The Effects Of Gezi Park Protests On Turkey's Credit Default Swaps (CDS)

Musa GÜN
Recep Tayyip Erdoğan
University
Faculty of Economics and
Administrative Sciences,
Department of Business,
Rize, Turkey
musa.gun@erdogan.edu.tr

Melih KUTLU
Recep Tayyip Erdoğan
University
Faculty of Economics and
Administrative Sciences,
Department of Business,
Rize, Turkey
melih.kutlu@erdogan.edu.tr

Osman KARAMUSTAFA
Recep Tayyip Erdoğan
University
Faculty of Economics and
Administrative Sciences,
Department of Business,
Rize, Turkey
okaramustafa@erdogan.edu.tr

Extensive Summary

1. Introduction

Credit risk is the probability of counterparty's inability to fulfill obligations arisen from the contract. Credit risk has three features including the exposure (the occurrence of an unfavorable change), the inadequacy of fulfillment the contract commitments and recovery. On the other hand, credit derivatives are the securities, which facilitate the credit management of banks, financial institutions, and debt owners. The derivatives provide protection and insurance against the borrowers' negative behaviors. For instance, in the case of nonpayment of the debts by borrower losses on investments will occur and these losses can be compensated by credit derivatives. Banks and investors prefer credit derivatives to insurance market because of lower transaction costs, faster payments and more liquid characteristics of the derivatives. Then, credit derivatives became supplementary to the securitization markets.

Credit Default Swaps are basic insurance instruments that eliminate the default risks (credit risks) of receivables at the maturity arisen from the portfolios containing instruments such as bonds. Today, besides insurance process CDS is used as an indicator describing the country risks. In addition to this, it can be said that CDS would be substituted for rating scores of credit rating agencies. In this study, it has been analyzed that whether Gezi Park protests, taking place in 2013, have a statistically significant impact on credit default swap spreads of Turkey or not.

2. Data

The year 2010 was chosen as the beginning of the data set because 2008 mortgage crisis affected the world financial markets and its consequences lasted until 2010. In our study, 1,294 daily frequency data between 4th January 2010 and 23rd February 2015 are used. Data were obtained from the Central Bank of the Republic of Turkey. The data used in this study are:

- Turkish 5-year CDS spreads (CDS)
- Turkish Eurobond interest rate with 2030 maturity (EBOND30)
- Active domestic bond interest rate in Turkey (BOND_RATE)
- Istanbul Stock Exchange 100 Index volatility (XU100_VOLATILITY)
- Currency basket (50 % U.S. dollar, 50 % Euro) (EXCHANGE)
- Dummy variable (DUMMY)

We used dummy variable in order to test the effects of Taksim Gezi Park protests on Turkey's credit risk. The dummy variable takes the value of "1" between the dates 27 May 2013 and 2 July 2013, which are the beginning of the protests and Istanbul 6th Administrative Court refusal of the Ministry of Culture and Tourism objection in order to adopt the establishment Artillery Barracks for stay of execution, and takes the value of "0" on other dates.

3. Methodology

In the study, vector autoregressive model (VAR) was used in order to avoid the complexity resulting from the interaction in the economic analysis. Vector autoregressive model is a flexible model which can be applied in the analysis of multivariate time series. VAR models are used to describe and predict the dynamic behavior of the time series.

A VAR model is a set of k number of time-series regressions, which generate the explanatory variables of k number of lagged values of all variables. VAR model extends the single-variable auto regression to a list or vector of time series variables.

3.1. Unit Root Tests

The Dickey-Fuller (1979-1981) test is the pioneering test that investigates the presence of unit root in time series and the most widely accepted in literature. Dickey and Fuller (1979, 1981) unit root tests assume that error terms are independent and identically distributed. However, since this situation is not actually valid in most of the time, the lagged values of the dependent variable are added to the model in order to eliminate serial correlation if the serial correlation in error terms is different from zero. In this case, this new test is called as Augmented Dickey-Fuller (ADF) unit root test. In addition, Phillips and Perron (1988) in their studies added a correction factor to the Dickey-Fuller tests. In our study, we applied Augmented Dickey-Fuller (ADF) and Philips-Perron test to investigate unit root. The lag length criteria are determined by use of Schwarz Information Criterion (SC).

3.2. Determination of Lag Length

The lag length of the series become stationary after first differences taken should be determined for the further analysis. The optimal lag length criteria have been identified by the use of LR (Likelihood), FPE (Final Prediction Error), AIC (Akaike Information Criterion), SC (Schwarz Information Criterion) and HQ (Hannan-Quinn Information Criterion).

3.3. Cointegration Test

Cointegration is a linear combination of non-stationary variables and reflects the long-term relationship between variables. Johansen and Juselius (1990) have identified the presence of cointegrated vectors using maximum likelihood estimation method. In our study, this method is used.

3.4. Granger Causality Analysis

Granger Causality tests are applied in order to determine whether the variables in the system interact with each other or not and to create the basis of VAR model. The standard Granger Causality test first proposed and developed by Granger in 1969 is a general approach to determine whether there is a causal relationship between two variables or not and to define the direction of this relationship if it exists. Granger Causality model tests whether the independent variables in the system are equal to zero or not as a group.

3.5. Variance Decomposition

Variance decomposition assesses the variation in one of the endogenous variables as separate shocks which affect all variables. In this regard, variance decomposition analysis provides information about dynamic nature of the system. The purpose of variance decomposition is to estimate the impact of each random shock on the prediction error variance for next periods. Impulse-response functions reflect the impacts of one standard deviations shock in random error terms on current and future values of endogenous variables (Özgen and Güloğlu, 2004).

3.6. Impulse-Response Analysis

Impulse-response functions are applied to determine the dynamic interactions between the variables used in VAR analysis. When a unit of shock is applied to a variable in the model, responses of this variable and other variables to the variation are observed by impulse-response functions.

4. Findings

Cointegration test results show that there is a co-integration relationship between CDS, Eurobond interest rate, bond interest rate, currency basket, and BIST 100 Index volatility variables included in the analysis which also implies that the series move together in the long term.

Granger Causality test findings indicate that the dummy variable in the model representing Gezi Park protests has impacts on CDS, bond interests, Turkish Eurobonds traded in international markets with 2030 maturity and BIST100 Index volatility. The CDS variable affected by the Gezi Park protests at the same time affects the currency basket. Similarly, Eurobond interest rates, index volatility and bond interest rates affected by the volatility of CDS spreads has an impact on currency basket. It is found out that there are one-way and two-way interactions between variables.

Granger Causality tests give information about the direction of relationships between variables, and variance decomposition and impulse-response analysis investigates the degree of these relationships. According to the variance decomposition results, approximately 89 percent of the variation in CDS variable is explained by the

variable itself. The variables explain the exchange rate best except the variable itself are the bond interest rate and CDS variables respectively.

Another result obtained from the VAR model is the impulse-response analysis. According to the impulse-response results, there is a significant impact of the dummy variable on the other variables. It is seen that the largest effects of the Gezi Park events are on the Eurobond interest rates, bond interest rates, and CDS spreads respectively. When the system is shocked by a one-standard-deviation shock Eurobond interest rates, bond interest rates and CDS spreads respond to a sudden rise in the first three days, this reaction continues until the 7th day and then decreases.

5. Conclusion

It is seen that there have been various effects of social events occurring in countries around the world and political processes on the cyclical fluctuations in the financial markets. In this study, Gezi Park events, which took place in the year 2013, are modeled as a dummy variable in order to find a response to the question of how the social and political events could influence the country risk of Turkey. It is aimed to detect significant relationships between these events and Turkish 5-year CDS spreads. As a conclusion, a significant relationship between Istanbul Stock Exchange volatility, Eurobond interest rates, exchange rates and bond interest rates is found and, therefore, it could be said that political and social events affect the Turkey's country risk.