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ARAŞTIRMA MAKALESİ / RESEARCH ARTICLE

THE EFFECT OF COVID-19 ON THE INSURANCE SECTOR OF EMERGING MARKET COUNTRIES

COVID-19'UN GELİŞMEKTE OLAN ÜLKELERİN SİGORTA SEKTÖRÜ ÜZERİNDEKİ ETKİSİ

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Abstract

The fear and uncertainty that arose during the COVID-19 pandemic caused an increase in volatility in financial and commodity markets. This study is conducted to show the impact of the number of COVID-19 cases on the insurance sector of developing countries. In the period between the first case dates and March 23, 2021, the relationship between the increase in the number of cases and the increase in the insurance sector index or company return is examined in the selected countries. According to the results, a negative relationship is revealed in all countries except Greece and Hungary, which is not significant.

Keywords: Insurance Industry, Time Series Analysis, Financial Performance, COVID-19, Emerging Countries
JEL Classification: C22, L10, G22

Öz

COVID-19 salgını sırasında ortaya çıkan korku ve belirsizlik, finans ve emtia piyasalarında oynaklığın artmasına neden olmuştur. Bu çalışma, COVID-19 vaka sayısının gelişmekte olan ülkelerin sigorta sektörü üzerindeki etkisini göstermek amacıyla gerçekleştirilmiştir. İlk vaka tarihleri ile 23 Mart 2021 arasındaki dönemde, seçili ülkelerdeki vaka sayısındaki artış ile sigorta sektörü endeksi veya şirket getirisi arasındaki ilişki incelenmiştir. Sonuçlara göre Yunanistan ve Macaristan dışındaki tüm ülkelerde negatif bir ilişki ortaya çıkmıştır.

Anahtar Kelimeler: Sigorta Sektörü, Zaman Serisi Analizi, Finansal Performans, COVID-19, Gelişmekte Olan Ülkeler
JEL Sınıflandırması: C22, L10, G22

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1. Introduction

The New Coronavirus Disease (COVID-19) is a virus that was initially found on January 13, 2020, as a result of research undertaken in a group of patients in Wuhan Province who had respiratory symptoms (shortness of breath, cough, fever) in late December. Those working in the seafood and livestock markets in this area were the first to be affected by the outbreak. Later, it spread from person to person and in many cities in Hubei province, particularly Wuhan, as well as other provinces of China and other nations (World Health Organization, 2021).

On January 30, 2020, World Health Organization (WHO) declared the coronavirus a Public Health Emergency of International Importance (MacKinnon et al., 2020). By this time, the epidemic has increased between 100 and 200 times (The Associated Press, 2020). On January 31, 2020, Italy confirmed its first two cases, which were tourists from China (Severgnini, 2020). It was reported by WHO on 13 March 2020 that Europe has become the epicenter of the coronavirus crisis (Fredericks, 2020).

Stock exchanges move up or down with relevant control measures or incentive packages, such as direct financial support or a reduction in interest rates in the aftermath of the COVID-19 pandemic. As an example, The Dow Jones Industrial Index (DJI) had its second-worst day ever on March 16, and three of the US market's 15 worst days ever occurred between March 9 and 16. However, this was also the period of one of the top ten market surges in history (Wagner, 2020). Other international factors contributing to systematic risk escalation are thus contributing to the mobilization of the securities markets with COVID-19 (Ashraf, 2020).

The measures taken by central administrations for COVID-19 can affect stock market returns through two possible main channels. The first channel, the rational channel, is associated with the restructuring of portfolios. The measures of central governments point to the changes in the future economic conditions, so events may occur that affect the cash flow expectations of the companies and thus the stock prices. Sudden portfolio configurations can increase both an asset class and price volatility across asset classes. The second channel, the irrational channel, can appear behaviorally. Such a deterioration in the economic environment can lead to an escape to treasury bills and bonds, which are safe investment tools (Baele et al., 2020).

Coronavirus outbreaks, such as that in Turkey, caused movements affecting the business world and, thus, investments in developing countries (Sharif et al., 2020). Significant events cause significant changes in stock market returns (Zach, 2003). Developing countries, including Turkey, and all other countries are facing the new COVID-19 outbreak these days. This problem may cause a long-term decline in the countries' economies and consequently a recession in the global economy (Nakiboğlu & Işık, 2020).

The COVID-19 pandemic has certain consequences like business close-downs, stops in production, decreases in consumption, and increases in the unemployment rate. Unfortunately, the economic effects of the pandemic are being felt seriously between countries and sectors,

and this situation negatively affects the financial markets. The COVID-19 pandemic did not affect each sector at the same level. While some sectors turn this situation into an opportunity, some sectors come to the point of bankruptcy. This study aims to contribute to the literature by examining the relationship between the insurance industry and the COVID-19 pandemic. Consequently, the purpose of this study is to investigate the relationship between returns of insurance indices or company shares in selected countries and the number of COVID-19 cases.

The second section of the paper summarizes the available literature on the link between the COVID-19 pandemic and financial markets. In the third chapter, the methodology and data utilized are introduced. The association between the number of COVID-19 cases and industrial indices is econometrically examined in the fifth chapter. The study is completed with the conclusion section where the empirical analysis results are evaluated.

2. Literature Review

It is possible to divide the factors affecting stock prices into two as being internal and external. Internal factors include the performance of the company, the change in the structure of the board of directors, the appointment of new management, and the creation of new assets, dividends, earnings, etc. External factors, on the other hand, consist of government policies, economic conditions, investor behavior, market conditions, competition, strikes, lockouts, uncontrolled environmental conditions that directly affect the production of the company, natural disasters, and unexpected situations (Al-Tamimi et al., 2011; Özlen & Ergun, 2012; Sharif et al., 2015). In this context, factors affecting stock prices are also classified as microeconomic and macroeconomic factors. Microeconomic characteristics such as liquidity, profitability, activity, leverage, and stock market performance ratios can all be listed. Exchange rates, inflation rates, money supply, interest rates, GDP, gold, oil, foreign trade balance, industrial output index, crises, and stock price indices are all macroeconomic elements (Mokhova & Zinecker, 2014). These factors affect the value of the exchanges directly or indirectly. In this context, the results of some studies conducted in various countries regarding the effect of COVID-19 on stock market indices and the factors affecting the insurance stock market index are summarized in this section.

Gülhan (2020), in his research on the impact of the COVID-19 pandemic on the BIST100 index, discovered that the COVID-19 death rate, US Dollar to Turkish Lira exchange rate, and the volatility index (VIX) had a long-term link.

Al-Awadhi et al. (2020) investigate whether the COVID-19 virus impacts stock market performance using panel data analysis. The authors prove that the COVID-19 virus adversely affects the stock returns of Chinese capital markets. Furthermore, Zaremba et al. (2020), Okorie and Lin (2021), and Ashraf (2020) note that the global stock market has received strong influence from the COVID-19 outbreak and that there are certain volatility-related impacts.

Haroon and Rizvi (2020) analyze the relationship between news related to the COVID-19 outbreak, financial behavior, and stock market volatility. In the study, the authors emphasize that the COVID-19 epidemic increased uncertainty, causing an increase in price volatility for financial markets, and it is determined that overwhelming panic occurred. Baker et al. (2020) study the impact of the COVID-19 outbreak on the Spanish capital market and highlight the unprecedented strong impact of the epidemic on this market.

Albulescu (2020) investigates the impact of official announcements on new infection and mortality rates on the VIX of financial markets 40 days after the start of international monitoring of COVID-19. The mortality rate positively affects the VIX, although new cases reported in the findings in China and outside China are found to have a mixed effect on financial volatility.

Onali (2020) investigates the changes in transaction volume and volatility expectations by examining the impact of COVID-19 cases and related deaths on the US stock market. As a result, the author finds that changes in the number of cases and deaths in the US and six other countries heavily affected by the COVID-19 crisis have no impact on US stock returns, except for the number of cases reported for China. The number of fatalities recorded in Italy and France has a negative influence on stock returns but a favorable effect on VIX returns, according to vector autoregression (VAR) models.

Şenol and Zeren (2020) investigate the impact of the recent pandemic on global markets in their studies. There is a long-term association between stock markets and COVID-19, according to the research done with the Fourier Cointegration test.

Zeren and Hızarcı (2020) aim to reveal the possible effects of the COVID-19 outbreak, measured by COVID-19 daily deaths and cases, on stock markets by using a cointegration test in their studies. As a result, they show all exchanges examined with total mortality move together in the long term. They state that total cases were in a cointegration relationship with some indices, but not cointegrated with some indices.

Sansa (2020) tests the impact of the novel coronavirus in China and the USA on financial markets with regression analysis. In the study, a positive significant relationship is found between the COVID-19 cases and the prices of stocks traded in the Shanghai index and the New York Dow Jones index. In addition, when the findings of the article of Barut and Kaygın (2020) are examined; there is cointegration between BIST100 (Turkey), FTSE MIB (Italy), and IBEX35 (Spain), AEX (Netherlands), and Shanghai (China) indices and COVID-19 cases. On the other hand, it is determined that there is no cointegration between DAX (Germany), CAC40 (France), BEL20 (Belgium), SMI (Switzerland), FTSE 100 (England), and DOW 30 (USA) and COVID-19 cases. In the light of these findings, although the total number of cases and the total number of deaths is high, cointegration between the stock market indices of Germany, France, Belgium, Italy, Switzerland, and the USA and the total number of cases of COVID-19 is not detected in the period covering the analysis. This result is thought to have emerged due to the strong economic structure of these countries.

Liu et al. (2020) investigate the short-term impact of COVID-19 on 21 key stock market indexes in countries that are heavily affected such as Japan, Singapore, Korea, the USA, Italy, Germany, and the UK. A case study is conducted to investigate the abnormal returns (AR) and cumulative abnormal returns (CAR) of the selected stock indices. The findings of the study show that the stock markets fell rapidly after the COVID-19 outbreak. In addition, it is stated that countries in Asia experienced more negative abnormal returns compared to other countries. Zhang et al. (2020) conduct a correlation analysis of the weekly returns of stock markets and the number of COVID-19 cases in 12 countries. The study results show that the correlation between stock returns and the recent pandemic has increased significantly. In addition, the study reveals that the stock market responses are directly related to the high number of COVID-19 cases in that country.

Alber (2020) investigates whether COVID-19 cases and deaths affect stock returns. Data belonging to 6 countries; namely, China, France, Germany, Italy, Spain, and the USA with the highest number of cumulative cases is utilized in the analysis. According to the results, it has been determined that decreases in stock market returns are more susceptible to COVID-19 cases than deaths. The negative impact of the COVID-19 pandemic on stock returns has only been confirmed for China, France, Germany, and Spain. In a similar study, Ashraf (2020) studies the response of exchanges to the COVID-19 outbreak with the utilization of daily COVID-19 cases, death numbers, and stock returns from 64 countries. As a result of the examination, it is determined that as the number of COVID-19 cases increases, stock market returns decrease. It is also observed that stock markets respond more proactively to the increase in the number of cases compared to the increase in the number of deaths. A similar finding has been detected by Yan (2020) in that the COVID-19 outbreak has caused Chinese stock prices to drop sharply.

There are also studies in the literature examining the impact of the COVID-19 pandemic on Turkish markets. The impact of the COVID-19 outbreak on Borsa Istanbul sector index returns is revealed in the study of Göker et al. (2020). Case studies are conducted using the data belonging to 26 sectors in BIST. As a result of the study, it is observed that most sectors have obtained negative Cumulative Average Extraordinary Return (CAR) in most of the event periods examined, and CAAR values of different sectors are found to be positive in some periods. Although the rates fluctuate depending on the event window, it has been discovered that the Sports, Tourism, and Transportation sectors suffer the most losses.

Öztürk et al. (2020) investigate the impact of the novel coronavirus outbreak in Borsa Istanbul from an industrial perspective. According to the findings of the study, the pandemic has a detrimental influence on practically every industry. The three main sectors, namely, industry, services, and finance, are affected approximately equally on average, with variances at the sector level. Metal goods, manufacturing, sports, tourism, transportation, banking, and insurance are among the most heavily impacted industries. Food, beverage, wholesale, and retail commerce, on the other hand, have been highlighted as less impacted industries.

Tayar et al. (2020) examine the sectoral effects of the COVID-19 pandemic in Turkey. Simple linear regression analysis is performed using the daily change in the number of cases in Turkey and the daily change in the BIST sector indices. As a result of the analysis, it is determined that COVID-19 has significant and negative effects on Electricity, Transportation, Financial, Industrial, and Technology Sectors.

Kılıç (2020) analyzes the effects of the recent global pandemic on data belonging to Borsa Istanbul sector indices using the event study method. As a result of the analysis, it is determined that the COVID-19 outbreak had an overall negative effect on the BIST sector index returns. While it is determined that the textile and tourism sectors are exposed to the highest negative impact, it is concluded that the trade sector demonstrate positive returns during the pandemic period.

3. Data and Methodology

3.1. Data

In this study, the countries of the Morgan Stanley Capital International (MSCI) Emerging Markets Index in the European continent have been selected to determine the indices or the companies to be used in the empirical analysis (MSCI, 2021). Russia is not included in the dataset since there was no insurance company in this country's stock exchange market (MOEX). Five selected countries with their insurance index or company tickers are shown in Table 1 below.

Table 1: Indexes/Companies Included

Country	Ticker of Stock/Index	Explanation
Czech Republic	VIGR.PR	Vienna Insurance Group
Greece	ERErAT	European Reliance General Insurance Co SA
Hungary	CIGP.BU	CIG Pannonia Life Insurance Plc
Poland	PZU.WA, EHG.WA, TLNX.WA, VOT.WA, EUC.WA	A price-weighted index created out of five stocks
Turkey	XSGRT.IS	BIST Insurance Index

The data is time-series and covers the duration between the first COVID-19 case, which can be seen in Table 2 below for each country, and March 23, 2021. The stock or index data are collected from Investing website (see https://www.investing.com); the COVID-19-related data are collected from the official WHO website for COVID-19 (see https://covid19.who.int).

Table 2: Period

Country	The First Case	Time Range (Inclusive)
Czech Republic	2nd of March, 2020	12/03/2020 – 23/03/2021 (386 days)
Greece	27th of February, 2020	27/02/2020 – 23/03/2021 (390 days)
Hungary	5th of March, 2020	06/03/2020 – 23/03/2021 (383 days)
Poland	4th of March, 2020	05/03/2020 – 23/03/2021 (384 days)
Turkey	11th of March, 2020	12/03/2020 – 23/03/2021 (377 days)

3.2. Model and Methodology

To test the effect of COVID-19 cases on the insurance sector of selected countries, a time series analysis can be applied.

The model can be formed as follows:

$$INR_t = \beta_1 COV19_t + \beta_2 VIX_t + \varepsilon_t \ (1) \tag{1}$$

where t denotes the time; INR shows the daily logarithmic return of the insurance index/company for each country; COV19 is the logarithmic increase for daily cases; VIX is the daily logarithmic change in the Chicago Board Options Exchange Volatility Index, which measures the degree of fear in the markets, and ε is the constant term.

Table 3 below shows all variables; namely, dependent, independent, and control variables together with their abbreviations and explanations.

Table 3: Variable Explanations

Variable Name	Abbreviation	Explanation
Insurance Return	INR	Daily insurance index/company logarithmic return
COVID-19 Case Number Increase	COV19	Daily logarithmic increase/decrease in COVID-19 cases
Volatility Index Change	VIX	Daily logarithmic change in Chicago Board Options Exchange Volatility Index

In the first part of the analysis, the stationarity of the variables is examined with the ADF unit root test. Examining the stationarity of variables is essential in choosing the correct methods. Because the stability of the variables being I(0) or I(1) causes the use of different econometric methods. The use of non-stationary series may lead to spurious regression in regression analysis. For this reason, the stationarity of variables is examined in the study. ADF unit root test is based on Dickey-Fuller's (1979) study. The following table shows the unit root test result of countries' insurance sector returns, COVID-19 case, and volatility index. The table below shows that all the variables are stationary at level, rejecting the null hypothesis of the ADF unit-root test.

Table 4: ADF Unit-root Test Results

Variables	Test Statistics at Level
INR – Czech Republic	-20.954***
INR – Greece	-21.135***
INR – Hungary	-17.655***
INR – Poland	-21.887***
INR – Turkey	-20.391***
COV19	-19.315***
VIX	-23.863***

Note: *** shows p<0.01; ** shows p<0.05; * shows p<0.1

The Durbin Watson statistic is a number used to test whether the terms are correlated after a regression model has been estimated (Durbin and Watson, 1950). No autocorrelation exists in the models. After testing the autocorrelation and unit root test, the model has turned out to be suitable for the simple regression (OLS).

4. Empirical Results

The table below shows the relationship between the insurance sector index/company values of the countries included in the study and the number of COVID-19 cases and VIX. The study includes the Czech Republic, Greece, Hungary, Poland, and Turkey. The output results of each country and the statistical results of the model are also given in the table below.

It has been revealed that the insurance industry in the Czech Republic has been negatively affected by the increase in the number of COVID-19 cases at the 10% significance level and the VIX change at the 1% significance level.

It turns out that while the insurance sector in Greece and Hungary is negatively affected by the change in VIX at the 1% level, it is not affected by the change in the number of COVID-19 cases. The coefficient of changes in the number of COVID-19 cases in Greece is found to be negative, while that for Hungary is positive. But neither is significant.

According to the model, the insurance industry in Poland is only negatively affected by the COVID-19 case changes at a 1% significance level and not the change in VIX.

The table shows that the insurance industry index in Turkey is negatively affected by both COVID-19 case changes and VIX changes at a 1% significance level.

Table 5: Empirical Result

Model	Dependent Variable: INR	Coefficient		R-squared (F value)
Czech Republic	COV19	-0.0033796	*	6.92% (0.0000)
	VIX	-0.0573903	***	
	Constant	0.0001824		
Greece	COV19	-0.0023580		11.97% (0.0000)
	VIX	-0.0907225	***	
	Constant	-0.0000668		
Hungary	COV19	0.0034975		2.46% (0.0088)
	VIX	-0.0658485	***	
	Constant	0.0014789		
Poland	COV19	-0.0057861	***	2.21% (0.0142)
	VIX	-0.0052308		
	Constant	0.0000259		
Turkey	COV19	-0.0151316	***	9.04% (0.0000)
	VIX	-0.0345904	***	
	Constant	0.0013796	*	

Note: *** shows p<0.01; ** shows p<0.05; * shows p<0.1

When comparing the countries with each other, it has been revealed that the country most affected by the change in the number of COVID-19 cases is Turkey. It has been shown that the least affected is the Czech Republic. There are no significant results in Greece and Hungary.

In the VIX changes, the table shows that Greece is the most affected and Turkey is the least affected country. Only in Poland, no significant result is detected.

5. Conclusion

Pandemics have consequences that affect the economy and social life in various ways. Apart from the economic depression they have created, they can create fear in people and cause individuals to exhibit abnormal behaviors in many respects. With the worldwide rapid spread of the new type of coronavirus, which emerged in China at the end of December 2019, the number of cases increased to over one million and the number of deaths rose to over one hundred thousand in a short time. Prohibitions related to the virus have also started to be put in a very short time by the states. The bans had a very rapid effect on the economies of the countries and in general, contractions began to be experienced in many sectors. There were also traumatic declines in financial markets. Even in the world's largest stock exchanges, the declines exceeded 10%.

While the crises generally affect the country's economies and financial markets, they may have positive results for some sectors. For this reason, the indices of these sectors may move in the

opposite direction of the market index in various markets. However, the insurance sector, which is investigated in this study, is found to be badly affected by the number of COVID-19 cases. Accordingly, in this study, the effect of coronavirus on the insurance sector indices of European countries included in the MSCI is analyzed by the time series regression method. In the analysis, which is conducted for the period starting from the day of the first case to March 23, 2021, in the selected countries, a negative effect on the number of cases is found, except for Greece and Hungary, which are not significant. Considering the coefficients, it is seen that Turkey is the most affected country.

Political interventions are needed to constrain the virus and regulate stock markets; however, unconventional policy interventions such as unlimited monetary expansion by countries create more uncertainty and may cause long-term problems. In addition, countries are unable to act together to meet these challenges, as markets in the group of countries studied here respond differently to policies at the national level and the overall evolution of the pandemic.

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