balance between social advancement, economic expansion, and environmental preservation. The increasing acceptance of sustainability as a legitimate concept and the authority it attained in the 1990s and 2000s served as important impetuses for its definition as the integration of economic, environmental, social, and economic factors (Hussain et al., 2018).

a. Profitability

This variable refers to an organization's ability to generate profit or financial gain from its operational activities. It reflects the organization's ability to generate revenue that exceeds its expenses, which is particularly important in times of economic uncertainty, such as the post-COVID-19 recovery period. Sustainability profit is a new metric composed of economic, environmental and social indicators (Zore et al., 2017). The findings show that this metric offers sensible compromises between the economic, environmental, and social pillars of sustainability. Profit is viewed as a longer-term investment in the community that will produce financial stability for both the firm and the community. Through payments to local producers, the majority of the funds are returned to the community (Panneels, 2023) and (Jackson & Tamuke, 2022). Whereas profitability is increased when simply financial sustainability is taken into account. By taking these businesses' sustainability in terms of the planet, people, and place into consideration (Panneels, 2023). High profitability can enhance investor confidence and attract investments, which are vital for organizations looking to recover and expand after facing pandemic-related challenges. It determines the financial resources available for strategic investments, sustainability initiatives, and other recovery efforts.

b. Risk Management Effectiveness

This assesses how well organizations manage and mitigate risks during the post-COVID-19 recovery phase, concerning sustainability accounting and reporting practices. Effective risk management is essential for maintaining financial

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stability, especially in times of crisis. It helps organizations identify, assess, and address potential threats that could impact their financial performance (Jackson & Tamuke, 2022). A company can adapt to changing circumstances and recover more successfully from interruptions like the COVID-19 pandemic when it has a well-managed risk strategy. (Duan et al., 2022) (Duan et al., 2022); and (Agarwal et al., 2023). Robust risk management practices instill confidence in stakeholders, including investors, customers, and regulators, which can be crucial for an organization's recovery and growth. The research examines whether organizations that prioritize sustainability disclosure practices experience improved risk management outcomes

c. Stakeholder Engagement

The level of engagement and communication between organizations and their stakeholders regarding sustainability practices is SE. Effective stakeholder engagement fosters transparency, building trust between organizations and their stakeholders. In times of crisis, such as the COVID-19 pandemic, trust becomes essential for recovery and long-term sustainability. (Sato et al., 2002). Stakeholders are a group of people who have the power to affect or be influenced by decisions made by a company. (Romero et al., 2019). The ability of an organization to successfully integrate its resources in tasks that maximize shareholder wealth or improve its coexistence with other stakeholders is a prerequisite for its survival and sustainability. (Benson & Davidson, 2010). Additionally, Croxford et al., (2021) state that input and output evaluation approaches have shown that a corporation's ability to integrate its corporate resources to stakeholders' demands, even in instances involving non-monetary advantages, is dependent on those gains. Engagement ensures that an organization's sustainability efforts align with the values and expectations of its stakeholders, including customers, employees, investors, and communities.

Stakeholder feedback helps organizations assess the impact of their sustainability practices and make necessary improvements, contributing to better decision-making and long-term resilience

d. Preparedness for Future Crisis

This involves assessing whether organizations have implemented measures to prepare for potential future crises as a result of their sustainability accounting and reporting practices.

Resilience is the ability to respond effectively to future crises is vital for an organization's resilience. Sustainability accounting can provide insights and data that inform preparedness strategies. (Satici et al., 2023). Risk Mitigation anticipating and PFC, organizations can mitigate potential risks and minimize disruptions, ensuring their long-term sustainability. (Al-Qudah, 2023). Stakeholder Confidence demonstrates preparedness that can enhance stakeholder confidence and trust in the organization's ability to weather future storms, thereby attracting investors and maintaining customer loyalty. (Gao et al., 2023). This investigates whether organizations that have implemented emergency response and preparedness policies, such measures as a result of sustainability accounting and reporting disclosure show greater resilience in the post-pandemic period.

B. Theoretical Review

There are two theories used in this article resilience theory and stakeholder theory.

a. Resilience Theory

Holling, (1973) is generally credited with the first definition of resilience which means the ability of a system to shift between alternatives. Resilience theory is relevant to understanding how sustainability practices contribute to an organization's ability to withstand and recover from crises. It can inform your analysis of the impact of sustainability accounting on post-pandemic resilience. Resilience theory focuses on how organizations adapt to challenges such as change, loss and risk, learn, and recover from disruptions or shocks. In this study, resilience theory can shed light on how organizations can build resilience by integrating sustainability practices into their reporting systems. Sustainable accounting and reporting can help organizations identify vulnerabilities, manage risks, and improve their ability to withstand and recover from crises. By adopting resilient strategies, organizations can enhance their long-term viability and contribute to a more sustainable and responsible post-COVID recovery. (Holling, 1973), (Soboti, 2023)). It is important to develop resilience in companies to thrive in uncertain and rapidly changing times. (Nauck et al., 2021)

b. Stakeholders' Theory

Stakeholder theory can be traced back to Freeman (1984). The main idea behind this theory is that to provide value and ensure long-term survival, managers must find a way to fulfil the wants and concerns of the many groups that businesses are inherently connected. Stakeholders have encouraged businesses to provide information regarding the economic, social, and governance aspects of their operations so that they may better understand how firms affect society and the environment and, if needed, hold them accountable for any negative effects. (Al-Qudah, 2023). In the stakeholder theory, it is vital to take into account the interests of different stakeholders, including customers, employees, shareholders, and the larger community.

The ability of stakeholders to keep an eye on and apply pressure to firms, however, varies greatly. Academics argue that managers selectively integrate stakeholder concerns over NFD into their accounting processes, giving priority to demands from more powerful parties (Hussain et al., 2018). Using concepts from stakeholder salience analysis, the desire to participate in this activity—and the ensuing ESG information that will be included in these reports—thus appears to be a function of the "stakeholders' power" over a specific organization. The ability of stakeholders to pressure businesses into producing ESG reports varies depending on how these means are set up, according to the traditional power typology used in stakeholder analysis (Fernandez-Feijoo et al., 2014). Thus, the power sources that compel companies to provide non-financial information can be "utilitarian" (based on material or financial resources) or "coercive" (founded in force or restraint).

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C. Empirical Review

This consists of both studies on developed countries and studies on developing countries which are below:

a. Studies on Developed Countries

Suau-Sanchez et al., (2020) study indicates that the impact of COVID-19 on the air transport industry has been significant. The data analysis showed drastic decreases in air traffic numbers, flight cancellations, and border closures. The recovery of the industry is expected to be slow and uncertain, with potential long-term changes in supply, demand, and regulation (Suau-Sanchez et al., 2020).

Song & Choi, (2021) study contributes to the understanding of passenger behavior in the post-COVID-19 era by identifying the factors that influence the resumption of air travel. The findings highlight the importance of considering factors such as the prevalence of COVID-19, self-isolation requirements, social atmosphere, destination conditions, and preventive measures in the aviation sector when formulating strategies for sustainable recovery in the aviation industry (Song & Choi, 2021).

Lamb et al., (2020) study contribution by identifying the variables that forecast travelers' propensity to board aircraft both during and following the COVID-19 epidemic. The results emphasize how important agreeableness, affect, fear, and perceived COVID-19 threat are in influencing passengers' decision-making. These findings can inform airlines and governments in developing strategies to address passengers' concerns and promote a safe flying experience (Lamb et al., 2020).

Gunawan, (2013) investigated the factors that influence corporate social responsibility in Indonesian listed firms. The study found that the level of CSR in listed enterprises in Indonesia is significantly influenced by the current ratio, debt to equity, size, institutional ownership, and age, but that profitability and the Board of Commissioners were not crucial (Gunawan, 2013).

Romero et al., (2019) investigated sustainability reporting and stakeholder engagement in Spain over the period from 2013 to 2015. Their findings indicate that companies that issue dedicated integrated reports or sustainability reports tend to provide information of higher quality compared to those that incorporate their sustainability information within the annual report. These findings imply that Spanish businesses regularly communicate with all relevant parties, not just their shareholders (Romero et al., 2019).

The effects of significant worldwide crises on people, institutions, and society as a whole—implications that accounting and management study has largely ignored. It suggests that there is a gap in understanding how accounting, accountability, and management practices can support the search for solutions to global challenges such as the COVID-19 pandemic. (Leoni et al., 2021)

Károly Szóka, (2022) examine sustainability accounting and reporting in the post- corvid times. The study suggests that companies practicing sustainability accounting are perceived to be more valuable to investors and have greater legitimacy to operate compared to companies that do not prioritize sustainability. This indicates that sustainability accounting can positively impact the perception of stakeholders and contribute to the long-term success of organizations (Károly Szóka, University of Sopron, 2022).

Scarpa et al., (2023) examine corporate involvement for the SDGs in the COVID-19 era from an Italian standpoint. It offers insightful information about how businesses have changed their sustainability policies in reaction to the crisis. Some potential practices that could emerge from the investigation include: Intensified SDGs efforts reveal that companies have intensified their efforts to contribute to the SDGs during the pandemic, which involve implementing new initiatives, reallocating resources, or prioritizing specific SDGs that are relevant to the crisis.

The investigation uncover a shift in companies' approach to sustainability, with a focus on "Sustainability for Braving Crisis." The investigation identifies mechanisms that have facilitated the improvement of companies' SDGs engagement during the pandemic. These mechanisms include enhanced stakeholder dialogue, changes in organizational structure, or the adoption of new governance mechanisms. The investigation reveals that companies have intensified their engagement with stakeholders during the crisis (Scarpa et al., 2023).

Droždz et al., (2023) analyze how the COVID-19 outbreak affected the Baltic States' industries' demonstrated comparative advantage. The paper evaluates how the COVID-19 epidemic has affected the competitive advantage of the Baltic States (Estonia, Latvia, and Lithuania). The results showed that the pandemic had a significant impact on the competitiveness of the Baltic countries, with negative effects observed in various industries (Droždz et al., 2023).

Satici et al., (2023) investigate Resilience, Hope, and Subjective Happiness among the Turkish Population: Fear as a Mediator of COVID-19. The survey contained the Subjective Happiness Scale, Fear of COVID-19 Scale, Brief Resilience Scale, and Dispositional Hope Scale. The data were analyzed using structural equation modelling (SEM). The SEM revealed that the relationship between resilience-hope and subjective happiness was mediated by dread of COVID-19 (Satici et al., 2023).

b. Studies on Developing Countries

Concerning data from Vietnam, L. S. Nguyen et al., (2017) examined the variables influencing environmental accounting information disclosure levels. The multivariate linear regression's findings demonstrated that, particularly in 2016, construction companies typically chose to disclose more environmental accounting information. The results also demonstrate that the degree of disclosure is influenced by firm size, profitability, financial leverage, the number of years listed, and independent audit (L. S. Nguyen et al., 2017).

Binti et al., (2017) studied the variables and determinants of CSR disclosure among publicly listed companies in selected industries in Malaysia industries. The study found that the industry type and board diversity (the number of women on the board) had no bearing on the degree of CSR disclosure (Binti et al., 2017).

Saidu Bangura, Fuad, and Puji Harto, "The Impact of Sustainability Accounting and Reporting Disclosure Before and After Coronavirus: (Aviation Companies of Seven Asia Countries)," *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, Volume 6, Issue 7, pp. 66-74, 2023.

Gnanaweera & Kunori, (2018) studied the relationship between corporate transparency data and company performance in Japan. For the financial years 2008 to 2014, data for the study were taken from the annual reports and websites of 85 Japanese companies listed on the Tokyo Stock Exchange. Multiple regression analysis was then used to examine the data. According to the study's findings, listed companies on the TSE do disclose some environmental, social, and economic information, though the degree of disclosure varies. According to the CSDF indicator, the total amount of greenhouse emissions has the highest level of disclosure at 99%, while the lowest level is represented by the index and grades at 0% (Gnanaweera & Kunori, 2018).

In 2020, Pratiwi, Meutia, and Syamsurijal looked at how corporate sustainability in Indonesia was impacted by environmental management accounting. The findings demonstrate that environmental management accounting has a favorable impact on corporate sustainability. The excellent eco-efficiency score of the businesses reflects their minimal energy use. Furthermore, the study found that energy efficiency is a key component of corporate sustainability and unquestionably has a positive impact on social and environmental issues. The only independent variable in the study's model is the EMA, which has a strong propensity to provide erroneous and skewed results. Additionally, the study ignored the economic aspects when measuring sustainability reporting and solely used environmental and social factors (Pratiwi et al., 2020).

Lodhia et al., (2021) investigate Creating Value: sustainability and accounting for non-financial matters in the pre- and post-corona environment. The findings of the papers in this special issue highlight that the COVID-19 pandemic presents both challenges and opportunities in the realm of non-financial accounting, particularly in sustainability reporting, by emphasizing the importance of understanding sustainability reporting practices, creating firm value, addressing climate change, enhancing ethics disclosures, and advancing sustainability accounting education in both developed and developing countries (Lodhia et al., 2021).

Shwairef et al., (2021) looked at how corporate governance and environmental reporting are mediated by strategic stance. The findings demonstrate that the impact of four corporate governance factors—board size, board independence, the establishment of a CSR committee, and institutional ownership—on environmental reporting is moderated by managers' strategic stance. By shedding light on the causes of these correlations, these findings add to the body of literature on the connection between corporate governance and environmental reporting (Shwairef et al., 2021)

Uyar et al., (2021) investigated whether institutional determinants are linked to the global tourism industry's acceptance of sustainability reporting (i.e., presence) and the volume of sustainability reports (i.e., quantity). For the years from 2011 to 2016. The study discovered that when it comes to revealing sustainability information about the tourism business, governance and ecological conditions are more important than national socioeconomic development (Uyar et al., 2021).

Handoyo, (2020) used empirical data from listed Indonesian companies to research the factors that influence the disclosure of corporate social responsibility. For the 2017 fiscal year only. The findings showed that corporate social responsibility disclosure is highly influenced by firm size, earnings per share, and stock price. This suggests that larger corporations and businesses with high stock prices are taking the initiative to publish CSR information more effectively because investors believe that CSR information is crucial for determining the risk associated with stock prices. The study also showed that the level of corporate social responsibility disclosure was unaffected by business age or industry type (Handoyo, 2020).

D. Conceptual Framework

In this section, the link between the dependent variable (sustainability disclosure) and the independent variables (factors impacting sustainability practices) is represented diagrammatically.

Figure 1

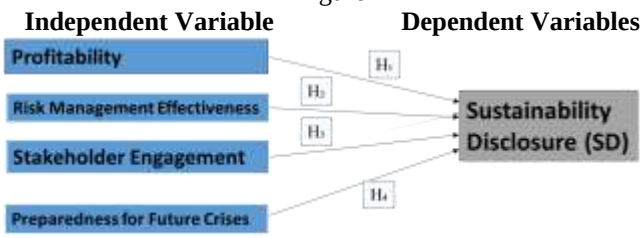

Figure 1 Conceptual Framework, 2023

Figure 1. Conceptual Framework

The conceptual framework for the dependent and independent variables employed in the study is illustrated in Figure I. Sustainability disclosure (SD) is the dependent variable, and organizational factors (proxied by profitability, risk management effectiveness, stakeholder engagement, and Preparedness for Future Crises) are the independent variables. The researcher anticipates that a careful analysis of these elements will raise the level of sustainability practices and product characteristics for listed companies in the industrial sector. This was grounded in the premises of both stakeholder theory and resilience theory as applied in the research. Stakeholder theory presumed that a company's capacity to incorporate information essential to those capable of affecting and being impacted by the company's decisions within its financial statements would not only enhance the company's product reputation but also position the company favorably regarding sustainability endeavors. Similarly, resilience theory suggests that an organization's actions are influenced by specific factors. It postulated that firms that integrate sustainability practices into their corporate culture, ensure preparation and dissemination of sustainability information both within and beyond the organization, and prioritize the long-term survival of the firm would disclose more details about their sustainability initiatives.

E. Statement of Research Hypotheses (H)

The following hypotheses were raised to provide relevant answers as well as achieve the objective of the study:

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H_1: Profitability has effect on sustainability accounting and reporting before and after the pandemic COVID-19;
H_2: Risk management effectiveness has effect on sustainability accounting and reporting before and after the pandemic COVID-19
H_3: Stakeholder engagement has effect on sustainability accounting and reporting before and after the pandemic COVID-19; and
H_4: Preparedness for future crises has effect on sustainability accounting and reporting before and after the pandemic COVID-19 resilience
The formula for SD is given as:

$$(SD = \beta_0 + \beta PT_1 + \beta RME_2 + \beta_3 SE + \beta PFC_4 + \varepsilon)$$

III. Research Method

The research design for this study methodology is placed on seven countries' security exchange (Australia, Indonesia, Japan, Thailand, Singapore, Philippines, and Malaysia) information gathering through the observation of the annual report range from 2018 to 2022 fiscal years. Their annual report in the sample to ascertain thoughts on the impact of the independent factors on the dependent variable. The sample size of 30 organizations across Asia. The quantitative data collected from annual reports and SD using statistical techniques, such as descriptive statistics, and multiple regression analysis is used. This analysis will help establish correlations and relationships between SD as the dependent variable and the specified independent variables: PT, RME, SE, and PFC.

A. Sample

The table (appendix 1) below shows the sample of 30 aviation companies observed (including Air flight, Airlines, and Aircraft and Manufacturing companies) from seven (7) countries in Asia, listed in their respective Security Exchange and 150 annual reports.

B. Research Variable

The SD is the dependent variable, while economic, environmental, social, and governance variables were used as proxies. The elements affecting SD are the independent variables such as PT, RME, SE and PFC. The tools used to measure the variables are displayed in the table below.

Table I.

Definition and Measurement of Variables			
Variables	**Symbol**	**Description**	**Formula**
Dependent variable			
Sustainability Disclosure	SD	Measures disclosures and integration of sustainability (ESG indicators)	ESG Disclosure Score
Independent variable			
Profitability	PT	Measures financial performance. Profit margin	Profit margin = $\frac{Earnings/Profit}{Revenue/Sales}$
Risk Management Effectiveness	RME	Measured risk mitigation, severity of risk events, and changes in stock price volatility. Debt to equity ratio	Debt to equity ratio = $\frac{Total\ Debt}{Total\ Equity}$
Stakeholder Engagement	SE	Measures of stakeholder satisfaction (investors) are based on dividend	Dividend Payout = $\frac{Cash\ Dividend}{Earnings/Net\ income}$
Preparedness for Future Crises	PFC	Measures emergency response and preparedness policy.	**1** for prepared, **0** for not prepared

Table 1: Source Definition and Measurement of Variables Author 2023.

IV. Results and Discussions

The quantitative data acquired from Bloomberg is presented in this part along with the analysis and findings. The measurements of validity and reliability of the measurement model, and model specification, through which the results of the tested hypotheses were exhibited and debated. Descriptive analysis and multilinear regression were used to assess the association.

A. Hypothesis Result and Analysis

Table 2. The study employed the multiple regression at 95% confidence intervals. The analysis showed a significant model summary; Fit F (4, 145) = 15.646, P< 0.001. Adjusted R^2 = 0.282 and R^2 change =0.301. This means that the correlation quality of prediction is 30.1% of the variables. The proportion of variance of sustainability disclosure for profitability, risk management effectiveness, and stakeholder engagement preparedness for future crises 28.2% of sustainability disclosure variance were explained. How the remaining 71.8% were explained by the other variables not included. The result also shows that profitability had a negative effect on sustainability disclosure (ß = -0.001, t = -0.525, P<0.600) and was statistically insignificant. Hence hypothesis 1 was rejected. Risk Management Effectiveness had a positive effect on sustainability disclosure (ß = 0.001, t = 1.919, P< 0.057). This shows that risk management effectiveness is significant. Hypothesis 2 was accepted. There is a negative effect that Stakeholder Engagement had on sustainability disclosure (ß = -0.002, t = -0.230, P< 0.818). Its shows insignificant. Therefore hypothesis 3 was also rejected. There is a positive influence that shows that preparedness for future crises had on sustainability disclosure (ß = 35.441, t = 7.705, P < 0.001). Hence hypothesis 4 was accepted and significant. The result of the value inflation factor (VIP) shows no evidence of multicollinearity in the dataset.

Saidu Bangura, Fuad, and Puji Harto, "The Impact of Sustainability Accounting and Reporting Disclosure Before and After Coronavirus: (Aviation Companies of Seven Asia Countries)," *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, Volume 6, Issue 7, pp. 66-74, 2023.

Table 2

Hypothesis Result					
Hypothesis	**Regression Weights**	**β**	**t**	**p-value**	**Result**
H_1	PT → SD	-0.001	-0.525	0.600	Rejected
H_2	RME → SD	0.001	1.919	0.057	Accepted
H_3	SE → SD	-0.002	-0.230	0.818	Rejected
H_4	PFC → SD	35.441	7.705	0.000	Accepted
	P < 0.001.	R=0.549[a]	R^2 = 0.301	Adjusted R^2 = -0.282	f (4, 145) 15.646

Table 2: Source Statistics 2023

B. Descriptive Statistics

Table 3 below shows the number of the company disclosed their ESG disclosure (SD) PT (profit/loss), RME (equity debt) SE (dividend paid) and PFC (emergency response and preparedness policy), before, during, and after the pandemic for years from 2018 to 2022. It shows the time for analysis, before the pandemic years is from 2018 to 2019, during the pandemic is from 2020 to 2021 and after the pandemic is for 2022. The number (N) of reports observed is 60 for each variable for 2018, 2019, 2020, and 2021. In 2022 30 reports for each variable are observed giving a total of 150 reports. The minimum value is shown as zero (0) for SD, RME, SE, and PFC throughout the years. PT shows a minimum value (loss) of -2143.00 before the pandemic 2018-2019, -9248.28 during the pandemic 2020-2021 and -602.23 after the pandemic 2022. The mean and standard deviation have increased over the years, indicating increased variability. For instance, ESG disclosure scores have seen a gradual increase from 2018/2019 (13.5217) to 2020/2021 (15.6912) and a small decrease in 2022 (14.7090) suggesting a growing emphasis on ESG reporting over the years. The standard deviation is 2018/2019 (19.08595) to 2022 (22.10433). The number of companies reporting ESG information has increased from 8 in 2018 to 10 in 2022. While there is progress, a portion of the sample still does not engage in ESG reporting, companies not reporting ESG information are 22 in 2018 and 19 during the pandemic. The data indicates a positive trajectory in ESG disclosure scores over the years, with a growing number of companies engaging in sustainability reporting. Companies making a mean of no PT before and during the pandemic of (-36.7000) and (-230.09050) respectively. RME both mean and standard deviation show an increase throughout the years. SE show a decreasing trend, possibly influenced by pandemic-related challenges. However, there are still opportunities for improvement, particularly in encouraging consistent reporting and addressing gaps in disclosure practices. PFC mean slowly increased from 0.0333 to 0.1500 and 0.2000, before during and after the pandemic respectively. While the standard deviation increased to 0.18102, 0.36008 and 0.40684. Finally, the total number of reports observed is 150 (60 before, 60 during and 30 after the pandemic).

Table 3
Descriptive Statistics

Variable	**Time**	**No. Observed**	**Mean**	**Std. Deviation**
SD	**Before the** Pandemic **2018-2019**	60	13.5217	19.79545
PT		60	-36.7000	276.94614
RME		60	190.9153	631.28756
SE		60	61.7297	298.59689
PFC		60	.0333	.18102
SD	**During** Pandemic **2020-2021**	60	15.6912	21.48366
PT		60	-230.0905	1192.94924
RME		60	253.1710	975.56707
SE		60	4.6302	14.74053
PFC		60	.1500	.36008
SD	**After** Pandemic **2022**	30	14.7090	22.10433
PT		30	148.8280	1025.39188
RME		30	2464.6913	9968.57265
SE		30	2.5627	10.36178
PFC		30	.2000	.40684
Total		150		

Table 3: Source Statistics 2023

V. Conclusion

The study conducted an analysis of sustainability accounting and reporting disclosure within the aviation industry, focusing on five years from 2018 to 2022. The research encompassed seven countries (Australia, Indonesia, Japan, Thailand, Singapore, the Philippines, and Malaysia) and 30 aviation organizations to ensure a representative sample and observed 150 reports. The objective was to understand the impact of various independent factors, including PT, RME, SE, and PFC, on SD

The results of the study reveal that the impact of these factors fluctuated across the years. Risk management effectiveness has a positive and significant effect, which means companies have to reevaluate their approach to risk management, recognizing the importance of integrating ESG factors into their risk assessment and mitigation strategies. Preparedness for future crises exhibited a positive and significant effect, suggesting its importance in driving sustainability disclosure practices. On the other hand, profitability and stakeholder engagement had limited, and insignificant effects on sustainability accounting and reporting disclosure.

Moreover, there were changes in financial and sustainability-related metrics, indicating the influence of external events, particularly the COVID-19 pandemic, on sustainability reporting. For instance, SD scores steadily increased over the years, indicating a growing emphasis on ESG reporting. However, there is still room for improvement,

Saidu Bangura, Fuad, and Puji Harto, "The Impact of Sustainability Accounting and Reporting Disclosure Before and After Coronavirus: (Aviation Companies of Seven Asia Countries)," *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, Volume 6, Issue 7, pp. 66-74, 2023.

especially in encouraging consistent reporting and addressing gaps in disclosure practices.

The study's findings underscore the importance of businesses actively engaging with stakeholders and being prepared for future crises to promote sustainable practices. It highlights the need for refining research methodologies and considering a more holistic set of variables to enhance the accuracy and comprehensiveness of insights into sustainability reporting. The study emphasizes the significance of considering contextual factors and temporal changes when understanding the relationship between financial performance and sustainability disclosure.

VI. LIMITATIONS

The limitations are: 1). The research relied on secondary data sources, primarily annual reports and SD which might not fully capture all relevant information on sustainability practices. 2) The study focused on specific countries and aviation organizations, which might limit the generalizability of the findings to other industries and regions. 3) The choice of independent variables. Hence there are many variables involved that can affect sustainability disclosure, the article is limited to a few variables applied. 4) External factors, such as economic downturns and regulatory changes, could have confounded the analysis.

VII. RECOMMENDATIONS

The recommendations for future research are: 1). The study emphasizes the significance of stakeholder engagement: actively involve them in sustainability strategies and reporting. 2) Scope: wider industry and regional inclusion for comprehensive sustainability insight. 3) Investigate additional variables like regulatory changes, market conditions, and organizational culture.

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APPENDIX

Appendix 1: Sample of Companies

No.	Code	Company	No.	Code	Company
1	QAN…AU	QANTAS AIRWAYS	16	9204 – JP	SKYMARK AIRLINES
2	REX …AU	REGIONAL EXPRESS	17	9348 - JP	ISPACE INC/JAPAN
3	OEC …AU	ORBITAL CORP LTD	18	CAPITALA - MK	CAPITAL A BHD
4	EOS …AU	ELECTRO-OPTIC SY	19	AAX – MK	AIRASIA X BHD
5	AQZ …AU	ALLIANCE AVIATION	20	DSTN - MK	DESTINI BHD
6	GMFI… U	GARUDA MAINTENANCE	21	SEQB – MK	SAM ENGINEERING
7	HELI … U	JAYA TRISHINDO T	22	CEB - PM	CEBU AIR INC
8	CMPP - U	AIRASIA INDONESIA	23	PAL - PM	PAL HOLDINGS INC
9	IATA - U	MNC ENERGY INVES	24	SIA - SP	SINGAPORE AIRLINE
10	GIAA - U	GARUDA INDONESIA	25	THAI - TB	THAI AIRWAYS INT
11	9201 - JP	JAPAN AIRLINES C	26	NOK - TB	NOK AIR PCL
12	9202 - JP	ANA HOLDINGS INC	27	BA - TB	BANGKOK AIRWAYS
13	7408 – JP	JAMCO CORP	28	WICE - TB	WICE LOGISTICS P
14	9206 – JP	STAR FLYER INC	29	III - TB	TRIPLE I LOGISTICS
15	7409 – JP	AEROEDGE CO LTD	30	AAV - TB	ASIA AVIATION