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Unraveling the Financial Impact of COVID-19 on the Tourism Industry through a Difference-In-Difference Analysis

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Abstract
The COVID-19 pandemic has had a significant and enduring effect on the tourism industry, specifically impacting travel agencies. To respond effectively, it is essential to comprehend the financial repercussions and challenges that these agencies confront. This study seeks to address existing gaps in knowledge by conducting a comprehensive examination of the tourism industry's financial performance in the post-COVID-19 era. Our methodology utilizes a Difference-In-Difference (D-I-D) approach, considering multiple investigations to establish a causal connection between the pandemic and the financial stability of tourism service providers. We analyse changes in the overall financial health of the tourism industry relative to other sectors both before and after the COVID-19 outbreak using Altman Z scores. Furthermore, we assess accounting harmonization across diverse jurisdictions and financial frameworks (IFRS, US GAAP, Czech GAAP, German HGB). Data is sourced from 11 multinational corporations in the tourism sector, supplemented with financial data from sectors such as Automotive, Manufacturing, Food and beverage, and Real Estate. Our empirical findings indicate that non-tourism entities experienced a 19% lower likelihood of bankruptcy post-COVID-19. This finding underscores the uniqueness of the tourism industry's challenges during the pandemic. In addition to these findings, we provide practical recommendations designed to assist companies in the tourism industry as they navigate the recovery phase following the pandemic. These insights are pivotal in enabling the industry to build resilient strategies and ensure its sustainability in a post-pandemic landscape.

Key Words: Tourism; covid-19 pandemic; financial reporting; IFRS; US GAAP; financial performance

JEL Classification: G30, M41, Z32

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1. Introduction

The COVID-19 pandemic has brought about unprecedented challenges and disruptions across various sectors (Ghita et al., 2022), and the tourism industry has been among the hardest hit (Hoang et

al., 2022; Devkota et al., 2022; Tung & My, 2023; Kalonda, 2023; Vavrova, 2022; Unguren & Arslan, 2023). The rapid spread of the virus and the subsequent implementation of containment measures have had far-reaching implications for travel and tourism, causing significant shifts in consumer behaviour, travel restrictions, and overall demand patterns (Abou-Shouk et al., 2023; Al-Ababneh et al., 2022, Zaharia et al., 2022). As a result, travel agencies, which play a crucial role in facilitating travel and providing related services, have faced immense pressures and business exigencies (Hong, 2023). During the COVID-19 pandemic, major structural changes took place in all policy areas of the member states (Androniceanu, 2020; Androniceanu & Marton, 2021). The COVID-19 pandemic has created a perfect storm of challenges for travel agencies. Travel restrictions, border closures, lockdowns, and a prevailing sense of uncertainty have led to a sharp decline in travel bookings and a substantial drop in customer demand (Ibn-Mohammed et al., 2021) . Travel agencies, heavily reliant on a steady flow of bookings and commissions, have experienced severe financial strain as a result. The abrupt halt in global travel has disrupted revenue streams, forced layoffs, and compelled agencies to navigate an exceptionally turbulent business landscape. For these reasons, firms having negative perception regarding their financial performance, have felt more concerns regarding their survival and bankruptcies (Ključnikov et al., 2022). Moreover, due to having more vulnerable structure, small and medium-sized enterprises might have faced more operational (Civelek & Krajčík, 2022), and financial risks compared to larger businesses (Civelek et al., 2023a).

In addition to the direct impact on revenue and customer demand, travel agencies have also faced increased operational complexities (Saura et al., 2023). They have had to handle rescheduling, cancellations, and refunds while adapting to new health and safety protocols. The need to reassess business strategies, realign marketing efforts, and explore alternative revenue streams has become paramount for their survival and long-term sustainability (Crespí-Cladera et al., 2021). Given the profound impact of the COVID-19 pandemic on travel agencies, there is a critical need to evaluate their financial performance and understand the extent of the pandemic's effects (Gong et al., 2023; Guchait & Ann, 2022). Such an assessment would provide valuable insights into the financial resilience and adaptive capabilities of travel agencies in the face of unprecedented challenges (Sultan et al., 2023). By examining key financial indicators, profitability ratios, liquidity measures, and cost structures, researchers and industry stakeholders can understand the pandemic's implications on travel agencies' financial health and viability.

The tourism industry is not only a significant contributor to many countries' economies but also a vital source of employment and livelihood for countless individuals. Its resilience and ability to adapt to global crises are paramount. The COVID-19 pandemic has tested this industry like never before, revealing its vulnerabilities and necessitating innovative solutions (Abdelazimahmed et al., 2022; Ugurlu et al., 2022). Hence, the urgency to conduct a comprehensive study in the context of the tourism industry becomes evident. It is not merely a matter of financial performance analysis but a broader exploration of the industry's adaptability, survivability, and the underlying factors that shape its future. The current study is a call to action by landmark studies by Gössling & Schweiggart (2022) and Duro et al., 2021) who signal about the lack of investigations on financial vulnerabilities among tourism business accross the globe due to the pandemic.

On the basis of the above given antecedents, the main aim of this study is evaluating the COVID-19 Pandemic's Impact on the Bankruptcy Vulnerability of Tourism Enterprises. The findings of this research will contribute to a deeper understanding of the business exigencies faced by travel agencies and the strategies employed to mitigate financial challenges. Moreover, the study will provide practical recommendations and insights to help travel agencies navigate the post-pandemic recovery phase and develop robust strategies for future resilience. In conclusion, the COVID-19 pandemic has had a profound impact on the tourism industry, particularly on travel agencies. Understanding the financial implications and challenges travel agencies face is crucial for devising effective recovery strategies and ensuring the industry's long-term sustainability (Gobbi et al., 2021) . By assessing the

financial performance of travel agencies in the context of the COVID-19 pandemic, this study aims to shed light on the resilience, adaptation, and future prospects of these vital industry players.

The paper is segmented into five sections. The research methodology section deals with the choice of statistical and inferential tool along with the schema of the entire experimental procedure. The discussion section provides for a detailed discourse on the entire statistical procedure and its performance. The section explains the metrics and behaviour of the interaction terms. Through the discussion section, the outputs are juxtaposed with the contemporary literature, thereby observing convergences and departures from the existing literature. Finally the conclusion section informs on the practical and theoretical contributions, the limitations and contemplates the future research agenda.

2. Research Methodology

2.1 Difference-In-Difference Method

The study's main objective is to empirically estimate the impact of the COVID-19 pandemic on the tourism industry. Financial data from 11 multinational corporates that are operating in the tourism industry were collected; similar financial data from other industries - Automotive, Manufacturing, Food & Beverage and Real Estate – were collected as well. Financial indicators like profitability ratios (return on assets, return on equity, profit margin), liquidity ratios (current ratio, cash ratio, net working capital), turnover ratios (assets turnover, cash operating cycle) and debt ratios (finance leverage, D/E ratio, interest cover) and Altman Z score were calculated from the data from publicly available financial statements of analysed companies (see Appendix 1). Fiscal years starting from 2017 and ending 2021 were considered for the study. Authors Almamy et al. (2016), and Ramamonjiarivelo et al. (2015) observe the key role played by the Altman Z score in detecting impacts on the financial health of companies. Furthermore, Calandro (2007) argues that Altman Z scores serve as a more robust measure to comprehend the effects of policy changes and random events on the financial outlook of economic entities. To this effect, a study on UAE-based Islamic Banks by Zaabi (2011) observe the instrumental role played by Altman Z scores in gauging potential bankruptcy due to changes in Shariah-level policy by the Emirati government. Ko et al. (2017) and Zhang et al. (2020), reveal that Altman Z scores provide a precise analysis of bankruptcy vulnerabilities post-regulation changes. Taking cognizance of the precedents set by the above-mentioned studies, the authors derive and subsequently adopt the Altman Z scores from the dataset discussed herewith (Liu et al., 2023).

The author's decision to deploy a linear Difference-In-Difference (D-I-D) method to estimate the causality between the COVID-19 pandemic and the financial position of tourism service providers arrives from a diversity of extant investigations. The D-I-D method relies on the assumption of parallel trends or the parallel trends assumption. This assumption states that, in the absence of treatment, the average trends in the outcomes of the treatment and control groups would have followed a similar path over time. Under this assumption, any difference observed in the post-treatment period can be attributed to the treatment itself. Notable studies in this regard are, extracting the effect of the pandemic on Chinese housing prices (Qian et al., 2021), the impact of Islamic microfinance on rural households in Indonesia (Fianto et al., 2018) and, the effect of climate change mitigation policies on green finance (Nawaz et al., 2021). Emulating the procedure recommended by Fredriksson & Oliveira (2019) the authors conduct the D-I-D experiment, through the following pathway (Refer Figure 1). Since the aim of the study is to dissect changes in the composite financial health of the tourism industry against other industries under pre and post COVID-19 conditions, the binary vector 'Tour_Othr' represented the Tourism Industry (Set as 0) and other Industries (set as 1).Similarly, the conditions, was designated by the binary vector 'Post_Cov', where 0 represented the Pre COVID-19 and 1 represented

the Post-Covid 19. The D-I-D is an experimental procedure; therefore, the current study assumes an experimental design of 2 Factors X 2 Conditions.

Figure 1. **Difference-In-Difference Procedure**

Data Acquisition
➔ Data Purification
- cleaning, trimming and loading

➔ Derivation of Altman Z-score
➔ Binarizing into the Control and Experiment Groups
- tourism industry vs other industries

➔ Binarizing into Two Conditions
- pre-covid and post-covid

➔ Deployment of the D-I-D linear model

Source: authors' own

The linear model consisting of the following expression was utilized to gauge for postulated changes in the bankruptcy profile among the industries taken into consideration.

$$\hat{y}_{it} = \alpha + \beta Group + \gamma Condition + \delta(Group + time_{it}) + \varepsilon_{it} \quad (1)$$

where,

$$\hat{y}_{it} = Change\ in\ the\ Altman\ Z - score$$
$$\alpha = Intercept\ of\ the\ D - I - D\ method$$
$$\beta Group = Coefficient\ of\ the\ X\ (Treatment)\ and\ the\ O\ (Control)$$
$$\gamma Condition = Coefficient\ of\ the\ Condition(Pre\ and\ Post\ Covid - 19)$$
$$\delta(Group + time_{it}) = Coefficient\ Vector\ of\ the\ Change$$
$$\varepsilon_{it} = Erratum$$

2.2 Accounting Harmonisation

A distinct positioning and importance must be given to the studies focusing on different aspects of the international accounting harmonization process since this research field represents the major objective of research activities being developed by many accounting professionals and universities during the last 40 years (Alstolfi, 2021; Baker & Barbu, 2007; Filip et al., 2021; Hribar et al., 2022; Setia et al., 2022).

We can observe that instruments measuring the compatibility degree of accounting practices and of different sets of accounting regulation actually record a convergent time evolution towards the common point given through measurement instruments based on similarity (Mustata et al., 2011). Moreover, a clearer dimensioning of the accounting harmonization degree is obtained when using either association coefficients (Jaccard's Coefficients, Roger-Tanimoto Coefficient, Lance-Williams Coefficient), either correlation coefficients (Pearson Coefficient, Spearman Coefficient).

Jaccard's Coefficients are mostly known in the form being used by Fontes et al. (2005) , as follows:

$$S_{ij} = \frac{a}{a+b+c} \quad (2)$$

and

$$D_{ij} = \frac{b+c}{a+b+c} \quad (3)$$

where:

S_{ij} represents the similarity degree between the two sets of analysed accounting regulations or practices; D_{ij} represents the degree of dissimilitude or diversity between the two sets of analysed accounting regulations or practices; a – the number of elements which take the 1 value for both sets of regulations or practices; b – the number of elements which take the 1 value within the j set of regulations or practices and the 0 value for the i set of regulations or practices; c – the number of elements which take the 1 value within the i set of regulations or practices and the 0 value for the j set of regulations or practices.

The values that can be recorded by these coefficients go from 0 to 1, where 1 represents a maximum level of harmonization when considering the similarity coefficient. Also, the sum of the two Jaccard's Coefficients, Jaccard S_{ij} and D_{ij}, is obviously always equal to 1. Jaccard's Coefficients will further be used within the next section of this chapter in order to measure formal accounting harmonization between National Accounting Regulations and the International Financial Reporting Standard for Small and Medium-sized Entities.

As another model for measuring the consistencies between accounting systems could be considered Roger-Tanimoto coefficient. The computation formula is following:

$$R\&T = \frac{d + a}{d + a + 2 \times (b + c)} \quad (4)$$

where:

d – the number of elements which take the 0 value for both sets of regulations or practices.

Alternatively, for measuring of dissimilarities could be used Lance-Williams coefficient. The computation formula is following:

$$L\&W = \frac{b + c}{2 \times a + b + c} \quad (5)$$

This methodology will be used to proof the differences between local accounting practices (Czech GAAP, German HGB) and international referential (IFRS or US GAAP).

3 Results

3.1 International Accounting Harmonization

As this paper analyses companies operating in different jurisdictions, it is crucial to calculate the level of similarity of accounting frameworks used based on methodology prescribed in previous part. Within our sample we have 2 companies reporting under Czech GAAP and 1 company reporting under German HGB and then 9 companies reporting under IFRS and 12 companies reporting under US GAAP. In terms of comparability between US GAAP and IFRS, we can consider these as very comparable, thus German HGB is closer to Czech accounting practices being historically a combination of French and German accounting model and both are following the European directives focused on accounting. Therefore, within Tables 1 – 3 there are displayed results for the comparison of Czech (and German) accounting practices and IFRS (and US GAAP).

Table 1. **Analysis of Similarities**

		Czech GAAP German HGB	IFRS US GAAP
Czech GAAP	Jaccard	1.0000	0.3600

German HGB	Roger/Tanimoto	1.0000	0.2195
IFRS US GAAP	Jaccard	0.3600	1.0000
	Roger/Tanimoto	0.2195	1.0000

Source: our analysis

Table 2. **Analysis of Dissimilarities**

		Czech GAAP German HGB	IFRS US GAAP
Czech GAAP German HGB	Jaccard	0.0000	0.6400
	Lance/Williams	0.0000	0.4706
IFRS US GAAP	Jaccard	0.6400	0.0000
	Lance/Williams	0.4706	0.0000

Source: our analysis

Table 3. **Measurement of Similarities and Dissimilarities in Particular Areas**

	Czech and German GAAP versus IFRS and US GAAP			
	S_{ij}	D_{ij}	RT	LW
Property, Plant and Equipment * initial recognition at cost (cost, current cost, own cost) * initial recognition at amortised costs * subsequent measurement using cost model * subsequent measurement using revaluation model	0.6667	0.3333	0.5000	0.2000
Leases * lease recognition by a lessee * lease recognition by a lessor	0.0000	1.0000	0.0000	1.0000
Financial Securities * shares * initial recognition at cost * fair value through profit or loss model * fair value through other comprehensive income model * bonds * initial recognition at cost * initial recognition at amortized costs * linear amortization of bond or premium * amortization of bond or premium according to yield to maturity	0.5714	0.4286	0.4000	0.2727
Receivables * recognition at nominal value * recognition at fair value * recognition at amortized costs	0.3333	0.6667	0.2000	0.5000
Liabilities * recognition at nominal value * recognition at amortized costs	0.0000	1.0000	0.0000	1.0000
Provisions * recognition at nominal value * recognition at amortized costs	0.0000	1.0000	0.0000	1.0000
Revenue recognition * zero-profit method * percentage of completion method * amortized costs	0.0000	1.0000	0.0000	1.0000

TOTAL score	0.3600	0.6400	0.2195	0.4706

Source: our analysis

From these presented tables there is visible a lower level of comparability between Czech GAAP or German GAAP and international referential (IFRS or US GAAP). This lower level is given by analysed valuation areas (see Table 3). Moreover there shall be stated that a vast majority of receivables and liabilities have a due date within one year, so despite there's reporting a zero-comparability de iure, de facto the figures in these areas are maximally comparable as there is not applied discounting for receivables and liabilities within one year due date in common IFRS practice. As noted by Fredriksson & Oliveira (2019), D-I-D method is robust enough to handle imbalances in data. .

3.2 D-I-D Regression Results

The linear model was run using the lm() inbuilt function of the R Studio. Table 4 provides the result of the D-I-D regression as expressed above.

Table 4. **D-I-D Regression**

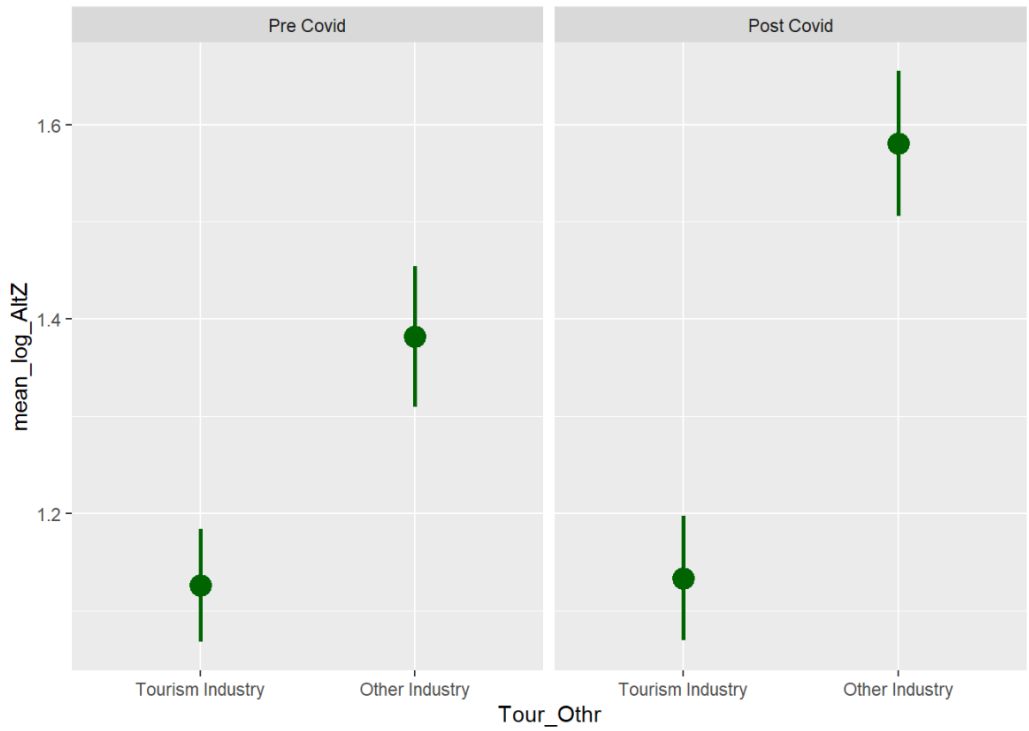
Term	Estimate	Standard Error	T Statistics	P-Value	Empirical Remark
Intercept	1.13	0.0307	36.6	0.0002	Sig. at p<0.05
Tour_Othr	0.256	0.0474	5.41	0.0061	Sig. at p<0.05
Post_Cov	0.176	0.0447	2.85	0.0325	Sig. at p<0.05
Tour_Othr:Post_Cov	0.191	0.0685	2.78	0.0344	Sig. at p<0.05

Source: R Studio

From the above table, it can be understood that the intercept of the D-I-D is found to be robust at a significance level of p<0.5, thereby signaling an empirically sound econometric model. The group effect vector, Tour_Othr and conditions effect vector Post_Cov portray robust T-statistics and corresponding p-value readings. The term of interest in the above table is the actual difference-in-difference interaction designated as Tour_Othr:Post_Cov, the α or the estimate is observed to be 0.191 which is significant at p<0.05 with a t-statistic score of 2.78. From the empirical performance of this D-I-D interaction term, it is adjudged that, when compared to the tourism industry, the other industries like Automotive, Manufacturing, Food & Beverage and Real Estate are 19% less likely to go into bankruptcy due to the Corona-19 event.

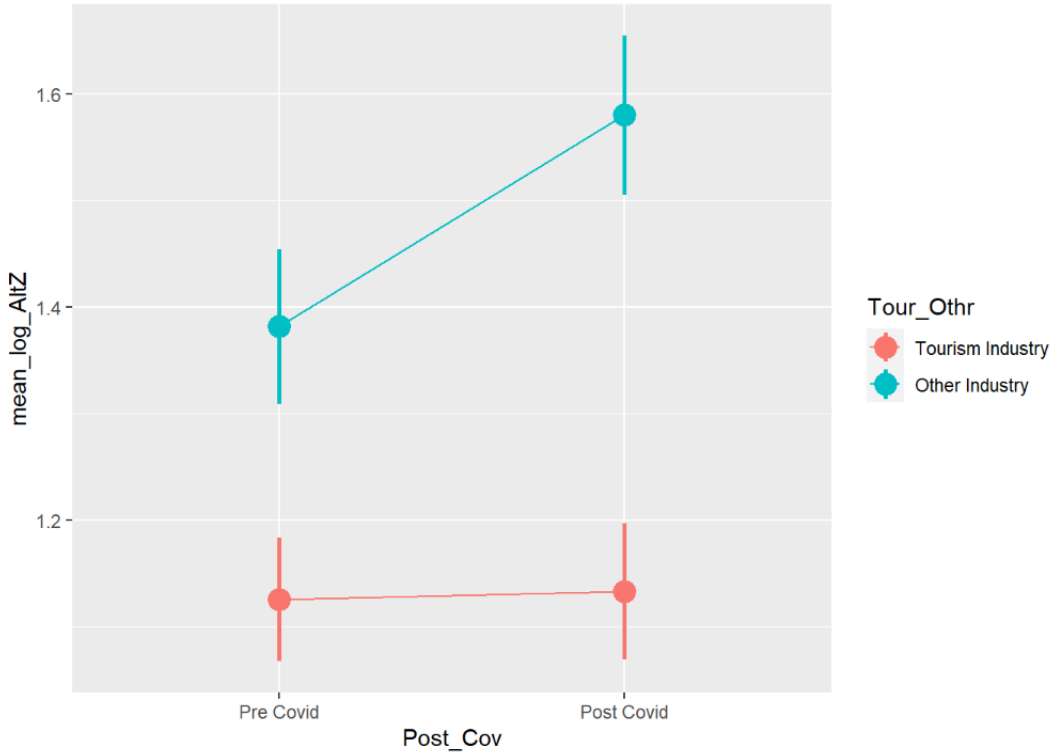
The visualization given in Figure 2, provides for the interaction plot of the conditions against factors. It can be deciphered that there exists a partial movement of the bankruptcy vulnerability of the tourism industry post-pandemic, while the upward shift of the treatment group is marginally more pronounced. Figure 3 displays the relative movement among the two groups.

Figure 2. **Bankruptcy Vulnerability of Treatment and Control Groups**



Source: R Studio

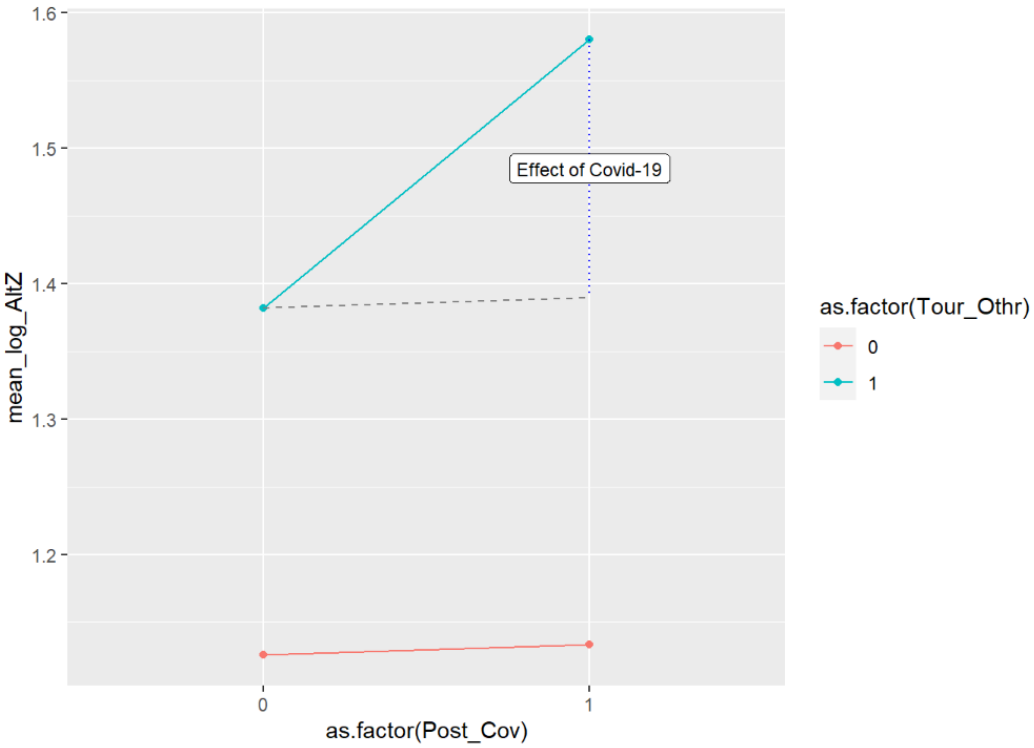
Figure 3. **Relative Movements of Bankruptcy Vulnerability of Treatment and Control Group**



Source: R Studio

Finally, Figure 4 demonstrates the actual effect of COVID-19 on the two industries. The figure illustrates the D-I-D estimator provided in Table 1 for the interaction term. The horizontal dotted line highlights the Difference-In-Difference between the groups due to the COVID-19 event and the vertical dotted line simulates the movement of the bankruptcy profile of the Control group if there was no COVID-19 event.

Figure 4. **Actual Movements of the Bankruptcy Vulnerability**
(where 0 = tourism industry, 1 = other industries)



Source: R Studio

4 Discussion

The main aim of this study was to ascertain the bankruptcy vulnerability of tourism enterprises caused by the COVID-19 pandemic. The study instituted a 2x2 experiment design model, wherein two scenarios, namely Pre-Covid and Post-Covid interacted with two factors, Tourism Industry and Other Industry. The entire experiment was then conducted via a linear regression that deployed a difference-in-difference (D-I-D) estimator to capture the relative and absolute difference between tourism and other industries against the pre and post covid scenarios. From the results, it can be deciphered that, in tandem with contemporary literature, the tourism industry has experienced the most damage to its business horizon. Not only have tour operators, travel agencies and online tour aggregators witnessed a retardation in demand, but future business acquisition has also become challenging in the post covid scenario (Borko et al., 2020). The turbulence caused by structural changes in the tourist market post covid appears to be diluting pliability among the key market players. According to expert reports, it may take the tourism industry a significant number of years to recover from the losses (UNWTO, 2022). In the context of the mid-size markets (alike Central European region), tourism businesses will see

marginal growth in their bottom lines, as they will service financial backlogs created by the onset of the COVID-19 pandemic (Roman et al., 2022) . Furthermore, this may create a barrier for new entrants in the tourism industry due to the vulnerable situation it is now. Previous studies that have attempted to understand the effect of COVID-19 on the tourism industry have mainly drawn on behavioural and narrative based studies. Examples include, Plzáková & Smeral (2022) who used asymmetric income elasticities to forecast travel demand in the eurozone. According to the former, travel propensities will remain modestly optimistic. A behavioural investigation into European tourists' attitudes toward air travel attitudes and its subsequent effect on travel and ticketing agencies revealed that there is an inverse relationship between increasing awareness of COVID-19 risks and business projections among travel operators (Gallego et al., 2022). While a significant majority of the extant studies have forecasted a hedonic scenario for the tourism industry in the post covid scenario, Gunter et al. (2022) observed otherwise. According to the latter's panel pooled Fully Modified Ordinary Least Square approach, the medium-term outlook of the industry appears to be highly uncertain. Nonetheless, (Abbas et al., 2021)expedite that, post-pandemic road to recovery for the tourism industry is estimated to be "slow". Reverting to the pre-pandemic top-lines will be a challenge. While majority of the concurrent literature reveal estimates for the future of the tourism industry as an aftermath of the pandemic, this research not only provides insights to the future vulnerability of the industry, but also informs about the pre-corona scenario. After a meticulous systematic literature review, with all academic precautions in place, the authors of this study can safely say that their investigation is the first in deploying a experiment based design to capture the post-pandemic bankruptcy vulnerability of the tourism industry.

Currently, the situation in the tourism economy is changing, there appears to be resilience among travel businesses with innovative offerings, and expansion into newer source markets. Key players in the market have started to scale their business processes (Dey et al., 2021) by introducing AI-based interventions in their delivery systems. Travel startups are targeting specific sectors of the industry that till post-covid, remained grey areas for established players (Filieri et al., 2021). Although tourism companies may be more vulnerable to bankruptcy, it is evident that continuous innovation, green human resource management and adoption of Industry 4.0 technologies will ensure a more sustainable industry (Gofran et al., 2023).

5 Conclusion

The underlying econometric theory behind the D-I-D method is rooted in the concept of causal inference and counterfactual analysis (Hausman & Kuersteiner, 2008). The D-I-D approach aims to estimate the causal effect of a treatment or intervention by comparing the changes in outcomes between a treatment group and a control group, before and after the treatment is introduced (Huang et al., 2023) . Through this study, the researchers evaluate the attributes of cause and effect between interventions (Pre and Post Covid Scenarios) and outcomes (Tourism Industry Altman Z-score versus Other Industry Altman Z-score), thereby deploying the method to determine the vulnerability of one of the largest service industries of the world. It was empirically determined that, other businesses such as Automotive, Manufacturing, Food & Beverage, and Real Estate are 19% less likely to go bankrupt as a result of the Corona-19 event than the tourism and travel industry. In the extant literature concerning vulnerability among tourist enterprises, there are evidences that suggest that terrorist incidences (Hadi et al., 2020), political instability (Zheng et al., 2022), and environmental disasters (Calgaro & Lloyd, 2008) are likely factors contributing to financial exigencies in the tourism industry. With this study, the researchers can safely claim that the COVID-19 is also a promoter of bankruptcy vulnerability in the tourism industry.

The practical implications of the study are two-pronged. Firstly, the researchers report the relative and absolute bankruptcy susceptibility of the tourism industry under the pre and post covid conditions, which was amiss. Secondly, the tourism industry is fragmented with corporations ranging from multinational holdings to small and medium-sized enterprises. Executives, owners and managers must take note of the fact that the overall health of the industry is unstable after the COVID-19 induced turbulence. It is recommended that strategic innovation in both product line and length is the need of the hour.

The primary limitation that this research may carry is the dearth of time series data from the fiscal years preceding Corona and data for the current fiscal year. Nevertheless, the linear function expressed in the methodology section controlled for any imbalance in the data. D-I-D method is robust enough to handle imbalances in data.

Research in the future should ideally focus on the long-term effects of COVID-19 considering factors like institutional support, and recovery patterns. Also, researchers in the future can extend the analysis over a longer period to assess the trends and changes in bankruptcy vulnerability in the tourism industry beyond the immediate post-pandemic period.

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Appendix – Analysed Companies

A Tourism industry

Company	Reporting Framework
Accor Group	IFRS
Bonvoy Marriott	US GAAP
Booking Holdings	US GAAP
British Airways Holidays	IFRS
Čedok	CZ GAAP
ESO Travel	CZ GAAP
Expedia Group	US GAAP
Hilton	US GAAP
Jet2 Holidays	IFRS
On the Beach	IFRS
TUI Group	German GAAP (HGB)

Z-Scores	2021	2020	2019	2018	2017
Accor Group	0.6228	0.0668	0.9842	0.6917	0.7227
Bonvoy Marriott	1.0408	0.6757	1.2950	1.4321	1.4063
Booking Holdings	2.3282	1.9481	1.7964	2.3727	1.9455
British Airways Holidays	1.6641	1.8195	3.9028	4.0448	4.4069
Čedok	3.1487	-0.8348	4.6963	5.8939	6.1631
ESO Travel	2.4141	1.1465	4.3309	3.6734	4.9623
Expedia Group	0.3537	-0.1788	0.7369	0.7862	0.6743
Hilton	0.2014	-0.1227	0.5865	0.5490	0.4289
Jet2 Holidays	0.5933	0.6288	2.3848	1.9422	1.0754
On the Beach	0.0966	-0.0122	1.2668	1.5921	1.7503
TUI Group	0.1030	0.4407	0.0061	-0.0750	0.2269

Other industries

Company	Industry	Reporting Framework
AB-InBev	beverages	IFRS
Alstom	automotive	IFRS
American Tower	real estate	US GAAP
AstraZeneca	vaccine producers	IFRS
Coca Cola	beverages	US GAAP
Moderna	vaccine producers	US GAAP
Mondeléz	food	US GAAP
Pfizer	vaccine producers	US GAAP
Renault	automotive	IFRS
Tesla	automotive	US GAAP
Volkswagen Group	automotive	IFRS

Z-Scores	2021	2020	2019	2018	2017
AB-InBev	0.7064	0.6236	0.6765	0.6172	0.6376
Alstom	0.7878	0.6497	1.1132	1.1390	1.0020
American Tower	0.2152	0.3217	0.3523	0.3614	0.4128
AstraZeneca	0.5807	0.7959	0.6534	0.7053	0.7179
Coca Cola	1.4989	1.4839	1.4872	1.4588	1.4200
Moderna	3.2064	-0.1398	-1.0719	0.2314	-0.4037

Mondeléz	1.1697	1.0390	1.0272	0.9752	0.9656
Pfizer	1.5923	1.1231	1.0875	1.2925	1.1681
Renault	0.5851	0.3730	0.6382	0.7483	0.8164
Tesla	1.5127	1.1425	1.0506	0.5571	0.1200
Volkswagen Group	0.9386	0.8310	0.9279	0.9085	0.9183