The effect of COVID-19 pandemic on Croatian tourist sector

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# 1 INTRODUCTION

The coronavirus pandemic flooded the globe in just a few months after the first case was registered, leaving huge consequences in the form of threatening the health and human lives, great economic losses, and psychological fear that has crept deep into society. The presence of the virus around the world has prevented potential tourists from feeling safe in the destination which has left deep consequences today and in the future for one of the most affected sectors, and that is tourism. According to the UNWTO (2021) international tourist arrivals (overnight visitors) dropped by 74% in 2020 compared to the 2019, due to massive drop in tourist demand and travel restrictions. This pandemic has caused loss of USD 1.3 trillion in export revenues which is eleven times greater loss compared to the global financial crisis from 2008. UNWTO forecasted that it could pass between 2,5 or even 4 years for international tourism to return on the old track from 2019. The effectiveness of vaccines and the level of vaccination of the population will certainly play an important role, which should contribute to a smaller number of new cases, as well as to the mitigation of travel restriction measures and the restoration of consumer confidence. The consequences are even worse since Croatia is a highly tourism dependent country.

According to the UNWTO, Croatia is among the 10 most vulnerable countries according to the criterion of the direct impact of tourism on the share of GDP. More precisely, in the first place is Macao (China) 48%, followed by: Fiji 13%, Jordan 12%, Spain 12% and Croatia with 11%. Many countries have introduced travel restrictions, and knowing that the share of foreign tourists in Croatia is 89% (UNWTO, 2021), negative results are expected from companies that are directly or indirectly involved in tourism. In Croatia tourism is taking part in a large share of total exports (35%) as well (UNWTO, 2021). Although Croatia achieved a record in 2019 in terms of the total number of arrivals and overnight stays of domestic and foreign tourists in 2020 due to the global corona pandemic, there was a steep decline compared to 2019, which amounts to -55,29% of overnight stays and -64,22% of total arrivals. Poor results in tourism spilled over into the capital market and caused turmoil, so the purpose of this research was to investigate how tourism stock prices respond to the event of the COVID-19 pandemic by using event study technique. This study contributes to the literature by analyzing the impact of global COVID-19 pandemic on tourism stock volatility in Croatia. Tu još nešto fali. Paper is organized as follows………

# 2 RESEARCH BACKGROUND AND CONTEXT

Tu fali uvodni dio.

Panyagometh ([2020](#ref-Pany)) used a sample of 46 stocks listed in the Stock Exchange of Thailand in order to analyze stock price reactions during pandemic. After applying event study methodology in order to empirically measure abnormal returns and volatility, research results suggest that the majority of stocks in the Stock Exchange of Thailand have been negatively affected by Covid-19 pandemic. On the other side authors have also found that some stocks had positive returns, these stocks are included in commerce sector- companies which are included in distribution of pharmaceutical products and services. Irfan, Kassim and Dhimmar (2021) analyzed the impact of COVID-19 on the performance of Indian stock exchange and Indonesian Stock Exchange. Author included three different event windows because they wanted to check results in different time periods. The analysis of both countries showed opposite results since Indian stock market showed downward sloping after WHO declaration, and Indonesian upward. Albulescu ([2020](#ref-Abul)) researched new COVID-19 official cases announcements and death ratio on the financial markets volatility index (VIX). Authors has concluded that new cases reported outside China has positive impact on VIX, death ratio has significant positive impact on VIX, and the spread of the COVID-19 increase financial volatility. Tu još ide teksta…

# 3 DATA COLLECTION AND METHODOLOGY

Pandemic

Index

Return\_avg

Return\_sd

Ongoing

CrobexInd

-0.609

4.116

Ongoing

CrobexKonstr

-0.416

4.652

Ongoing

CrobexNutr

-0.654

3.719

Ongoing

CrobexTr

-0.647

3.363

Ongoing

CrobexTur

-0.630

3.361

Post

CrobexInd

0.159

1.282

Post

CrobexKonstr

0.306

2.340

Post

CrobexNutr

0.036

1.423

Post

CrobexTr

0.070

0.631

Post

CrobexTur

0.090

1.150

Pre

CrobexInd

-0.005

1.256

Pre

CrobexKonstr

-0.114

2.261

Pre

CrobexNutr

0.156

1.763

Pre

CrobexTr

0.070

0.418

Pre

CrobexTur

-0.002

0.623

## 3.1 Methodology

## 3.2 Insigthts from the data and topic identification

# 4 RESULTS AND DISCUSSION

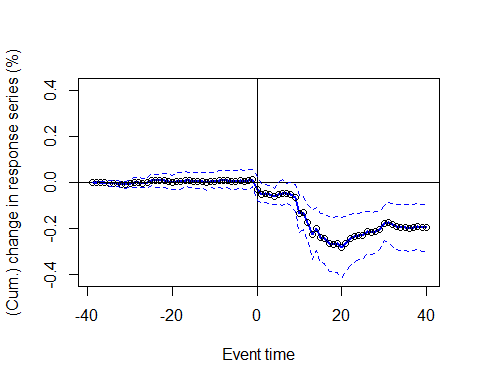
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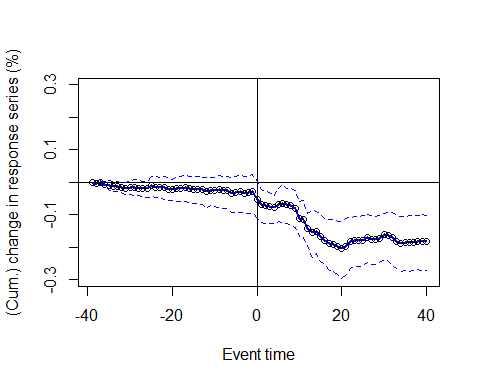
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## 7 2020-03-03 utorak 100 0.0014939110 0.24677397   
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## 12 2020-03-10 utorak 100 -0.0007096159 -0.11721899   
## 13 2020-03-11 srijeda 100 -0.0296381370 -4.89582103 \*\*\*  
## 14 2020-03-12 četvrtak 100 -0.0125579736 -2.07440808 \*\*  
## 15 2020-03-13 petak 100 0.0038293988 0.63256510   
## 16 2020-03-16 ponedjeljak 100 -0.0155702046 -2.57198808 \*\*  
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## 16 -2.55172260 \*\* -0.91966035 -7.67777980 \*\*\*  
## 17 -2.14540939 \*\* -1.67845519 -1.94357793 \*  
## 18 -1.31575253 -0.75991382 -4.15354196 \*\*\*  
## 19 -0.44720455 -0.24907680 0.08029641   
## 20 -1.04621411 -1.02205820 -2.78961223 \*\*\*  
## 21 -0.91332357 -0.59208374 -3.83629196 \*\*\*  
## 22 1.00557046 0.60343754 2.18844928 \*\*  
## 23 2.21698924 \*\* 1.82839257 \* 6.72151962 \*\*\*  
## 24 0.66931845 0.96596721 1.41628145   
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## 26 0.38608421 1.31166110 0.87712261   
## 27 1.29952951 0.94183104 3.11618859 \*\*\*  
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## 16 -1.62034627 -1.75293186 \*  
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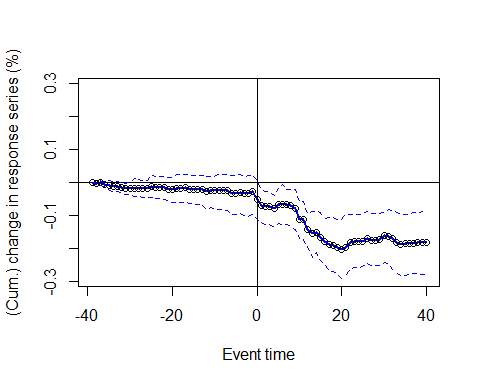
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## 24 2020-03-26 četvrtak 100 -0.5773503 0.1060384  
## 25 2020-03-27 petak 100 -1.7320508 \* -1.0716652  
## 26 2020-03-30 ponedjeljak 100 1.1547005 1.8725939  
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## 34 2020-04-09 četvrtak 100 -0.5773503 0.1060384  
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## 5 0.5552777 0.8597868 0.8597868  
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## 8 0.8329166 0.3185908 0.3185908  
## 9 0.2776389 0.3185908 0.3185908  
## 10 0.2776389 0.3676048 0.3676048  
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## 14 0.2776389 0.3471823 0.3471823  
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## 16 0.0000000 0.1552109 0.1552109  
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## 23 50   
## 24 40   
## 25 24   
## 26 \*\* 57 \*  
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## 29 23   
## 30 36   
## 31 48   
## 32 \* 14 \*\*  
## 33 34   
## 34 22   
## 35 3 \*\*\*

## 4.3 Visual presentation of results







# 5 CONCLUSION

# 6 BIBLIOGRAPHY

Albulescu, Claudiu. 2020. “Coronavirus and financial volatility: 40 days of fasting and fear.” Papers 2003.04005. arXiv.org. <https://ideas.repec.org/p/arx/papers/2003.04005.html>.

Panyagometh, Kamphol. 2020. “The Effects of Pandemic Event on the Stock Exchange of Thailand.” *Economies* 8 (4): 1–22. <https://ideas.repec.org/a/gam/jecomi/v8y2020i4p90-d433708.html>.