Research Article

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Determinants and COVID-19 effects on RevPAR: The case of Europe

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Abstract: As Europe prepares itself for a new downturn, this paper proposes to examine the determinants of hotel Revenue per Available Room (RevPAR) through literature review, and contribute to improving hotels' performance by understanding the weight of the occupancy rate and the Average Daily Rate (ADR) on RevPAR, after the pandemic. A quantitative methodology was used, collecting data from STR Share Center and Our World in Data, such as ADR, occupancy rate, RevPAR, and COVID-19 confirmed cases. Results show the overwhelming effect of COVID-19 on hotel performance, conducing to ADR, occupancy rate, and RevPAR decline, and highlighting a co-movement of these indicators during COVID-19. After the lifting of major COVID-19 restrictions, RevPAR had a greater influence from ADR in some European countries, but the occupancy rate should not be disregarded. The findings, however, suggest the absence of the revenge travel phenomenon. The relationship between the number of COVID-19 cases and the decrease in RevPAR is not statistically significant, implying the existence of other factors that probably also had impact. The different measures adopted by governments to contain the virus, and each country´s dependency on tourism, led to different impacts on hotel performance. This study helps hoteliers to know how to measure performance and the RevPAR drivers that can improve it, taking into account the situations that differ by country, as well as variables that are not controllable.

Keywords: RevPAR; COVID-19; Europe; Occupancy rate; ADR

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1 Introduction

The hospitality industry was one of the industries most profoundly affected by the infectious disease COVID-19. This health crisis was unmatched by other crises, such as the 2008 financial crisis, severe acute respiratory syndrome (SARS), or the 11th of September 2001 (Guillet & Chu, 2021; Nicola et al., 2020). European countries and others around the world implemented restriction measures and quarantines, leading to the closure of borders and face-to-face services, and flight restrictions, among other factors (Moreira et al., 2021).

As by maximising RevPAR profitability is maximised, based on the determinants of RevPAR found in the literature, the main objective of this paper is to assess, from a macro perspective on the hotel industry in the European region, to what extent the health crisis of COVID-19 affected the weight of Average Daily Rate (ADR) and Occupancy Rate on RevPAR. This objective allows one to determine how European countries reacted and how COVID-19 influenced RevPAR.

For that purpose, data such as the ADR, the occupancy rate, and the RevPAR from European countries were retrieved from Smith Travel Research (STR). These Key Performance Indicators (KPIs) were associated with the cumulative COVID-19 cases per million people in 2020 and 2021, collected from Our World in Data, hence it was possible to associate the impact of the health crisis with the lower occupancy rate and RevPAR. This study is composed of a literature review on RevPAR limitations and determinants as well as the COVID-19 effect on the hospitality industry in Europe and changes in consumer behaviour, followed by a quantitative methodology analysing the impact of COVID-19 on hotel KPIs. Finally, the results are presented, as well as their implications and limitations.

The new inspiration for this research lies in the urgency of examination of the aftermath of the COVID-19 pandemic on the hospitality industry, specifically in relation to RevPAR. By exploring the determinants of RevPAR within literature and the dynamic interplay

between occupancy rate, ADR, and RevPAR, this study aims to provide actionable insights for hoteliers seeking to enhance their performance in the post-pandemic era.

2 Literature Review

2.1 RevPAR: limitations and determinants

Hotel operators consider RevPAR to be a standard metric of hotel supply and demand performance. It is often used as a measure of growth (Cross et al., 2009). This metric is defined as the average revenue generated by each available room during a specific period and can be calculated in two ways: (1) by multiplying the occupancy rate by the ADR; or (2) by dividing the room revenue by the number of rooms available. RevPAR allows the comparison of hotel markets based on revenue volatility and relative growth, but also forecasts the hotel's market share and upcoming room revenue, controls staff efficiency and delivers an indicator of customer satisfaction (Ismail et al., 2002).

However, in a study with 487 respondents, Kimes (2011) realised that only 18.6 percent felt that RevPAR would be the performance measure of the future. Instead, GOPPAR (Gross Operating Profit per Available Room) (29.3 percent) was the most common response, followed by TRevPAR (Total Revenue per Available Room) (20.5 percent). Although RevPAR is the standard measure of hotel performance (Lee et al., 2019), it does have limitations, since it does not include revenue from other departments, such as from the food and beverage or SPA departments, and it does not take costs into consideration (Brown & Dev, 1999). Effects of local conditions are also not considered by RevPAR (Kimes, 1999). To overcome these limitations, other performance measures such as GOPPAR, TRevPAR and ProfitPAR (Profit per Available Room) have been suggested (Brown & Dev, 1999). Revenue managers should also compare their RevPAR with competitors (Cross et al., 2009).

Occupancy rate and ADR are used in the calculation and thus affect RevPAR; therefore, it is important to understand these metrics. ADR is calculated by dividing room revenue by the number of rooms sold. Occupancy rate is considered to be the main contributor to a hotel's operating revenue (O'neill & Mattila, 2006). It is the percentage of rooms occupied during a given period, calculated by dividing the total number of rooms sold by the total number of rooms available for sale (Ivanov, 2014). These metrics depend on factors such as location, time period (week, month or year), unusual events, market segmentation and marketing, competitors, product and service quality, and contract and booking terms (Ivanov, 2014).

The factors that affect demand for hotel rooms are important to understand since demand has a significant role in pricing strategies and hotel revenues (Tsai et al., 2006). In order to respond effectively, is important to understand these factors, use available resources and create competitive leverage (Claveria & Datzira, 2010; Wang, 2009).

Within external factors, demand is affected by political, economic, sociocultural, technological, ecological, and legal aspects, but also by potential competitors, competitiveness within the industry, buyers' influence, suppliers' influence, and new entrants or substitute products (Okumus et al., 2020). There are also internal factors that affect hotel room demand, such as bad capacity management, failure at market segmentation, incidents that endanger tourists' safety, inappropriate location, poor facilities, lack of differentiation and bad quality (Butscher et al., 2009; Fuchs & Pisam, 2011). After the latest health crisis, the effect of uncertainty of infectious diseases on hotel room demand should also be considered (García-Gómez et al., 2021; Ozdemir et al., 2022), as well as the role of online news media on the perceived risk of traveling after a pandemic (McClinchey & Dimanche, 2023).

Besides, a variety of factors have a direct impact on a hotel's guest room demand, including demand generators, which produce an increase in business as an organisation or event drives customers into the hotel; demand drains, if they are activities that cause a decrease in business; the strength or weakness of the local as well as the national economy; the addition or elimination of services; the opening or closing of competitive hotels; predictable and unpredictable factors; pricing decisions of the property and the property´s competitors (Hayes & Miller, 2011).

Both ADR and demand need to be considered because the room rate is the only metric that can be controlled. Other factors are beyond the manager's control. If demand increases, RevPAR will also increase, but if there is no demand, the increasing room rate will reduce occupancy rate and RevPAR (Chattopadhyay & Mitra, 2019). However, higher ADR leads to relatively higher RevPAR even with lower occupancy rates, although this effect is more likely to be confirmed in hotels with chain affiliation (Enz et al., 2016). Still, ADR seems to be the stronger predictor and better measure of RevPAR growth and bottom-line profitability (Singh et al., 2014).

Even though only a limited number of studies examined changes and determinants of RevPAR, it is possible to analyse which determinants, other than the ADR,

occupancy rate, and demand influence hotel revenues (Table 1).

Taking into consideration both supply and demand during recessions, analysing RevPAR, ADR, number of available rooms and rooms sold, the important role that rapid growth of room supply plays in RevPAR decline during downturns is confirmed (Zheng, 2014).

Certain hotel features such as location, class, age, hotel operation, years since the last renovation, market orientation and seasonality have been shown to determine RevPAR (Jiang & Taylor, 2020; Kim et al., 2013; Sainaghi, 2011; Xiao et al., 2012). The hotel holder and affiliation also explain a large portion of RevPAR fluctuations (Xiao et al., 2012). Other factors, such as brand positioning, service quality and sales effectiveness, can also drive RevPAR (Cross et al., 2009). Customer satisfaction, product quality and customer mix have significant effects on hotel operational performance (Kim et al., 2013; Kimes, 1999). Sustainability certificates can also increase hotel KPIs (Bianco et al., 2023), as well as abnormal weather conditions (Mun & Park, 2022), or hurricanes (Choi et al., 2019).

The effects of social media and user-generated content on hotel performance have been evaluated, since online review sites and online news media have gained an increasing role in consumer perceptions. If reviews

Table 1: Summary Table of RevPAR determinants based on the literature.

RevPAR determinants		Authors
Hotel internal factors	Average daily rate	(Chattopadhyay & Mitra, 2019; Enz et al., 2016; Singh et al., 2014)
	Employees	(Sainaghi, 2011)
	Years since last renovation	
	Hotels/number of rooms	(Jiang & Taylor, 2020; Kim et al., 2013; Sainaghi, 2011)
	Hotel owner	(Jiang & Taylor, 2020; Xiao et al., 2012)
	Quality of service and product	(Cross et al., 2009; Kimes, 1999)
	Sales effectiveness	(Cross et al., 2009)
	Sustainability certificate	(Bianco et al., 2023)
Marketing policies	Social presence/social media usage	(Anderson, 2012; De Pelsmacker et al., 2018)
	Brand positioning/Brand affiliation	(Cross et al., 2009; Xiao et al., 2012)
	Total marketing expenses	(Singh & Dev, 2015)
	Digital innovation	(Alrawadieh et al., 2021; Bovsh et al., 2022)
	Customer mix/market orientation	(Kim et al., 2013; Sainaghi, 2011)
Consumers	Consumer confidence	(Chen, 2015; Liu et al., 2013; Pacheco, 2016)
	Customer satisfaction	(Kim et al., 2013; Kimes, 1999)
	International tourist arrival	(Chen, 2011; Liu et al., 2013; Pacheco, 2016)
	Number of residents and non-residents overnight stays	(Pacheco, 2016)
	Online review sites	(Anderson, 2012; De Pelsmacker et al., 2018; Phillips et al., 2016)
	Demand for hotel rooms	(Chattopadhyay & Mitra, 2019)
Hotel uncontrollable factors	Abnormal weather conditions	(Mun & Park, 2022)
	Economic growth	(Pacheco, 2016)
	Seasonality/trend	(Chattopadhyay & Mitra, 2019; Jiang & Taylor, 2020)
	Grand impact events (Olympic games, tsunami, hurricane)	(Choi et al., 2019; Liu et al., 2013)
	Government's role	(Subedi & Kubickova, 2023)
	Stock index	(Liu et al., 2013)
	Real-estate development	
	Exchange rate	
	Trade balance	
	Growth of room supply	(Zheng, 2014)

numbers are high, it is possible to increase the price (Anderson, 2012). Hence there is a positive relationship between digital marketing, social media, news media and online reviews and hotel performance (De Pelsmacker et al., 2018; McClinchey & Dimanche, 2023; Phillips et al., 2016). Furthermore, COVID-19 had a major influence on the spread of remote communication formats, and on digital distribution, which, if improved, may optimise RevPAR and revenue management operations, highlighting the importance of the digital factor (Alrawadieh et al., 2021; Bovsh et al., 2022).

The RevPAR local and global drivers during the economic recession were analysed in Asia (Liu et al., 2013) and Portugal (Pacheco, 2016). International tourist arrivals (Chen, 2011), trade balance, exchange rate, inflation, consumer confidence (Chen, 2015), stock index, real-estate development and big-impact events (such as the 2008 Beijing Olympics, the 2011 Japanese tsunami and floods) affected RevPAR in the eight Asian cities, and a co-movement was found to exist, since the RevPAR in the eight cities generally moved together until 2008, starting to diverge in the following years (Liu et al., 2013).

The economic growth, the number of residents' and non-residents' overnight stays, and the consumer index are more determinant of Portuguese hotels' RevPAR (Pacheco, 2016). Furthermore, lower-quality hotel segments are more susceptible to changes in the economy than higher-priced segments (Pacheco, 2016). Both results demonstrate the high sensibility to cyclical factors in the hospitality industry.

The governments' role has proven to influence hotel performance (Subedi & Kubickova, 2023), as they should assist the hotel industry in periods of crisis such as COVID-19, hence the collaboration between hotels and the government should be reinforced.

Hence, it is hypothesised that there is also a co-movement of RevPAR in European countries:

H1a: There is a co-movement of RevPAR in Europe countries during COVID-19.

H1b: There is not a co-movement of RevPAR in Europe countries after the lifting of major COVID-19 restrictions.

2.2 Health crisis COVID-19 effect on hospitality industry in Europe and changes in consumer behaviour

Tourism is a very sensitive industry to crises, which can be political, economic, socio-cultural, commercial, technological, and environmental (Henderson, 2007). The COVID-19 health crisis is unmatched by other events, such as the 2008 financial crisis, the SARS (severe acute respiratory syndrome) outbreak in 2003, or the 11th of September 2001, since COVID-19 had a fierce effect on hotel revenues because the entire industry stopped due to lockdowns and government-imposed restrictions (Guillet & Chu, 2021; Yang et al., 2022). International travel restrictions, social distancing, and lockdowns were adopted to help contain the spread of the disease, which was damaging to the tourism sector.

An increase in COVID-19 cases has been proven to generate a decline in RevPAR, ADR, and occupancy rate (Yang et al., 2022). And besides, there are adverse consequences of government-imposed travel restrictions on tourism performance. But the governments also helped to diminish the negative impact of this crisis, as other countries with more tourism dependency adopted larger economic stimulus in order to mitigate COVID-19's negative effects (Khalid et al., 2021; Subedi & Kubickova, 2023). Countries with higher tourism dependence had a major decrease in the indicators above, also countries with more luxury tourist products were more affected than economy products when measured by revenue (Yang et al., 2022).

Consequently, it is hypothesised that European countries with more confirmed COVID-19 cases had a major RevPAR decrease.

H2: European countries with more confirmed COVID-19 cases had a major RevPAR decrease.

Due to the psychological effects of this pandemic, customers' consumer behaviour has changed, as customers showed that their top travel experiences would be seaside, lakeside, or countryside road trips, and that they needed to see visible sanitising efforts, so hygiene and safety are more significant when selecting a destination and hotel nowadays (Gursoy et al., 2020). However, contrary to during an economic crisis, even with a willingness to pay people were not able to travel. Willingness to pay demonstrates the maximum price a customer is willing to pay for a certain product or service. Thereby, knowing how much customers are willing to pay is useful in implementing revenue management strategies. Since hotel attributes, scale, travel-related variables, customer demographics, technology readiness and health concerns (Hao et al., 2022) influence willingness to pay, and as tourists' travel desire and intention are affected by potential travellers' risk perceptions, risk appraisal, travel anxiety and escape motivation (Kim et al., 2022; McClinchey & Dimanche,

2023), people will be more willing to pay after the lifting of travel restrictions.

'Revenge travel' is defined as a guest's travel following the COVID-19 pandemic after being obliged to remain at home for months (due to lockdowns, curfews, and travel restrictions). This idea has emerged from the 1980s concept of 'revenge spending' in China motivated by decades of economic paralysis and poverty. Revenge travel is based on the belief that forced lockdowns, quarantines, and social distancing powered visitors' feelings of vengeance on the pandemic, leading to the desire to travel to compensate for lost time (Shadel, 2020; Zaman et al., 2021). This is considered a psychological phenomenon, also called 'catch-up travel' and compensation travel, originating in boredom throughout the pandemic, leading to travels for extended periods of time and more frequently, with more spending, in order to please suppressed leisure necessities that were not fulfilled due to COVID-19 related restrictions (Vogler, 2022; Kim et al., 2022).

According to this phenomenon, people would be more willing to pay; therefore an increase in occupancy rates, and consequently in the RevPAR, would happen after the pandemic and travel restrictions were lifted. Hence, the authors intend to understand whether the revenge travel phenomenon leads to a significant increase in the occupancy rate, which in turn would have more weight in the increase in RevPAR after the pandemic. Consequently, the authors hypothesise:

H3: The RevPAR increase after the pandemic is due to the increase in the Occupancy rate, owing to the revenge travel phenomenon.

Besides the consumers' need to feel safe, there is a need to encourage domestic tourism and provide fewer contact service providers as a challenge for the hospitality industry to recover after the pandemic (Willie & Jayawardena, 2022). Despite that, in 2020 proximity tourism at an interregional or national level and rural tourism became popular, and the tourism has increased to pre-COVID-19 levels, not confirming the revenge travel phenomena. However, there were still sanitary measures at the time of the study, and these conclusions were based on only two case studies (Panzer-Krause, 2022).

3 Methodology

Data was retrieved from Smith Travel Research Global (STR), which calculates averages of individual hotels. To better understand the impact of the health crisis, the ADR average, occupancy rate average and RevPAR average, for each month from January 2019 to December 2022 were collected. This way, it was possible to compare the pre-pandemic and the post-pandemic ratios. The variation percentage of RevPAR was also calculated between 2019 and 2020/2021 by month and by annual average.

The European countries in the study are in concordance with the European Hotel Review, which contains the following countries: Austria, Belgium, Bulgaria, Croatia, Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Italy, Latvia, Lithuania, Malta, Netherlands, Poland, Portugal, Romania, Russia, Slovakia, Spain, Switzerland, Turkey, and the United Kingdom.

To consider the effect of COVID-19 on the hospitality industry, the authors analysed the cumulative confirmed cases per million people in 2020 and 2021 through data available on Our World in Data, in the countries indicated above. The authors define 2019 as the period before COVID-19 because there was no registry of COVID-19 cases in Europe. The period during COVID-19 is demarcated from 2020 until the end of 2021, as the first wave of the Alpha variant went from January 2020 to January 2021 and the second wave from January to December 2021, covering the Delta and Omicron variants' periods (Marobhe & Kansheba, 2022). The period defined after COVID-19 refers to the lifting of major restrictions in March 2022, when most countries lifted the majority of their COVID-19 restrictions (World Health Organisation, 2023). SPSS and MS Excel were utilised for the graphics, descriptive statistics and to test the hypotheses.

First, the Kolmogorov-Smirnov normality test was applied to the sample and the null hypothesis was rejected, thus the variable distributions are not normal and non-parametric tests were applied. Hypotheses were tested through descriptive statistics, the Kruskal-Wallis test, and Spearman's rank correlation coefficient.

4 Results

The results show that the ADR had a slight decrease in 2020, but in 2022 was higher in almost every European country analysed. The years 2020 and 2021 had lower ADR (Figure 1). Apart from Israel and Switzerland, among these countries there are not great ADR discrepancies. The countries with the highest ADR average are Israel, Switzerland, Malta, France, Italy, Greece, Croatia, and Ireland. Countries from Central and Eastern Europe, such

as Latvia, Lithuania, Poland, Bulgaria, Czech Republic, Estonia, Turkey, Romania, Russia, and Slovakia have the lowest ADR average. There is a big amplitude since the highest ADR is from Israel in 2022 (EUR 269.57) and the minimum is in Lithuania in 2021 (EUR 50.68).

The occupancy rate average since 2019 to 2022, unlike the ADR, varied much more significantly each year in every country (Figure 2), but within Europe the occupancy rate does not vary much between countries overall, reaching a minimum of 20% in Croatia in 2020 and a maximum of 77.9% in Hungary in 2019. The difference in occupancy rate from 2019 to 2020 is quite high, with 2022 remaining with occupancy rate levels below 2019, denying the revenge travel phenomena. The countries with the highest occupancy rate are the United Kingdom, Ireland, Spain, Netherlands, Turkey, Poland, France and Portugal. The countries with the lowest occupancy rate are Bulgaria, Russia, Finland, Slovakia, Croatia and Latvia.

Although the 2019 and 2022 RevPAR values are similar, there is a large drop in 2020 and 2021 (Figure 3), but despite that the RevPAR shows a growing tendency, as the values are higher in 2022 in the majority of the countries.

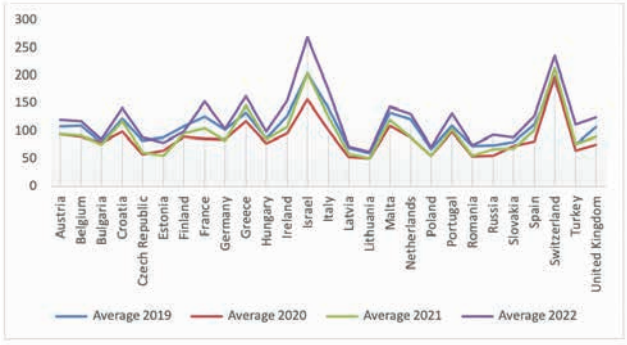

Figure 1: ADR average from 2019-2022
Data retrieved from STR Global

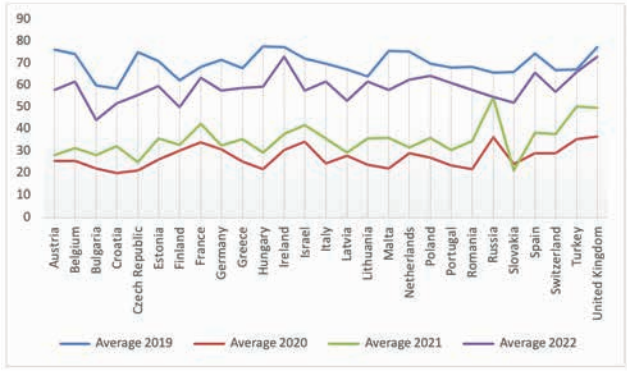

Figure 2: Occupancy rate average 2019-2022
Data retrieved from STR Global

Israel and Switzerland have the highest RevPAR, but Italy, Greece, Ireland, Malta, France and the United Kingdom also detain a high RevPAR. The countries with the lowest RevPAR are Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, and Slovakia.

'H1a: There is a co-movement of RevPAR in Europe countries during COVID-19' is not rejected since, in general, the European countries under analysis have similar fluctuations in RevPAR. This hypothesis is fully supported at the peaks of the health crisis at the beginning of the second trimester of 2020, at the end of 2020 and beginning of 2021, being Israel the country with the highest values standing out compared to the other countries. However, this interpretation should be statistically tested, through the Kruskal-Wallis test. Thus, it was created a new variable, RevPAR homologous variation percentage between 2019 and 2020 and between 2020 and 2021. Then 'H0: In

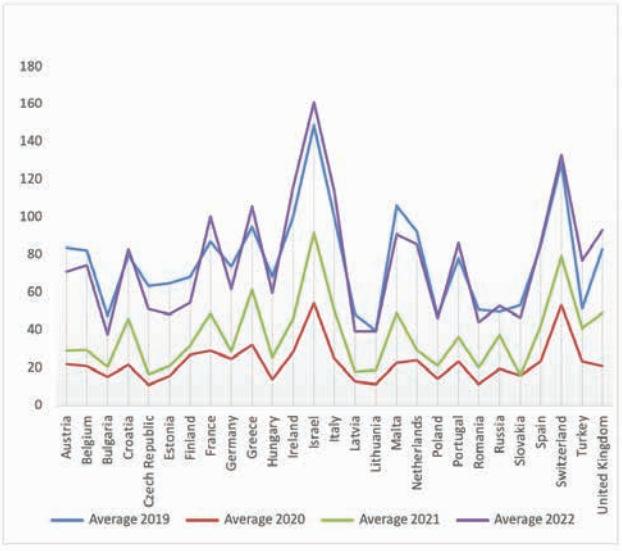

Figure 3: RevPAR average from 2019-2022
Data retrieved from STR Global

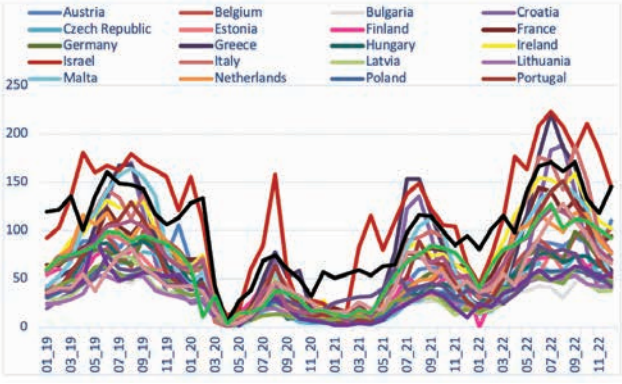

Figure 4: RevPAR co-movement since 2019 to 2022
Data retrieved from STR Global

2020 and 2021, the distribution of the RevPAR variance percentage is the same among the European countries' was elaborated. Testing H0, it was obtained a p= 0.624 for 2020 and p=0.802 for 2021, implying a no rejection of H0 and consequently a no rejection of H1a. During COVID-19 the RevPAR recorded the same trend in all Europe countries.

Regarding 'H1b: There is not a co-movement of RevPAR in Europe countries after the lifting of major COVID-19 restrictions' and analysing the RevPAR among these countries, a divergence is noticed in 2022, finding a greater range in RevPAR, then H1b is not rejected. The countries that stand out the most are Israel, Switzerland, Greece, Croatia, Malta and Italy (Figure 4). Applying the Kruskal-Wallis test, with 'H0: In 2022, the distribution of the RevPAR variance is the same among the European countries', a rejection was obtained with a p<0.001. In a conclusion, at least one country differs from the others in terms of the RevPAR trend in 2022. Using the comparison of the pairwise method of countries through Dunn's post hoc test and with Bonferroni correction big differences were explored. Then the countries were grouped under the RevPAR variation between 2021 and 2022 (Table 2).

Austria, Belgium, Czech Republic, Hungary, Ireland, Netherlands, Portugal, and Slovakia are highlighted by the large growth in RevPAR. Summing up H1b is not rejected, since RevPAR has different behaviours along the countries. The large growth of RevPAR in these countries could be because of the vaccination, fewer travel restrictions, or due to being countries characterised by what is trending due to the changes in consumer behaviour, as rural and nature tourism, increase in domestic tourism and places close to home, the search for authenticity and value, sustainability, and the higher spending of tourists and longer stays, making Western Europe the closest to reach pre-pandemic levels on international tourism in the world (World Tourism Organisation, 2020). These findings corroborate the existing literature concerning the existence of co-movement of RevPAR (Liu et al., 2013).

Using data available on Our World in Data, the authors examined the confirmed cumulative COVID-19 cases in 2020 and 2021 in the European countries being analysed and concluded that 'H2: European Countries with more confirmed COVID-19 cases had a major RevPAR decrease' should be confirmed.

The countries with more confirmed cases in 2020 were Czech Republic, Belgium, Croatia, Lithuania, Switzerland, Slovakia, Netherlands, and Israel. In 2021, there were more confirmed COVID-19 cases in Slovakia, Czech Republic, the United Kingdom, Lithuania, and Estonia.

To test 'H2: European Countries with more confirmed COVID-19 cases had a major RevPAR decrease', the authors analysed the 2019 RevPAR average with the RevPAR averages from 2020 and 2021, separately, and calculated the variation percentage (Figure 6).

Czech Republic had the biggest variation in RevPAR from 2019 to 2020, followed by Hungary, Malta, Romania, Estonia, and Italy. And effectively, Czech Republic was the

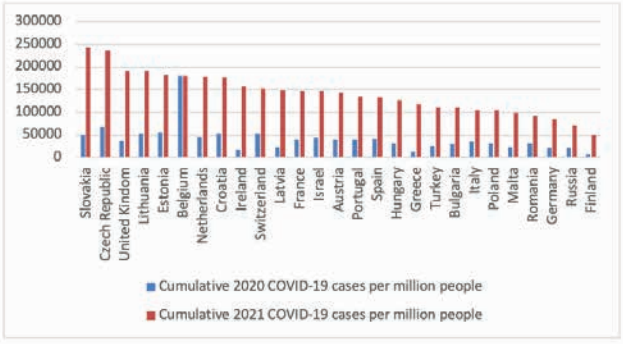

Figure 5: Cumulative confirmed COVID-19 cases per million people in 2020 and 2021

Data retrieved from Our world in data.

Table 2: Countries grouped according to RevPAR variation between 2021 and 2022

Lowest	Median	Highest
Bulgaria	Estonia	Austria
Croatia	France	Belgium
Finland	Germany	Czech Republic
Greece	Italy	Hungary
Israel	Latvia	Ireland
Malta	Lithuania	Netherlands
Russia	Poland	Portugal
Switzerland	Romania	Slovakia
Turkey	Spain	
United Kingdom		

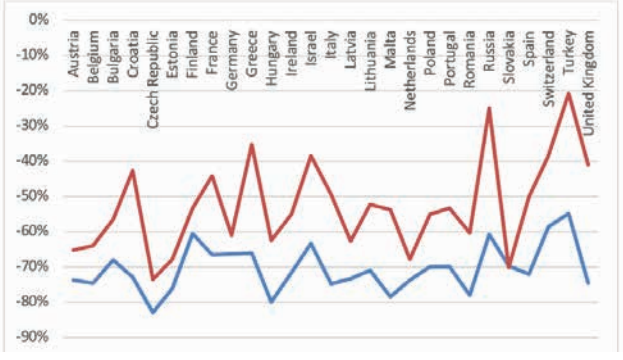

Figure 6: RevPAR variation from 2019 to 2020 and 2021

Data retrieved from STR Global.

country with the most confirmed cases per million people in 2020, and Finland, Greece, Russia, and Turkey had less variation and fewer COVID-19 cases. Malta, Hungary, Romania, and Estonia had fewer confirmed cases than other countries but still had a bigger RevPAR variation. The restrictions imposed by the government can explain the fewer confirmed cases and the big RevPAR variation percentage, since travel restrictions were imposed, for instance, Malta, Hungary, Romania, and Estonia introduced intervention measures early, there were restrictions at the borders, all the returning travellers had to self-isolate, public events were cancelled and schools were closed, social distancing was required and the whole country was under quarantine (except for Estonia, which only determined lockdown in two regions) (Al-Salem et al., 2021). This corroborates the literature referring to the role that the government has in RevPAR (Subedi & Kubickova, 2023).

In 2021, the countries that had the biggest RevPAR variation percentage compared with 2019 were the Czech Republic, Slovakia, Netherlands, Estonia, Austria, and Belgium, which also were the ones with more confirmed COVID-19 cases (Slovakia, Czech Republic, Lithuania, Estonia, Belgium, and the Netherlands). The countries Turkey, Russia, and Greece had a little RevPAR variation percentage and less COVID-19 cases. But the United Kingdom, Switzerland, and Croatia had many confirmed cases and little variation in the RevPAR, which can be explained due to the low containment and health index (Elliott, 2022).

In order to statistically confirm the conclusion drawn through the graphs in relation to H2, the Kruskal-Wallis test was applied using RevPAR homologous variation (2019 to 2020 and 2020 to 2021). Then 'H0: the distribution of the RevPAR variance is the same among the European countries' was tested, where a p=0.624 and p=0.802 were obtained, implying a no rejection of H0. Spearman's rank correlation coefficient (0.189) was also calculated between RevPAR 2020/2021 and the number of COVID-19 confirmed cases. Then a weak positive correlation was found, meaning that both variables tend to go up in reaction to one another, but the relationship is not solid.

Regarding the results of these tests, the conclusion is that there are not significant differences among the countries, a positive weak correlation was found as well; in other words, the number of COVID-19 confirmed cases did not influence RevPAR. Then 'H2: European Countries with more confirmed COVID-19 cases had a major RevPAR decrease' is rejected because the differences are not significant. Also, a weak correlation is presented, despite the illusionary graph conclusions. In fact, European countries with more confirmed COVID-19 cases had a major RevPAR decrease, but when comparing the RevPAR decreases the differences are not significant. Hence, the RevPAR variation is not only dependent on the number of confirmed COVID-19 cases but is also dependent on government measures and other determinants, and the differences between the countries are not significant (Subedi & Kubickova, 2023).

European countries with more confirmed COVID-19 cases have the same behaviour as the others in terms of occupancy rate. The H0 of Kruskal-Wallis test is not rejected, then the differences are not significant, in 2020 and 2021. The situation is the same for ADR.

Observing Figures 1, 2, and 3, the analysis of 'H3: The RevPAR increase after the pandemic is due to the increase in the Occupancy rate, owing to the revenge travel phenomenon' is not trustworthy. Despite an increase in the occupancy rate being verified in 2022, the average occupancy rate in 2019 was higher than in 2022 (see Figures 1, 2, and 3). There are other factors that contribute to the RevPAR increase, such as the rise in the ADR, which is now higher than in previous years. Nevertheless, through Spearman's rank correlation coefficient, the correlation between RevPAR and occupancy rate, and between RevPAR and ADR, was tested in 2022, analysing all countries together.

Between RevPAR and the occupancy rate a correlation coefficient of 0.777 (<0.001) was found, and comparing RevPAR and ADR, a greater value was estimated at 0.899 (<0.001). Hence, there is a stronger correlation between RevPAR and ADR, but there is also a correlation between RevPAR and occupancy rate. After the years when COVID-19 most affected the hospitality industry (2020 and 2021), the RevPAR increase happened mostly because of the ADR increase and not mainly because of increase in the occupancy rate, denning the revenge travel effect on European countries' RevPAR, which goes against the literature (Kim et al., 2022; Shadel, 2020; Vogler, 2022; Zaman et al., 2021).

The hypothesis is not totally rejected, being as RevPAR is influenced by ADR and Occupancy rate. However, ADR influences more RevPAR than occupancy rate, in most of the countries analysed.

The behaviour of all countries is the same except for the countries in Table 3, where a higher influence of the occupancy rate on RevPAR is verified. The correlation coefficient is bigger in relation to the occupation rate, but there is a strong correlation face to the occupation rate as well as to the ADR. Nevertheless, Bulgaria and Switzerland should be highlighted because they present a weak correlation between RevPAR and ADR.

Table 3: Spearman's rank correlation coefficient of RevPAR with occupancy rate and ADR

Country	Occupancy rate	ADR
Switzerland	0.930	0.084
Bulgaria	0.999	0.308
Finland	0.972	0.706
Lithuania	0.981	0.727
Slovakia	0.916	0.790
Austria	0.951	0.801
Poland	0.944	0.874
Ireland	0.993	0.944
Croatia	0.972	0.958
Germany	0.972	0.965
Latvia	0.972	0.965
Netherlands	0.972	0.965

In relation to Switzerland it can be justified by the fact that is a country which stands with the best performance due to its alpine scenery, offering diverse activities as hiking in the summer or skiing in the winter, its lakes, appealing villages, and high living standards, festivities in low season epochs as the Herbstmesse or the Christmas markets, besides that, there was no need of COVID-19 vaccination or testing proof, what allowed the maintenance of Switzerland's borders open, which lead to bigger occupation influence (Elliott, 2022). Furthermore, the war in Ukraine has less impact on Switzerland than other countries, although the conflict may discourage tourists, the war has a less direct impact on tourism, as Ukrainians and Russians do not account for a significant number of visitors as Americans and Asians (Mandruzzato, 2022; Pollack, 2022).

Regarding the weight of occupancy rate on RevPAR in Bulgaria, this may be due to being considered the second cheapest tourist destination, due to cheap hotels, restaurants, and bars. However, this country has been dealing with some difficulties because of the war in Ukraine, the rise of COVID-19 cases in 2022, as well as the cancelled flights at European airports (Bulgarian National Radio, 2022; The Sofia Globe, 2022).

5 Conclusions

RevPAR is a standard metric of hotel performance with widespread implementation. It is influenced by the occupancy rate and by the ADR, which means that RevPAR depends on factors that influence each of those metrics. Therefore, it is important to understand what affects and determines those metrics to maximise revenue and improve hotel performance (Ivanov, 2014). The purpose of this study was to assess, from a macro perspective of the hotel industry in the European region, to what extent the COVID-19 affected the weight of ADR and Occupancy Rate on RevPAR, in order to determine how European countries reacted and how COVID-19 influenced RevPAR. This way, hoteliers will be better prepared for future times of crisis and able to improve their performances.

Results showed during COVID-19 there was a co-movement of the RevPAR in European countries, but divergence is noticed in periods of certain stability such as 2022, aligning with the existing literature (Liu et al., 2013). The countries where RevPAR grew the most between 2021 and 2022 were Austria, Belgium, Czech Republic, Hungary, Ireland, Netherlands, Portugal, and Slovakia, while Bulgaria, Croatia, Finland, Greece, Israel, Malta, Russia, Switzerland, Turkey, and the United Kingdom had less growth.

In 2019, the occupancy rate reached its maximum levels and is still recovering, nevertheless, the ADR was in 2022 higher than ever before, showing a growing tendency, as well as the RevPAR. The countries that stand out the most are Israel and Switzerland, which have a RevPAR and ADR higher than most countries. While Eastern European countries such as Bulgaria, Czech Republic, Poland, Latvia and Lithuania stand out for their low RevPAR and ADR. Bulgaria stands out for low occupancy rate while the United Kingdom for high occupancy. Nevertheless, the innovative findings of this study suggest the absence of the revenge travel phenomena, given that the average occupancy rate in 2019 was higher than in 2022, as well as the fact that this phenomenon does not provoke the RevPAR increase after the pandemic, which goes against the suggested by the literature (Kim et al., 2022; McClinchey & Dimanche, 2023; Shadel, 2020; Vogler, 2022; Zaman et al., 2021).

The COVID-19 crisis had a brutal impact, unmatched by previous crises, on the hospitality industry, which is very sensitive due to being a person-to-person service, and dependent on various business industries (Guillet & Chu, 2021; Henderson, 2007; Yang et al., 2022). It is confirmed that government measures and importance of the tourism sector affect hotel performance, which aligns with literature (Khalid et al., 2021; Subedi & Kubickova, 2023), as hotels closed their doors, there were international travel restrictions, social distancing, and lockdowns, helping contain the spread of the disease, leading to the decline in RevPAR, ADR and occupancy rate (Yang et al., 2022).

Different measures adopted by the government to contain the virus and the dependency on this industry led to different impacts on hotels' performances, as verified with this study, corroborating the literature review (Khalid et al., 2021; Subedi & Kubickova, 2023; Yang et al., 2022). Countries with more COVID-19 cases in 2020 and 2021, like Czech Republic, Slovakia and the Netherlands had the biggest RevPAR variation. However, countries that implemented severe government measures and restrictions had less confirmed cases, but still a high RevPAR variation (Malta, Hungary, Romania, and Estonia), contrary to countries that had low containment and health indexes, which led to little RevPAR variation and a lot of COVID-19 cases (United Kingdom, Switzerland, and Croatia) (Al-Salem et al., 2021; Mathieu et al., 2020). Nevertheless, the differences are not statistically significant, then when comparing the RevPAR decreases in the European countries with more or fewer COVID-19 cases, few are divergences, demonstrating the same behaviour in terms of occupancy rate and ADR.

Although RevPAR is determined by both the ADR and occupancy rate, there is a higher influence of the ADR in relation to the RevPAR. However, there are some countries, as in Switzerland and Bulgaria, where the occupancy rate highlights a higher correlation to the RevPAR. Besides the innovative findings, this research shows great contribution to the hospitality industry in a post-pandemic era, as this can assist hotel managers in resilience planning and helps them to comprehend what affects their RevPAR.

Theoretical Implications

To the best of the authors' knowledge, this article is relevant as a pioneering study compiling the various RevPAR determinants already identified by other authors, and disclosing the performance of European hotels over the last four years (2019 to 2022). It also contributes to the deepening of the literature on RevPAR drivers and hotel performance measurement and comparison among European countries. It was possible to confirm the fragility of this sector due to the negative impact of COVID-19 on hotels in all countries analysed, which led to the largest decrease in hotel KPIs ever registered. Through the literature review, it was possible to acknowledge the various RevPAR determinants, and with the statistical analysis of quantitative data, the influence of the occupancy rate and ADR on RevPAR was corroborated. As most of the RevPAR determinants are not controllable by managers, the importance of knowing which tools can be used to maximise profitability is crucial, and the most accessible tool is the ADR (Chattopadhyay & Mitra, 2019; Enz et al., 2016; Singh et al., 2014).

Practical implications

The brutal impact of COVID-19 on the hospitality industry is undeniable, and as this is one of the most important industries in many countries, knowing how to measure performance to improve, and knowing what affects the hotel KPIs, is imperative. This article compiles the RevPAR drivers, making it possible for hotel managers to manage them. As the ADR is the easiest tool for improving the RevPAR, managers might increase the room rates, but there are other hotel features that can be improved to maximise profitability. This article helps hoteliers be more prepared in times of crisis or unpredictable events and acknowledges what affects RevPAR for understanding customers' behaviour after the pandemic.

Future research and limitations

Considering the literature review, the authors recognise that hotels' performance should have been evaluated with additional indicators, not just the RevPAR, and that hotel KPIs from sources other than STR should have been considered. For further investigation, it is suggested to do more profound studies in each country, with other RevPAR determinants indicated in the literature, and with other performance metrics, such as GOPPAR and TRevPAR.

Furthermore, future research on how to increase the RevPAR and revenue management practices in periods of low demand would be interesting, and could help hoteliers in the future.

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Conflicts of Interest

The authors of the article 'Determinants and COVID-19 effects on RevPAR: The case of Europe' declare no conflict of interest.

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