

**THE EFFECT OF GLOBAL RISK INDICATORS
ON DEVELOPING COUNTRY STOCK
EXCHANGES: THE CASE OF BRICS-T**

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Master's Thesis

Advisor: Assoc. Prof. Dr. Ender BAYKUT

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AFYON KOCATEPE UNIVERSITY
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MANAGEMENT (ENGLISH) DEPARTMENT
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CASE OF BRICS-T**

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TEXT OF THE OATH

The work I presented as my master's thesis titled “**The Effect of Global Risk Indicators on Developing Country Stock Exchanges: The Case of BRICS-T**” was written by me without any help contrary to scientific ethics and traditions, and the works I have utilized consist of the works shown in the References. I state that I have benefited by referring and I confirm this with honor.

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MÜDÜR

ÖZET

KÜRESEL RİSK GÖSTERGELERİNİN GELİŞMEKTE OLAN ÜLKE BORSALARI ÜZERİNE ETKİSİ: BRICS-T ÖRNEĞİ

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Küresel risk faktörleri ülkelerin ekonomilerine büyük etkiler vermektedir. Özellikle küresel kriz zamanlarında küreselleşme nedeniyle ülke borsalarının etkilendiği görülmektedir. Küresel risk faktörlerini en aza indirebilmek amacıyla CDS, VIX ve Kredi derecelendirme kuruluşları son zamanlarda incelenmeye başladığı görülmüştür. Çalışmada küresel risk göstergeleri olan CDS, VIX ve Kredi derecelendirme kuruluşları BRICS-T (Brezilya, Rusya, Hindistan, Çin, Güney Afrika ve Türkiye) ülkelerinin borsalarına olan etkilerini araştırmak amaçlanmıştır. Analiz yapılırken BRICS-T ülkeleri için 2008-2020 yılları arasındaki veriler incelenmiştir. Hindistan için verilere ulaşımından kaynaklı olarak 2015-2020 yılları arasındaki veriler incelenmiştir. Analizde ARDL/Sınır Testi ve ADF Birim Kök Testleri kullanılmıştır. BRICS-T ülkelerinin küresel etkilerinin CDS, VIX ve Borsa endekslerine bakılarak sonuca ulaşılmaya çalışılmıştır. BRICS-T ülkeleri arasında incelemeler yapıldığı zaman Çin için uzun dönem ilişkisinin olmadığı görülmüştür. Brezilya, Hindistan, Güney Afrika, Rusya ve Türkiye için uzun dönem ilişkisi bulunmuştur. Aynı zamanda çalışmanın amacına uygun olarak küresel risk göstergelerinin hem birbirleri üzerinde etkisinin olduğu ve BRICS-T ülke borsalarına da etkisinin olduğu analiz sonucunda tespit edilmiştir.

Anahtar Kelimeler: Küresel Risk, CDS, VIX, Kredi Derecelendirme Kuruluşları, BRICS-T

ABSTRACT

THE EFFECT OF GLOBAL RISK INDICATORS ON DEVELOPING COUNTRY STOCK EXCHANGES: THE CASE OF BRICS-T

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Global risk factors have great effects on the economies of countries. It is observed that the stock markets of countries are affected by globalization especially in times of global crisis. It has been observed that CDS, VIX and Credit rating agencies have started to be examined recently in order to decrease global risk factors. CDS is a global risk indicators in this study, the VIX and credit rating agencies BRICS-T (Brazil, Russia, India, China, South Africa and Turkey) aimed to investigate the effects of the stock market of the country. During the analysis, the data between the years 2008-2020 for the BRICS-T countries were examined. Due to the access to data for India, the data between 2015-2020 were analyzed. ARDL / Bound Test and ADF Unit Root Tests were used in the analysis. It has been tried to reach the conclusion by looking at CDS, VIX and Stock Exchange indices of the global effects of BRICS-T countries. When examinations were made among BRICS-T countries, it was seen that there was no long-term relationship for China. Brazil, India, South Africa, Russia and Turkey long-term relationship was found. At the same time, in accordance with the purpose of the study, it was determined as a result of the analysis that global risk indicators have an effect on each other and also on BRICS-T country stock markets.

Keywords: Global Risk, CDS, VIX, Credit Rating, BRICS-T

PREFACE

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SYMBOLS AND ABBREVIATIONS LIST

ABS – Asset Backed Securities
ADF – Augmented Dickey-Fuller Test
AIC – Akaike Information Character
ARDL- Autoregressive Distributed Lag Bound Test
ASW- Asset Swap Spreads
BRICS – Brasil- Russia- India- China- South Africa
BRSA- Banking Regulation and Supervision Agency
CBOE- Chicago Board Options Exchange
CDOS – Collateralized Debt Obligations
CDS – Credit Default Swap
CESR- Committee of European Securities Regulators
CMB- Capital Markets Board
CRA – Credit Rating Agencies
CSSD – Cross- Sectional Standard Deviation
DAX – Deutscher Aktienindex (German Unified Stock Exchange Index)
ECM- Unrestricted Error Correction Model
EMBI - Emerging Markets Bond Index
EU – European Union
FED – Central Bank Of America
GDP- Gross Domestic Product
GED – Generalized Error Distribution
GFC – Global Financial Crisis
GFSI – Global Financial Stress Index
GIIPS – Greece-Italy- Ireland- Portugal- Spain
GRAI – Global Risk Appetite Index
HEL5 – House Equity Credit
HHI – Herfindahl-Hirschman Index
HQ – Hannan-Quinn Information Criterion
ISDA- International Swaps and Derivatives Association
IOSCO- International Organization of Securities Commissions
ISI – Investor Sentiment Index
KPSS – Kwiatkowski, Phillips, Schmidt And Shin
LCVI – Liquidity Credit And Volatility Index
LR – Likelihood Ratio
MOVE – Merrill Option Volatility Expectations Index
MSCI- Morgan Stanley Capital International Index
NRSRO – Statistical Rating Organization
PP – Phillips-Perron Unit Root Test
RAI – Risk Appetite Index
ROA – Return On Assets
ROI – Return on Investment
S&P – Standard & Poor's
SC- Schwarz
SEC- Securities and Exchange Commission
USA – United States of America
VEC MODEL – Vector Autoregression Model
VIX – Volatility Index
ZV– Zero Volatility

INTRODUCTION

In the world of all countries are affected by global risk factors and leave deep marks on their stock markets and economies. Especially risk factors increase in times of crisis. Therefore, it is important to anticipate risk factors and minimize the risk. Risk is a factor that can occur now and later and can do great damage. In the thesis, it is aimed to determine the effects of global risk factors on the developing BRICS-T (Brazil, Russia, India, China, South Africa and Turkey) country stock markets. Risk factors, especially before and after the 2008 global crisis, many crises occurred. At the same time, it can be seen that its effects are great. It has been observed that the effects of some global crises continue for years. However, it is seen that the effects on countries increased after the 2008 global crisis. It is seen that global crises have left many credit, financial, operational and strategic damages on developing and developed countries. Even if the crisis starts in a country, it can affect the all world. Therefore, risk management must be managed correctly in order to minimize the impact of crises. In the crises from the past to the present, great tracks were left in the economies of the country when the crises could not be detected in advance. Risk factors are analyzed in order to minimize and predict the risks of these crises. First of all, the risk should be at the lowest level for investors. It is seen as a very important situation for investors to make the right investment. The lower the risk, the more return investors get.

Risk management in the becomes easier to minimize the effects by minimizing the losses. At the same time, systematic and unsystematic risks can be encountered in risk types. On the other hand, risks affect the CDS, VIX and credit ratings. It is thought to affect each other as well as global risk effects. CDSs create an important place for investors. Because the investors do not predict a situation such as non-payment when the maturity of their financial instruments the investors hold. Among the risks, it can be said as the most preferred method because it contains the least risk. It can also be said as replacing countries' own credit risk with another country. Credit rating notes can be said as the numerical evaluation of the credit ratings of the countries. A decision can be made by looking at the credit rating notes in order to understand a country's investment-note situation. The VIX index is not calculated separately for countries and is evaluated on a grade. The VIX index can be said to be the most striking issue recently. The VIX index is known as the fear index. At the same time, the VIX index shows short-term changes. The VIX index is used to detect volatility or how fast prices change. At the

same time, the VIX index is seen as a way of measuring market sentiment, and especially the degree of fear among market participants. When the research is done, it is seen that many studies have been done on CDS and credit rating scores in many studies. On the other hand, as the most striking issue, the VIX index, which is the subject of acceleration in researches, is of great importance. ARDL, Granger Causality, ADF and PP tests are the most used methods when working on CDS, VIX and stock market indices. The aim of this study is to examine the effects of global effects on CDS, VIX and stock market indices by considering risk factors. At the same time, it is aimed to look at the long-term effects of BRICS-T (Brazil, Russia, India, China, South Africa and Turkey) countries thanks to the methods used.

The aim of this thesis is to determine what the effects of global risk factors, which are examined and examined, on the country's stock markets and how they affect them. At the same time, it is aimed to complete the deficiencies of the studies on BRICS-T countries.

In the thesis consists of three parts. In the first part of the study, information is given about methodologies related to risk, CDS, Credit default swap and VIX index. At the same time, it is aimed to give information about risk types and risk management. It can be said that non-systematic risks are the subject that affects the study the most among the risk types. At the same time, it is aimed to give detailed information about CDS, credit risk swaps and VIX indices in this part of the study.

In the second part of the thesis, studies on credit risk swaps, CDS and VIX indices were examined and a literature study was conducted. It has been tried to determine how the studies were conducted on the previously studied subjects and which methods were used. At the same time, in the light of the studies, it is seen that a lot of studies have been carried out on CDS and Credit rating issues and generally, studies have been conducted on developing countries. The effect of credit ratings on stock markets in developing countries has been analyzed. The credit rating plants an important role everywhere. At the same time, credit rating notes can be said as the most preferred method for countries, investors and companies. The right choices can be determined by informing the people who will invest, along with the credit rating notes. In the studies on the effect of the VIX index on the stock markets of developing countries have been examined in the literature. When the literature is examined in the study, it has been seen that there are not many studies about the VIX index. The VIX index seems to have increased in recent times. At the same time, it is thought that the

VIX index, the fear index, can shed light on the stock markets for the future. On the other hand, studies comparing the stock markets of developing countries were examined. In the studies carried out in this part of the literature study, it has been determined that the exchange rates and credit swaps of the countries are also examined in CDS. At the seen of the studies, it is seen that the effects of CDSs. It can be said that especially CDSs minimize the risk in the stock markets of developing countries.

In the last part of the thesis, an analysis of BRICS-T (Brazil, Russia, India, China, South Africa and Turkey) countries is carried out. While conducting the analysis, it is aimed to find out how the effects of global risk factors affect indices. It is aimed to give information about the methodologies of the methods to be used in analysis. On the other hand, it is aimed to reach more accurate results by using ADF, Granger causality and ARDL / Bound Test in the analysis part of the study. In the BRICS-T (Brazil, Russia, India, China, South Africa and Turkey) countries, data between 2008 to 2020 will analyzing be analyzed and 12 years analyzed. While making analysis for BRICS-T countries, it is aimed to make separate examinations for countries. It is aimed to reach a conclusion about the analysis results obtained. While investigating for BRICS-T countries, ARDL/Bound Test and ADF test methods were used in the study as in the literature. ARDL Bound test is a co-integration test showing that at least two non-stationary series are stationary. ARDL /Bound test can be said as a model aiming to find long and short term causality relationships. On the other hand, for the cointegration test in ARDL/Bound test, as in other cointegration tests, the series examined in the cointegration relationship between them are not considered to be stationary to the same degree. In order to determine whether BRICS-T countries are stationary and their unit roots, ADF unit root test was applied. In the light of the results obtained in the study, ARDL/Bound Test was used as a result of the ADF unit root test.

FIRST PART

RISK, CREDIT RATING, CREDIT DEFAULT SWAP AND VIX INDEX

In this part of the thesis, a study has been done on risk, credit ratings, credit default swaps (CDS) and VIX index. The subjects were examined one by one and tried to be explained. First, information about the risk is given. Definition of risk, risk management and risk types are mentioned. Then, information about the Credit Ratings is given. The third issue is to explain Credit Default Swaps (CDS). While giving information about CDS, issues such as how it works, types and elements are emphasized. Finally, explanations about the VIX index have been made.

1. RISK

The source of the word risk comes from French. The word risk, originated from French, is actually "hazard". When the dictionary meaning of the word "hazard" is examined, it is defined as the danger of injury (Özbilgin, 2012: 88). Risk can be said as a threat that prevents events that may or may occur in the future. At the same time, risk can prevent situations where goals can be achieved. The risk is seen as the possibility of the situations that may occur instantly or in the future. Risk can achieve opportunities as well as threats. In addition to being considered previously as opposing the negative impact of unexpected events, risk is also seen in time notion evaluated as creating opportunities from negativities with a new perspective over time (Dersnotu, 2013: 1).

Risk is seen until today from the past. While risk was mentioned only as threat and credit in the past, today risk has differed in terms of threat, credit, financial, operational and strategic. Risk can only say that changed in risks and practices from the past to the present. Because of this situation can be said as uncertainty that risk may have different characteristics. Risk, can also be said as it can measure uncertainty for investors or firms. Risk was defined in financial terms of an outcome or the actual gains of an investment from an expected result chance to differ from returns. Otherwise, risk can be defined as the probability of losing some or all of an original investment (Suryawarshi, 2020).

1.1. DEFINITION OF RISK

The definition of the risk was the occurrence or being affected by an event. At the same time, risk can be defined as the occurrence of events that may arise when the risk is directed towards a target and a target, or can cause damage. Risk is the emergence of undesirable situations that may arise in the future at an unexpected time, that is, in the

future. Although the risks are short, we can say that the effects are great. Risk is difficult to detect and measure risk as well as predict it. Risk can be defined in many ways. The definition of risk may differ for each person. Risk is also definable as the possibility of encountering undesirable consequences. Otherwise, the risk is be stated as the difference between the planned situation and the actual (Özdemir, 2005: 3).

Risk is closely related to the concept of probability and uncertainty (Emhan, 2009: 210). In another definition, risk is defined as the probability of loss or a negative outcome in an action (Crone vd., 2013: 1). Risk is also defined as the prevention or damage of events that may arise for the goals of the enterprises and for the processes that achieve the target (Kalyoncu, 2013: 1). Risk is a threat that can negatively affect the organization's ability to achieve goals and successfully pursue its strategies.

Financial risks is denominated the fear of losing firms or individuals in their money or assets. When looking at financial risks, companies or individuals may be lost assets or money while buying and selling. Financially, the risk is be an extraordinary situation. Since the risks could not be determined before, it is seen that they developed out of expectations. Because of this situation, risks may present positive or negative consequences. Financial risk is the probability of positive or negative results of an investment or several factors (Ceylan, 2014). If the financial risk is not managed correctly, businesses facing this risk may go bankrupt (Sayılğan, 1995: 323).

1.2. RISK MANAGEMENT

Risk management can be defined as limiting the negative effects of the risks that a company does not want to endure with the most appropriate risk management techniques and costs for the enterprise and to ensure that it only makes a profit in return for the risks that can be carried (Ünal, 2008: 7).

Risk management is the limitation of the effects of negative developments on the institutions, the management of uncertainties by developing strategies through risk assessment. For strategies, transferring the risk to another segment can be in the form of risk aversion, mitigating the negative effects of the risk, and accepting some of the consequences of the risks. For financial risk management, has been said as managing risks through the exchange of financial instruments (Durak, 2009: 4).

Financial risk management involves a dynamic process of constantly reviewing the decision made and taking new measures, as a result of the association of many financial indicators with their special situations in enterprises (Sayılğan, 1995: 325).

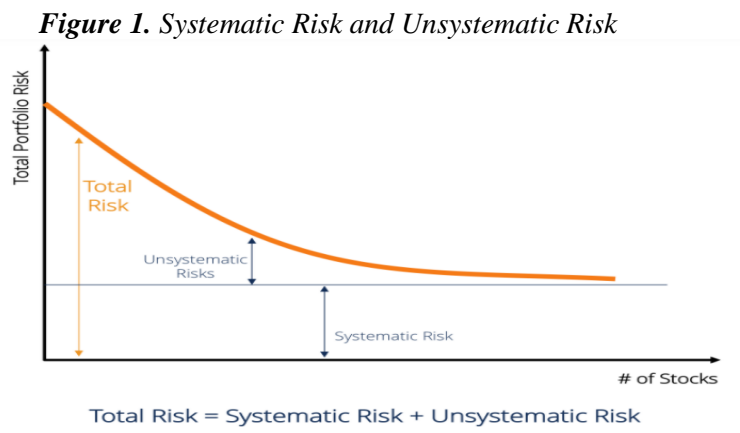
When risk management is not directed correctly, bad results can occur. Risk management aims to minimize risks as the purpose. At the same time, risk management aims to facilitate its effective operation as well as. Risk management is a method by which risks that may occur in companies can be carefully identified in advance and risks can be minimized or eliminated completely. In risk management, financial instruments formed for measuring and managing risks are used in determining the financial risks that occur in the enterprises. At the same time, it has all of the studies conducted by investigating the problems of financial instruments used in risk management. For risk management conversely, can be said as quantifying the risks that occur in abstract concepts of basic functions. Otherwise, risk management can be said as taking measures consciously to reduce the situation that may loss the uncertainty that may occur in the future or to strengthen our interest. Although the techniques used in risk management are generally related to the future, it can be said that they may pose risk, although they have been implemented in incorrect estimation and evaluations as well as risk liberation.

The risk management processes more correct results can be achieved by passing through certain parts. The risk management should be defined first in risk management processes. Once the risk is identified is used in the first stage of risk management. First of all, the reason and factors of risk are examined. Risk management several factors can be sources when defining risks. These resources can pose risks in various ways. Calculations can be seen as another risk management process. For risk management, it is necessary to calculate the risk after the definition has been created. As a result of the risk calculation, it becomes easier to arrive the amount of the risk, the importance of the risk. As a result of risk calculations, the frequency and severity of the risk can be easily reached. When the risks are calculated, statements can be made about the severity of the risks according to certain categories. For example, as a result of the calculations, it can be seen that some risks may lead to bankruptcy, while some risks may only cause less damage. Otherwise, a selection can be made by looking at new risk regulation tools. Deciding on the technique to be used for the risk management process is a difficult situation. It is seen that the decisions made regarding risk management may differ for organizations. It would be more correct to choose the most appropriate method at this step. Alternative method will be implemented according to the method chosen. The process of risk management increases risk-related safety. Finally, it is necessary to determine whether the methods selected and implemented are correct and their safety.

Evaluation and control are the most important reasons for the risk method. These reasons are considered important because they are not in the flow of risks and are variable. The risk management can increase risks or reveal new risks. It can be thought that the full implementation of risk management processes can produce more accurate results.

1.3. TYPES OF RISK

The concept of risk is "unexpected events or the possibility of some effects happening". Otherwise, it can be accepted as the expected return from the investments made in securities and the actual return (Yıldırım & Kantar, 2018: 215). Risk factors are said as uncertainty and exposure to uncertainty. Uncertainties and risk concepts for financial markets are confused with each other (Gümüş, 2018: 3). The purpose of investments in assets is not to concentrate, but to distribute to different assets for investments. It can create risk in investments made in these assets.



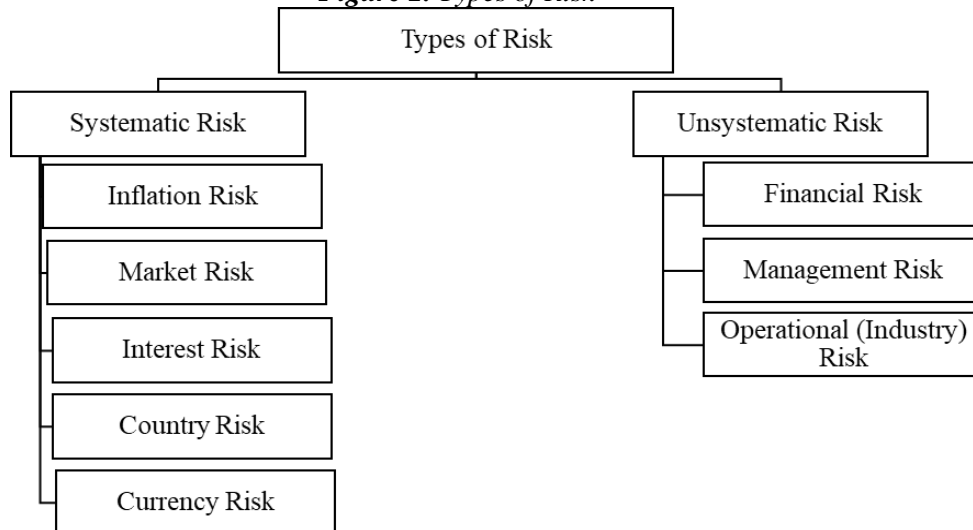
Source: Corporate Finance Institute, (2020)

As seen in Figure 1, systematic risk is shown with a line parallel to the horizontal axis. This means that no matter how diverse the portfolio is, this risk will remain the same. But, systematic risk is not always fixed. For some portfolios created, the level of risk in question may occur at a lower or higher level. There is a systematic risk for every portfolio. However, depending on the type of portfolio, its level may vary. Non-systematic risk can be considered with good diversification. In a well-diversified portfolio, risk that cannot be systematically can be systematically reduced to the risk level. However, buying too much securities in a portfolio causes the marginal benefit to decrease after a certain point. It was thought that diversification could be considered sufficient and the risk could be reduced to a systematic risk level (Korkmaz vd., 2013: 21). Total risk is formed by the combination of systematic risk and nonsystematic risk.

Systematic risk shows the sensitivity of securities values to total risk and systematic risk. Non-systematic risks otherwise, refer to unsystematic risks as well as unique security values.

Types of risk has too many classifications. Although these distinctions are many, are firstly group under two main headings. Types of risk generally retain many aspects that include investment, such as credit risks, loan rates, credit swaps, stocks and bonds. Risks usually arise due to economic, politic and financial conditions. At the same time, risks are affected by the rise and fall in the markets. Risks are divided into two first. Systematic risks and unsystematic risks. It can be said that by diversifying systematic risks properly, unsystematic risks can be reduced.

Figure 2. Types of Risk



Source: Usta & Demireli, (2010: 27)

Systematic risk, also defined as market risk, is the risk class carried by the market and affected by all financial assets traded in the market. Market risk refers to a pose hazard by economic, political, natural disasters and social conditions that arise outside of the financial asset and affect the return of the financial asset. Systematic risk can also be defined as the risk that cannot be eliminated by diversifying the portfolio (Korkmaz vd., 2013: 22).

Systematic risk as a whole reflects some of the price movements of an asset resulting from changes in the market. Also, systematic risks cannot be diversified (Hotvedt & Tedder, 1978: 135).

Systematic risk arises from the impact of external factors on an organization. Such factors cannot normally be controlled from an organization's perspective. It is a

macro in nature since it affects many organizations operating under a similar view or the same name (Akrani, 2012: 1).

Investors often try not to be much affected by risks by diversifying among securities. However, systematic risks cannot avoid this risk as they affect the entire economy and financial markets even if investors go for a variety of securities (Yıldırım & Kantar, 2018: 216).

Systematic risks refer to the risk found in all markets. Systematic risks affect the entire market, not a particular stock or industry. Systematic risks can also be said to be volatility, market risk and non-diversifiable risks. Systematic risks cannot be predicted. Only systematic risks can be avoided in various ways. Or it is necessary to use the right strategies by systematically reducing the impact of risks. Systematic risks also affect the entire economy and are incurable risks for business management.

Unsystematic risk is a type of risk that does not affect all securities and has a limited effect. Unsystematic risks arise from the characteristics of the financial structure of the enterprise, the success of the managers and the characteristics of the industry (Büker vd., 1997: 69).

Unsystematic risks can be said as a measure that occurs in the independent part variance of the rate of return (Topak, 2010: 101).

Unsystematic risks are the risks that each business faces due to its own characteristics. Business management can interfere with such risks (Sayılğan, 2003: 340).

Unsystematic risk is called diversifiable risk, as it can be reduced with the help of diversification, that is in other words investing in the shares of various companies rather than investing in the company's shares (Chan, 2020: 8).

Unsystematic risks can be said as the risks posed by companies outside of systematic risks. Unsystematic risks may arise by firms or by industries affecting firms. Unsystematic risks arise as a result of the risks in companies. Unsystematic risks often arise from events for which they are not prepared and that disturb the normal order of companies. At the same time, it can be said that zero in the correlations formed with each other for the return rates of the financial assets formed in a diversified portfolio also means that the systematic risks are zero. Nonsystematic risks are divided into financial risk, business (industry) risk and management risk.

1.3.1. Inflation Risk:

Inflation risk is the persistent and currently increase in the general price level. Inflation can be said that the constant increases in prices along with inflation are the biggest and most hidden costs. Investors who want to invest in securities have expectations from their returns. Inflation risk arises because the expected returns from investment become uncertain with inflation.

1.3.2. Market Risk:

Market risk can be defined as the tendency of securities prices to act together. The fluctuations in the markets can be said as the loss in the accounts that occur with the fluctuations in exchange rates, interest rates and stock prices, which occur outside the investors (Taştemel, 2020: 39).

Market risk can also be said as the inability to detect future situations. This situation creates uncertainty in the markets. It is observed that the market risk generally arises due to reasons such as risk in stocks and currency risk.

1.3.3. Interest Risk:

Interest rate risk is at the heart of all silos of truly integrated risk management: credit risk, market risk, asset and liability management, liquidity risk, performance measurement and even operational risk (Deventer vd., 2013: 43).

Fluctuations in interest rates pose a risk. It does not significantly affect the asset / liability and net income position of the financial institution for the variables that occur in interest rates risk. Interest rates are changes and the increase in integration in financial markets that may occur around the world, interest rate risk measurement and management have become key problems for financial institution managers (Ders TÜBA Açık, 2020: 1).

Interest rate risk can be said to result from changes in interest rates in the markets. Interest rate risk is the risks caused by the mismatch between investment and credit maturities in transactions made for money market.

1.3.4. Currency Risk:

Currency risk can also be defined as the possibility of companies to damaged a loss in their foreign exchange positions due to changes in foreign currency and parities (Çevik, 2019: 7).

While calculating the capital needs in currency risk, the volatility that occurs in the currency rate calculated by the banks can also cause changes in foreign exchange

prices on the assets and liabilities sides of the balance sheets (Altıkulaç & Arıcan, 2019: 42).

Exchange rate risk is also referred to as currency risk. Currency risk is the financial risks that arise in financial transactions for a currency other than local currencies. It is the risk of negative changes between exchange rates that occur before the transaction time expires. Currency risk is the uncertainty caused by the changes in foreign currencies. Currency risk arises due to the fluctuations in foreign exchange rates and changes in foreign exchange values. While calculating currency risks, the risks that the type of exchange rates may have play an important role.

1.3.5. Country Risk:

In international credit transactions, it is the risk of failing to fulfill the obligation partially or completely on time due to the economic, social and political structure of the country in which the person or institution operates (Aygül, 2008: 5).

Country risk is a risk that arises from investments and financing in the country. Country risk occurs when it affects the economy due to the reasons that occur in the country. In order to find the country risk, it is necessary to look at the average investment risk. At the same time, it is necessary to look at the political, economic and social factors of the country to measure country risk.

1.3.6. Financial Risk:

Financial risk is the decrease in the solvency of the business. The risk factor arises depending on whether the firm finances its activities with equity or foreign resources. In other words, financial risk is the danger that firm revenues lose their continuity as a result of borrowing and fall below the level of income that will make the interest and dividend payments by not being able to keep up with a special or general change in environmental conditions, especially economic (Usta & Demireli, 2010: 28).

Financial risk is also known as credit risk. It arises due to differences in the capital structure of an organization (Ajibade & Oyedokun, 2018: 187).

Financial risks are the possibility of loss of money in investment and business ventures. Financial risk can be argued that financial risks could mean that governments are unable to control monetary policy and cannot default on the bond. Financial risks may arise in financial markets due to various macroeconomic forces and changes in market interest rates. Financial risks are risks that can be continuous and ubiquitous. Financial risks arise due to changes in capital structures in organizations. Financial risks

generally arise due to three factors. These factors are funds owned, funds borrowed and accumulated earnings. Financial risks can also be affected by exchange rate risks. On the other hand, recovery rate risk, sovereign risk and clearing risks can also cause financial risks. Even if ways are found to anticipate and protect financial risks, the risks will not decrease. Financial risks generally impede the flow of money in companies and businesses by blocking cash flow. It also hinders growth when financial risk occurs.

1.3.7. Management Risk:

Management risk is the risks that reveal the mistakes of the companies. Management risk is a criterion that is affected by the mistakes made by the businesses and that is not directly affected by investors and businesses. Management risk is the risk that the functions arising in the management of companies may not be entirely fulfilled. The business management is every decision taken, the understanding of management, the determination to implement the decisions will have a positive or negative effect on the development and growth of the business (Usta & Demireli, 2010: 29).

1.3.8. Operational (Industry) Risk:

Operational risks are defined as problematic, incomplete or insufficient in the systems used. Losses may occur in business processes or external factors that are insufficient in operational risks. Operational risks have increased more and more over time and have been turned into forms that cannot be kept under control. With the hardening of the controls, it can also be said as a fraud risk. Operational risks cannot arise willingly. Operational risks usually arise from the mistakes of the people. Operational risks usually arise from the mistakes of the people. Operational risks may vary according to business and sectors. Operational risk can arise for a variety of reasons. These reasons are model risk, person risk, legal risk and political risk. Operational risks arise in unknown or unexpected times different from expectations.

1.3.9. Liquidity Risk:

Liquidity can generally be defined as the cash and cash-like assets owned by a transaction, and it is a vital concept for businesses to meet expected and unexpected liabilities (Gülhan, 2018: 1).

Liquidity risk is one of the important risks encountered in the banking sector and refers to the bank's lack of liquidity to fulfill its obligations. What reveals the liquidity risk is that the depositors do not know when and in what amount they will withdraw their deposits and when and in what amount of money the loan requesters will need. For

this reason, banks must have sufficient amount of usable liquid funds in order to continue their loan activities and investments and to meet the demands of depositors (Çelik & Akarım, 2012: 1).

Liquidity risk is a type of risk that occurs when a business or financial institution cannot meet the short-term debt obligations of an individual investment. Liquidity risk is often faced with tight compliance and stress situations constantly. Liquidity also poses financial risk that situations such as financial assets and securities cannot be quickly bought and sold within a certain period of time. At the same time, it can be said that assets held with liquidity risk cannot be converted into cash.

1.3.10. Credit Risk:

In the most general definition of credit risk, it can be said as the failure of the borrower to repay the loan. It can also be said as the risk of the debtor's failure to repay the principal and interest of the debt. Credit risk is a risk that occurs when any party does not comply with the contract. According to Findeks, it is the possibility that the principal or interests of the loan used by the individuals cannot be paid by the debtor.

Credit risk can be considered as one of the most important risks as it is associated with every active transaction. Banks often discussed the risk management strategy, which includes the principles of risk management processes, including risk identification, monitoring and measurement. The purpose of credit risk management is to ensure the efficiency of business activities and the continuity of the business (Spuchl'akova vd., 2015: 675).

Credit risk is the largest and most common risk of commercial banks, especially in developed markets. Credit risk analysis includes functions for calculating the amounts that will be the basis of risk analysis, provided that calculation methods that can be determined flexibly, based on cash flows related to loans. By comparing these calculated amounts with limit amounts that can be flexibly specified on the basis of desired units, it is possible to measure, analyze and manage the risk situation. Credit risk also includes the weakening of the credibility of the counterparty (Hamzo, 2007: 8).

1.3.10.1. Credit Rating Risk:

Credit rating risk can be defined as the downgrade of the current rating. Credit rating risk are factors that can change the credit rating and costs of real or legal persons. The main reason for the credit rating is that it expresses the power that the state and companies have in their hands. At the same time, credit ratings are followed by credit

rating agencies. Credit rating agencies follow up. Credit rating agencies can intervene whenever they see risk or when needed. When the credit rating declines, it can cause an increase in credit risk. However, in cases where the credit rating increases, it can be said that the credit risk decreases.

Credit rating is also an element that can measure credit risk. Lending institutions can make a decision by examining the credit rating in order to guarantee themselves. When Figure 3 is analyzed, the credit rating table is seen. In this way, the credit risk can be determined easily by determining the ranges of credit rating risks. It can be said that companies and governments that will invest can avoid or minimize the risk by looking at these intervals.

Figure 3. Credit Rating Scoreboard

1-799	Very Risk	
800-1299	Medium Risk	
1300-1499	Low Risk	
1500-1699	Good	
1700-1900	Very Good	

Source: Banka Kredi Notu, (2020)

1.3.10.2. Credit Premium Risk (Spread Risk):

Credit premium risk is said that in other words spread risk. The credit spread shows a risk premium above the risk-free interest rate that occurs when a particular loan position is taken. If the credit rating of the country or the reference asset increases, the credit spread decreases. Credit spread risk shows the financial loss arising from the change in the credit spread (Erdil, 2008: 43). Credit risk premium is the value used to determine the non-repayment risk of a loan and to insure the loan against this risk. Interest is a risk premium that includes the risk of non-repayment of the creditor due to its nature. Credit risk premium, on the other hand, is a systematic translation of this risk into a financial instrument and expressed numerically. The creditor insures the loan made against the possible non-repayment risk of the loan, and the amount determined for this insurance transaction and insurance corresponds to the credit risk premium. This premium is determined by the free market based on financial confidence in a country. Insurers of loans try to determine the risk of non-repayment and the value of the

premium they are willing to buy according to the parameters that constitute financial trust (Wikipedia, 2020). The credit premium risk rating can be considered as a reverse situation. When the credit rating increases, the credit spread increases or if the credit rating decreases, it is accepted that the spread has decreased. Credit premium risks may create risks not only from one side but also from both sides. It may be affected by both exporters and the counterparty. At the same time, credit premium risk may arise from internal and external reasons.

1.3.10.3. Counterparty Risk:

It refers to the risk that the counterparty will not and / or fail to fulfill its obligations arising from the contract, or failure to make the payment as a result of the disruptions in the clearing transactions (Topbaş & Tatlısu, 2012).

Forward products are made in over-the-counter markets through banks. Therefore, while giving prices, banks include the counterparty risk, which has the risk of fulfilling the counterparty's obligations, in the pricing model. Counterparty risk is two-sided in derivative products against credit risk, which is the subject of normal loan agreements. Credit risk for the lending bank: It is considered as the failure of the company using the loan to fulfill its obligations in a timely and complete manner (Sari, 2012).

In counterparty risk, it is the situation where both parties or at least one party cannot be fulfilled by one of the financial or non-financial obligations. Counterparty risks can occur within business transactions, not just for investors or credit. At the same time, counterparty risk and credit risk can be mixed. If any party does not comply with the counterparty risk, its risks can create major problems in the financial markets.

1.3.10.4. Default Risk:

Default risk is the failure to pay the debt. Or, in other words, it can be defined as the risk of not paying the debt or refusing to pay the debt. It also occurs when the principal of the debt or the interest on the loan is not paid or refused. When two conditions are met together or separately, the state of default is mentioned. 1. If the borrower is convinced by the bank that it is likely to be unable to pay its debts to the bank group in full without relinquishment to its collateral, 2. The debtor fails to fulfill its obligation to the bank group, even though 90⁵ days have passed (TBB Working Group, 2006: 41). In order to reduce the risk of default, it should be tried to establish lending

and financing by looking at credit ratings. In this way, the risk of default can be tried to be minimized.

2. CREDIT RATING

Rating is a classification system based on past and present qualitative and quantitative data of companies or individuals, used to predict whether an organization or an individual will be able to fulfill their financial obligations on time (Yazıcı, 2009: 5).

The credit rating is the symbolic expression of the probability of loss as a result of the negative developments that may occur in the economic situation of the borrowing companies or countries during the borrowing process in international markets, in other words, the risk carried when allocating loans to a company or country (Günel, 2019: 48).

A credit rating is said as a debtor's inability to repay its debt and evaluation of the credit risk. It is also an estimate of the probability that the debt will default. Credit ratings try to complete their responsibilities within a certain period of time. On the other hand, the credit rating is a method that tries to fulfill its responsibilities within the specified deadlines.

Credit rating agencies have gained much importance with the impact of globalization. Credit rating agencies seem to have increased in importance and expanded over time. Credit rating also plays an important role in economic activities. Credit rating agencies emerge as a decisive process in countries and in the economic situations of businesses with their transactions. Credit rating agencies have renewed and expanded themselves since they first emerged. Credit rating agencies have played an important role in recent times. Although there are many credit rating agencies, there are three important credit rating institutions in the world. These organizations create important effects along with the ratings they make.

It is seen that credit rating scores are of great importance along with globalization. It has been observed that the ratings given by credit rating agencies affect the markets. It has been said that the ratings of credit ratings are an opinion and do not significantly affect investors, but are important for countries and companies (Toraman & Yürük, 2014: 128).

The credit rating is first started between 1837-1841, when the US economy collapsed and the companies failed to fulfill their commitments. Credit rating agencies are accepted the Securities and Exchange Commission (SEC) credit rating agencies

after 1970. Thus, efforts were made to soften the capital and liquidity requirements in the market. With the changes made later, CRAs make certain arrangements and are permitted to keep records. Credit rating agencies have emerged with the development of financial markets since the 19th century. At the same time, credit ratings increased along with financial crises. The resulting financial diversity and complexity of capital mobility in the markets have begun to occur. In the diversity and complexity in the markets, the need for accurate and reliable information has increased. At the same time, reliable information is needed to minimize the risks and profits for investors. Investors need processes are required to access reliable information. Credit rating agencies, which operate internationally in order to reduce the costs of investors, play an important role at this point. Through credit rating agencies, it is easier for investors to invest in high-level and low-risk areas. It can be said that credit rating agencies are a guide for financial institutions, companies and other institutions with the ratings they give to countries.

Actually the credit rating has an impartial approach can increase the degree of importance that institutions attach to their credit ratings. Since the investment process is a process that includes many variables, risk analysis should be done well. It is frequently encountered to benefit from credit ratings in order to result in a positive result of the risks taken (Demir, 2014: 6).

2.1. DEVELOPMENT OF CREDIT RATING

Credit rating agencies were first initiated by L. Tappan between 1837-1841 in relation to companies' failure to fulfill their commitments after the collapse of the US economy. In 1909, Moody's companies started to make ratings such as 'A', 'B' and 'C' and the first credit rating was created credit rating. Subsequently, the Fitch company was established. In 1941, S&P company was established and three major companies that are important today were completed (Kargı, 2014: 356).

In the globalizing world, credit rating agencies have increased in importance with the emergence of financial crises. There have been improvements in credit ratings from past to present. It is seen that the importance of credit ratings, which were of little importance at first, has increased in importance recently. Institutions giving three major credit rating scores: S&P is Moody's and Fitch. These institutions are the institutions that guide investors in the right way, even if they have differences in terms of grading.

Today, the number of rating agencies is high. However, it has become imperative to check credit rating activities before investing in financial markets. At the

same time, the unexpected bankruptcy of Lehman Brothers in the global financial crisis in 2008, the Enron incident in 2001 before the 2008 crisis, Worldcom in 2002 and Parmalat in 2003 caused a decrease in the trust in credit rating agencies. On the other hand, the sudden downgrading of companies that received high credit ratings in 2008 created a reaction against credit rating institutions.

2.2. CREDIT RATING AGENCIES

Credit ratings agencies are organizations that examine the data risk indicators that determine in advance whether the liabilities and debts have the ability to pay the principal, interest and other liabilities in a timely and complete manner. Looking at credit rating agencies are most general definition, is the process of revealing the ability of a company to pay its financial obligations in full and on time as principal and interest (www.turkkredirating.com, 2020). Cambridge dictionaries have been defined as "the measure of the quality and success of something, or the specific characteristics of similar types of things when compared" (Cambridge Dictionaries, 2020). While there are many credit rating agencies today, five of them are operated internationally. The most traded organizations in international markets are accepted as S&P, Moody's and Fitch. Credit rating agencies differ in various ways. Credit rating agencies can differ in terms of geography, methods and risks. At the same time, there are differences in institutions when rating grades are given.

It is founded in 1909 by John Moody's in New York / USA. Moody's has become the organization that guides the billions of dollars for the adventure they started with the crediting book as the foundation reasons. At the same time, Moody's are the credit rating companies of bonds representing the traditional business line and name (Wikipedia, 2020). Moody's can create monetary research in the market for the bonds issued for commercial and public enterprises for investors. Moody's is a type of rating given according to short and long term rating scales. In the credit ratings given by Moody's, the credit risks of predictable and predictable transactions are seen as prospective opinions. If businesses or institutions fail to pay when they fulfill their financial obligations when they are due, or when they go into default, they say it as financial loss.

The Fitch credit rating agency was established in 1913 in New York / USA. The credit rating agency makes long and short term ratings. The Fitch foundation is among the three major credit institutions. Later it was officially recognized by the NRSRO

board. It is the institution that provides information to prevent investors from risks and the possibility of default. Thanks to the Fitch credit rating agency, it shows companies what type of debt they have and can be sensitive to systematic changes in interest rates. Fitch rates its credit ratings from “AAA” to “D” investment grade.

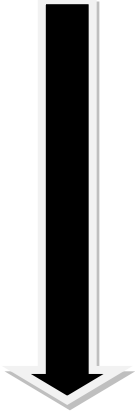
The Standard & Poors (S&P) credit rating agency was founded in 1860 by Henry Varnum Poor. It was established in New York / USA as the founding center of S&P. S&P credit rating agency faced various crises after its establishment. For example: Events such as the 1970 economic depression and the 1982 Mexican crisis led to the warning system operating internationally. Warning systems with S&P enabled them to be more careful. S&P organization examines countries as well as companies while giving credit rating. It was said that if you want to invest in countries, you should first look at the credit rating. Interest evaluations are the most important point when assigning a credit rating. S&P is graded as "AAA +", "AA", "BB-", "B +", "B-", "CCC", "C".

Figure 4 shows the credit ratings of S&P, Moody's and Fitch agencies. The credit ratings are shown in the form of investment, non-investment and default rankings. Figure 4 is as follows:

Figure 4. Credit Rating Scales by S&P, Moody's and Fitch

Moody's	S&P	Fitch	
Aaa	AAA	AAA	Prime
Aa1	AA+	AA+	High grade
Aa2	AA	AA	
Aa3	AA-	AA-	
A1	A+	A+	Upper medium grade
A2	A	A	
A3	A-	A-	
Baa1	BBB+	BBB+	Lower medium grade
Baa2	BBB	BBB	
Baa3	BBB-	BBB-	
Ba1	BB+	BB+	Non-investment grade speculative
Ba2	BB	BB	
Ba3	BB-	BB-	
B1	B+	B+	Highly speculative
B2	B	B	
B3	B-	B-	
Caa1	CCC+	CCC	Substantial risk
Caa2	CCC		Extremely speculative
Caa3	CCC-		Default imminent with little prospect for recovery
Ca	CC	CC	
	C	C	
C	D	D	In default
/			
/			

"Junk"



Source: Wolfstreet, (2011)

The investors and companies are rely on credit rating agencies. However, investors lose their confidence when credit ratings were lowered in times of crisis. Credit rating agencies gathered reactions, especially after it was lowered their high credit rating after the financial crisis. Nevertheless, credit rating agencies are of great importance in financial markets. The important factor that increases the importance of credit rating agencies is that they analyze the macroeconomic variables in the rating process and monitor what kind of commercial and financial risks businesses face (Demir & Eminer, 2014: 100). At the same time, it is seen that developing countries

apply for a credit rating even if they will make international borrowing in order to reach foreign direct investments.

2.2.1. Importance Of Credit Rating Agencies

Credit ratings can play an important role in investors' investment decisions, and the value investors place on such ratings is reflected in, among other things, impact ratings on the exporter's ability to access capital (Sarban-Oxley Act, 2002: 27).

Ratings given by rating agencies are used as a criterion in regulating and supervising financial markets. Credit rating agencies constitute the basis for determining risk weights in international or local regulations such as Basel II criteria (Yazıcı, 2009: 6). Credit rating agencies are organizations that provide credibility independently and are used for various reasons in terms of ratings and investors, exporters, credit followers and governments.

Credit rating agencies examine the country's economic, financial and political structure during the rating analysis phase. While examining the economic and financial structure of the country, it makes use of economic data such as budget deficit, current account balance, GNP, GDP, growth rate, unemployment and public sector borrowing requirement. Within the scope of its political structure, factors such as the relationship of political parties, political instability, election process, and the impact of politics on the country's economy are examined. The current account balance consists of foreign trade, services, investment income and current transfer balances in the balance of payments (Hasbi, 2012: 112).

Asymmetric information is one of the most important problems for investors who want to invest. Investors need to know the countries or companies they want to invest in economically, financially, administratively and politically and to know the possible risks. However, accessing such information in money and capital markets can cause a high cost and loss of time for investors (Kılıçaslan & Giter, 2016: 63). Therefore, credit rating agencies provide reliable information to people who want to invest. In this way, investors can make predictions about the future by preventing savings and time loss.

Credit rating agencies provide many important benefits in life. The benefits of rating procedures in economic life can be summarized as follows (Yazıcı, 2009: 3):

- Confidence in the economy increases and accordingly, the return of financial markets developing in stability increases.

- Outsourcing of the economy is facilitated and national markets are integrated with international markets.
- The risk level in the economy decreases, the efficiency of financial transactions increases and more effective financing of growth is provided.

2.2.2. Auditing Of Credit Rating Agencies

While Rating agencies were while checking establish different organizations for the Turkey and the US. The objectives of these audit institutions are to ensure that the rating is independent, to prevent disputes that may arise in interest, to ensure that the quality in the rating is maintained and to maintain transparency.

US audit commission CESR (Committee of European Securities Regulators) was established on June 6, 2001 with the decision of the European Commission. With the collapse of Parmalat in November 2004, the CESR commission created a commission rating and the regulation and control principles were determined within the borders of the European Union. IOSCO (International Organization of Securities Commissions) was established in 2008 under the management of CESR. It has been observed that there were not many problems between 2004-2008. However, the collapse of Parmalat in 2004 was seen as the only problem. CESR has been replaced by ESMA (European Securities and Markets Authority) after 2011 among the US audit institutions.

In addition to the credit rating agencies reform law (CRA Reform Act), which entered into force in 2006, two new amendments made on 11 July 2008 (Yazıcı, 2009: 15):

- Demanding transparency to prevent interest disputes in nationally recognized statistical rating agencies, to improve competition and to ensure comparability of credit rating agencies,
- It was requested that the risk characters in structured finance products be designed in a way that investors can more easily understand.

In addition, a comparative Figure 3 below has been created for the laws and institutions regulating the US and EU credit rating markets, as well as the recommendations of US changes.

Table 1. US and EU Arrangement on Credit Rating Agencies

	U.S.	E.U.
Main Regulator	SEC	Bank Supervisors
Regulatory Tools	No registration of CRAs, but recognition by SEC as NRSRO for regulators purposes	No registration of CRAs, but recognition by bank regulators for regulatory purposes
IOSCO Code	SEC does not recommend adoption by CRAs of IOSCO code, but the NSRO recognition criteria relating to conduct of business rules seem likely to be achieved by implementing the code	CESR recommends adoption by the CRAs of the IOSCO code. There is no enforcement mechanism (CESR relies on market enforcement)
Recogniton Criteria	Published ratings Market acceptance of CRAs Conduct business rules	Integrity of methodologies Credibility of ratings Conduct of business rules
Recogniton Goal	Efficiency of securities markets	Efficiency of securities market (IOSCO Code) Adequency of capital reguriments
Ongoing Supervision	Limited (SEC reserves the right to reexamine conditions on which granted NRSRO status)	Permanent (as required by the CRD)
Recogniton Procedure	SEC discretion, although criteria are more precise under the Proposed Rule	Bank regulators are bound by the CRD rules and further detaails
Civil Liability	No (first amendment protection)	Never established but possible
Securities Laws	Exemption under regulation FD	No exemption under the Market Abuse Directive
Competition	The SEC believes that more precies NRSRO destination criteria will foster competition and that competition is a means of regulating CRA performance	CESR believes that competition issues should not be taken into account in establishing CRA rules and should be left to antitrust authorities.

Source: Motsi-Omoijiade, (2011)

Turkey auditing for credit rating agencies, Capital Market Board (CMB) and Banking Regulation and Supervision Agency (BRSA) is controlled. The capital market agency started its rating for the first time in 2003 with the principles communiquéé of the Activity and Rating Institutions. The purpose of the CMB is: capital markets regulation and supervision regarding the capital market with competent counterpart foreign institutions, mutual and professional secret protection and document requests to be met, the organizations operating in the capital markets in foreign countries within the framework of a written contract with the headquarters and branch offices or partners in Turkey supervision in the institutions they receive outside services and to sign the

necessary administrative memorandums of understanding and to cooperate in all kinds of capital markets (Capital Markets Board).

The BRSA to maintain the present depositors' rights and interests in Turkey, banks and established private financial institutions healthy in market discipline and creating a favorable environment for a construction operation that can compete with global scale in the long term and to contribute. While the BRSA conducts audits, it follows independent processes that follow each other cyclically. While the audit cycle is being formed, it may create differences due to various factors. In the audit cycle, the surveillance process, risk rating and risk profiling, audit planning, on-site audit process, conclusion meeting and audit results are formed.

At the same time Turkey's Basel II have not been passed on to the process of economic crisis and credit rating agencies have been unable to begin full operations. Confusion of authority between regulatory and supervisory institutions in possible future intense periods creates a potential danger for the sector (Yazıcı, 2009: 17). For these reasons, the sector sync may occur in Turkey and may pose hazards to government standards. On the other hand, it can be thought that it may create a negative effect on independence for rating agencies.

2.3. CREDIT RATING IN TURKEY

Turkey credit rating agencies, Moody's and S&P are first beginning. Turkey took its first credit rating in 1992. Turkey is seen that from other countries that started late in their credit ratings and credit rating given to Turkey caused controversy. Fitch agency, Turkey has given the first credit rating in 1994. Turkey was able to provide borrowing in markets abroad when it receives the first credit rating. Over time, Fitch provider for more Turkey is seen as ratings from other ratings agencies began to give the note. S&P and Moody's, the world's 2 largest rating companies, make ratings from abroad. Fitch is in 3rd place. The largest companies in the world have a rating. It has become impossible to borrow from foreign financial markets without a rating (Tutar vd., 2011: 12).

Table 2. historical development of the credit rating for Turkey is seen. When the look at credit ratings 1992-2020 Turkey/sections are examined up to September. So Turkey is viewed as a 29-year loan rate was up notes. Turkey began to be made to credit ratings in 1990. However, the first credit rating was given in 1992 as the reason for the bond issue. At first, the only credit rating agencies S & P and Moody's were performing grading for Turkey. Turkey to give the note to the Fitch credit rating agency began in

1994. Turkey is rated as investments made between 1992-1993. However, due to the fluctuations in the markets in the following years, the 2008 financial crisis and various events could not be at an investment level. Turkey has reached the threshold can be invested again in 2013 thanks Fitch and Moody's. Turkey lost its investable level after 2015. After 2016, it is seen that it has returned to its previous levels. At the same time, it is seen that after losing its investmentable level, it has reached today's levels by experiencing a continuous decrease.

Table 2. Historical Course Of Credit Ratings in Turkey's S&P, Moody's and Fitch

Year	S&P	Moody's	Fitch
1992	BBB(negative)	Baa3	BBB(JCR)
1993	BBB(negative)	Baa3(negative)	BBB(JCR)
1994	B+(stable)	Ba3	B
1995	B+(stable)	Ba3	BB-
1996	B(stable)	Ba3	B+
1997	B(stable)	B1	B+
1998	B(positive)	B1	B+
1999	B(positive)	B1(positive)	B+
2000	B+(stable)	B1(positive)	BB-
2001	B-(stable)	B1(negative)	B(negative)
2002	B-(stable)	B1(negative)	B(stable)
2003	B+(stable)	B1(stable)	B(positive)
2004	BB-(stable)	B1(stable)	B+(positive)
2005	BB-(stable)	Ba3(stable)	BB-(positive)
2006	BB-(stable)	Ba3(stable)	BB-(positive)
2007	BB-(stable)	Ba3(stable)	BB-(stable)
2008	BB-(negative)	Ba3(stable)	BB-(stable)
2009	BB-(stable)	Ba3(positive)	BB+(stable)
2010	BB(positive)	Ba2(positive)	BB+(positive)
2011	BB(positive)	Ba2(positive)	BB+(stable)
2012	BB(stable)	Ba1(positive)	BB-(stable)
2013	BB+(stable)	Baa3(stable)	BBB-(stable)
2014	BB+(negative)	Baa3(negative)	BBB-(stable)
2015	BB+(negative)	Baa3(negative)	BBB-(stable)
2016	BB(stable)	Ba1(stable)	BBB-(negative)
2017	BB(negative)	Ba1(negative)	BB+(stable)
2018	B+(stable)	Ba3(negative)	BB(negative)
2019	B+(stable)	B1(negative)	BB-(stable)
2020/September	B+(stable)	B2(negative)	BB-(stable)

Source: Gazete Duvar, (2020)

When Table 3. is viewed, the credit ratings of S&P, Moody's and Fitch can be seen. The credit ratings start in reverse and are graded between 0-23. Various factors are thought to have affected these ratings. It is seen that credit rating agencies are given the highest grade of 23, that is AAA. The lowest score is given as 0, in other words D.

Looking at Table 3, it is seen that the historical development of the credit rating scores in Table 2 has been established.

Table 3. The Meaning of The Credit Ratings of the Three Leading Credit Measurement

Note	S&P	Moody's	Fitch	Note Description	Investment Category	
23	AAA	Aaa	AAA	Highest Degree	Investment Level	
22	AA+	Aa1	AA+	Top level		
21	AA	Aa2	AA			
20	AA-	Aa3	AA-			
19	A+	A1	A+			
18	A	A2	A	Upper Intermediate		
17	A-	A3	A-			
16	BBB+	Baa1	BBB+			
15	BBB	Baa2	BBB	Lower Intermediate Level		
14	BBB-	Baa3	BBB-			Investment Threshold
13	BB+	Ba1	BB+	Speculative		Non-Investment Level
12	BB	Ba2	BB			
11	BB-	Ba3	BB-			
10	B+	B1	B+	High Speculative Level		Low level
9	B	B2	B			
8	B-	B3	B-			
7	CCC+	Caa	CCC	Serious Risk Level		
6	CCC	Caa2		Extremely Speculative Risk Level		
5	CCC-	Caa3		Bankruptcy Level		
4	CC	C		On the Verge of Bankruptcy		
3	C			Bankruptcy		
2	D	D	DDD			
1			DD			
0			D			

Source: Gazete Duvar, (2020)

Although credit rating agencies take into account and evaluate economic situations more, they sometimes give opposite ratings to economic situations. This situation raises the question of how safe the grades. Therefore, the problem of trust has become an issue that needs to be examined (Tutar vd., 2011: 16).

3. CREDIT DEFAULT SWAP (CDS)

Credit default swaps (CDS) are a type of insurance against a particular company's default risk. The company is referred to as the reference asset and is called the credit default event. It is a contract between two parties called the protection buyer and the protection seller. Under the contract, the protection buyer is compensated for any damage arising from a credit event on a reference instrument. In return, the protection buyer makes periodic payments to the protection seller (The Economic Times, 2020).

While credit rating emerged as a tool to express credit risk: Credit Default Swaps (CDS) emerged as an instrument that transfers credit risk and over time has become a credit risk measuring instrument. In this respect, credit rating grades and CDS premiums are important tools that show credit risk (Şenol, 2021: 49).

Credit Default Swap is when the debtor insures his / her receivables by paying a certain premium to a third party or institution against the risk of failure to pay the debt owed to the debtor. Credit default swaps started to gain more importance especially after the 21st century and started to play a more active role in the derivatives market. Because it is a system that creates insurance and guarantee against the risk of non-collection of the receivables held by any public or private sector institution or organization with CDS, its usage area has developed (Danacı vd., 2017: 68).

Credit default swaps (CDSs) proved to be one of the most successful financial innovations of the 1990s. They are vehicles that provide insurance against a particular company that does not pay its debts. The company is known as the reference asset and the default of the company is known as the credit event. The buyer of the protection makes periodic payments to the protection seller at a predetermined fixed rate each year. Payments continue until the end of the contract's life or a loan event (Hull & White, 2003: 3).

Credit default swap (CDS), a type of over-the-counter derivative, is a bilateral agreement about credit quality of a reference entity. A single-name credit default swap (CDS) is a bilateral contract under which a protection seller promises to make payment on the protection buyer's losses in the event that the entity that issued the CDS's underlying bond defaults on its debt obligations prior to maturity of the CDS (Sazak, 2012: 2).

Credit default swaps (CDS), where investors can exchange credit risk with another investor. CDS is the most common form among loan derivatives. At the same time, it protects the creditor against the risk of not being able to repay any financial loan, in order to be protected from risks thanks to CDS.

3.1. DEVELOPMENT OF CREDIT DEFAULT SWAP (CDS)

Globalization is seen that developments with in the world have increased. In this way, fast development and change has increased. We can feel the effect of this in all our lives. At the same time, with globalization, the world economies started to have effects. CDSs started to be established in the 1980s. But it was fully developed in 1990 by JP

Morgan. Among credit derivatives, CDSs are the most well-known derivative products. In 1994, CDS met with the first default swap and formed a contract.

The market has grown spectacularly, especially since 2000. It went through a boom in 2001–2007, followed by a bust after the 2008 Lehman bankruptcy. Most importantly though, the market has proved resilient in the face of several major shocks and corrections. The Russian default in 1998, the Consec Finance restructuring in 2000, the 2008 AIG bailout, and the 2012 Greek default all contributed to shaping the formalization of CDS contracts and their trading procedures as we know them today (Augustin vd., 2014: 2).

CDSs have started to be examined more carefully as a result of global crises as a result of globalization. After the collapse of Lehman Brothers in the autumn of 2008, the second is after the emergence of the fiscal deficit problem of Greece in the fall of 2009, and the third is the stage in which attention is drawn to the risk of default for Euro Area country debts in May 2010. As stated before, the fact that CDS premiums come to the forefront in observing the current credit risk levels of the countries in terms of investors and financial institutions and organizations has significantly increased the number of studies on these tools (Akyol & Baltacı, 2019: 34).

Credit Default Swaps was established in 1994 by JP Morgan. Later, in 1989, when Exxon Mobil, the largest company in America, landed on the business, it considered selling credit risk to the CDS established by JP Morgan in order to pay its borrowings together. In 1999, the documentation and its annexes were published by the International Clearing and Derivative Products Association in order to meet the needs of the markets. The reason for this situation is that the contracts of CDSs are being used a lot recently and new rules are needed. At the same time, it is seen that the development of CDS has greatly affected the development of global crises. The Asian Crisis in 1997, the bond default of Russia in 1998, the bankruptcy of companies in 2000, as well as company scandals occurred. In the years 2000-2001, before the global crisis, the leading risk indicator emerged in financial markets. In 2003, the first default swap index was created by JP Morgan and Morgan Stanley. It has also updated and published the ISDA market standard. Before the global crisis in 2008, there was the Sub-prime Mortgage Crisis. Later in 2010 Dadd-Frank Wall Street Reform and Consumer law was created. Dadd-Frank Wall Street Reform and Consumer law came into force in the United States and had compelling provisions. Because of these enforcing laws, banks and companies have moved to other countries. In 2011, along with the Financial Instruments directive,

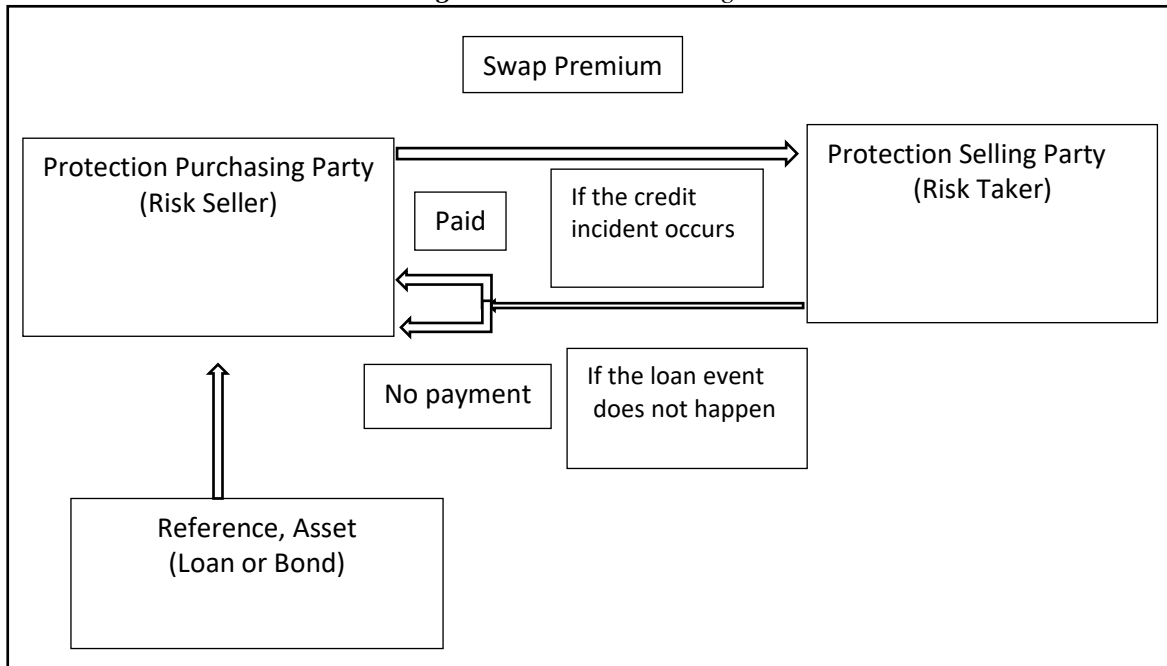
clearing arrangements were made for derivative products. In the light of the new regulations, the articles were updated and took the latest and revised form in 2008.

3.2. HOW IS CREDIT DEFAULT SWAPS (CDSs) WORK?

Credit default swaps are often used to manage the risk of default that arises from holding debt. A bank, for example, may hedge its risk that a borrower may default on a loan by entering into a CDS contract as the buyer of protection. If the loan goes into default, the proceeds from the CDS contract cancel out the losses on the underlying debt. There are other ways to eliminate or reduce the risk of default. The bank could sell the loan outright or bring in other banks as participants. However, these options may not meet the bank's needs. Consent of the corporate borrower is often required. The bank may not want to incur the time and cost to find loan participants. If both the borrower and lender are well-known and the market learns that the bank is selling the loan, then the sale may be viewed as signaling a lack of trust in the borrower, which could severely damage the banker-client relationship. In addition, the bank simply may not want to sell or share the potential profits from the loan. By buying a credit default swap, the bank can lay off default risk while still keeping the loan in its portfolio (Credit default swap, 5).

CDSs are also referred to as "hedge" in the market. In the CDS transaction, if the party selling the risk (CDS buyer), the option and the protection purchaser, the risk purchaser: Refers to the party that writes the option and sells the protection (CDS vendor). The CDS is essentially an option, and the CDS buyer (protection purchaser) pays a risk premium calculated at face value. In the CDS, the incident that causes the payment not to be made may be the bankruptcy of the country or firm, as well as situations such as lowering the credit rating, restructuring (Tözüm, 2009: 33: Özpınar vd., 2018: 34).

Figure 5. CDS Functioning

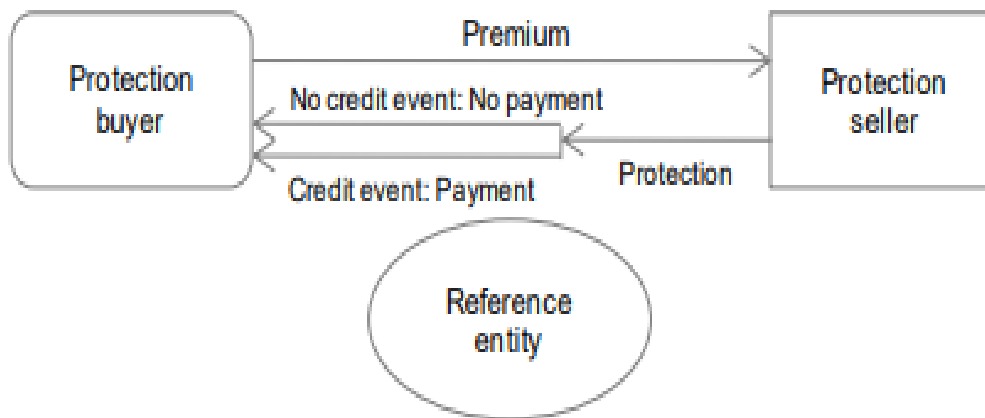


Source: Şahin & Özkan, (2018: 1940)

Credit default swap, as shown in Figure 5 above, requires a debt for transactions to take place. Since he cannot pay this debt, he must sell the protection to reduce the risk. The party purchasing protection creates a swap premium against the party selling the protection. If the protection is the seller, if the payment is made, the credit event will occur against the protection purchaser. Otherwise, when no payment is made to the party purchasing the protection, the credit event will not occur. Reference assets will pay in any case, protecting the purchaser of the protection.

A (single name) credit default swap (CDS) allows the contracting partners to trade or hedge the risk that an underlying entity defaults – either a corporate or a sovereign borrower. There are two sides entering into the contract: The protection buyer pays a yearly premium until a pre-defined credit event occurs or until the contract matures. In return, the protection seller assumes the financial loss in case the underlying security defaults or the reference borrower becomes insolvent. In effect, a CDS contract resembles an insurance policy, where one side assumes the risk and the other pays an (insurance) premium. When entering the contract, protection buyer and seller agree upon a premium, which generally remains constant until the contract matures and which compensates the protection seller for bearing the risk of a default (Weistroffer, 2009: 4).

Figure 6. CDS Premium



Source: Weistroffer, (2009: 4)

The main point in CDS trading is that the contract allows one party to transfer credit risk on one reference body to another through bilateral agreement. The terms of CDSs can range from a few months to 10 years or longer, and the terms do not have to be the same as the reference organization. Most CDS are quoted for a benchmark term of 5 years, and typical payment terms are quarterly or six months. When the loan agreements are made, the protection seller has to make the payment to the protected party for the asset resources mentioned in the contract. After the payment is made, the contract is finished (Junell, 2017: 19).

The operation of the CDS, is similar to the insurance mechanism, where the investor makes regular premium payments (denoted as bppa) to the counterparty (protection seller) and a third party downgrades or defaults (reference asset) in the event of a defined credit event the insurer physical or receives cash payment. In case of physical settlement, the buyer submits the underlying asset (bond, etc.) to the seller and receives the full and final settlement in return. If the payment basis is cash, the buyer holds the asset and receives only the difference between the nominal value and the recovery (or current market) value as payment (Farooqi, 2010: 11). The functioning of swap agreements based on credit defaults is subject to a simple process. For example, the credit risk arising from a loan used by an enterprise from any bank may transfer this risk to the investor as a third person or institution that undertakes the risk by making a Credit Default Swap contract against the bank receivable, in return for a certain amount, if the enterprise to which the loan is provided cannot pay the principal and interest of the loan. When the entity pays the loan received from the bank, the contract between the parties will be terminated without any payment other than the amount paid to the investor who assumes the risk. In the event that the enterprise does not pay the loan

received from the bank, the investor undertaking the risk will pay the amount specified in the contract to the bank, namely the creditor (Danacı vd., 2017: 68).

In case of default occurring in CDS contracts, some transactions should be followed sequentially in order to make payments. If the payment method is determined as physical delivery by the parties, the following three stages should be followed (Baykut, 2020: 39).

- First Warning Regarding Default
- Physical Call for Payment
- Making the Payment

According to Savaşman (2010, 41), if cash payment will be made in case of default, some calculations should be made regarding this situation. These calculations are expressed as the following points should be added:

- Intermediaries
- Evaluation time
- Quoted (offered) prices
- Substitution of reference asset

According to Baykut (2020: 40), in the cash payment method, since the seller of protection will pay the reduction in the price of the reference asset to the protection buyer, it is important to find the value of the reference asset in the market. At the same time, it is important to know the amount of the recovery rate for the correct calculations. According to Aydın (2015: 61), in cash payment method, the protection seller is obliged to pay the difference between the nominal value and the market value of the reference asset to the protected party. In order to find this difference, the following formula should be used:

$$\text{Nominal Value of the Reference Asset} \times (100 - \text{Recovery Rate})$$

According to the formula above, the current market value that may occur in reference assets for the calculations of the default situation will be calculated. Then it is determined how much the current market value can correspond to as a percentage over the nominal value. Cash payment can also be protected from the volatility in the value of reference assets that may occur after default in CDS. The cash settlement transaction is a termination method that can be preferred by the protection buyer who does not have deliverable reference assets, or by the protection buyer who uses credit default swaps to create a synthetic short position on a loan. On the other hand, physical delivery

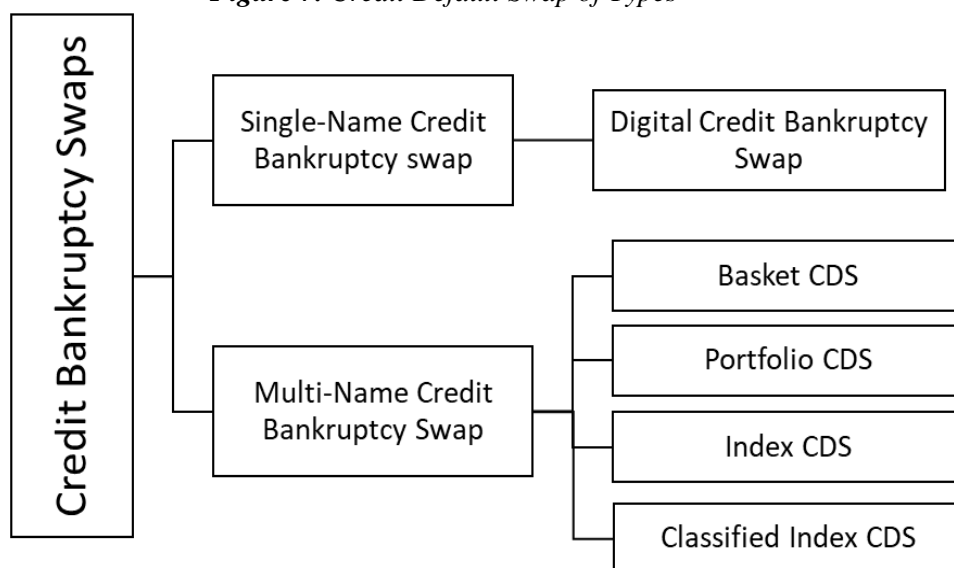
termination is a termination method preferred by parties who want to protect themselves from problems that may arise in determining the market value of financial assets (Aydın, 2015: 61).

3.3. TYPES OF CREDIT DEFAULT SWAP

Credit default swaps can come in various forms depending on the underlying reference entity and any other varying contractual definitions. The two most commonly used groups include CDSs based on single-name corporate or sovereign borrowers, and CDSs referenced to various entities (multi-name CDSs). Single-name and multi-name CDSs constitute also the dominant form of “credit derivatives” – the wider category to which CDSs belong. While single-name contracts account for the majority of all trades, multi-name contracts have become almost as popular during recent years. The rapid growth of this market segment is due to index trades being used increasingly for trading purposes as well as for proxy hedges (Weistroffer, 2009: 7).

There are various types of credit default swaps due to the needs of any reference institution and contracts that may occur in the arising in the contract. These credit default swap types are divided into two. Under the credit default swaps, there is a distinction between single-name and multi-name. If the business has only one or sovereign asset, the contract providing protection is said to be a single-name CDS. CDSs that provide protection with more than one enterprise are said to be with multiple names. The most commonly used CDS type among credit default swaps is multi-named CDS.

Figure 7. Credit Default Swap of Types



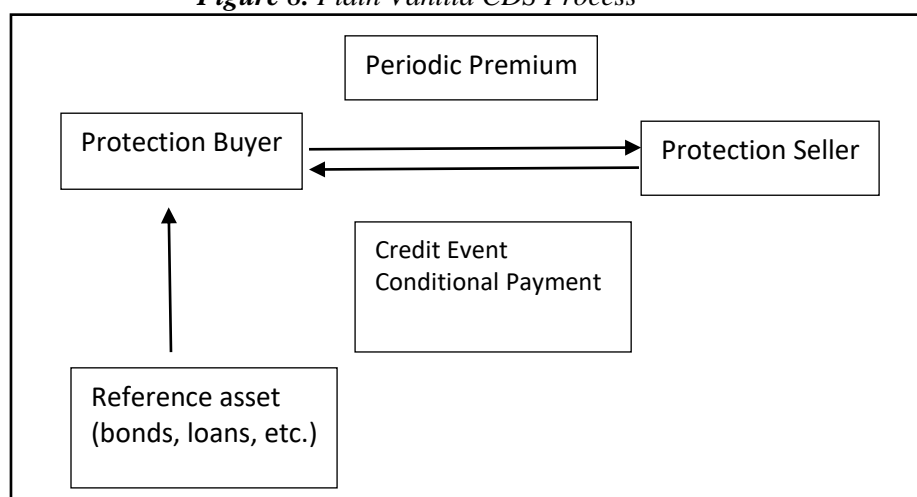
Source: Weistroffer, (2009: 7)

3.3.1. Single-Name Credit Bankruptcy Swap:

In a typical CDS, a credit protection purchaser makes a series of fixed payments over the life of the contract to the credit protection seller in exchange for a commitment by the protection seller to make a payment to the protection buyer following a specified adverse credit or triggering event. CDSs include single-name, portfolio, and index products (Culp Merwe & Stärkle, 2016: 1).

Standard CDSs are also known as plain vanilla CDS at the same time other word is Single-Name CDS. In plain vanilla CDS, the protected party makes periodic payments to the seller. In the event that no credit event occurs during the term of the contract, the protection seller does not make any payments (Erdil, 2008: 95).

Figure 8. Plain Vanilla CDS Process



Source: Erdil, (2008: 95)

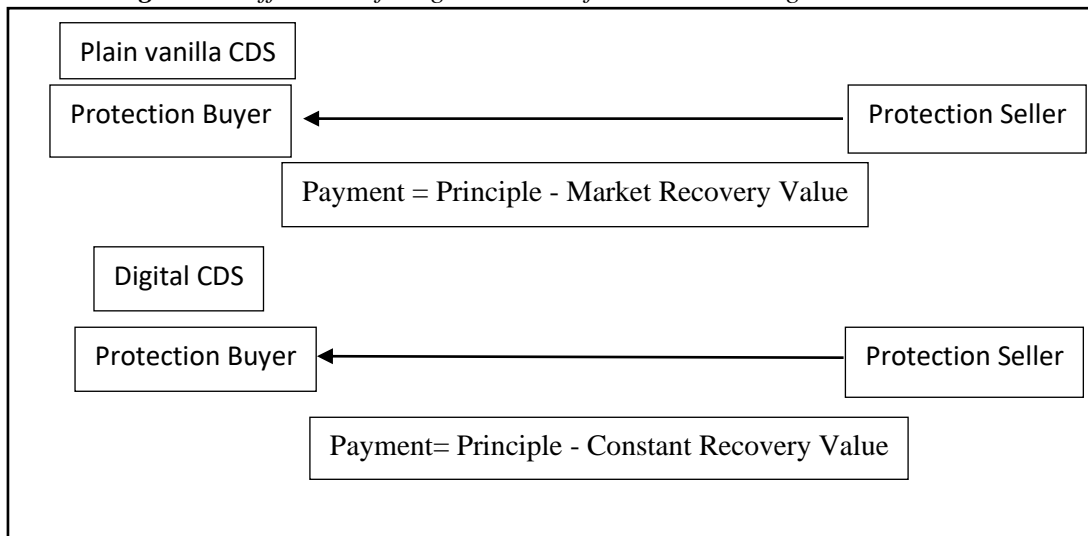
In credit default swap contracts, it is called single-named default risk that forms a single asset and is generated by the reference asset. Plain Vanilla is another name for the single-name default risk. A significant portion of the single-named default risk is used for CDSs. At the same time, another reason why it is often used is that it is simple. Long and short term positions are reached in order to avoid the risks that may be available for short and long term corporate bonds. These positions create simple operation for single name CDS. Single-name CDS can also be paid in a single form when the contract is made, or can be paid in installments. If the protection is paid before its due date, the selling party must compensate for the protection party. In addition to the payment of the damage, the contract will be terminated.

Digital Credit Bankruptcy Clearing is seen as the most encountered type recently as the subtitle of single-named default risk. Digital CDS is also valued in dollars.

Digital CDSs are also seen to have more conditions for the protected party than CDS. It is seen that high premium payment for the protection seller is higher than Digital CDS.

The only difference of digital CDS from plain vanilla CDS is that the recovery value is determined beforehand. For this reason, digital CDSs are also known as fixed-recovery CDS. The amount payable by the seller of protection in the event of a default or a credit event is independent of the market value because this value is predetermined in the contract. Thus, digital CDS eliminates uncertainties about recovery value and payment status (Erdil, 2008: 97).

Figure 9. Difference of Single-Name Default Risk and Digital CDS



Source: Erdil, (2008: 97)

3.3.2. Multi-Name Credit Bankruptcy Swap:

Another type of credit default swaps are Multi-Name Credit Default Swaps. Multi-name default swaps are tools that allow investors and issuers to subject securities with the possibility of default as a portfolio, either wholly or partially, to credit risk transfer, rather than trading with each security separately in the portfolio. Multi-name loan default swaps can be expressed as a portfolio default swap. Thanks to the portfolio, risk transfer is shaped by the amount of loss related to default in the portfolio, not through a single credit default swap (Tanyıldızı, 2020: 43).

CDS contracts can consist of a portfolio or several reference asset groups instead of a single reference asset. This type of CDS is called multiname CDS (Erdil, 2008: 99).

It is a tool that transfers securities partially to credit risk as a portfolio, rather than trading multiple assets and references separately. At the same time, it consists of more than one default of the transfer of risk in the portfolio and the amount of loss. Multi-named CDSs are said to be the most used method. The reason for this is to be

able to do more than one operation at once. Multi-named CDSs usually come up as 4 different types. These subheadings are as follows:

- Basket Credit Default Swaps
- Portfolio Credit Default Swaps
- Index Loan Default Swaps
- Class Index Credit Default Swaps

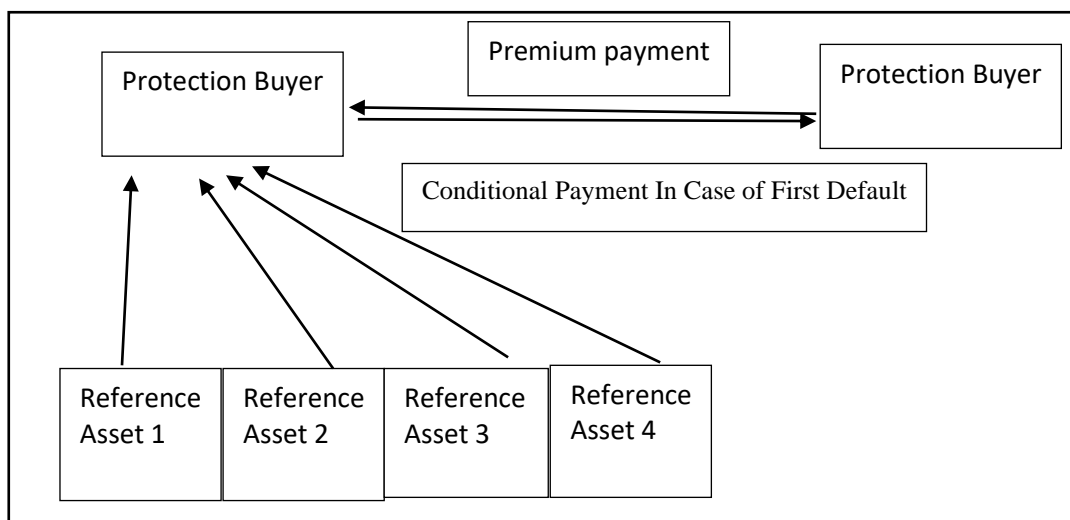
3.3.2.1. Basket Credit Default Swaps:

Among the Multiname CDS, the most widely used is Basket CDS. The party purchasing protection in Basket CDS provides protection from the default risk of any of the assets included in the basket (Erdil, 2008: 99).

In a basket default swap, the reference asset is a basket or a group of several reference obligations, each with the same par value. Since the nominal amount of each unit is the same, their weight in the basket is equal. Usually, the components of the basket have similar credit risk. For the purpose of the basket loan default swab, it is not very important that the underlying assets are from different geographies or industries or have high correlation. The default risk of each underlying asset included in a basket default swab is undertaken separately by the protection seller (Özgür, 2019: 80).

Basket default swaps are said to be the most used method among multi-name credit default swaps. Basket CDS can be defined as a credit default swap that causes the protection seller to pay for asset defaults in the basket with all the terms contained in the contract. At the same time, according to CDS, the premium basket that the protected party has to pay is less in CDS.

Figure 10. Basket CDS

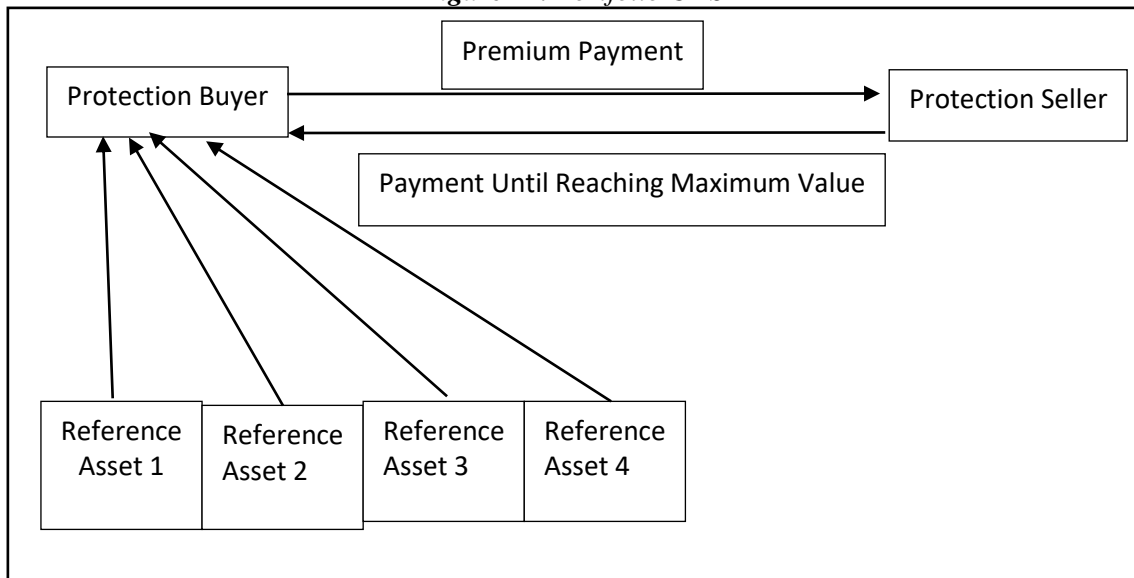


Source: Erdil, (2008: 100)

3.3.2.2. Portfolio Credit Default Swaps:

Portfolio CDS are similar to Basket CDS. However, portfolio CDS is seen to cover the portfolio, not different default swaps. There is no limit to the number of defaults in portfolio CDS. In other words, portfolio CDSs specify an upper limit by the parties at the beginning of the contract and the protection seller is obliged to fulfill the obligation of the protection buyer when the default risk reaches or exceeds the upper limit. The contract ends after the obligation has been fulfilled (Baykut, 2020: 48). The difference between Portfolio CDS and Basket CDS occurs in both their losses and the validity of the swap contract. While payment is made as a result of the default of basket CDS's determined before the assets that make up the basket: In portfolio loan default swaps, instead of the default number, the swap contract value subject to default is taken into account (Öner, 2012: 94).

Figure 11. Portfolio CDS



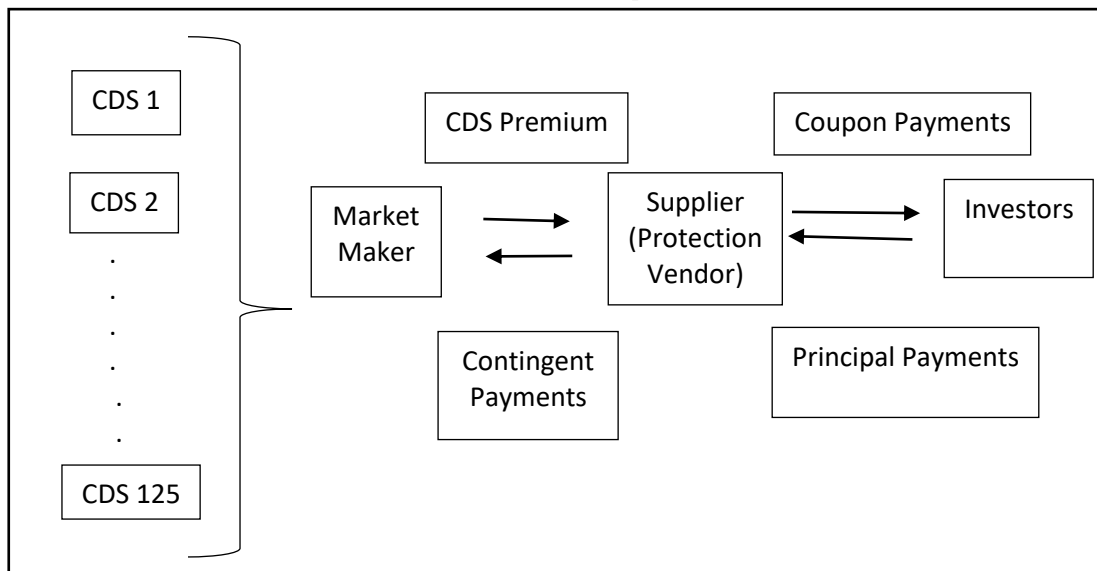
Source: Erdil, (2008: 101)

As seen in Figure 10, portfolio loan default swap contract consists of 4 different reference assets. At the beginning of the contract, the protection buyer pays the clearing premium to the protection seller and they initiate the contract. The protection vendor does not make any payment to the party receiving the protection until the maximum default amount set during the term of the contract is reached. If the default amount reaches the maximum amount and exceeds this amount, the protection seller fulfills its obligations and terminates the contract (Baykut, 2020: 49).

3.3.2.3. Index Loan Default Swaps:

Those who trade in the CDS market act according to prices, credit spreads and trading volumes. Indices collectively follow the developments in the CDS market that arise depending on these variables. CDS indices function like other indices in financial markets. This value is ultimately used to compare the performance of other market instruments and portfolios (Gümrah, 2009: 66). Index credit default swaps aim to determine the transaction volumes of CDS premiums, as well as the prices at which CDSs are quoted by investors. On the other hand, it is aimed to compare the assets included in the index for the performances in the vehicles included in the vehicle performances in the portfolios of the index loan default swaps for the investors. The CDS index was first used in 2003 by American investment banks J.P. Created by Morgan and Morgan Stanley. The index was originally named Trace-X and it consists of 50 bonds with investment grade credit rating as components of the index. The index was then traded on an index named iBoxx, this time formed by a few EU and US banks. In 2004, it was decided that these two indices (Trace-X and iBoxx) were combined and managed by Dow Jones. Dow Jones created DJ iTraxx for Europe, Asia and Australia, DJ CDX index for North America and developing countries and continued to calculate (Şahin & Özkan, 2018: 1940: Gümrah, 2009: 66: Sağlık, 2009: 26: Baykut, 2020: 50).

Figure 12. iTraxx Index Operation



Source: Baykut, (2020: 50)

iTraxx is an index formed by equal weighting of 125 credit default swaps, some at investment level and others at speculative level. The person who intends to invest in this index is entitled to periodic coupon payments with the index bond received in return for paying a certain principal to the issuer (protection seller). If any of the credit

default swaps in the index encounters a credit event, the protection seller pays the investor according to the weight of that credit default swap, but the contract is not terminated. Because the other 124 credit default swaps in the index are still part of the index. However, the value of the index bond sold to the investor by the issuer falls due to the CDS that encounters a loan event and the coupon payments to be received by the investor are also affected (Baykut, 2020: 50).

3.3.2.4. Class Index Credit Default Swaps:

CDS indices are divided into class indices, creating collateral. Class index credit default CDSs measure different sensitivities of credit risks. On the other hand, it can be said as the portfolio basis of the securities with credit risk. At the same time, convenience is provided when transferring class indices between institutions and individuals. Classified index loan default swaps are a kind of collateralized debt obligations, enabling the seller to take risks in a certain part of the loss distributions in case of default (Reyhan, 2019: 25). Classified index credit default swaps (Tranched Index CDS) are instruments that have shown a significant improvement in recent years and enable the trading of credit risk correlations. In fact, classified index CDSs are collateralized debt obligations. It allows investors (protection sellers) to take risks in a particular part of the default loss distributions of the CDS index (Baykut, 2020: 51).

3.4. PURPOSE OF USE OF CREDIT DEFAULT SWAPS

As the purpose of using the credit default risk, CDSs aim to reduce the credit risk. Contracts that are transferred to third parties by paying less premiums thanks to CDS. These contracts aim to protect both the buyer and the seller. Banks and financial institutions are the most advantageous to keep both sides under protection. On the other hand, CDSs can create an important indicator by determining the prices of bills and bonds for emerging markets. Since CDS is a credit premium, more attention is paid to the increase and decrease of credit ratings. Credit premium ratings are also used in countries and companies for CDS. It is known that CDS has many uses. But the most important goals are:

- Risk Management
- Earnings Through Trading
- Providing Capital Support
- Risk Criterion

CDSs plan to minimize the risk while using risk management. It is the method that is taken into consideration in order to protect the protected and protected parties. While earning through trading, CDS's aim to gain profit by reducing the risk. At the same time, CDS supports the capital as a reference in order to protect the protected and selling parties as they minimize the risk. CDSs try to determine what the risk is by taking into account the measurement of the risk. CDS contracts are also considered as an indicator of the country risk premium of countries issuing debt instruments and risk perception among investors in international financial markets (Döviz.com, 2019).

CDS is a portfolio management tool mostly used by institutional investors. Investors can purchase CDS contracts, which are basically three parties, namely the buyer, seller and reference institution, with a shorter maturity than the reference obligation and can be bought and sold at the prices formed in the secondary market before the expiry date. CDS contracts are used for hedging and profit based on the current risk perception, as well as they are bought and sold in the secondary market in order to make profit by speculating on the expectation of a credit rating change of the reference institution (Döviz.com, 2019).

3.5. THE ELEMENT OF CREDIT DEFAULT SWAPS

There are some elements that should be included in CDS contracts. These elements make it more detailed and clear about the CDS contracts. When specifying these elements, they must be clearly and clearly stated. The elements that should be included in CDS contracts are in 4 different ways. These elements are as follows:

- Reference asset and institution (liability)
- Maturity
- Premium (spread)
- Credit event

3.5.1. Reference Asset And Institution (Liability)

Reference asset and institution (Liability) can be said as the payment made in cash in case the contract cannot be fulfilled. It is also important how the debt will be paid before the cash payment option. In CDS, the underlying asset or reference liability is the debt received against the debt instrument issued. CDSs are usually regulated by local governments, developing countries' treasury bills and bonds, corporate bonds and real estate mortgage backed securities and sold to creditors by banks and insurance companies. The party selling the CDS contract undertakes to pay the borrower of the

CDS contract to the recipient of the CDS contract for a price, together with the amount of debt and the interest accrued until the end of maturity (Döviz.com, 2019).

3.5.2. Maturity

It is not necessary for the maturity of CDS to be the same as the maturity of the underlying asset, namely the bond. Investors can buy or sell a shorter-term CDS contract than the underlying asset. CDS, which functions as a kind of insurance and are bought and sold in the non-exchange market called the over-the-counter market, are not subject to any regulation (Döviz.com, 2019). While CDS contracts are made, they are made within a certain maturity. It can be said that premium payments can be made during the term in these contracts. In other words, premium payments should be made within a certain term. Maturities may cause an increase in liquidity for CDS. It can also enable participants to come to the markets.

3.5.3. Premium (Spread)

CDS is a loan derivative tool that reduces the risk of the debtor issuing debt instruments such as bonds and bills not to pay the principal currency and interest, and guarantees the debt of the issuer to the investor who purchased the debt instrument (Döviz.com, 2019). CDSs are premiums (spread) calculated as a certain ratio of the liability amount (CDS rate), which lender parties pay to CDS sellers in order to compensate their losses in the event of default of the borrowing country by issuing bonds and / or bills (Varlık & Varlık, 2017: 10). While determining the CDS premium, it is determined by calculating many factors such as the reference credit rating, balance sheet structure, geopolitical position of the geopolitical position between the parties and generally adding it to the LIBOR interest. Since an investor will already receive LIBOR interest, the CDS premium is expected to be higher than LIBOR (Baykut, 2020: 57).

In default swap spreads, when base points can be calculated according to bond spread, transactions are created according to premiums and discounts. There are cases for the default swap base point. These situations are as follows (Ersan & Günay, 2009: 8):

CDS Spread – Bond Spread > 0 → Premium

CDS Spread – Bond Spread < 0 → Discount

In the operation of CDS, periodic payments to be made to the party buying purchasing protection and to the party selling protection in return for protection are called clearing premium, swap fee or swap spread. The swap premium is calculated

with the sum of the purchased protection amount or a predetermined percentage of the value in the contract. CDS premiums are formulated with the following equation (Karabiyik & Anbar, 2006: Reyhan, 2019: 23):

$$\text{CDS} = \text{Nominal Value of the Contract} \times \text{Basis Point} \times \text{Number of Days} / 360 \text{ Basis Point}$$

The periodic payments made by the purchaser to the protection seller in return for the protection received are called swap premium or swap spread. This swap premium is determined as a certain percentage of the total protection amount purchased or the contract amount (Karabiyik & Anbar, 2006: 49). The rate of premium in credit default swap transaction (Ersan & Günay, 2009: 7):

- The maturity of the swap transaction,
- Probability of the reference institution to default,
- The expected rate of recovery in the reference asset
- Risk-free interest rate
- Protection is determined by factors such as the credit rating of the seller.

3.5.4. Credit Event

A credit event refers to an adverse change in the credit status of a borrower that triggers a conditional payment in a credit default swap (CDS). Occurs when a person or organization fails to pay its debt and fails to comply with the terms of the contract entered into, triggering a credit derivative such as a credit default swap (Corporate Finance Institute: 2015). When credit default swaps (CDS) were first developed, the intended use was to hedge cash debt positions with the derivative. With that in mind, the settlement method developed to settle credit events was what is known as 'physical settlement', after a default the protection buyer delivers the defaulted asset and receives in return the due amount outstanding from the defaulted entity. As time passed, CDS became the tool of choice to take a view on credit. This was facilitated by derivatives trading not being limited by supply and market standardization (www.isda.org/credit, 2020). The failure of the company to fulfill its debt obligations is called a credit event. In practice, in order for a credit event to occur, it must be publicly documented and documented by the protection buyer to the protection seller (Öztaş, 2020: 43).

3.6. RISK OF CREDIT DEFAULT SWAPS

Credit rating swaps can be faced with various risks. The risks of this CDS are often encountered as there are also over-the-counter markets. This situation has become more common as investors invest in the more risky parts of CDS. CDS can sometimes

be inadequate. Therefore, companies and financial institutions may be inadequate. Financial crises can be the best examples to explain this situation. At the same time, the risks of CDS can be similar to option contracts. While trying to eliminate the credit risk, it can sometimes fail. On the other hand, country risks are among the CDS risks. Country risk consists of the combination of economic, political and social risks of that country. The person or institution that purchases a CDS contract from the insurance company basically insures an insurance transaction against the possibility and risk that the counterparty does not fulfill its obligation or will fulfill it late (Gül, 2020: 660). Investors who do not find the CDS scores good due to the high risks of the countries do not consider contracts. CDS contracts can also be in a risky situation.

3.7. FACTORS AFFECTING CREDIT DEFAULT SWAPS

Credit default swaps (CDS) the important affecting are among macroeconomic and microeconomic factors. In studies conducted on the relationship between stock prices and macroeconomic variables, variables such as money supply, inflation rate, gross domestic product, current account, direct investments, exchange rate and interest rates were used as macroeconomic variables (Dizdarlar & Derindere, 2008: Eren & Başar, 2016: 568). Increases occur in CDS premiums by the credit rating scores of the countries. There are generally basic factors affecting CDSs. These factors are: GDP growth rate, current account deficit, export / GDP, import / GDP, export growth rate, market interest rates, risk-free interest rate, debt / GDP, reserves, real exchange rate, external debt, government revenues, household debt, GDP, risk appetite, inflation rate, unemployment rate, political stability, history of default, volatility in the stock market. At the same time, global indicators and countries' credit ratings constitute the most important factors affecting CDSs. On the other hand, country economies, political, political, market and counterparty riskiness can be said as the most important factors affecting CDSs.

4. VIX VOLATILITY INDEX

The VIX volatility index is an index that measures the degree of fear found in the Chicago Board Option Exchange Volatility index. Another name for the VIX index is the fear index. The VIX index was established in 1993. Since the VIX index follows the volatility in the markets, it is referred to as the fear index. The increase and amount of expected dividends in the VIX index are calculated using binomial methods. The

VIX index was initially calculated on the S&P 100 index. After 2003, options follow on the S&P 500 index.

The fluctuation of the returns in the financial markets has led to the researches on the creation of various instruments to avoid this uncertainty. For this purpose, volatility indices have begun to be established and have become important in today's financial markets. Volatility indices, which are basically based on the concept of implicit volatility, have been used in financial markets since the mid-1970s. Volatility indices have also entered our lives with option contracts in the USA, which was the beginning and center of many financial developments, and then began to spread and diversify around the world (Telçeken vd., 2019: 206).

1993 the Chicago Board Options Exchange (CBOE) has introduced a volatility index based on the prices of index options. This was an implied volatility index based on option prices of the S&P100 and it was traced back to 1986. Until about 1995 the index was not a good predictor of realized volatility (Brenner vd., 2007: 2).

Volatility derivatives on the stock index have attracted much attention to both academics and practitioners over the past two decades. Since the Chicago Board Options Exchange (CBOE) introduced volatility index (known by its ticker symbol VIX) in 1993, there had been a growing demand for instruments to hedge volatility risk (Jung, 2016: 189).

The VIX is an index, like the Dow Jones Industrial Average (DJIA), that is computed on a real-time basis throughout each trading day. The only meaningful difference between the VIX and DJIA is that the VIX measures volatility and the DJIA measures price (Whaley, 2009: 98).

4.1. HOW TO INTERPRET THE VIX INDEX?

The VIX index, in other words, is referred to as implied volatility. Along with globalization, effects have also occurred on the VIX index. The VIX index is based on the S&P 500 index. It is calculated over the difference between the buy and put option prices of the stocks in the relevant index. If the difference between these option prices is high, the VIX index is also high, which means that the volatility expectation in the market will increase, and if the difference is low, the VIX index is also low, which indicates that the volatility in the market is expected to decrease (Bektaş & Babuşcu, 2019: 99). Examples include the 1994 Mexican Crisis, 1997 Asian Crisis, 1998 Russia Crisis, 1999-2002 Latin American Crises, and the company scandals in the 2000s and

the 2008 Global Economic Crisis. What all crises have in common is the increased volatility in the market and decreasing investor confidence. Since the volatility in the financial markets causes adverse effects on the financial markets, it is carefully followed by investors (Saritaş & Nazlıoğlu, 2019: 543). VIX index created volatility in financial markets. This volatility had negative effects on the markets. The VIX index is based on the S&P 500 index options. VIX indices can be calculated over the price range found in options for buying and selling. Investors also take into account the volatility that occurs in international financial markets while making investment decisions. In this context, the VIX fear index is one of the volatility indices followed by investors (Akdağ, 2019: 236).

SECOND PART

LITERATURE REVIEW

In the literature review, it is examined in three titles. In the study, studies on departments are examined and studies also made in the light of these studies. Firstly, the effect of credit rating scores on stock markets in developing countries are examined. Although credit rating agencies are not of great importance for countries and stock exchanges, credit ratings is said that are considered. It has been determined that the credit ratings given in the stock markets of developing countries are important for investors or companies who want to invest. Yıldırım, Yıldız and Aydemir, said stated that the ratings, they made for credit rating agencies affected the country markets (Yıldırım vd., 2008: 1). Hull et al. credit ratings for government bonds and corporate bonds have been used by rating agencies such as Moody's and S&P in the US for years (Hull vd., 2004: 2790). Although there are a lot of credit rating agencies, it has been observed that Moody's, Fitch and S&P are mostly considered. These organizations are of great importance in order to detect financial crises beforehand. Because credit rating is said that it is easier to detect events that may occur for those who will invest. Nevertheless, incorrect ratings given to developing countries could also constitute a problem for financial crises. Credit rating is the most preferred method by countries, investors and companies. Through to this method, it is known that it causes the right choices by giving information to the people who will invest. At the same time, risks may occur due to the wrong grading of the institutions that give credit rating points. Secondly, studies on the effect of the VIX index on the stock markets of developing countries are examined. As a result of the examinations, it has been seen that there are not many studies on the VIX index. Chicago Board Options Exchange Volatility Index (VIX) is an index that measures the value of fear that may occur in the markets (Wikipedia, 2016). On the other hand, VIX index is also said as the fear index. The VIX index was created in 1993 and is known to be one of the important indicators it follows in many countries. The VIX index is an index that is calculated to determine implicit volatility in American type buy and sell options written on the S&P 100 index, which has 22 trading days to maturity in the Chicago options exchange (Kaya, 2015: 2). While the VIX index was initially calculated as S&P 100, is continued to be calculated as S&P 500 later on. It is said that the VIX index, in other words, the fear index can shed light on the stock markets for the future. Finally, studies comparing developing country stock

markets are examined. Generally, it has been determined that the countries' exchange rates and credit swaps as well as CDSs are also examined in studies. In the light of these studies, the effects of CDS are seen. Credit Rating Swaps (CDS) are defined as financial derivatives or contracts that enable investors to trade or offset their credit risk for another investor's credit risk (Investopedia, 2020). According to Langohr, CDSs have said that play a critical role in the capital market by guiding institutional investors in asset allocation by moving freely around the world, maintaining a balance between risk and return (Langohr & Langohr, 2010: 1). In another definition, CDS has gained an important place in the modern financial structure of the CDS by acting as a bridge between those who supply and demand funds (2008: 9). Credit Rating Swap Agencies (CDS) can be said to secure itself by minimizing risk. CDS can be said as the most preferred loan derivative because investors have less risk. It has been observed that CDSs in developing countries reduce the risk in the stock markets.

1. IN DEVELOPING COUNTRIES THE EFFECT OF CREDIT RATINGS ON STOCK EXCHANGE

In the literature first of all the relationship between credit ratings and stock markets in developing countries is examined. Özcan says to credit rating scores indicate the repayment of debt and risk of institutions or organizations (Özcan, 2016). Mihaelajmena said in their credit ratings, most agencies said could not operate in the market. At the same time, the credit ratings have indicated that CRAs are competing in the markets and is remain oligopoly (Mihaelajeno, 2015: 633). It was seen that many studies have been conducted on the credit ratings of developing countries. Although the risk of credit rating agencies is high, it was seen as the most used method. Credit rating agencies is provide information to investors to make the right investments. It is known that there are many credit rating agencies. Each of these credit rating institutions has its own scoring system. S&P, MOODY'S and FITCH are seen as the most used institutions among credit rating agencies. During the studies, S&P, MOODY'S and FITCH institutions as the three major credit institutions were mostly discussed. At the same time, it has been said that the credit ratings can give wrong credit ratings on developing countries. In addition to the good aspects of the credit ratings, the bad aspects arise. For example, while the credit rating of a developing country is AAA, it can have negative effects on financial crises. Incorrect credit rating grades can be shown as the reason for this situation. In fact, it is said that the country is due to the high score while the credit

rating is low. It has been said that the crisis that occurred in any country during the crisis periods, along with the increase in globalization, caused effects in other countries as well. It is observed that the credit ratings also have an effect on this situation. It has been observed that many types of analysis are used in developing countries' stock markets, as they can have positive effects as well as negative effects. It has been observed that analysis types are used respectively in order to obtain precise results. Analysis types such as Herfindahl-Hirschman Index (HHI), multiple regression, regression, and Granger causality tests were found to be used. As a result of these analysis tests, can say that it is possible to say something definite. In the literature study we conducted, it was seen that many studies have been conducted and examined on credit rating scores from past to present. Studies on credit rating scores in developing countries, which are the most striking issue related to these studies, have been examined.

Afonso, Furceri and Gomes (2012), in addition to measuring the responses with rating agencies by conducting an event study on the EU's bond yields, also examined the CDS data. It has been stated that after the crises between 2008-2009, the bond yield margins of the EU countries among the states increased above the expected values. In the paper is said that case analysis is applied to compare the CDS spreads of EU countries in order to look at the increase and decrease of credit ratings between countries. When using the data, they dealt with daily data between 1995 and 2010 in the study. It is seen that the study has contributed for two days. First of all, S&P, Moody's and Fitch organizations said that the return margin is checked within two days after announcing. As the second direction, the causality test have been looked at while comparing the converted ratings and CDS spreads. In the study also looked at whether it carries more information for the market, as well as increases and decreases. In the paper has been said that in their literature review, the ratings and CDS spreads for the economies of developed and developing countries are examined. While doing the literature study mentioned that there are many articles describing the behavior of credit rating institutions. During the study, in order to look at the data more accurately, they are examined them separately as independent ratings, data sets and stylized facts. While the credit ratings of countries are announced, it is considered that countries could be affected by government returns and also to what extent CDSs affect behavior. Three major credit institutions, S&P, Moody's and Fitch, are said to have caused changes in

their credit ratings. In the paper is seen that many results have been achieved in the study. When a negative evaluation is made, it may not show the facts. For this reason, it is seen that it can cause confusion. In the study is also emphasized that it may cause deviations. However, during the analysis, it has been observed that spreads for EU countries react more quickly. For this reason they are called note and efficient spreads. At the same time, it has been said that changes in credit ratings can affect the spreads of countries significantly. Some questions can be created while making ratings. It was asked whether it would be external for rating announcements. In the paper has been said that the answers to these questions may be different.

Fatnassi, Ftiti and Hasnaoui (2014), said that capitals for developing countries started after 1990. While in the study constituted a less than percentage 1990 for developing countries, domestic investment increased after 1996. As the aim of the study, the effect of the credit rating agency ratings of 4 European countries from June 2008 to June 2012 on the stock markets is examined. In the period between 2008-2012, the country's credit rating agency S&P, Moody's and Fitch is calculated by looking at the log difference for stock returns while examining the economies of countries such as Greece, Spain, Portugal and Germany, which are European countries. Credit rating agencies have an important place in international markets. Ratings are a criterion for those who need institutional investment from S&P and Moody's. In the study has been mentioned that credit rating agencies are insufficient for developing countries. There are similar opinions in the studies conducted. In the study has been mentioned that the rating channels may pose a risk for developing countries. It has been said that few studies have been conducted for rating agencies stock markets. Through investment portfolios, it is thought that investors can get accurate information about risks, taking international events into consideration. In the study is also thought that the effects of rating changes on portfolios should be informed. The study examines government credit ratings as well as being politically important for countries. During the examinations made in the analysis, looked at the performance and market performances of the rating agencies in the market. Analysis estimates are made within two periods. The effects have been studied in two ways. The first effect is that foreigners may negatively affect stock returns for their own countries due to their negative ratings in downgrading. The second effect is that the state's loan debt is in a crisis period. It has been said that the

effects of strong markets may cause declines among countries. Throughout the study, pro-market credit rating agencies are mentioned.

Hull, Predescu, and White (2004), analysis is made to find Moody's credit rating in the study. In the study, the data are analyzed as a result of the information about Moody's and the literature study. It is mentioned that the annual cost of the companies' credit default swap margin to be hedged by the company. It is mentioned that credit default swaps are an innovation for the markets. It has been said that there are loan default swaps and bond yields among the theoretical relationships. In the analysis of study, evaluations are made for 5 years. Risk is considered to be low at 5-year clearing rates. While analyzing, 2 types of analysis are used. While the analysis is made, in the first analysis type, credit default swap changes are analyzed based on a rating, while in the second part, credit margin levels and credit margin changes are analyzed in the study. It is aimed to reach the information that is desired to be reached in both types of analysis. In the study is aimed to reach information about which is more important by reaching positive or negative ratings.

Brooks, Faff, Hillier, and Hillier (2004), investigated the changes in the country rating in the country stock market in their studies. In the research, it is stated that there are negative effects in case of downgrading for credit rating changes. In the study has been said that the decrease in the credit rating may cause negativity in the domestic stock market and currencies. In the study examined four of the credit rating agencies. It has been said that these credit rating agencies are S&P and Fitch as the institutions that have made the most important impacts. As a literature review, it has been stated that there are many studies on bond rating changes and the effects of stocks. In the study is stated that the first thing in the literature is about the sensitivities of the bond rating changes. The evidence presented against the EMH format and information on rating agencies are said to be semi-strong regarding stock prices and bond ratings. It is emphasized that there are two main findings for the literature. First of all, it was stated that bond ratings have no effect on upgrades and stocks. Secondly, it is mentioned that the ratings have negative effects. In the study has been stated in the literature that while the bond returns react to the changes in the country's credit ratings, there is no information in the studies for the stock market. As an important point in the study, it is stated whether the changes in the bond ratings of stocks are valid at the country level. It is also mentioned how globalizing markets should focus internationally for investors. In

the study is said that it could trigger changes in country ratings at the international level. The field effects of the credit rating changes between 1993-2000 on the countries' stock markets are investigated. It is stated that the foreign currency rating changes in the analysis are examined by the S&P, Moody's, Fitch and Thomson institutions. At the same time, the changes in the general currency ratings are examined in the article. Some important points are emphasized in their work. These situations are stated that there is little evidence for ratings. It has also been said that the upgrades do not have a big effect and the drops have a significant effect. In the paper have examined the impact of government rating downgrades regardless of their currency. When looking at four of the credit rating agencies (S&P, Moody's, Fitch and Thomson), it is said that is not all of them reacted in the same way. In the study has been said that developing countries are not sensitive and that more harm may be encountered than developed countries. It is mentioned that over classifications are of no use. It is mentioned that credit rating agencies provide rating for the country as well as evaluating the credit reputation of the countries. The tests carried out in the study have examined changes in credit ratings for foreign currency and local currencies, analysis by rating agencies, domestic and US dollar returns and abnormal returns on changing dates one by one. In the results of the analysis, it is mentioned whether developed or developing countries have markets affected by the evaluation changes and that can cover more than one rating class. In the study has also been said that the returns for the US dollar and local currency are strong. In the study stated that with globalization, international diversification is focused for investors and investment funds. It has been said that a lot of decisions and basic inputs are needed for international portfolios. They stated that if there is a change in credit ratings, it can significantly affect all portfolios.

Hilscher, and Wilson (2016) investigate the corporate credit ratings of investors of credit risk in their studies. The main issues are what credit ratings and ratings measure and correct approaches to credit risk. In the research, it is aimed to mention which issues investors touch more while avoiding risk and which risk measurements will be. In the analysis, information is given about whether the ratings are informative for the investors and what the risks can cover. In the analysis, the systematic risk screening was performed using the beta method. As a result of the study, it is stated that considering the dimensional nature of the credit risk, a single measure cannot catch all the relevant information.

Pirgaip (2017), said that for the grades has Turkey the credit rating agency between the years 1903-2016 examination of the positive and negative aspects. While conducting the analysis, he used the event analysis for Borsa İstanbul's share market. The credit rating is defined as the evaluation for the credit rating grade, while investigating whether the countries can pay their debts. It is been emphasized that credit rating agencies are sometimes criticized. These criticisms were mentioned as organizations not being able to notice crises in advance and they could lead to conflict of interest. But he said that credit rating grades for investors play a big role in their decision-making. It has been cited as Moody's, S&P and Fitch as the three largest credit rating agencies. If it is asked to rank the credit rating agencies, it has been said that S&P ranks first. In the study is later said to be Moody's and Fitch organizations respectively. In the study said credit rating agencies are make ratings according to themselves. Sometimes, watch and outlook evaluations are used to give an idea. When creating changes in credit rating, it is mentioned that it is called as positive outlook / watch or negative outlook / watch when there is an increase or decrease in appearance. While doing the literature study, it is mentioned that the credit ratings internationally extended until the 1990s. When they examined the studies on the subject, it is said that developed or developing countries for international markets were significantly affected. Turkey credit rating by Moody's which was first held on 1992, and in 1994 it was reviewed by S & P and Fitch agencies and was told that graded. Between the said that years 1994-2012 are non-investments can be made, although positive developments for Turkey. However, it is mentioned as the opposite situation between 2012-2016. After 2016, it is mentioned that the situation was reversed again. While creating the data, the period between 1993 and 2016 is focused and said that monitoring and outlook changes were taken into consideration in terms of evaluating countries. It is said that the daily closing prices of the MSCI index in USD are used in addition to the BIST 100 index obtained from Bloomberg. After the examination, it is said that the Shapiro Wilk Normal Distribution test is examined to see if it is normal for abnormal return. In the study is mentioned that these changes are positive or negative. Finally, it is stated that the necessary measures for the markets should be taken by the regulatory authorities of the periods for the decisions on credit ratings.

Tutar, Tutar and Eren (2011), are mentioned that credit ratings are of great importance for countries. In order to obtain information about the reliability of this

long-standing grading, they examined the credit rating scores in detail. In addition to in the study is effect on banks and starting it is history, information is given to credit rating agencies as well as its effects. In the study has been emphasized that sometimes countries can be given high ratings despite their bad conditions and that this situation poses a risk for investors. As a result of the researches, no definite reason has been found. No definite conclusion has be found about whether the credit ratings are reliable or not.

Ovalı, Kocabıyık, and Geyikçi (2020), said examined the effect of developing T-BRICS countries on the country's stock market indices with the ratings given by rating agencies between 2004-2019. Along with the rapid developments of globalizing countries, the developments in countries has been emphasized. As credit ratings agency by international organizations' ratings, the magnificent trio of S&P, Fitch and Mooy's have been examined for T-BRICS countries. In studies, the efficiency of the stock markets of T-BRICS countries is investigated thanks to various factors in the global economy. When looking at the literature study, it is said to be an interesting subject for rating agencies. It has been said that there are various studies on the subject. The analysis has been examined in two parts. In the first part, it has been mentioned that it was examined before 2008 and as the second part after 2008. In the study has been said that the reason for the examination in two parts is the USA Mortgage crisis. For the stock markets for T-BRICS countries, it is seen that certain institutions of the countries are examined. In addition to the common currency, local currencies are also examined in the research. For analysis, it is seen that the daily stock market closing indices as well as the 50 rating grades are examined. In the study was mentioned that when KDKs change in short periods of time, they create deviations for abnormal returns. As the aim of their research, it is to check whether the rating changes announcements of rating agencies have an effect on stock market indices. Stock indices for T-BRICS countries have been intended to be determined by looking at H0 and H1 hypotheses. For the calculation of the abnormal return, the difference between the daily returns of the countries and the MSCI EM Index daily data was examined. In the analysis, more than one step was used to calculate the abnormal return. As a result of the calculations, it is mentioned that the difference from 0 for the returns means that it creates abnormal returns. The results obtained for the analysis examined the effects of the ratings are realized between 2004 and 2019 on the stock markets for T-BRICS countries. For T-BRICS countries, positive

(negative) data for some countries and negative (positive) abnormal data were obtained for some countries. As a result of all the examinations, they rejected the H₀ hypothesis and stated that the study will contribute to the literature.

Çağlak, Küçükşahin and Kahraman (2018), stated in their studies that the credit rating ratings announced for international credit rating institutions affect the financial markets. It is mentioned that, developing countries credit rating agencies cannot ignore the effect of investors' interest in financial markets for countries. For in the study analyzed the credit rating of Turkey. Turkey was mentioned that the credit ratings were affected by political sources. The most important world-spherical three credit agency S & P, Moody's and Fitch credit rating agencies are mentioned they update and keep track of credit ratings in Turkey. Credit rating agencies in the years 1992-2018 was viewed 14 index credit rating for Turkey. In the analysis, they compared of credit rating agencies for sector indices. They concluded that the ratings for 14 indices do not differ between the credit rating agencies for the selected indices. In their work, they tried to contribute to Borsa İstanbul's broad list of indices for sectors. They also stated that could shed light on future work and that research could be done within different countries.

Tekin (2016), mentioned the crisis and bankruptcies that three major credit ratings could not predict in her study. Although it is a rating agency that operates very lots of around the world, it has been said that mostly three major international credit rating agencies (S&P, Fitch, and Moody's) dominate the markets. In the study is mentioned that credit rating agencies classify developing countries and developed countries while making ratings. In the study mentioned that countries or organizations are announcing their credit degrees globally to the whole world at the same time. It is mentioned that credit rating agencies have an important place for countries. It has been said that borrowing becomes easier thanks to the credit rating agencies. Credit rating agencies have tried to facilitate measurement for companies and countries with icons and notes for their debt. While giving credit ratings, it is mentioned that CRAs are not transparent and they can increase the crises more. For this reason, it can be said that objectivity is not much for CRAs. In the study is also mentioned that the rating agencies stated with Watchlist for their changes and other things they will do, and that Watchlist takes time. It has been mentioned that CRAs sometimes pose a great risk for countries. In the study can put countries in a difficult position by lowering their credit ratings before or after bankruptcies and crises. Because of this situation occurred in Turkey,

that are experiencing this situation and low interest rates are mentioned borrowing long-lived. At the same time, it is mentioned that there is no other institution that can replace credit rating agencies, therefore, when making decisions, grading and ratings should be examined more carefully.

İskenderoğlu and Balat (2018), examined the effects of developing countries credit ratings on CDS premiums. Between the years 2013-2018 the credit rating agencies in developing countries work with Turkey and the BRICS countries have been made. S&P, Moody's and Fitch, which are three major international credit rating agencies, were examined in the study. In addition to the credit ratings risk, the data has been checked as it can be followed instantly in CDS premiums. In the literature review, has been examined in studies related to CDS as well as credit ratings. The study is aimed to reach results such as how the relationships between CDS premiums and credit rating grades are examined and which methods are used. Rating announcements and CDS premiums were compared in analysis studies. This comparison results of the variables in the S & P, Moody's and Fitch companies of Turkey and the countries of the BRICS countries as long-term foreign currency credit ratings of variables were examined first. In the study, only grade variables were considered especially for the first variable. The grade changes under consideration were analyzed for countries for 17 credit ratings. As the second variable, CDS premiums are calculated with 1, 5 and 10-year terms, while 5-year CDS premiums are analyzed in the study. The methods followed in the study were event analysis, t-test and Mann Whitney U test. At the same time, Shapiro-Wilk Normal change test and Mann Whitney U test were examined in order to find out whether the credit is abnormal for abnormal changes before and after the event. Review credit note for Turkey and the BRICS countries as a result of S & P, Moody's and Fitch to lower credit ratings the company is said to be a significant effect. As a result of the study, it was stated that the decrease and increase in the country's credit ratings caused the CDS premiums to increase.

Yıldırım, Araz, Tatan, Çalışkan, Yıldız and Aydemir (2017), a studies conducted between 2012-2016 on the Borsa Istanbul index of six sector indices in Turkey, conducted in a study regarding credit ratings. Event study method was used for the effects of 6 sector indices. It is mentioned that credit rating agencies affect the markets. It is mentioned that credit rating agencies facilitate borrowing and lending and taking measures against risks with the notes they give. It is been said that credit rating agencies

are considered reliable for international investors. Analysis study, while the S & P, Moody's and Fitch agencies their observations with that Turkey has given to the notes. It is been said that the sectors selected for analysis are the sectors most affected by the changes. By doing event studies, they examined short-term changes. As a result of their examinations, they stated that credit rating agencies do not affect countries completely. In this case, it is seen that in the same way in Turkey.

Kargı (2014) study, organizations for the credit ratings are based on the specific context of the notes indicated that Turkey economy is right-wrong or how accurate is examined. The study, examining Turkey credit ratings were analyzed between the years 1998-2013. It has been said that credit rating agencies are generally of US origin. In the study, it is mentioned that credit rating agencies give ratings to countries and prepare reports as a result of the ratings. Credit ratings are of great importance for investors. In the study has been said that the credit rating grades given for the countries are of great importance since they include many factors related to the countries. In the article, an extensive research has been done on the credit ratings. Information about an international credit rating agency is also provided. S&P, Moody's and Fitch institutions are said to be the most used credit rating agencies. The three organizations are said to be still effective, even though there are major criticisms. Emerging from the past to the present day in Turkey are said still he did the grading of the three major credit rating agencies. In the study, specific data are compared with the grading of Turkey to the grading that credit rating agencies. The aim of the comparison is to measure the impact of grading changes on the national economy in the study. The risks that occur in the country are of great importance for the credit rating. The study examined only the economic variables for the given grading. In the study results, between the years 1998-2014 for Turkey is been said that there are two critical periods. 2001 and 2008 years are stated as these two critical periods. S & P, Moody's and scoring with studies which have been given to Turkey the establishment Fitch has created graphics for economic variables. As a result of the graphics in the study created, the graphics are interpreted one by one and made evaluations about the establishments. As a result, it is said that Moody's and Fitch institutions' ratings are more positive than S&P ratings. However, S&P ratings have been said to be more relevant for variables in the economy and closer to movements.

Mihaelajeno (2015), aimed to answer some important points in the article. The profitability of the credit rating agencies, how the credit rating is given for the enterprises and who is paid the credit rating, answers were sought. In the study, the data of three major credit institutions S&P, Moody's and Fitch between 2003-2012 are analyzed. It is said to be a tool that tracks a long-term development for credit rating agencies. When rating agencies examine short term periods, fluctuations are not observed. Therefore, credit rating agencies have an important role in the market. It is said that many agencies cannot maintain the credit rating market. It was mentioned that credit rating agencies (CRA) will remain as oligopoly competing in the markets. There are a lot of global credit rating agencies. However, only 3 credit rating agencies were said to remain active. These three credit rating agencies are S&P, Moody's and Fitch. The internationally known statistical rating agency (NRSRO) is said to be the credit rating agency that regulates the credit ratings of qualified corporate buyers with certain conditions. It has been said that the national credit rating agency, financial institutions, intermediaries, dealers or insurance companies, as well as export companies, asset-backed exporter dealers, and people who export government bonds by the municipality or foreign government are credit rating agencies that comply with any or a few items. In the paper was mentioned that the first credit rating was given in 1909 and then in 1907 the USA caused panic. In the study has been said that the credit rating is the result of investors seeking objective information. It has been said that, since 1908, its credit ratings have grown at an international level. Credit rating agencies have been compared to external auditors. For this reason, it has been said that credit rating agencies can strengthen companies' contracts, reduce costs and be tracked. Credit rating agencies can objectively evaluate bankruptcy or default risks for investors. In the study has been said that companies with debt can benefit from the credibility of credit rating agencies. Credit rating agencies are also said to be able to facilitate contracts. Credit ratings are said for reference. It was also mentioned that rating agencies can pave the way for conflicts of interest and support exporters. In the study is said that it is measured using the Herfindahl-Hirschman Index (HHI) to measure the competitiveness of an industry. On the other hand, the reverse of HHI is stated to be used to represent the number of firms that are equal in order to increase the concentration on the sectors. Since 2008, increases have been observed for HHI inverse for financial markets and stocks. For this reason, it is been said that the density for the NRSRO sector is decreasing for the ratings. Rating agencies have been studied by the accuracy of profit and performance. In

the study, it is seen that net turnover, net income, number of employees, net profit margin for all three agencies and labor productivity are calculated for the profit margin of CRA. Although there are theoretical studies and intuitive studies, the lack of experimental studies is mentioned in the studies. It is been said that the new financial data creates negativities. As a result, it is said that credit rating agencies have the details to verify and rate information for exporters.

Coşkun (2016), mentioned the importance of credit rating in the study. For years, organizations in developing countries have been determining their credit ratings. In the study, credit rating is also mentioned that Turkey's credit rating has been used since 1990. That enter Turkey from time to time between investment grade countries, but since 2016 it is emphasized that there is the opposite situation. The results obtained are mentioned that occur as a result of comparison with countries with speculative Turkey. In the study, Turkey is been involved in speculative grade. Nevertheless, it remains behind other countries have been mentioned as Turkey credit rating. This situation is not advantageous for Turkey. In addition to economic indicators for the determination of credit ratings, it is mentioned that it has a high impact on political, social and geopolitical indicators. A poor credit rating for Turkey is mentioned because of many reasons. The reason why is mentioned that adversely affected in terms of Turkey's credit rating by.

Toraman and Yürük (2014) conducted research on credit rating agencies and credit rating scores. Starting with the definition of credit rating, detailed information about credit rating agencies has been given. It is important for credit ratings as it is reliable, accurate and understandable. It has been said that it is facilitate the business of investors. It is thought that the credit ratings can reflect the financial assets of the countries and companies correctly. Credit rating agencies use lettering so that investors credit ratings can easily understand. At the same time, S&P, Moody's and Fitch institutions, where credit rating agencies are very high, are said to have more dominance. In the light of this information, it has been said that investors will have information about the risks and their liabilities. It is said that the ratings given by credit rating agencies affect countries, companies or investors. At the same time, it has been said that the ratings given by the credit rating agencies can be misleading from time to time. Although it is seen that it has a high rating, it is seen that it is in financial crises. Financial crises have been experienced due to sometimes given grades The article

provided information on financial crises. It is seen that information is given about the negative aspects of credit ratings.

Ovalı (2014), the study is to Turkey's economic situation and compare the EU. Turkey has been looking at the grades given the economic situation of the credit rating agencies. It has been said that credit rating agencies have an important place in financial markets. In the study is been said that credit risks are identified, providing convenience for countries, companies and investors. More than 100 credit rating agencies at the global level said they are located at the individual or national level. However, S&P, Moody's and Fitch organizations, which are named as the biggest three companies with the highest ratings, are said to be considered worldwide. Credit rating agencies are said to be subjected to criticism. The reason for these criticisms has been incidents such as lack of transparency, lack of inspection and misdirection. It is said that credit rating agencies make ratings for investors to understand more easily. In the study has been said that the importance of credit rating agencies has increased in order to obtain reliable information for investors during globalization. This is said to be due to financial instrumentation emerging in Europe. It is been said that there are very few countries with no credit ratings and these countries are underdeveloped countries. Turkey initially used their credit rating agencies to defend itself against US funding. In the study then mentioned that the process of creating its rating on the world money market borrowing Turkey. Firstly in 1992, Moody's and S&P notes are announced for Turkey. In 1994, it is said that Fitch announced its firstly rating. Because of Turkey's credit rating was mentioned in volatility over time. Crises have been shown as some of the causes of fluctuations. Turkey and EU countries according to the criteria of political comparing the S&P enterprise, economic, financial, external, and monetary indicators were examined. During the analysis, rankings were made from high to low according to the credit ratings of the countries. As a result, S&P has EU countries is leave behind into the Turkey among the criteria, mainly Turkey is not considered to be still in investment grade countries. Turkey's credit rating in determining has been said that the unemployment, the current openness and political stability an important place. Therefore credit rating agencies have said that Turkey's political and economic uncertainty.

Cantor and Packer (1996) stated in that the demand for credit rating agencies has increased in recent years. The reason why credit rating agencies are so cared about is

said to be risk ratings. In the study is mentioned that countries with a risk of default borrow more. If there is a lower rating than expected, it is been said by companies and investors that the consistency of countries' credit ratings is examined. It is emphasized that in this way, rational decisions can be reached. Two leading credit rating agencies for the USA were examined in the study. These rating agencies are S&P and Moody's. The first systematic analysis review was conducted with credit rating agencies. The two credit rating agencies are been asked to be compared. In the study is thought that credit rating agencies can be explained with well-defined criteria related to their credit rating scores. It is also thought that S&P and Moody's had effects independently. It is said that when government credit risk occurs, credit rating agencies provide a lot of relative protection. In the study is mentioned that if there is no investment class, it creates effects. Credit ratings are stated as an international relative rating of countries. Countries are said to have applied for a credit rating when they fail to fulfill their debt or obligation. Countries are also considering to facilitate their transactions. Although credit rating scores are given internationally, it is also mentioned that they are also effective in points given within countries of the same nationality. Different symbols can be used for the credit rating of S&P and Moody's. However, it has been said that both of them have a rating scale that can oppose each other. There are certain criteria for S&P and Moody's. Rating criteria are able to accommodate political, social and economic factors. It is been said that the credit rating scores related to these criteria can sometimes be measured completely and sometimes partially. Credit rating agencies are looking at a lot of criteria. It is been said that sometimes S&P and Moody's factors can be difficult to determine. At the same time, thanks to these criteria, credit rating agencies become safe. They are applied regression analysis while using the reports provided by S&P and Moody's for credit rating agencies in analysis. They are tried to measure their importance by using some variables in regression analysis. It is been said that countries' ability and willingness to pay off debt will be analyzed by looking at per capita income, GDP growth, inflation, financial balance, external balance, external debt, economic development and assumed histories. It was aimed to evaluate social and individual importance by conducting examinations with eight variables that helped to determine the ratings in 1995. It was aimed to measure mutual power of variables using multiple regression. At the same time, it is aimed to measure individual contributions while grading with eight variables. During the analysis, it is seen that the regression analysis grades given by S&P and Moody's are compared with eight variables with the least

squares of numerical equivalents. It has also been said that predicting large differences after the model is built is impressive. They are argued that the explanatory power of the model was impressive thanks to the regression analysis predicting R-squared value grading differences. It has been said that regression analysis does not create too many estimation errors. It has been said that if the closest large letter values are compared with the predicted values to measure accuracy, correct results are obtained. In the study, no systematic relationship was observed regarding the variables. However, it is thought that the explanatory variables for the variables decreased the importance. Although there are different evaluation methods for S&P and Moody's, it has been observed that they emphasize the same rating criteria. At the same time, it has been said that the organizations mostly emphasize similar ideas, and if there is a different opinion, small differences may cause. During the study, it was said that S&P and Moody's evaluated thirty-five countries in 1995. These countries are said to be the countries that buy and sell the euro-dollar regularly. At the same time, bond values were kept under follow-up and it was mentioned that bond spreads are an important power of credit ratings. It has been said that many methods have been tried for S&P and Moody's while using regression analysis. But the desired result could not be achieved. It is been said that if the ratings go down, the returns go up. Credit ratings are highly sought after by countries and governments. The stated risks are said to be significantly consistent. For investors, countries and governments, knowing consistent risks by credit rating agencies brings positive results. In the analysis conducted in the study, they stated that the macroeconomic rating indicators of the states were summarized in a meaningful and effective way. It is been said that the credit spread in the markets is strong in this way. At the same time, it was concluded that credit rating agencies affect market spreads independently. As a result of the study, it was said that it supports the corporate state sector in a positive way. However, it is thought that more research will be done at certain points. As a result, it was stated in the study that credit rating agencies are a predictable component. Despite this, it has been concluded that it can go beyond public data.

Reisen, and Maltzan (1999), the time until 1989-1997 by comparing the state credit notes and dollar in examined. Credit ratings given to states got from S&P, Moody's and Fitch organizations. In the study is worked on explosion and collapse cycles for developing countries. It is been said that emerging markets have faced

explosions and collapses in the 1990s. It is known that there were many financial crises in the 1990s. It is said that the effect of the country's credit ratings was increased due to the global markets. Another reason for the increase can be said as the effects of the crises on the markets of developing countries. Even countries that were well off before the crises are said to fall into insignificant status later. It is said that rating agencies have established late warning systems for crises. However, it is mentioned that the Asian crisis is linked to macroeconomic performances. Explosions can reduce the expectations of countries. At the same time, it is also thought to have effects on credit booms and financial fragility. In the study is thought that early warning systems will not be effective if the credit ratings of the countries and old crisis models are considered together. However, it is been said that this situation can be good for investors. It is been said that it can create strength in herd behavior for investors. There are some criteria when determining the credit rating scores. They emphasized that these credit rating grades for countries are not easily given. These criteria include examining the risk ratings of countries against crises as well as the willingness to lend when the supranational mechanism begins. In the study, the temporality of the effects created by the markets is examined. It has also been said that the focus is on herd behavior and its strength or weakness. Two methods were used in the analysis part. These methods are event analysis and Granger causality testing. While analyzing, event analysis was made by taking certain period intervals into consideration. In the study is said that the Granger causality test was examined after making adjustments in the returns of the countries. In the paper is aimed to investigate the effects of S&P, Moody's and Fitch organizations on the country markets. At the same time, it is said that a case study was conducted to compare the US dollar and the institutions that made the rating situations. It has been said that it is not only possible for rating agencies to be graded, but also for ratings. In the paper is stated that they are applied three major credit rating lines. However, instead of linear transformations, it is said that he could not change his studies with logistics. The Granger causality test is used to measure how much change in income distributions created determining the observable returns of government ratings. While applying the Granger causality test, it is been said that there is an application for each credit rating agency. As a result of the Granger causality test, regression analysis was created for all three organizations, and it was said that they originated from the R2 derated panel method for all three organizations. It is said that they try to bring countries together in equal numbers in order to create equality while making predictions. It has been said that

if predictions are made by market reactions, it can weaken the test. Therefore, it was mentioned that a two-way Granger causality test was applied. According to the Granger test result, they saw that the three major credit rating agencies did not lead independent credit ratings for the country. For their rating explanations, they are said that their effects could arise from various events. Credit rating agencies can concentrate or mitigate countries by giving loans at times of boom and collapse. It is thought that rating signals can protect investors early if the margins are falling and will cause permanent losses. It has been said that if credit rating agencies act independently, they can effectively reduce the explosion-collapse balances. At the same time, it is been said that the new information they present to the market may delay or direct their return spreads. In the study is been said that ratings changes can lead to margins. When the margins change, the markets can change with the predictions of the states. At the same time, it can cause negativities in independent markets, leading to a decrease in market effect. Therefore, they stated that it is important to use the credit crisis and money crises with international early loan balancing institutions. As a result, it was seen in their studies that rating agencies were able to mitigate explosions in terms of case studies. However, it has been said that the opposite is for the Granger causality test. They thought that countries that entered the market on time are independently market leaders and were not efficient for organizations.

White (2010), that behavioral patterns will increase the functioning of goods and services in order to increase the functioning of the market. In the study is been said that can be beneficial in markets, behavior and regulations of countries, together with supply and demand. In the study is said that over time, the bond notes of the companies were sold to investors and these companies were said to have grown over time. In the market is been said that the structuring of the securities exchange and high-interest housing mortgages started to grow in the market over time. However, is emphasized that there is a major credit rating agency for securities for exporters. Ratings are made by these three credit rating agencies S&P, Moody's and Fitch. In ratings agencies is been said that these three large organizations are of great importance for a successful sale. In the study is been said that in addition to obtaining positive ratings and applying for high-interest housing loans thanks to three major institutions, debt obligations in securities sales have increased in sales. At the same time residential sales is been said that there is an increase in sales in the USA in the same way. The prices of the securities sales have increased

and is said to have a strong finance. At the same time, global decreases have been created and has been said that global crises have emerged in addition to the USA. The subject emphasized in the article is the mistakes made by the credit rating agencies of the USA and their effects on the finances of the USA. At the same time, is been said that it is desired to investigate the effects of financial regulators on credit rating agencies. In the study is emphasized how credit rating agencies enter and develop their industries. In the study, is stated that the policies of the countries that may affect their industries have changed for the credit rating agencies. In the paper is said that the purpose of credit rating agencies is to find information about the credibility of mortgaged securities of countries, companies and independent government bond exporters, as well as to have asymmetric information. With Moody's, S&P and Fitch agencies, is said that they earned money by selling loan ideas to investors. Credit rating agencies generally use scales. In the study is said that these scales can differ for each organization. Banks are said to be unable to operate comfortably and are linked to credit rating agencies. In the study is mentioned that S&P, Moody's and Fitch organizations started to act according to the rating agencies. In the study, it is said that three major credit rating agencies were completely centralized thanks to the securities and stock exchange commission. In the study is said by the SEC institution that is desired to use the risks of portfolios and the bond net risk indicators. Moody's, S&P and Fitch organizations have joined the NSRO commission. It is said that this situation is thought to solve the problems. At the same time, with the establishment of the rules, credit rating agencies have become more important. In addition, it is said that banks and financial institutions can be more regulatory by looking at their credit rating. Recommendations regarding credit ratings have been made for investors. These proposals are said to be first released for excess investors, secondly to be the second guarantor for bankrupt bond markets, thirdly investors to want to pay for the bond markets and finally to have a bilateral market. Having different credit institutions means are that conflicts of interest arise. In the paper is said that credit ratings may be incorrect due to conflicts of interest. It is said that all security decisions must be made in order for credit rating agencies to progress differently. Withdrawal of rating agencies means a change in policy. As a result, credit rating agencies may not show that everything is fine when withdrawn. On the contrary, it is said that would be better to be under the institutions that can be safe and provide order.

Hooper, Hume, and Kim (2008), stated in the article that it is aimed to examine the effect of country rating changes on international financial markets by considering 42 countries between 1995-2003. In the study, it is said that rating agencies provide information to the markets. At the same time, it is stated in the study that stock market returns in US dollars increased and volatility decreased. Credit rating agencies are said to have been heavily criticized after the Asian crisis. Some conditions need to be looked at in order to see that crises can grow. As a first condition, it is stated in the country notes that new information should be provided for financial markets. Secondly, it is said that financial markets should fall behind country ratings. It has also been said that some events can contribute when there is a crisis. It is said that financial markets research ratings for pre and post announcements to measure concurrent responses. In the study, it was stated that while the US dollar was the average response on the local currency in stock and exchange rates, lagged behind the yield volatility in terms of US dollars. In the study is been said that asymmetrical effects. At the same time, it is said that the effects on the markets increase more in times of crisis. The study stated that Moody's, S&P and Fitch organizations have more trust for international investors and are the most important practices. The concentration on credit rating agencies is said to cause international discussions. It is said that rating agencies are heavily examined in the study. In the study, it is said that besides predicting the Asian crisis, reactions were slow and could prolong the crisis. In the paper, it is said that the evidence of the study may be uncertain and could provide new information to financial markets. At the same time, it is mentioned that the studies conducted focused on the effects of changes in companies. In addition, credit ratings in international markets have changed and create an increase. This increase is said to be a good example for the country's credit rating. As a result of this situation, it is been stated that there is evidence that it affects the prices of securities in several of the studies. It is been said that the changes in the credit ratings are at three levels in order to have an effect on the country markets. It is stated that firstly, insights were developed by looking at the price discovery process in the markets, secondly, important inferences were made in financial applications, and finally, country ratings are of critical importance for the international policy perspective for financial markets. The aim of the research is to examine the impact of country rating changes on national financial markets. At the same time, it was said that studies on the use of the role of credit rating agencies in international finance were examined. For the purposes of the study, the first issue to be examined is the nature of country credit ratings and the

effects of national markets' returns for the stock market. In the study, changes in country credit ratings of 42 countries between 1995-2003 were examined. Against the upgrades and decreases of the credit rating agencies, the effects of the rating changes in various markets and the reflection of the rating on the market can be examined in detail. At the same time, it was said that some findings were examined in order to do the study. It has been stated that the fact that the study is comprehensive as a data set as a comprehensive data set and unique in the approach of its models will contribute to the literature. Various reasons were found as a result of the study. In these inferences, it is stated that first of all, it has created new information in state declarations. Second, it has been said to be valuable for those who will invest in markets for portfolio managers as well as developing countries. Rating agencies are said to provide new information for markets in financial markets. At the same time, it is said that increases and volatility in the US dollar decreased. As another finding, it has been said that while the stock returns of the domestic currency generate returns for the US dollar, the US dollar returns are also the volatility of foreign exchange. When the analysis was examined, it was stated that the broad and deep subject was better understood and the rating changes were important. It was also found to be asymmetrical in the study. It can be said that the study has important political criticisms. Rating changes in terms of financial crises have caused different events. However, it is been said that credit rating agencies may lag behind for financial markets. Finally, in the study are asymmetric responses for rating explanations and downgrades of market reactions. And the study is said to be more in times of crisis. Finally, in the study, it is stated that the credit ratings formed in the country included the information and the capital adequacy was examined within the external credit ratings. It is also said that it could improve regulations in banks around the world.

Reinhart (2002), stated that credit rating agencies play an important role in determining market access and conditions in capital in countries. The article is said to seek answers to some questions. For example, looking at the relationship between exchange rates and defaults. At the same time, in the study is said that currency collapse in developed countries is not dependent on defaults. The differences in the economies of developed and emerging markets are examined as well as how the countries will be after the money crises. In the paper, it is also been said that developing countries' economies are reactive. In the study, are the links between countries' high markets, crises and defaults are mentioned. If there is a prediction in credit ratings, is said that finding a link

between emerging market economies and credit defaults should affect credit ratings before monetary crises. On the other hand, it is stated that the reduction and size of the developing country markets are more important. However, it is said that currency crises may increase in default for emerging markets. In the study, it is thought that developing countries' economies may cause devaluation due to the fact that market economies are generally in dollar terms. In the study it has been stated in the study that devaluations are more constrictive for developing country economies, as well as more precise and immediate evidence for capital accounts. Therefore, after the crisis, a collapse occurs and credit ratings go down. It is said that it will turn into a credit crisis as the economies of the countries will lose their access to international credit. At the same time, upgrading the credit rating is said to be better for predicting default, although it can keep money crises going unnoticed. At the same time, in the study, it was stated that countries succeed in credit defaults even if they cannot estimate their credit state ratings exactly. It is been said that credit ratings, default ratings, are better than currency crises. However, it has been said that the said situation is not sound for different models. It was also stated that the results of the study would be good to include in high ratings and vulnerabilities for the forerunners of currency crises for rating agencies. For the currency crisis literature, it has been said that a lot can be learned by studying the pioneer and frequency of default. As a result, it was stated in the study that monetary crises are not associated with defaults, but excessive default in currency crises.

Kim and Wu (2011), examined whether the changes in credit ratings help determine the bank flows of developing countries. In the study, it is said that it creates financial support for the financial development stages for economies that are making international bank transfers and for emerging markets. At the same time, it is said that problems arise and risks arise because developed countries' finances are transferred to developing countries. The study explores the independent credit rating of the flows of international banks and the economies of emerging markets. At the same time, it is said that the study aims to measure the quality of the goals of the changes in the banks of the G7 countries. However, it is mentioned that global interests and developments in world economies are supported in order to understand the developing markets clearly in international banking activities. In the study, it is said that it is thought that the rating agencies are partially monitored by international bank loans. It is thought that credit rating agencies can make the knowledge and production that may occur in international

banks more positive for loan agreements for emerging markets. For the purpose of the study, it is stated that the values of credit rating scores for credit information were not investigated. At the same time, it is said that the independent credit ratings are the reference criteria by which the creditworthiness of the countries is determined. In the literature of the study, it is mentioned that government credit ratings are related to short-term information for market returns and contexts. In the study, it is said that country credit ratings are determined for international bank loans in emerging markets. At the same time, 55 developing G7 countries stated that a comprehensive study in the market is conducted by examining the quarterly changes between 1995-2008 and their credit ratings. In the study, it is stated that the positive effects of government loan conversions in international markets of developed markets on bank flows are analyzed. In the paper, it says that if foreign currency borrowers make their re-ratings to governments, are good for investing borrowers, but countries do not have ratings for investing. It has been said as the expectations of the ratings of the local currency for the investment and its repayment in hard currency. As a result of their examinations, aimed to improve the risky credit decisions of borrowers for countries without investment grade, as well as environmental impacts. At the same time, it is been said that these countries may prefer markets that are in their past and are risky because give international loans. In the study is stated that they examined the significant competitive rating spillover effects as well as the decrease in the emerging markets of the G7 countries formed in emerging markets. In order to better understand the effects of short-term correlations on financial returns and international banks, they are also examined in the literature as a result of the analysis. Various implications have also been made in the study. These implications are said to be financial corporate governance, international portfolio returns and international banking regulations. As a result of the study, it is said that Basel II is the bank risks that it shows the credit activities as well as the new perspective about credit ratings. It is thought that it can provide forward looking activities with the results obtained in the study. At the same time, it is concluded that fund flows from rich countries to poor countries were provided and developing markets were affected by their financing. In the study, credit rating revisions were examined and the effects of developed markets and international bank flows are investigated. At the same time, strong regional rating and spreading effect was found in the study. In the study, it was said that the improvement of ratings in emerging markets in different regions reduces bank flows. It is said that the results of the effects of emerging markets on international

banks are tried to be found. In the study has also been said that lending for foreign currency information for countries willing to invest is more effective, but it is more effective for countries with no investment grade to influence decisions. In the study is stated in the study that the targets of the developing markets for bank loans without investment risk are clearly. In the study, it is said that there are complementary effects for the high market bank flows of Asian countries in terms of ratings. In the analysis part of the study, it was found that positive spreading effects were encountered in the part before 2003. At the same time, it is said that the ratings for Asia and Europe improved in 2003 and the bank flows to different information decreased. In analyzing together with the results found in the study, it is seen that there was clear information in government credit rating and international bank loans. In the study light of the results, it is been said that it plays a vital role in the country for emerging markets, and at the same time, it has achieved consistent information and cooperates with rating agencies. As a result of the study, it is stated that the significant influence of international bank flows for rating information cannot be denied. It has also been found to affect international banks as a driver for the G7, while it is considered as the pull factor when conducting reviews. As a result, it is stated in the study that growth power in the developed world and international bank flows are largely cyclical.

Aizenman, Binici, and Hutchison (2013), examined the effect of the purchase-sale differences on credit rating changes and time-based factors in the European Union. In the study, it is been said that global crises and volatility have increased at an unprecedented rate, and that are coming back on the agenda at the same time. It is said that credit rating agencies (CRA) systematically provide information about the probability and risks of government defaults in the markets in rating changes. In the study, it is stated that CDS and credit rating changes in Europe are important for some reasons. In the first study, it is looked at when the defaults occurred. However, in the study, it was stated that the prices for CRA and CDSs fell down and creative bets were made before the default. secondly, one or more of the GIIPS's CRA ratings were said to be "unimportant" after spring 2010 in Greece, Portugal and Ireland. Thirdly, it has been said that the state risks are priced fairly and according to international norms and that GIIPSs excessively risk the solvency of public finances. In the study, they said that how credit ratings and economic factors affect the spreads of CDS in Europe and they are looking for answers. In the study, it was stated that the differences between GIIP and

the EU were examined, the credit ratings varied over time and the prices before and after the GFC. At the same time, it is said that the study examines the linearity and risk pricing of CDS as well as whether they affect credit rating agencies or not. It has been said that credit changes over time and linearity are examined. At the same time, the study stated that focusing on the European region, as well as the concerns of the risk arising in the country when a crisis occurs, as well as the relationships between credit rating and pricing of government debt are investigated. As a result of the analysis, it was found that the changes in credit ratings are not only informative but also sound. At the same time, it has been said that CDSs are falling due to the concessions and increases in oil prices in the world. Because it has been said that it is due to the strong world economies while the prices are increasing. Many factors and variables were examined in the study. As a result of these examinations, they found that the panel models were informative and statistically significant. In the study, it was stated that the relations between the spreads of credit rating changes for the crisis period and afterwards have changed. In the study, they stated that the credit ratings and CDSs are similar in the pre-crisis period for European countries, but they were sensitive during the crisis period and the differences emerged for the GIIPS and European countries. In the paper it is said that the increases in global markets have increased the VIX and CDS along with it. In the study, it is said that commodity, oil and VIX have less effects among the effects of CDS spreads. In the study, it is been stated that there are important economic effects for CDSs, while controls are made in many ways in the changes in credit rating grades. When the study was examined, it was found that the changes in the credit rating had relationships in the CDS spreads and non-linear models. At the same time, nonlinear "spline" regression was applied in the study and it was stated that besides the sensitivity in the credit ratings, the U shape was determined. Even if the countries have the lowest credit score, it has been found that the high backlash increases the risk of state default and the risk of prices in the market is aggressive and increases more during the crisis period. In the analysis found at the end of the study, it is said that it is robust to include actual credit rating changes for credit rating agencies. It is systematically said to be an important determinant of the credit default swap margins in the EU for risk assessments by credit rating agencies bonds for countries. It has been said that they play an important role in pricing government risks for credit rating agencies. In the article, it was stated that there is a complex and time-changing relationship for the pricing of sovereign debt created during credit ratings and euro crises. In the study, it was

mentioned that the ratings on the government bonds appear to be regulatory and sensitive, as well as the high threshold for speculatively low investments. In the article, they also stated that as a result of the examinations, they found that the credit ratings are not linear due to their complexity. As a result of the study, it is said that it includes the “appearance” or “follow-up” signals of the credit rating agency. On the other hand, it is said that GIIPSs in the euro zone do not get involved in CDS spreads while lowering their credit ratings. It is mentioned that there may be local and global macroeconomic factors as well as varying and non-linear factors for CRA ratings in countries. At the same time, in the paper, it is mentioned that EMU investors combined with the global financial crisis in the first years as well as the asymmetric and weakness that may occur in the system that may cause the increase of the risk of state default. As a result of the paper, it is stated in the article that after markets focus on risk, EU countries and EMU member states can return to the financial market without fundamental change for financial conditions.

Benmelech and Dlugosz (2010), aimed to find real events about what the ratings of financial securities are between 2007 and 2008 as the aim of the study. In the study, it is stated that financial securities had debt in the US bond market since 2008. It is also said to have the highest credit rating for more than half of Moody's ratings for structured finance securities. However, it is found that the creditworthiness of financial securities decreased for Moody's between 2007-2008. In the study it is said that most of the tranches with the downgraded ratings have the highest credit rating. It is said that investors have a lot of trust in credit rating agencies. But it was mentioned that this is not true. In the article, it is stated that they wanted to be informed about the credit rating crises between 2007-2008 by conducting research. In the paper also stated that they are investigating what happened during the crisis and why their ratings went down. In the study, it is said that Moody's credit ratings were investigated by using the finance slice. On the other hand, it is been stated by Moody's that the raters have obtained evidence of their performance for all corporate bonds by looking at their passages with data. In other words, it is been said that the actual distribution is a measure for credit ratings based on economic bonds. In the paper it is also said that for all the discounts between 2007-2008, the default of home equity loans (HELs) or the discounts of the structured financing of the mortgage as collateral is considered. In the study, it is said that ABS and CDOs constitute a large part and serious decreases in downloads. In the paper,

stated that ABS and CDO's properties were determined by using their collateral levels. It is said that first the high concentration of dwellings, secondly the high exposure of the most risky segment, and lastly, low-range diversification is used. In the study it is also emphasized that rating collapse for ABS and CDO's was investigated. In the analysis, using regression, it is found that high downgrade and high ratings of rating agencies are consistent. When the regressions were examined, it was found that the reduction of S & P was more than Moody's or Fitch. At the same time, it was stated that the studies conducted contributed to the statistical models formed in the correlation of the default of the credit rating at the macroeconomic level. In the study, it has been said that CDOs can be monotonous or high, and that mistakes in credit ratings can be combined with many CDOs made to exporters. In the article, they said that they looked at the financing ratings and corporate bond ratings for any crises that may arise from Moody's ratings. On the other hand, they found that the frequency and size of note-taking increased as a result of examinations. In the study, the facts were tried to be revealed by examining the past. It was first said that from 1992 to 2001, lowering and upgrades were infrequent and roughly balanced. In later times, it was said that the severity of the crises in 2002-2003 increased for downgrading. The study also said that macroeconomic times are widespread and for finance that survives intact until the economic climate deteriorates, a model of boom and collapse. Second, attention has been paid to the size and severity of the crises as well as the existence of them. At the same time, assets are stated as the most unsuccessful rating class in the study. Finally, the performance of the ratings of the financing from 1983 to 2008 is been examined. In the study micro level data is used for ABS and CDOs and it is said that rating agencies may have played a role for crises. Finally, in the paper it is thought that the rating by an institution for a credit rating agency could cause a serious decrease.

Kaminsky and Schmukler (2002) examined whether country ratings in developing countries are affected. In the article found that the changes in country ratings have implications for risk and stock returns from countries. In the article found that the changes for developing countries are transferred between them and also affected neighboring countries. At the same time, the rating upgrades in the study are thought to occur after the rises in the markets. In the study, it is stated that the fluctuations in the financial markets around the world were the subject of the studies. Fluctuations have started to be addressed especially after the collapse in exchange rates. At the same time,

it has been thought that fluctuations of globalization can occur for investors. On the other hand, rating agencies are also said to support financial excesses. Although rating agencies are not active in the markets, it is thought that still create fear and their effects continue. It is been said that the fluctuations in the changes in rating institutions can affect the markets. The focus in the study was said to focus on the research and the institutions ranked in the grading changes. The study has not examined whether it affects the contagious fluctuations in countries for the changes in ratings compared to other studies. Therefore, it is observed that there was a difference in the study compared to the others. At the same time, it is seen that the effects of the changes in rating on the markets are examined. The study is thought to have completed previous research by looking at the effects of credit ratings on financial markets. For credit ratings, only the data scores are updated and it is intended to test the hypotheses for emerging markets. In the study aimed to analyze the spillover effects of securities and countries for the available data sets and to fully define the financial markets for credit ratings. As a result of the analysis, it is determined that intermediaries alone did not affect the rating agencies and there are spillovers not only in financial markets but also in countries. In addition to the fluctuations in rating institutions, have determined that bad balances can be controlled. As a result of the analysis of the study, determined that rating agencies act cyclically. In this study, found that rating agencies decrease the grades for bad times and increase in good times. For rating agencies, it can be said that there is instability in financial markets for developing countries for developing countries. Rating agencies, on the other hand, are said to be harbingers of good and bad times. Although the study is examined in detail, the desired result could not be achieved completely. In the article has been determined that it is behind the daily data among the data analyzed. The effects of the rating agencies of developing countries have been researched and it is thought that they can help in future research.

2. THE IMPACT OF THE VIX INDEX ON THE STOCK EXCHANGE OF DEVELOPING COUNTRIES

In the second part of literature study, studies on the effect of the VIX index on developing country stock markets are examined. VIX index, in other words, "fear index" is the measure of the index in the markets. The fear index was initially calculated with S&P 100: later in the calculations, it is seen that it continued in the markets as S&P 500. At the same time, the VIX index "Fear Index" can be said as a tool that measures

the value of the fear that may occur in the markets. The volatility that occurs in the markets is measured by the expected volatility of the market. When the studies are examined, it is seen that there are not many studies on the VIX index. The VIX index was created in 1993 and is known to be one of the important indicators it follows in many countries. The VIX index is an index that is calculated to determine implicit volatility in American type buy and sell options written on the S&P 100 index, which has 22 trading days to maturity in the Chicago options exchange (Kaya, 2015: 2). The VIX index aims to measure the fluctuation of future volatility. It is also said that the VIX index was considered the most important indicator of volatility for US stocks (Moran & Liu, 2020: 9). VIX index is been said that many studies have been carried out to determine the causality of the VIX index that is formed in the markets for stocks and exchange rates for developing countries (Saritaş & Nazlıoğlu, 2019: 543). In order to measure the effects of VIX index on the stock markets of developing countries, it is seen that S&P 500 and BIST 100 are used in MOVE indices. It is said to be used because the MOVE index is similar to the VIX index (Oner, 2018: 174). The existing studies are examined, it is seen that studies are carried out using S&P 500 and BIST 100 indices of volatility. In the analysis studies, in addition to the causality test, developing country stock markets were examined with models such as GARCH and co-integration tests. In some studies, it has been concluded that the VIX index is said to increase the returns of stocks and bonds as well as pose risks. It has been found that the studies for the VIX index, the stock markets of developing countries, are carried out by taking daily data.

Mikhaylov (2018), the study aims to prevent the spread of fluctuations between Russia and Brazil's stock and foreign exchange markets. In the study it is been said that financial markets have increased after the 2008-2009 economic crisis in order to become more unified. In the study is also said that the increase in stock and foreign exchange transactions for emerging markets is the effect of liberalization. It is said that the traditional trade balance and market portfolio explain the relationships between markets. In the study, the effects of trade balances on domestic and foreign goods on the exchange rate are measured. On the other hand, supply and demand are examined for portfolio balance. In the paper it is said that it has gained value with the increasing demand and local currency. At the same time, changes in exchange rates play a role in investors' buying-selling decisions. In the study is said that there is a direct relationship

between the variables. Relationships are aimed in developed markets, with a focus on currency and stocks. Through to it is said that the growth, inflation and liberalization in countries, global investment is benefited. As a result of the studies, it is determined that is affected by looking at the balance of supply and demand for national currencies. In the study tried to understand the relationship in financial asset groups that include currency risk for global investors. In the literature part of the study, it is stated that the connections between the stock and foreign exchange markets and the markets are unstable. It is also said that fluctuations created in investment strategies can change the stock. It has been said in the literature that the long-term time interval is for average return and on the other hand, it can reveal errors in terms of timing. In the study, an analysis is been made for bidirectional markets for four emerging markets. The data used in the study consists of daily observations. The method used in the study is said to be the FIGARCH model. At the same time, as a result of the analysis in the article found fluctuations from the foreign exchange market to the stock market for emerging markets. In order to find the dynamics of volatility at length, fractures and frictions are taken into account. In the study, are developed a model to find the effect of oil prices on stock market indexes. In the paper it is said that the fluctuation is one-sided. It is also said that there is a length of volatility for structural breaks and frictions during calculation. In the study is said that the FIGARCH model is emphasized during the models. It is also said to be added to the model in structural breaks. In the analysis, it is aimed to detect structural breaks using the AIT system. In the paper analyzed the effect of bidirectional spreads between 2009-2017. At the same time, the analysis considered a strong influence before the financial crisis at the end of 2000. In the analysis results, it is found that there is a strong reaction in the exchange rates for the Russian stock market for investors. At the same time, it is said that the volatility can be estimated by including the structural breaks of the FIGARCH model into the model. In the paper it is stated in the article that structural breaks can distort the skewness of the model. As a result, it is stated that the research conducted could be good for investors and institutions. The reason for this is that lengths and advantages are shown in the model in the estimation of volatility.

Adjasi, Harvey and Agyapong (2008), examined the relationship between the securities market and the foreign exchange market for Ghana, which is among the developing countries. It is been examined whether there is an effect of exchange rates

on the stock market in Ghana. In the study, the effects of the stock effect on the stock market in Ghana on the stock market volatility of macroeconomic variables were investigated. The study aimed to determine the volatility for both the stock market and foreign exchange between 1995-2005. It is stated that EGARCH model is used when examining the relationship between variables. As a result of the researches, a negative relationship is found between variables. It has been said that due to this situation, there is a loss in the local currency and a loss of long-term returns in the stock market. In addition, as a result of the study, no reverse relationship is found between the exchange rate and the stock market. At the same time, it is said that the volatility continues in macroeconomic variables. On the other hand, it is emphasized that the foreign trade deficit and forward-looking expectation would reduce the volatility in the stock market. On the other hand, is a significant relationship between stock market volatility and consumer index in the study. If the consumer index is increasing, the volatility in the stock market increases. As a result, it is been stated that the Ghana stock market has a lifting effect and volatility shocks are encountered. It is been argued that predictability of risks and returns is a useful method for risk management. On the other hand, they were able to statistically defend stocks and macroeconomic variables. In other words, they found it meaningful. In the study are able to consistently tell the volatility of macroeconomic variables. It has been found to be useful for predicting future rates. However, the relationship between the treasury bill interest rate and stock market volatility was found to be negative. It is said that the increase in the volatility in the interest rate of the treasury bills will cause a decrease in the stock market volatility. In the study stated that it is important for developed and developing countries due to the effect of exchange rate volatility on the stock market. In the light of the studies examined, it is found that the exports made in the stock exchange are compatible with the economy. In the paper it has been said that investors can make predictions in the stock market with macroeconomic factors. At the same time, a balance between variables and stock market volatility for macroeconomic and financial data can be achieved with ex post. It has been suggested that measures can be taken consistently by paying more attention to macroeconomic factors and stock exchange activities in order to have a better performance in the stock market. In other words, it is said that being stable in the exchange rate means attracting investors. At the same time, it is thought that problems could arise with the existence of losses, variables and gains. For this reason, it is thought that uncertainties may rise and indecision may be created for

investors. In the study has been said that the increase in trust for investors can occur over time with interventions. On the other hand, it is thought that the foreign exchange market should be used in the imported or international market thanks to the forward contracts. Investors must have a command of the stock market in order to make informed decisions for their investments. In this way, the study will be able to make the right decisions for their investments. Finally, the study suggested that macroeconomic determinants could use data for countries and periods for further exercises.

Başarır (2018), said that the increasing technological developments and information flow for financial markets have started to become integrated. The fear index (VIX) and BIST 100 are compared and tried to investigate the causality between them. The data to be are using examined as daily data between the years 2000-2018 and the causality relationship between VIX and BIST 100. Financial instruments and other reasons among investors affect their behavior and lead them to joint action. As a result of the analysis, it is stated that no temporary or permanent causality was found. However, unilateral permanent causality is found from the VIX index to the BIST 100 index. Investors stated that forecasts can be made for the BIST 100 index in short and long terms. But in the article said that they can be used within the VIX index. It has been said that with globalization, advances have been made in technology and therefore, integration has increased in financial markets. For this reason, investors who want to make international investments have been able to evaluate their funds worldwide. Financial globalization has accelerated the increase and circulation of capital. In this way, it has been said that there are many alternatives such as national investment fund, derivatives, risks and return levels. Risks can affect financial markets as well as financial intermediaries. With the global impact, herd behavior has emerged for investors. In the study, it is seen that studies examining the relationship between the securities market and the VIX index are examined by conducting a literature study. In the analysis part, it was stated that the causality test was applied for VIX and BIST 100, apart from the classical causality method that emerged as a result of the literature review. It is said that a single test statistic is used for the causality relationship between VIX index and BIST 100. However, it has been said that test statistics may change over time. The purpose of using causality testing is to know whether it is a permanent or temporary causality test. It has been said that when examining the causality test, its stagnation should also be considered. Therefore, it is been said that the stationarity is

also examined by applying unit root test. VIX index can be said as the leading indicator of crises in the markets. It is been said that the VIX index can be a leading indicator of crises, as it may cause concerns in the markets. As a result of the analysis, a causality relationship is establishing between VIX and BIST 100. Therefore, it is been said that investors who are considering investing can invest in BIST 100. VIX index, also known as the fear index, is mentioned to have an effect on capital markets. For this reason, their examined the relationship between VIX index and BIST 100 index in his study. In the study, a causality test was applied to find results temporarily or permanently. However, in line with the results, neither a permanent nor a temporary result could be reached. It has been said that there is no useful information for the BIST 100 index in the prediction of the VIX index. Investors will be able to benefit from the VIX index regardless of long term or short term separation. As a result of the study, it was also stated that investors can be cautious and invest in markets that are safe. In the paper is been said that the VIX index is of great importance for investors and politicians. As a result, they stated that measuring the BIST 100 and VIX index with causality as the difference of the study.

Korkmaz and Çevik (2009) focused on the VIX index in their studies. In the study was stated that the financial liberalization policy has gained momentum since the past years and has affected the country's markets. For the USA, the effects of the implied volatility index on the stock markets of 15 developing countries for the VIX index were analyzed. In the study is aimed to find the result of the VIX index with 15 developing countries. Because it has been stated that there are not many studies about the VIX index in the literature. For this reason, research has been done using the GJR-GARCH model. As a result of the researches, it can be said that there is a lifting effect and bad news in the market increases the volatility. In order to measure these influences, a research has been conducted with the GJR-GARCH model. One of the determinations made during the study was the increase in volatility while stocks fell for the developing country. This increase is called the leverage effect. In the analysis, it was stated that the stock markets for developing countries were affected and their volatility increased. It has been said that the reason for the increase in studies on this subject is considered as economic and financial mergers in countries. In the study, they emphasized that negative developments could cause a crisis and financially decrease countries due to the increase in US housing prices. They said volatility as the spillover effect, as volatility in

one country affects the volatility of another country. In order to explain the causality in variance, it was said that knowledge increase and volatility relations were examined. It is also emphasized that causality in variance can explain the prices of markets. It has been said that implicit volatility should be looked at in order to predict future volatility. Therefore, it can be said as a guide. For this reason, implied volatility can be said to be very successful in predicting the S&P 100. In order to measure the effect of the volatility of the VIX index on the stock market of developing countries, a GARCH type model was used. Since the research was carried out with the GARCH type model, theoretical information was given beforehand. Since the GJR-GARCH model is in the traditional econometrics model, they accepted the variance of error term as constant. Volatility clustering occurs as low volatility follows high volatility in financial times. It is thought that Generalized Error Distribution (GED) is shown to show the error conditions for the GJR-GARCH model. According to the results, developing countries (Argentina, Brazil, Mexico, Chile, Peru, Hungary, Poland, Turkey, Malaysia, Thailand and Indonesia) stated that the effect of implied volatility on the stock market.

Kaya (2015), stated in study that financial liberalization started to move financial markets. The subject emphasized in the study, the causality between BIST 100 and VIX index is tried to be found. Time series of data between 2009-2013 were used. With the globalization, it is seen that the economies of the countries are getting closer. In this way, it is seen that its advantages and disadvantages emerge. Looking at the past years, it is seen that there have been many crises. These crises affect all countries and cause economic fluctuations. It is been said that fluctuations and crises in stock prices can spread with the country risk. At the same time, it is considered as a unified financial markets to be affected by the crisis in other countries as well as in the country. It is been said that volatilities occurring in countries can affect each other and therefore are affected by volatility. It is been said that it measures market risks for implied volatility and is used for asset pricing. At the same time, implied volatility can reveal successful results as well as predicting future volatility. The VIX index, together with the Chicago Options Exchange and the S&P 100 index, is said to be an index used to determine volatility in the trading markets. The VIX index follows the recently traded trading markets with fluctuations. Binominal valuation method is been used to calculate the VIX index correctly. At the same time, it is been said that since the VIX index is an annual implied volatility index, it is necessary to create an index with daily implied

volatility. Literature studies examine the relationship between the VIX index and the S&P 500 index or it is aimed to predict implied volatility. The study looks at whether the VIX index affects the BIST 100 index. While doing the literature study, it is emphasized that the effects that occur with the increase of financial liberalization are investigated. It has been said that there are letter symbols used for BIST 100 and variables expressing the implied volatility index. While creating the analysis, it was first examined that the variables were looked at and whether they were stationary. According to the stationary state, co-integration test is applied in a long term. As a result of the tests, in the study is said that the error editing mechanism was examined. The regression is thought to be fake. For this reason, they are examined whether they were stationary and examined the ADF and PP unit root tests in order to understand at what level they were stationary. In the paper is stated that the study Johansen-Juselius co-integration test is used. If there is long-term uncertainty between variables, in the study has tried to be estimated using the VEC model. In the study is said that examined the error correction model with causality tests in accordance with the short-term and long-term. If the VIX index is high, it is thought that the market could be pessimistic and stocks could fall. In the paper is thought that it could create an impact that could increase financial fragility in the markets. In the study is thought that the BIST 100 index may affect the VIX index as well as the VIX index may be successful in predicting the future. When the analysis results are examined, it is stated that the findings among the variables were long term as a result of the VEC model. In the study has also been said that error regulation is negative and significant. As a result, in the study has been said that BIST 100 is affected by the VIX index. As a result of the study is said that investors are looking at implicit volatility and investing strategies to make profitable investments.

Kula and Baykut (2017), examined the long periods between Borsa Istanbul corporate governance index and Fear index in their studies. Daily data for the years 2007-2015 are used for Borsa İstanbul and VIX index. In the study is been said that with the increase of globalization, the circulation of physical goods between countries can facilitate the transit between countries. It is been said that there are transitions between developed countries and developing countries and that it can bring with it in financial integration. At the same time, it is emphasized that possible and previous crises have an impact on countries and increase more. In the paper is been said by investors that volatility can have negative effects on the crisis and financial markets, and

therefore investors follow closely. Positive or negative results in the markets of the countries also affect the markets of other countries. Therefore, these fluctuations in the market are called volatile conditions. In the study is stated in the literature that there are crises that can tell the volatility spread. Considering that it is volatile in the markets, in the study is said that expectations for stock and bond returns will increase. For this reason, it has been said that it can increase the risk and at the same time increase the capital costs. In the study is stated in the studies in the literature that there are no studies involving the relationship between XKURY and volatility indices. That is said that work is the first and original. In the study does not work well for Turkey Istanbul Exchange 100 and VIX index also have said that the work in less than indices. It is stated that there are no long and short term studies on the VIX index and XKURY index (also called implied volatility) and there will be predictions for investors who are considering investing in the XKURY index. In the study is said that daily data were taken into consideration while performing the analysis and a harmonization was made for the two levels. In this way, analysis was made by having an equal daily data set. It was said that daily data were taken into consideration while performing the analysis and a harmonization was made for the two levels. In this way, analysis was made by having an equal daily data set. When viewed in both indices: It has been said that when the financial crisis occurred, there was an increase in the VIX index and a decrease in the natural logarithm of the XKURY index. It has been said that when there is an increase volatile, the risk increases and the fall is better for investors. As a result of the analysis, it was said that long-term relationships were determined between indices. It is said that ARDL / boundary test method is used in the analysis. When applying unit root tests, if the stationarities of Engle-Granger and Johansen co-integration analysis are not taken into consideration, spurious regression can be encountered. As a result of the stationarity analysis, it is said that ADF and PP tests were applied. XKURY and VIX indices are said to be stationary based on the cointegration tests. As a result of the cointegration test, it is said that it examined whether there is cointegration or not, regardless of the level of stability. When the VIX index will be taken as the leading indicators, it has been said that the increase or decrease of the index for banks will have a significant effect on the financial markets depending on the periods. As a result, XKURY and is said to be a long-term relationship between the VIX index.

Sarıtaş and Nazlıoğlu (2019), the VIX with stock markets in the study said that Turkey intended to be done by comparing the analysis. In the study is aimed to look at the effects of the VIX index on BIST 100. In the paper is been said that the Granger causality method is used when looking at these effects. After the globalization of the world, investors are able to use their funds worldwide and move their capital flows financially. At the same time, the crisis in one country due to globalization has become palpable by another. In the paper is been said that the common point of the crises is volatility and decreasing investor confidence. In the study is been said that volatility can have negative effects on financial markets as well as affecting the financial markets. Therefore, it is emphasized that it would be better for investors to follow the financial markets more carefully. As a result of the analysis, it is emphasized that these effects had a negative effect on the BIST 100, but is a positive effect on the dollar exchange rate. When the error variance is examined, they found that VIX is more in the dollar rate index, although it is less common in BIST, and as a result of the causality analysis, there is unilateral causality from VIX index to BIST 100 and dollar exchange rate. VIX index is said to be an important indicator showing volatility in global markets. At the same time, the VIX index is said to be an indicator based on pricing on the S&P 500 and the American S&P 500 stocks. The VIX index is also referred to as the implied volatility index in the study. The VIX index is thought to be able to tolerate the problems where trading and fluctuations are created by calculating recently traded markets. At the same time, when examined in the study, it is said that there is an inverse relationship between the VIX index and the S&P 500. While the depreciation or gain in stocks by investors indicates volatility, they said that depreciation in the S&P 500 causes the VIX index to gain value. It has been said that it is the most important indicator of fear and enthusiasm for VIX. It has been said that many studies have been carried out with the VIX index of developing country economies. In these studies, it is aimed to measure the causality between stock and exchange rates. The study group in developing countries have aimed to considering how the VIX Turkey. Turkey stock market and the TL / USD analysis by examining the relationship they want to do. The study aimed to analyze by using the returns on working days between 2009-2018. They stated that wanted to separate impulse-response and variances by using the VAR model for analysis. In the literature section, studies on the subject are tried to be summarized. When the literature studies are examined, it is said that the VIX index for investors is an indicator that can affect investor behavior. In the study is been stated that the use of study, impulse-response and

variance decomposition methods can contribute to the literature. In the analysis, it is stated that the variables created harmonies between the variables while examining according to the labor force between 2009-2018. In the study it is stated that variance decomposition and Granger causality method were used in addition to the impulse-response models while performing the analysis. At the same time, it is stated that the variables for the Var model estimation should be stationary and therefore should be done in unit root analysis. ADF, PP and KPSS tests were applied while performing unit root analysis and the results were found. Along with these methods, error terms are looked at and they tried to obtain a consistent variance by using estimators. When looking at the findings of the methods used in the study, it is determined that while the VIX index for ADF and PP is stationary, there is a unit root for KPSS. It is said that BIST 100 and dollar contain unit root together in three methods. In the study it is said that the Var analysis estimation of the unit root results is necessary. At the same time, in the analysis, when the impulse-response functions are examined, it is said that the VIX index created a negative response to BIST 100 and then became meaningless. At the same time, the VIX index had a positive effect on the dollar, and this effect decreased over time and became meaningless. A negative relationship is found between BIST 100 and the dollar, and it is later said that this effect disappeared. In the study, it is stated that there is predictive information for VIX, BIST 100 and dollar movements. As a result of work done for many important points they have obtained to Turkey after 2015 and it is said to be used as the uncertainty of the VIX index. As a result, it is said that it is important for investors and speculators to follow the VIX for developing country markets.

Bayraktaroğlu and Çelik (2015), in Turkey stock exchange is investigating whether the Borsa Istanbul is impacts on the stability of the capital markets. In the study it is said that analysis is made with volatility models by taking daily data between 2007-2014. In addition to buying stocks in different exchanges for investors, it is thought that they carefully examine corporate governance practices. In the study it is said that investors do research before developing countries invest and examine many factors besides their financial performance. In addition to the emergence of financial crises between countries and the inadequacy of firms, it is observed that research on issues related to financial institutions is increased in developed countries. Investors it is said that developing countries or businesses become invested in stocks by researching before

investing in stocks. In the study, the increase in the interactions between countries made it difficult for stocks to form a portfolio. In the study, are stated that they aimed to ensure that the volatility in stocks inspired confidence in order to ensure the confidence of investors to invest. While applying corporate governance, various principles are examined in terms of concept and is said that a modern method of achieving a common success by creating balances in the most successful way. Institutional methods are generally said to cover all and cover all of their interests. In the study also stated that corporate governance practices increased the prices of stocks traded on the stock exchange and enabled the capital to be obtained easily. XKURY is said to be an index that includes corporate governance principles that apply corporate governance and allow each segment to provide access. As a result of the practices of corporate governance, is been said that the relationship between business performance is positive. In the literature conducted in the study, is seen that various studies have been conducted on corporate governance practices of companies by comparing them with their business performance. In literature, practical work on corporate governance held in Turkey are found to be positive and negative relationships in the performance of the company and corporate governance performance. In the analysis, is said that BIST 100 and BIST 30 indices were handled in addition to the results of the GARCH model. In the study is aimed to look at the negative effect on the indices by looking at the results of the GARCH model. As the purpose of the research in the article, is stated that how much the corporate governance index contributes or will provide to the Stock Exchange Istanbul. At the same time the risks for investors is been said that Turkey aimed to minimize and make measurements in the capital. In the paper is aimed to examine BIST 100 and BIST 30 indices of BIST together with stock closing prices between 2007-2014. During the analysis between 2007 and 2014, is stated whether there would be a factor to reduce return volatility as well as its purpose. In the paper is been said that the data distribution system of Borsa İstanbul was used by considering XKURY data sets. In the study is said that logarithmic values are expected for the data before analysis. At the same time, examined fluctuations or instabilities in analysis by looking at their stationarities. In the study is said that unit root test is used for stationarity test. In the paper is said that if there is no stationarity, there may be spurious regression and the results cannot be relied upon if its variance is not constant. At the same time, has been stated that even if the least squares method is used, confidence cannot be fully established. As a result of the analysis, the GARCH model made with XKURY was

found to be significant in reducing volatility. At the same time, is said that it would reduce the corporate governance index from being shocked. The hypothesis considered in the study was rejected and is stated that corporate governance practices had an effect on the Borsa İstanbul's return volatility.

Öner, İçellioğlu and Öner (2018), aimed to measure the short and long term fear index (volatility) of the stocks of developing countries. Developing countries (Turkey, Chile, South Africa, South Korea, Russia, Argentina, Mexico, Thailand, Taiwan and Poland) are examined by considering equity indices. In order to reduce the effects of global crises, the Federal Reserve (FED) is tried to protect not only its own economy but also the economies of developing countries by providing high liquidity. At the same time, in the study is said that Dow Jones and S&P 500 indices are the indicators followed by the whole world. In the study is stated in the study that there is an inverse relationship between the VIX index and the S&P 500 index. While the VIX index is rising, the share cents of the S&P 500 index may decrease. This situation may create fluctuations in the stock market. In the developig countries is also been said by investors that it may cause negative side effects. For this reason, the VIX index is called the fear index based on the tensions as it creates a risky environment. While making calculations, the volatility of the VIX index is determined by looking at the option prices of stocks. At the same time, based on the results, is said that volatility can be found as high or low. When the examine the VIX index in Turkey's economy is said to be uncertainty in the market of monetary policy. When the literature contradiction is examined, is said that there are studies on developing countries with more VIX index. At the same time, in the study is been said that the VIX index has been analyzed to avoid global risk. In his studies, is aimed to examine the VIX index among the indices of the short and long term stock markets. Analyzes have been made by considering the workforce of developing countries between 2006 and 2017 with data. In the study is said that the long-term co-integration relationship can be examined with the series of all variables at the same level while performing the analysis. It is stated that Engel-Granger cointegration, Granger causality test, and Error correction model were used during the analysis. In the analysis, is said that it was first examined with ADF and Unit root tests. If the stationary condition is examined, the unit root model should be used. When the stationary time series are examined, is said that the variance and common variances are the same. In the study, the unit root is also referred to as a random walk and it is said to

be a non-stationary series. In the study is said that data that are like static but are not actually stationary can be controlled with the co-integration and error handling model. It is used to test spurious regressions. This method is said to be a pre-test against bogus regression. In the analysis, it is stated that the Granger causality test was used to examine the causality between the series after the data were stationary at the end of the ADF unit root tests. In the study is stated that the series of developing countries compared in the analysis results were examined as fixed, constant and trend as a result of the ADF unit root test. At the same time, while a unit root was found in one of the hypotheses established, was observed that it was stationary in the second. Considering the differences of the series, it is said that the unit root test was necessary and is repeated. As a result of the analysis, is stated that Arjanti's VIX index in the stock market is found to be very little in the short and long term compared to other developing countries. As a result, in the study stated that the VIX index reveals the increasing importance of the situation in terms of investors and politics in the globalizing world.

Gunay (2019), the VAR model with Markov regime change BIST 100 Index, the volatility of Turkey's credit risk indicators are examined. While looking at the volatile risk, the coup attempt in 2016 is added to the volatility model. In the paper, volatility is defined as the uncertainty and concern that occurs in the market. With the measurement of volatility, it is thought that risk and risk management can be easy. In the study, it is been said that there are different studies in the literature of the study and different markets are examined. It is stated in the article that there may be an untouched area for credit risk in the volatility of the asset price. At the same time, it is emphasized that the negative behavior of increasing the default for credit risk may increase. It is thought that the uncertainty caused by the returns created volatility in the probability of default as well as the increased credit risk. In the paper in order to keep the literature up-to-date, the volatility response in credit risk was aimed for the BIST 100 index. At the same time, it is aimed to discover relationships with indicators of alternative credit risk. In the study is used as credit risk proxies with the CDS spreads of ASW and ZV. BIST 100 index after the 2016 coup has added to the volatility risk of car models in Turkey. In the study, it is stated that the GARCH model was used in the literature studies for many BIST volatility. The purpose of the article as the effect of credit risk BIST 100 return volatility for Turkey were investigated. It has been said that CDS spreads have attracted attention since 1994, but increased after 2000. In the study it has been said that CDSs

are not the only and correct for credit risk. Extensive research has been done in the literature part of the article. Credit derivatives and default swaps have been examined in detail in the literature. However, in the literature, the literature on spreads such as ASW and ZV that make credit risk measurement has been found limited. BIST 100 index as well as the volatility of returns with models made between the years 2010-2017 FIGARCH study was looking at the relationship between credit risk for the MRS-VAR model formed in Turkey. At the same time, it is said that ASW and ZV spreads are used as credit risk indicators as well as CDS spreads other than those available in the literature. As a result of the study, it has been said that along with ASW, there are leading risk indicators for the spread of CDS. It has also been said that the volatility in BIST 100 according to MRS-VAR is the low regime of the model created for CDS, ASW and ZV. On the other hand, it is said that the results for different models are consistent. After the analysis results, the credit risk indicators were analyzed by looking at the asset swap spread signaling. According to the analysis results, the change of Markov regime does not affect the low volatility credit risk for BIST 100. However, it has been said that high volatility CDS, ASW and ZV spreads have significant effects. It has been said that there are other risk factors besides the credit risk that creates volatility in BIST 100. As a result of the research, it is stated that there was no increase in BIST 100 return volatility after the 2016 coup. Finally, while comparing volatility, it is seen that the volatility in BIST 100 is mostly in a low volatility regime.

Bektaş and Babuşcu (2019), aimed compare to the relationships between VIX fear index, growth, exchange rates and CDSs. While comparing these variables, long-term and short-term relationships are considered. VIX index and CDS premiums are among the subjects that have been widely used and researched in recent years. At the same time, the VIX volatility index, also known as the fear index, can be said to be said in this way due to fluctuations and risks that may occur in the markets. In the study, stated that exchange rates have a structural effect in the long and short term and also affect portfolios with carry trade qualifications in the short term. In the study is said that another reason for closely monitoring CDS premiums and volatility indices is carry trades in order to understand the country risks correctly and to channel them correctly. While calculating the VIX index, is said that it is calculated with the CBOE and is also in the S&P 500 index. While calculating the indices, the difference between the call option prices is considered. If the difference between options is high, options is said that

if the VIX index is higher, it is low in the VIX index. In other words, in the study is said that if the VIX index is high, the volatility expectation will be high, and if the VIX index is low, the volatility expectation is low. The VIX index is initially calculated with the S&P 500 index, but later it was said that started to be calculated over the S&P 500 index. It is been said that CDS are the most preferred. Because the risk of CDS is seen as low. Against the non-repayment of the loan, a certain amount is still paid to the creditor. In the study is said that CDS and VIX indices affect countries for foreign investment and indicators such as CDS and VIX indices are used when domestic investments are made. In the paper said that have examined the studies on the VIX index and CDS in the literature. At the same time, the relations of the VIX index with indices such as BIST 100, oil, gold and foreign currency were examined. In the study, the data are examined by looking at the years between 2008-2018. The data discussed Turkey volatility index, the euro currency versus the USD as currency and index of industrial growth has been said that looking at the CDS. In the paper stated that the e-views econometric analysis program was used to compare the data in the analysis. In the study, the relationship between parity growth and spreads for the VIX index is examined. While examining these relationships, stated that the analysis was made with the Granger causality test. In the literature study, it was seen that there are domestic and international researches on oil, exchange rate and stock market indices for the VIX fear index. At the same time, it is said that there are studies on GDP, growth and bonds for CDS at home and abroad. For the variables used in the analysis, stated that the industrial production index is used for growth and that the data were taken from TURKSTAT. In the study examined the long and short term relationships between VIX and CDS. Also the program used, ADF unit root and Granger causality tests are applied. In the study, analyzed the monthly change for industrial production and exchange rate using quantitative research methods. In the study also said that looked at both relational and causal scans. First, ADF test was applied to look at the stationarity test, and then Granger causality test was applied for short / long term investigation. If the data are stable, Granger causality test can be applied. After examining the ADF test between the years 2008-2018, they stated that the data were stable. It was said that while examining the Granger causality test, VAR analysis was used to look at the long-term nature of the data. As a result, it was said that the length of the lag greatly affected. LR, PRE, AIC, SC and HQ tests determined in the literature were also examined while analyzing. As a result of these tests, the length of the optimal delay and the part that makes the

minimum is examined. The relationships between the VIX fear index and CDS premiums were examined. In the study it is stated that macroeconomic and financial data were taken into consideration while conducting the analyzes. As a result of the analysis, Granger causality was found between the two indices. Besides finding causality of volatility and industrial production index Granger, causality could not be found among other variables. However, for two variables with causality, it is also said that there is one-way causality. As a result of the analysis, it is stated that the volatility index affects only the industry index by looking at the Chi-square value. In the study it is also stated that the volatility index is the Granger causality reason for industrial production. One-way causality was found among these variables and found that the industry index affected volatility. In the study it is also stated that there is no relationship between other variables. As a result of the study, it is stated that industrial production variables for real sector indicators could be a leading indicator for investors.

Baykut and Erdoğan (2016), the data between 1998-2015 are considered to be followed by the international markets. While analyzing international financial markets, VIX, MOVE and Borsa Istanbul Index (XBANK) are being compared. In the globalizing world, investors are said to invest not only in their own countries but also in developing and developed countries when will invest. Volatility is said to be one of the many factors affecting investors. In the study it is said that volatility follows closely both the stocks and the bond / bill markets. In the study it is said that if there is a negative volatility in a country, affects other countries. VIX and MOVE indices are indicative indices that shed light on domestic and foreign investments regarding the future of the stock markets as well as having an important place in the stock markets. In the study, it is stated that as the VIX index increased, volatility increased, if the VIX index decreased, volatility decreased. In other words, an increase in the VIX index means an increase in volatility in the markets. If the VIX index is decreasing, it is said that the volatility decreases in the markets and at the same time it begins to become more stable. In the study it is said that when the MOVE index rises, investors' confidence decreases, if the MOVE index increases, there is no risk for investors. While preparing the literature in the study, it is stated that not all of them were investigated at the same time with the Borsa Istanbul Bank Index in VIX and MOVE indices. In the study it is said that the work done will close the gap. In the literature, it has been stated that there are few studies on the VIX index that have the effects on the stock market. At the same time, it

is said that there are only a few studies on the MOVE index. In the study, stated that the volatility of the developing and the volatility of the markets considering the effects of each other, and the analysis of the VIX and MOVE indices as independent variables in the study. In the stud is also said that Borsa İstanbul Bank Index is determined as dependent variable in the analysis. In the analysis part of the study, it was said that two tests, which are mostly used, were applied. These tests are the ARDL / bound test method and the Granger causality test to compare long-term relationships. During the analysis, the stationarities of the series were found to be different. Nevertheless, it is said that ARDL / bound test is applied for long term. In the study, it is first stated that an unrestricted error correction model is created for the ARDL / bound test application. In the paper is said that autoregressive models with distributed delay were created to investigate long and short term variables. Later, the study is stated that applied the Granger causality test in the analysis. The Garanger causality test was used to investigate the variables and to know the levels of the variables. During the analysis, it is stated that the dates considered in all three indexes are different. At the same time, it is said that volatility is low on the days when the stock exchange is not working, compared to the day the stock markets are operating, due to positive and negative news while trading in the markets. However, developing countries such as Turkey is said to be out of this situation. In the study said that if the MOVE and VIX indices are increasing, the XBANK index may decrease. In the study, is stated that unit root test should be examined before looking at the cointegration test. In the study, is stated that ADF and PP tests were applied to measure their stability. In the paper is said that an unrestricted error correction model was created before applying the ARDL / bound test. It has been said that while selecting the model, a distributed model with autoregressive delay is obtained from AIC. In the study is said that there is no autocorrelation problem as a result of the error termination model of the cointegration test. After this result, it was said that the limit test was applied. After all tests were applied, it was concluded that the ARDL / bound test was insufficient. The reason for looking at the causal relationship in the study was that the test was applied because the indices have stable and cointegration. When financial integration increases, it is affected by macroeconomic variables and capital market. It is said that the first analysis type correlation analysis was conducted. As a result of examining the VIX and MOVE indices with XBANK, it was said that they could not find a long-term relationship. At the same time, it was stated in the analysis that there was a negative correlation between XBANK and VIX

and MOVE indices. As a result, causality is been found from VIX index to XBANK index. However, the paper is said that could not find a correct causality from the MOVE index to the XBANK index. As a conclusion, the study is been said that many important information about ednexes were tried to be explained. At the same time, said that it could shed light on future studies.

Jayasuriya (2005), examined the impact of eighteen emerging markets on stock market liberalization and stock return volatility in the study. With the findings obtained from other studies, it is determined after the study that the volatility may decrease, increase or remain unchanged after liberalization. In the study, liberalization volatility is also examined as well as market characteristics. The country with low liberalization is thought to have higher market transparency and investor protection. At the same time, quality institutions are owned by having positive markets as well as low corruption. On the other hand, with the liberalization in stock markets, it has positive effects on the economy in the study. It is been said that it may cause turmoil in the domestic and domestic markets, causing liberalization and causing fluctuations. Liberalization can gain importance for developing countries by creating a return volatility effect with stock market liberalization. At the same time, it has been said that volatility can create negative effects on decisions for investors, leading to loss of attractiveness. Investors want higher premiums in order to keep themselves safe. In this way, it can protect themselves from uncertainty by securing themselves. On the other hand, having high premiums means higher capital cost and less physical investment. In other words, it is said that higher volatility can be achieved by increasing the standby value of the opsin. It has been said that the investment may be delayed due to this situation. As one of the reasons of the study, it has been investigated whether the volatility of the liberalization in the stock market will cause a change on the stock. Therefore, variance is examined with the GARCH model in the analysis. In the study, it has been investigated that the stock return volatility of emerging markets for foreign investors decreases or increases in the market. As a result of the research, results related to the subject were obtained. At the same time, in the study, comparisons are made in the markets of countries that experienced a decrease and increase in volatility that occurred before and after liberalization. As a result of the study, found that countries with low economy, which are in volatility after liberalization, had high quality and protection. It is also found that it has low restrictions on foreign income and capital. In the study thought that countries

with low levels could be of good quality. As a result, it has been said that the negative effects of fluctuations can create a high quality institutional framework for investment in the economy, market and post-liberalization volatility for developing countries, and can also benefit.

Akçali, Mollaahmetoğlu and Altay (2019), the series of daily returns between 2009-2018 are analyzed. GARCH and DCC-GARCH models are used in the analysis. In the study it is stated that some indices were examined in order to determine the volatility interaction. These indices are BIST 100 and JP Morgan emerging markets bond index (EMBI) DJI, DXY, VIX and BrP indices. The conclusion from the analysis part of the study is that there is volatility in BIST 100 and other indices and markets. While some indices increase the volatility of BIST 100, in some indices DXY is said as the index that only affects the volatility of BIST 100. In the study, it is stated that the financial theory is the return rate and risk as the two important variables when making an investment decision. The risk is defined as the probability for occur in the expected return. Risk is said to be an objective probability of the future rate of return. In the study it is emphasized that different measurement models can be used in order to measure the risk. These methods are various methods such as sensitivity coefficient, half variance, value at risk. In the study, it was stated that risk can be calculated throughout the time series rather than in a specific period. In the study, especially the impact on other developing countries that excessive volatility in the bond of excessive volatility in capital markets in Turkey were investigated. As a purpose, it was stated that the bond index (EMBI) of emerging markets was analyzed with the BIST 100 index. A study is conducted to examine the volatility of the risk caused by the volatility in oil prices in BIST 100. In the study was also examined in the VIX index. It is been said that with the BIST 100, the interaction of volatility in financial variables can be found and can be looked at in its dynamic correlation. In the literature study, it was stated that DCC-GARCH models were used to find the volatile between financial markets. In the literature study, it was seen that various examinations were made to measure the relationships between the indices. The variables discussed in the study were aimed to investigate the volatility of investment risks with BIST 100. However, it has been said that the relationship between rates of return and rate of return is examined at a certain dimension. During the research, it was emphasized that some useful issues were mentioned. It is said that the purpose of using the DCC-GARCH model in the study is

to provide information about the volatility interaction and transfer of the financial variables, as well as the change between the returns of the variables. In the study, while volatility persistence shocks are referred to as their size and duration on variables, the volatility transfer is said to be related to the effect and increase of the shock in the market on another market. It is said as calculating the first logarithmic differences for all variables used in the analysis by taking the rate of return. When BIST 100, VIX, EMBI, DTI, DXY and BrP returns were analyzed, it was found that their average values were lower than their standard deviations. In the Jarque-Bera test, which is used as another analysis method, it was stated that the distribution of the series was not normal. In the study, BIST 100 and VIX, DJI, EMBI and DXY VAR models were investigated. And then the remains of the models were found. In the study is said that the evidence found was estimated by the DCC-GARCH model. When looking at the results obtained as a result of the analysis, a positive but less strong dynamic correlation was found between the BIST 100 and VIX series over time. Shocks that increase the volatility of the VIX index are said to increase the BIST 100. In the paper is said that the results found show how the changes in the Dow Jones index have an important impact on volatility and for BIST 100. As a result, it has been stated that the global market returns of the subjects discussed in the study can be used in the decisions of BIST 100 investors in a short time. At the same time, it is also said that investment and risk management should be considered.

Kula and Baykut (2017), show that volatility and developing countries, which are widely volatile when global investors make decisions, are seriously affected. It is said that the new address of global investors in markets where volatility is less experienced. The volatility of the BRICS countries and Borsa Istanbul are analyzed by taking daily values between the years of the study. During the analysis, it is been stated that two models were examined with ARCH and GARCH as well as EGARCH and TGARCH models. While examining the models, it had 3 times delay value and it was said that it created 180 different models within 6 indexes. When the models are compared, it is stated that BIST is the most volatile country stock market and the RTSI stock market is the most stable country with the calculation of volatility. In the study has been said that as globalization increases in the world, if any effects in the market of any country increase, it provides more importance in volatility and volatility diffusion. In addition to developed countries, investors in developing countries and

underdeveloped countries' capitals are said to be time-consuming and volatile. After volatility variance problems, different measurement techniques have been used until today and it has been said that begun to be estimated. In the study is said that the purpose of the study is to examine the volatility structures of emerging markets. It has been said that the volatile calculations of developing country stock markets are intended to take into account decisions for global investors. In the study using daily data between the years 2011-2016 Russia, Brazil, India, China, Mexico and Turkey, comparing the country with the lowest stock market indices is said to be determined. It has been said that two symmetric and two asymmetric models are analyzed in order to determine whether the stock markets have a quiescence effect. Literature It has been said that there are a limited number of studies on Borsa Istanbul. At the same time, researchers were said to have shifted to this area due to the effect of volatility spread. When we look at the literature review, it has been said that there are many studies on the determination of volatility of BIST 100. the volatility of the variables in the BRICS countries and Turkey has said it does work. The study was considered to compare volatility calculations for BIST 100 and developing BRIC countries. In the study, it is stated that all the data belonging to the countries are used and the closing values of the data between the dates of 2001-2016 are discussed. In the study has been said that the returns in the stock markets of developing countries after 2008, that is, with the effect of the global financial crisis, are intense volatility. The assumed constant variance of the time series in the study is examined in detail and the ARCH model is said to be used. In the study, when looking at the time series, it is stated that there is no variance and the changes over time should be taken into account. While performing the analysis, unit root test is applied first and the ARMA structure was examined according to the test results and then it was said that the ARCH-LM test was performed. As a result of the analysis, if it is found that there is an ARCH effect in the series, it is said that volatility modeling using the ARCH / GARCH model should be considered. In the analysis, it was stated that the GARCH model was used because longer delays could not be examined in the ARCH model. ARCH, GARCH, TGARCH and EGARCH models, which aim to determine the possible leverage effect on indices in countries, were examined in the analysis. As a result of the analysis, it was stated that there was no leverage effect for 6 exchanges and GARCH models were the most appropriate. It was also said that volatility persistence and daily volatility persistence and daily volatility were calculated. In the study has been said that Shanghai as the best volatile index, the most stable index IPC, as volatility

persistence. At the same time, it is also said that BIST is the most volatile index and RTSI is the most stable. As a result, it is been said that investors' investment decisions are an important detail for investments in developing country stock markets.

Aizenman and Marion (1999), found a negative correlation between various volatilities and private investment for developing countries. At the same time, the relationship between private and public for investment is examined. As a result of this situation, it is said that they determined a positive correlation for public investment. In the study, is conducted on the volatility and private investments of more than forty developing countries. The aim of this study is to have a few possible interpretations by deducting their negative correlations. On the other hand, a study aimed to find the relationship between uncertainties and investment with new evidence. In the study, it is emphasized that sometimes increasing economic performance does not have a significant effect. In the study it has also been said that earning returns by reducing uncertainty may be less for cost. In the study thought the data could be more helpful in determining the probability. For investors and politicians, uncertainty has gotten the greatest. While dealing with the data of developing countries, have looked at the data obtained recently. It is also said that volatility in public investment spending provides a positive correlation. It has been said that the results can be seen in developing countries by reducing the negative impact on volatility. The type of analysis used is said to be based on the paradigm of the standard expected benefit formulated by Savage (1954). As a result of the research, they determined that the expected benefit for increased income volatility is directly proportional to the loss of income. On the other hand, it is thought that the volatility in the distribution of shocks may be at the lowest levels. Because the problems that occur in the market can create a negative effect on the volatility and investment, they have done research. It has been said that when faced with credit for investors, a budget constraint may arise and the effects of a non-linear return may occur. After the study, it is said that having high volatility means that it may cause a decrease in the investment rate. At the same time, it has been said that volatility may create first-degree negativity on the factors to be invested. In other words, it is said that the generalized preferences in the study can magnify the negative effects of the interactions between capital market defects and other factors and the volatility created in the study.

İskenderoglu and Akdag (2020), investigated the potential relationships between G20 countries and the VIX stock market index. Risk can be defined as the fact that companies or investors can create a loss due to their expectations or plans. At the same time, risks can be said as the basis of the investment decision. On the other hand, it is stated as the most complicated and difficult to understand feature in the investment process. Therefore, it is been stated that the risk can be collected under three headings. It can be said as risk taking, risk aversion and behaviors to take risks. In the study, it is stated that risk, return, market, and risk types for investors are examined while investing among investors. It is emphasized that volatility may also have an impact on risk-creating markets. With globalization, the volatility has generally increased and has been said that it also affects the financial markets. In the paper, investors have identified the most preferred volatility types in the markets as VIX, GRAI, LCVI, ISI, GFSI, MOVE and RAI. However, in most of the studies, it is said that the VIX index is used to examine the indices of emerging markets. In the study, it is stated that when there is an increase in VIX, it is not possible for investors to avoid risk in its asymmetry. Therefore, it is said that if there is an increase from VIX, there may be an increase in risk. On the other hand, it has been stated that an unsafe environment can be created for investors. In the article, it is stated that defining the VIX index makes it easier to understand the stock markets of developing and developed countries. It is said that stock market returns are difficult and can thus be facilitated. It is been said that it is not possible to expand the literature. Because the literature cannot be generalized and it has been said that it is not due to the variety of results. When looking at the results of the study, found that there was a similarity in the results not only for one country's stock exchange but also for the stock markets of all countries. Developed countries in G20 countries are Australia, France, Canada, Germany, Italy, Japan, South Korea, England and USA, while developing countries are said to be Argentina, Brazil, China, India, Indonesia, Mexico, Russia, South Africa, Saudi Arabia. Data of G20 countries were reached in 19 countries. At the same time, it is said that they applied the Granger causality test to examine the data. As a result of the studies, a causal relationship between NASDAQ and VIX was found for developed countries. In developing countries, a causality relationship could not be found between the VIX index and BIST 100, BOVESPA, MERVAL, S&P, and TADAWUL stocks. According to the results of the analysis, it has been said that there is more causality in developed countries than in developing countries. In the study, while researching for the VIX index, Breitung and

Condelon frequency domains were also examined besides Granger causality. In the study, the short, medium and long term causality of the countries was examined and found that in developed countries, 9 indices were determined up to 7 returns in the VIX index. On the other hand, moderate causality is found for the DAX index from the VIX index, and it was said that the only exception was NASDAQ 100 for developed countries. In the study it has been said that no causal relationship has been determined from the VIX for NASDAQ 100. For developing countries, on the other hand, are determined short, medium and long term causality by returning 5 out of 10 indices in terms of VIX index. In the analysis results, it is found in the short term for S&P, BMV, IPC index from VIX and causality was determined for BIST 100, BOVESPA, Merval and TADAWUL from VIX. Except for the exceptions found as a result of the analysis of the study, determined that there is a causality between VIX and Stock Market indices for developing and developed countries. However, a conflict is encountered between periods and work. As a result of the study, it is stated that besides the issues to be considered for future studies, countries and data are important for future studies.

Gürsoy (2020), while VIX index is followed by developed country investors, it is now followed by developing country investors. It is said that the effect of the movement of the VIX index on the developing BRICS country stock markets between the years 2011-2020 is examined. It has been said that the volatility of financial assets is important for investors to make decisions. It has been said that while investors only follow the national market, now follow the international market. In the study it is said that the volatility in any of the financial markets with the increase in globalization is contributed to other markets. Investors take volatility into consideration when making investment decisions. The VIX index is shown as one of the indicators that investors pay the most attention and care to in global markets. In the study, it is emphasized that the VIX index was calculated with the S&P 100 index at first, and then continued to be calculated with the S&P 500 index. It is said that 28 indices are calculated for six categories to measure the expected volatility of the CBOE. VIX index is used in order to predict the future security market. It is said that calculations can be made optionally while calculating the indices. If there is a closeness between the purchase and sale prices, it causes the value of the VIX index to decrease. As a result of the studies, an inverse relationship is found between the VIX index and the S&P 500. As the aim of the

study, it is aimed to investigate the causality in the stock markets of the developing BRICS countries together with the VIX index. The studies in the literature of the study are found in summary form. At the same time, the contribution of the study to the literature is mentioned. In the studies on VIX index and stocks have been examined in the literature. As a result of these examinations, it is determined that time series such as GARCH, DCC and ADCC are used. At the same time, it was stated that the models and series used in the literature are up-to-date will contribute to the literature. VIX indices are referred to as volatility indices. It is also said to be among the most considered indicators. When dealing with data, daily data are looked at. In the study of analysis, Tado Yamamoto is measured by causation while using the data. While conducting research, Lee Strazicich was first used in unit root analysis. As a result of the analysis in the study, while all countries remained at a constant level, the same was not the case for India and China. It is known that it became stable after taking the first differences within the two countries. At the same time, it was observed in the studies that there were fractures without any unusual situation. For the variables used in the study, bilateral results were also examined. It has been said that the VIX index between the periods determined in the analysis results is bilateral causality for RTSI and INVSFA40 exchanges. At the same time, unilateral causality was determined from VIX index for BSESN and SSEC indices. Finally, it is seen that causality could not be determined for BOVESPA stock exchange from VIX index. As a result of the study, it is stated that the VIX index is active in stock markets and has effects. The results are found to be consistent with the data previously obtained. On the other hand, the importance of the VIX index has been confirmed as a result of the studies. It has been said that the VIX index is important for investors to invest in developing countries. As a result, it has been said that the study is important for investors and researchers. It is thought that it could save time thanks to this situation. At the same time, it is seen as a guide for investors as it is up to date.

Silva (2002), investigated how the financial system affects volatility in developing countries. Evidence from countries of the effects of business cycle volatility is discussed. At the same time in the study, it is stated that the literature created comprehensive and there in countries for the volatility that occurs in economic fluctuations. In the study is been said that there is no significant impact on asymmetric information when one is not capable of high failure for advanced finance in countries.

At the same time, it is emphasized that generalized moment methods are used in developed country finances and are softer in volatility. For the literature found in the study, it has been said that the volatility for financial systems in credit markets grows and how to work for spillovers. On the other hand, the study is looked at development for the effects on investment and growth. In the article is said that evidence for the developed financial system can be made available for countries in the fluctuations in the economy. The article is said to be related to advanced financial systems when there is a decrease in finances when have failures. In the study found that if there is a soft business cycle, it is associated with financial systems where defects in the credit market are reduced. It is said that the refusal of loan financing may be the reason that when difficulties in firms increase or cause bankruptcy. For this reason, companies can change or regress themselves. In the study, it is thought that the financing sector is more prominent. Widthwise in the study, it is thought that a misunderstanding of the explosions or the rejection of their loans can be productive for advanced financial systems. In the article, it is stated that in order for business cycles to be problem free, there should be effective use for borrowers and market trends. It is seen that the literature is determined in two ways in the study. The first is that the financial system development is not focused. The second is to focus on how long the cycle would be. When the whole study is examined, it is revealed that the size of the financial systems of the countries provides loans in the public and private sectors. It can also occur in recessions between countries and appears to constitute less volatility for fluctuations. It has been said that business cycles can be recommended for smooth financial systems for development. In the study is also thought that creditors for financial development indicators could increase and create incentives for major financial developments. In the analysis results, Solow found that volatilities are important for variances between countries. On the other hand, studies have shown that business cycles are not consistent even if are considered consistent. Some studies found that volatility is positive. In the analysis, are examined in the panel data regressions and found positive for conflict. As a result of the study, it is seen that it stems from differences in financial developments between countries. But in the study is analyzed as determinant for the volatility in business cycles.

Prasad, Rogoff, Wei and Kose (2007), said that financial globalizations with the effect of globalization focus on the increase in developing countries of industrializing

countries. In the article is seen that while capital increases in developing countries increase, crises also emerge. At the same time, it appears that the study of effects for developing countries is increasing. With the increase in financial globalization, studies on developing countries continue to be investigated in study. In the article is said that the studies are tried to be evaluated with empirical evidence. It is seen in the article that developing countries examine the incentives to economic growth and macroeconomic volatility in countries along with financial globalization. As the subject of the article emphasized the poverty brought about by financial globalization. At the same time, in the empirical study on the subject found that poverty is the most reliable abatement source in analysis for economic growth. In the study has also been emphasized that there are several ways of increasing financial flow. The issue addressed in the article is how the welfare of the poor countries is when looking at the effects of macroeconomic volatility on poor countries. In the article thought that the welfare of poor countries volatility is negative and the effects causal. It is also considered detrimental to macroeconomic volatility effects. It has been said that poor countries are known to have difficult access to financial markets and limited resources. On the other saying, it is known that the poor believe and trust the government in many points. It is known that when a change in government spending occurs, directly affects the poor. For developing countries, it can be said that the negative effects of financial crises on volatility and poverty, and the effects between fiscal policies have increased. It has been said that some poverty has effects on macroeconomic volatility and it is known that do not have abilities in some cases. As a result of the researches in the article is said that the increase in trade can help reduce the volatility of the financial flows macroeconomics. However, it is thought that it could be beneficial for the poor. In the article is stated that when there are fluctuations in consumption, it is create negative effects on economic welfare. Therefore, it is thought that developing countries could better balance fluctuations for financial integration. For some countries, volatility have been found to be beneficial. At the same time, financial globalization is considered to be risky and a situation that needs attention. Analyzes for developing countries are certainly considered to be able to foster financial integration in the study. Analyzes for developing countries have not been able to obtain a definite case where financial integration can be enhanced. On the other hand, it is emphasized that is caused by high consumption volatility. As a result of the investigations, it has been stated that it cannot be certain that there can be a complete and complete situation before financial integration. In the article, it is thought that some

reasons should be looked at and identified in order to determine the analysis of poverty and globalization for developing countries. It is stated in the article that it may be better to use complementary policies in order to increase benefits for the poor. In the analysis results, it is thought that even if it is short and regular over time, the negative effects for the poor have decreased and at the same time it may decrease for the poor. As a result of the study, it is emphasized that studies on financial globalization should be carried out additionally.

Green, Maggioni and Murinde (2000), investigated the relationships between transaction costs and stock exchange volatility in developing countries in the London Stock Exchange. It is aimed to obtain a regulatory result with the empirical analysis studies conducted in the article. At the same time in the article, volatilities are emphasized in the literature part. These volatilities are thought to have an effect on the fluctuations of transaction costs. In the article found that the analysis focused directly on cost and transaction taxes. In the light of the results obtained is thought that the volatility on cost and stock prices can be safe. The results found are thought to be critically related to volatility. In the article also thought that transaction costs for developing countries are important for stock volatility. In the light of this result, it is emphasized that its effects on costs should be taken into account. In the study has been said that regulatory regimes are the main determinant of transaction costs in the market, either institutionally or indirectly in the market. It has been said that transaction costs affect the market not only in the study. In the analysis, a study is conducted on the London Stock Exchange. Analysis studies for the London Stock Exchange, studies have been created for a certain period of time. At the same time, two hypotheses are created in the analysis. In the article thought that one of the hypotheses would be confirmed as a result of the analysis. According to the analysis results, is determined that there is volatility in the relatively long-term stock market in London. On the other hand, in the study stated that the London Stock Exchange can be explained with the measures in business conditions and three transaction cost variables. With the results obtained, it is said that the volatility of transaction costs is generally short-term. In the study is seen that the effects of volatility are high when it is a long-term situation. In other words, it is said that when the volatility in the market increases, transaction costs may increase. However, it is said that when transaction costs increase, volatility may decrease. In the light of the results, it is determined that the opposite of the information given. In the

article is seen that unexpected situations arise with wide implications in the stock markets of developing countries. It is emphasized that these situations are factors such as market cost, volatility in stock. At the same time, it is emphasized that implications can be made with the stamp tax in the stock market of developing countries. In the article is said that this situation did not affect the volatility in the stock market of developing countries. When the results are analyzed, it is seen that the relations between the volatility of stock and transaction costs support the literature. However, it is said that the results found other empirical studies only positive. As a result of the study, it is stated that the effects of the new contribution to the literature of the study may differ for the long and short term transaction costs.

3. STUDIES COMPARING DEVELOPING COUNTRY STOCK EXCHANGES

Extensive research has been done for this part of the study. In this literature review, studies on comparing the stock markets of developing countries were examined. Many studies have been found on the subject. In the studies conducted, it was determined that analysis was made with many variables. These variables are compared with many variables such as CDS, credit rating and VIX indices and the stock markets of developing countries. At the same time, the most common model among the methods used was GARCH, ADF, PP, VAR model and regression analysis. CDS are shown as synonymous with credit premium in the market and are followed by market actors. At the same time, CDS was arranged for various financial borrowings in the bonds of borrowings in countries (Kırca vd., 2018: 408). CDSs are said to be frequently researched in the literature and an important tool to manage risk. CDS can also be defined as a method used to reflect credit risk to the other party. In other words, CDS can be said as an indicator of country risk (Yenice vd., 2019: 227). It is seen that many studies have been done on CDSs in BRICS-T countries. When the studies are examined, it is seen that CDSs are frequently used for BRICS-T countries. It is said to be the most important factor among financial crisis indicators. It is seen that there are extensive studies on CDSs. It is seen that these studies generally examine issues related to risk, premiums and stocks for CDS. Generally considered has been found that BRICS, G20, Asian and European countries are comparing developing countries. The data handled during the analysis are in the form of monthly or daily data. Many studies have been examined in the study and have been prepared as a summary in the literature.

Çonkar and Vergili (2017), time series between 2010-2015 are told that Turkey's credit swaps and foreign exchange rates investigated. It has been defined as a form of insurance for the representation of CDS loans, as well as a form of insurance to protect against the risk of non-payment. In the study, studies on CDS in literature are examined and it is said that there are more studies after the 2008 crisis. At the same time, it has been said that the crisis has domino effect on many countries as it is global. In the analysis, the series were found at the first time, so it is said that they looked at the Johansen Cointegration to find out whether they are long-term or not. In the analysis, it was said that the Granger causality test was applied, in which variables were dealt with as dependent variables in order to determine causality. First, ADF and PP unit root tests were applied to examine their stationarities and as a result, they found their stationarities. In the study it is been said that if the results of ADF and PP unit roots are found to be unstable, the regression results would not be realistic and there would be spurious regression. In the paper, it has been said that a stable series does not contain a unit root. At the same time, it is said that the Johansen Cointegration test is applied to look at its length while analyzing. And as a result of the analysis, it was found that there is no cointegration / cointegration. When looking at the cointegration, it is said that the cointegration was examined by estimating the model after the VAR model was created and the length was found. In the study, it has been said that the Unconstrained VAR model is used since there is no cointegration. As a result of the analysis, it was found that there was no long-term action and cointegration in CDS, USD and EURO. When the VAR model was created, it was said that the roots of the tests of the AR polynomial became certain that the model was stationary and stable within the circle. At the same time, it has been said that it is an unrestricted VAR model since there is no cointegration. Recently CDSs have been said to be used as an alternative to credit ratings. It has also been said that many macroeconomic variables are examined. Granger Causality in the study also they used to test and US dollar / Turkish lira representing the CDS USD and EURO-Euro-Turkey / Turkish lira told they tspit unidirectional causal relationship to dry. In the study, since CDS is a daily variable, it is stated that variables are formed with the two basic currencies of the Turkish lira, the US dollar and the Euro, in order to examine the relationships. As a result of the analysis, it was stated that CDSs are not Granger for EURO and USD and their relationship is one-way. At the same time exchange rate regime implemented in Turkey it has said had an important impact for CDs. As a result, it has been said that the impact of credit default swaps means that

investors as well as the exchange rate, the country's economy and risk indicators are affected.

Reyhan and Gazel (2019) of the thesis, it is mentioned that credit default swaps are the most common contracts. In the study, CDSs were examined in detail and tried to be explained. It was emphasized in the study that there is no border between countries as a result of the globalization of the world and that crises spread more rapidly. Developing 8 countries (Turkey, Brazil, India, South Africa, Indonesia, Argentina, Russia and Chile) were studied causal relationship between the developing countries with CDS by taking over this country. In the study, developing countries are considered as 5 years. It has been tried to be determined after the financial crisis in 2008. In the method used, it was tried to contribute to the literature by obtaining results between the Granger causality test and CDS premiums. As a result of the research, it was concluded that CDSs affect developing countries and create an impact and reaction. At the same time, it was mentioned that it may be useful to examine developed countries as well as developing countries.

Bektur and Malcioğlu (2017), CDS is a variable that shows country risk and gives more accurate results than other risk indicators. In the study, the definition of the risk is stated as the situation expected to occur in the future but not. It has been said that there are several types of financial risks. It has been said that these types of risk are market credit risk and operational risks. In the study, it is stated that when there are crises and uncertainties, it becomes difficult for investors to manage risks. It is emphasized that many events become difficult during these times. These include changes in interest rates, exchange rate fluctuations, securities volatility and are said to require a good risk management. In the study, derivative markets are said as markets where the delivery of goods or securities is in the future. This situation can be said as a positive situation for investors. Because investors are trying to protect themselves from risks by taking them under protection. In the paper, it is stated that the inability of people with credit risk to pay or fulfill the loan on time creates credit risk. Credit derivatives take precautions against credit risk and are said to be the most used method in developing countries as well as companies. At the same time, credit default swaps are also mentioned in the study and referred to as financial insurance contracts. In the paper said that transferred for the selling party while hedging from credit risk. The purpose of CDS is to get rid of the debtor's failure to pay its debt. In addition, it is thought that the

premium debts determined in the contracts of the CDS may vary according to the risk status. If the CDS premium is high, it is considered as risky, and if it is not seen as risky, it is said that the CDS premium is lower. In the study, while the notes of the country risk were given by the CDS in 1990, after 2000, CDS premiums are stated as alternative risk indicators. In the study it has been shown as the reason for this situation that CDSs fail to detect the crises experienced. In the literature part of the study, it is stated that CDS premiums and the variables affecting the premiums increase with financial development. At the same time, it is been said that there are many studies in the literature and tests have been created based on this. Using daily data between the years 2000-2017 on relations between Turkey and BIST 100 index of CDS is said to be studied. Accordingly, by looking at the Hatami-J causality test, it is found that the relationship between Borsa İstanbul and CDS is one-sided. In the paper, it is been said that there is unilateral causality from the CDS to the Stock Market. In the study used the data of BIST 100 and CDS, and handled them from the Matrix data terminal. While performing the analysis, Toyato-Yomato test was used for causality using the Hacher-Hatami-J test and it is said that the bootstrap test was applied even though the errors were normal. In the paper also used VAR model to look at the causality of variables. In the paper formed a hypothesis for analysis. In the study state these hypotheses that there is no Granger causation among the variables and that there is Granger causation. To explain the Granger no causality hypothesis, the Wold test statistic was examined. Also, negative and positive shocks are not detected in the study. For this reason, it is said to be examined by looking at the Hatami-j asymmetric causality test. It has been said that strong results will be obtained thanks to the method used. The data used in the analysis results are found to be unit rooted but stationary. Therefore, its symmetrical causality is examined using the Hacker-Hatami-J causality test. As a result of the study, a one-sided relationship was found from Borsa Istanbul to CDS premiums. At the same time, the paper have detected causality from CDS towards the Stock Market. In the test results, the paper found that negative shocks for CDS premiums as well as negative results coming to the Stock Exchange are Granger reasons. At the same time, found that when a positive shock came to the CDS, it is the Granger reason for their positive shocks in the Stock Exchange. However, it has been said that CDS is not positively shocked by the Stock Exchange. Finally, for positive shocks in CDS premiums, it makes it easy to estimate Borsa Istanbul indices. However, it is been said that positive shocks in the stock market do not help to provide positive information in the CDS.

Düllmann and Sosinska (2007) refers to the changes in German banks related to CDS premiums in their study. It also mentions risk factors. It is created as 3 years in the research. It is aimed to reach the result by using the regression analysis type. It is aimed to reach the liquidity risks by looking at the log-returns of the margin of the purchases and sales of German banks. Firms seem to depend on risk factors and systematic factors or liquidity constraints. In the study, the importance of significant variables in predicting in other periods is stated. German banks' credit default swaps are explained as factors that are not predicted based on DAX's returns. Some data could not be found for CDS. As the opposite of other arguments, CDS is known to be sensitive due to changing liquidity. As a result of the research, it is stated that there are advantages and disadvantages for stock prices and credit derivatives prices.

Çelik and Boztosun (2010), working in Asian countries outside of Turkey's stock market shares year is been examined by long-term relationships in the markets. In the study, it is stated that financial integration is a process that can prevent capital flow in the markets and at the same time add advanced dimensions to capital flow. In the study it is been said that the financial integration between countries is the same price for financial assets and that there are no profitable arbitrage opportunities for investors in countries. In addition to these, it is said that financial integration enables the distribution of investors abroad for the systematic risk found in investors and companies in the world resources. It is emphasized that the differences in countries occur for various reasons. At the same time, it is stated that the developing countries such as the EU, China and India, which expanded with the globalization, and the countries that increased the world trade volume became closer to each other. In the study stated that in order to make international stock diversification, there should not be cointegration in capital markets. In the study, it is thought that when investors want to invest in international markets, they take the risks and get more returns. In the literature, it has been observed that there are many studies cointegrated in world stock markets. These studies are generally examined with the short-term correlations of stock exchanges and later it is found that Engle-Granger and Johanson co-integration tests are started to be used. studies in Asian countries have been examined in the literature of exchange with Turkey. In the study found that the studies examined are not sufficient. Data are obtained in monthly time between 1998-2009. Data are considered when discussing the exchanges of Turkey ISE and Asian countries. For the analysis part of the study, the

graphs of the regression study were examined and it was said that a disruptive effect was observed. For all countries used in the study, took logarithms in stock market indices. In the study, it was stated that it might be important to look at the correlation relationship before when examining the long-term relationship for the ISE and the Asian stock market. Examining the correlation tables to be created in the study will be co-complementation is not show in the stock market, it was said to be important to provide background information for the relationship between the correlation found by Turkey. Operation analysis unit root test of PP were used, and subsequently the stability test are intended examined the relationship between the length of the VAR model while using Turkey and Asian countries. Finally, between Turkey and Asian stock exchanges were made with the co-bütñl roll Johansen-Juselius test analysis. They applied the long-term relationship Johansen-Juselius cointegration test for the stocks between 1998-2009. Turkey between periods identified in the study, Singapore, Malaysia, Taiwan and Korea exchanges for long-term relationships have been found. It yansira to Turkey, Japan, China, Hong Kong, India, Australia and Indonesia was no significant relationship. Turkey stock available in Asian countries as co integrated analysis of the study was concluded in outcomes. Whereas not reduce the risk of the portfolio available in the market. At the same time, it is stated in the analysis results that the rate of return cannot be increased. It has been said that those who have the opportunity to make a risk-free profit in arbitrage can be eliminated. As a result, Turkey, Japan, China, Hong Kong, India, Australia, and is rumored to be among the Indonesian stock market portfolio diversification.

Puliga, Caldarelli & Battiston (2014) think that credit default swaps should reflect the risk of the debt. In the study is emphasized that it is not known whether the financial crisis will show a risk or not over time. In the study is been said that the risk is not priced by institutions trading CDS. They considered housing prices for the USA in their research. When analyzed, in the paper appears that there is no consensus on the consequences of housing prices for the US. However, it was thought that CDSs could reduce financial risks. In their studies, an analysis of 176 periods was made in the 2002-2011 period. In the study aimed to investigate the Group Debt Ranking by using the stress test. As a result, in the study is been concluded that systemic instabilities are promising.

Kassimatis (2002), examined whether the volatility of six developing countries in the stock market increased or not. Six developing countries: It is been said to be Argentina, India, Pakistan, South Korea, Philippines and Taiwan. In order to examine the fluctuations, it is said that the effect curves are formed by looking at the past news in the study. In order to examine the curves used in the study, stock return volatility is analyzed using the EGARCH method. As a result of the study, it has been determined that the volatility has decreased alongside the implementation of the policy with liberalization. It is seen that developing countries have increased more in recent years. Discussion issues have arisen regarding developing countries in the study. While some groups advocated increasing savings and investment, Keynesians found it doubtful whether savings had a significant impact. It is also thought that the effects of liberalization in countries played a role and did not exist before. For this reason, it is said that discussions have arisen. It has been said that the volatility in the stock markets may decrease with the financial liberalization as well as opening to foreign investors. On the other hand, it has been said that even if fluctuation increases, it cannot harm the real economy. It is stated in the study that the subject is limited and empirical studies are few. Therefore, the article aims to examine the effects of financial liberalization of developing countries on volatility. In the analysis study, the EGARCH model is used first. Then comparisons are made to find the volatility for pre and post liberalization. As a result of the studies, it is said that the volatility with foreign investments seems to have decreased for the stock markets of developing countries. At the same time, the size of the volatility in the Indian and Argentine stock markets can cause them to be low with the news in the past. On the other hand, it has been seen that India has a smooth curve after liberalization. As a result in the study is little volatility. It has been found that the volatility level has not changed in South Korea. At the same time, a little change is observed in Taiwan as a result of volatility. However, it was thought that the curves in the two countries are flatter in the second period and the big news could produce less volatility in that period. The same has been said within Pakistan. In the Philippines, it is determined in the analysis results that the volatility was higher in the second period. When the study is examined in both periods, it is determined as the same level and minimum in terms of curves. However, it is determined to be flatter for the first period and it is said that there was low volatility before liberalization. As a result, it has been said that financial liberalization, which requires a decline for the volatility in

the stock market after liberalization, is finalized. At the same time, this is not the case for the Philippines, while the analysis result is the same for other developing countries.

Abdellahi, Mashkani, and Hosseini (2017), stated that the study investigated credit, market and liquidity as well as financial performance by investigating possible side effects. Studies of eight banks trading on the Tehran Stock Exchange (TSE) are examined. While analyzing the study, the data are tried to be analyzed using the Eviews program. As a result of the analysis, it is said that the data became stable. It is also said to be applied in the data estimation method. It is seen in the analysis results that the returns of assets with credit risk have a significant effect in the study. It is also examined by looking at the relationship between market risk and liquidity risk, return on assets. After the comparison, no relationship is found between liquidity risk and return on investment, but it was said that there are important relationships between market risk and return on investment. Among the research results, a reliable relationship is found between the credit risk of ROA. However, it has been said that there is no relationship between ROI and market return. On the other hand, it has been stated that there is a relationship between the ROI and credit risk and the market relationship. However, it has been determined that there is no relationship between ROI and liquidity risk. However, it is stated that after the study, it is necessary to consider the decision taken with the effect of liquidity and credit risk, as well as the determination and control of the risk. In this way, it has been said that it can be a regular credit risk and liquidity risk management unit. At the same time, it is said that it is more appropriate to make decisions by looking at the places where resources can be created more securely instead of being in a hurry when a crisis occurs. In the study, it is thought that the target can be achieved by having an efficient and effective internal system for liquidity management. On the other hand, it is stated that banks should establish risk management and asset-debt management commissions with the least risk thanks to interactions and collaborations. Finally, it is said that banks are recommended to include administrative reports on the measurement of risks in their banking activities in addition to their annual financial reports.

When the studies of Brigo, Capponi and Pallavan (2012) are examined, it is examined that it is involved in possible redefinition for collateral and arbitrage assessments of risk for bilateral counterparties. A search is been done without deficiencies for collateral and CDS risk-free pricing. While using the analysis types for

the research, formulas are created and the relationships between default risk and pre-default collateral account were examined through formulas. The work done is said to be numerical and can be seen. In the study is said that its effects are beneficial more easily when analyzing thanks to numerical study. In the study is shown that it limits the effectiveness of collateral for CDS. At the same time, it can be said that it reduces the counterparty risk to collateralization and creates an absolute dimension in terms of recovery.

Ericsson, Jacobs, and Oviedo (2009) investigated the relationship between theoretical default risk determinants and verb spreads. As the aim, it is aimed to determine the volatility and risk free interest rate with the abolition effect. It was aimed to reach the goal by using analysis types. These results could be interpreted in the light. Regression analysis was used for the analysis and it was aimed to explain the spreads of the theory. As a result of the analysis, the noisy existence of the data was taken into consideration and the interpretations were interpreted with the results based on this.

Bologna and Cavallo (2002), the effects of the volatility in the stock markets of Italy's securities on the stock market are analyzed. It is said by the economic literature and investors that the effects and characteristics of futures on the basic volatility are discussed. First of all, in the study has been investigated that the volatility of the stock markets decreases in futures transactions and that it is caused by the maturity contract or not. In the study then aimed to determine the time of futures effects. As a result of the study, it is stated that stock market volatility decreased in futures transactions as well as stock index, but also did not decrease in any other way. On the other hand, it is said that productivity increased for developed futures markets, active markets and spot markets. In the study used the GARCH method to associate the Italian stock exchange with stock index futures. At the end of the study, it is said that there was a stabilizing effect on the underlying stock market for the Fib30 contract. At the same time, it is stated in the study that the volatility that occurred in the periods after futures transactions was low in the previous period. In addition, it has been said that the effects in futures transactions can occur instantly and do not affect only stock futures in the study. In the analysis, it is said that besides the GARCH model, it aims to find the stock equation used in the market as a proxy for the returns in the DAX index. The reason for this is to find the stock index futures entries by detecting the decrease in volatility after futures. In other words, it is said that the market is important in determining the level of volatility for the

Italian stock market. In the study, it is stated that the time when futures are released to the market is an obvious break with the estimated coefficients of conditional variance. As a result of these studies, it is stated that conditional volatility in futures has an effect on forecasts. For this reason, it has been said that it may be positive for the volatility in the market for the Italian stock market. On the other hand, it can be said that it contributes to less volatility in the cash market for the Fib30 futures exchange. As a result, it is thought that the market efficiency can be increased by decreasing the volatility for the stock index futures for the Italian stock market. It has been said that with this effect, the market will gain prosperity and create positive effects.

Demirer, Kutan and Chen (2010), stated that the study contributes to the literature for investors. It is also stated in the study that there are not many studies on herd behavior in the Taiwanese market. Studies have been found to contradict each other and do not provide evidence. When examining Taiwan stock exchanges, and found that there were 689 companies in 18 different sectors. In addition, many variables are used in the study to provide a better understanding of herd behavior. In the study have used a number of models to better understand the risks investors may face. As the first contribution to the study, it is stated that investor recruitment studies for the developing Taiwan stock market are examined. Secondly, it is said that different methodologies are used to understand herd behavior for investors. Finally, it is said that the importance of systematic and unsystematic risks that may occur for investors is discussed. It is said that the CSSD test used in the study did not provide any evidence for herding. However, Chang et al. (2000) and Hwang and Solmon (2004) based models are found to provide strong evidence for all sectors. At the same time, it is said that losses in herd effect are visible in the markets. At the same time, it is said that wrong results are reached when joint movements are not taken into account for the returns generated in the total market as well as individual asset returns. In the study, it is stated that there is nonlinear moodel and linearity is rejected in the markets. Therefore, it has been said that the effects of nonlinear models are not linear and they provide support for herd to all sectors for analysis. As a result of the study, it is stated that when there is a loss for markets that need diversification, there may be a limited number of diversification opportunities in the market. In conclusion, it is stated that in the light of the results obtained, it is stated that care should be taken as there are too many tests for investors with the distribution of returns and the sensitivity of the factors in the study.

At the same time, it was thought that the data used with different methodologies and the test used in trading data could be interesting.

Levine and Zervos (1998), mentioned two important points in the study. As the first important point, stock market size, liquidity, volatility and international integration are examined in the capital control of 16 emerging markets. Secondly, in the study examined research on accounting standards and investor protection. In the study, it is determined that liquidity, variable and integration increased after liberalization for stock markets. It has also been said that countries with large scale companies can have liquidity and internationally integrated markets. At the same time, it is stated that the international capital and default flows of 16 emerging market economies will be evaluated with various variables as the purpose of the study. In the study, it is observed that for many countries, the integration of certain variables into the national stock market, ICAPM and IAPM measurements are examined. At the same time, it has been said that it will not only contribute to the analysis literature but also reduce international capital flows. It has been said that it can contribute to the literature as the barriers decrease in study. At the same time, it is stated in the article that there are statistics of the relationship between the three regulatory institutional indicators in stock markets. It is said that the development of the stock markets can proceed in a positive way with the data obtained. In the study, it has been said that there is no need for well developed stock markets for the accounting of internationally accepted countries. As a result of the study, it is thought that economic development can increase as international investment reduces barriers. At the same time, when look at the analysis results, it is said that the international monetary fund can become more active as the barriers decrease. As a result, it has been said that some short-term fluctuations and restrictions on international portfolio flows must be lifted in order to achieve broad economic opportunities. It is also said that the default and principals should remain in their country.

Park and Bae (2004), the aim of the study is to examine new venture strategies as well as static and dynamic models of growth. In the study, it is determined that Korea differs in competitive behaviors as well as new entry cases and strategic types. In the study, it has been said that new initiatives can be achieved by going through two stages to enter the global market. At the same time, it is emphasized that there are two different growth types, management skills for entrepreneurs and having new entrepreneurs. It is said that the aim of the study is to grow by capturing different opportunities within a

global framework by applying new enterprise strategies. It has been said that unlike other studies, it is aimed to achieve results by focusing on the local and global market. It is stated that three factors were used for new attempts in the study. At the same time, seven different strategic types have been created. And it is said to be defined separately for each initiative in the study. On the other hand, it has been said that an analysis is made by examining competitive strategies and growth for Korean enterprises. According to the analysis results of the study, it has been found that companies can survive in global success. In study, it is said that internal size, capabilities of entrepreneurs and technological efforts of companies are taken into consideration for successful growth. It has also been said that the two-stage growth method for developing countries is a good method for global initiatives. Although the study is limited, it is said that administrative and political implications have been obtained. At the same time, it is said that the study can attract the attention of competition and growth strategies in the local and global market for strategic types. It is also said that new business opportunities and competition in the markets of developing countries could be good.

Özkan and Çakar (2020), that portfolio comparisons are made according to the average variance of developed and developing countries and the single index method. America, Asia and Europe continents are considered as developing and developed country markets. In the study, it is said that stocks traded in six different country markets, which are randomly selected from Asia, America and the Americas, are analyzed. On the other hand, daily data of 2017 are taken into consideration and used in the analysis. Portfolios have been created in order for investors to invest in securities more easily and widely. It is said that these portfolios average variance model and a single index model is developed in order to reduce the difficulties. At the same time, it has been stated that there may be a decrease in the parameters thanks to these portfolios. The average variance model is said to provide great flexibility for investors. The reason for this situation is stated as the lack of a portfolio that can have the highest risk level. It is said that made a review on the studies on average variance and single index model in the literature of the study. It is said that while single index model is used for developing countries in the analysis methods used, average variance is used for developed countries. According to the analysis results, it can be said that the single index model of the average variance in the developed country market has good performances in the

developing country market. Finally, it is stated that the optimization study for future studies can be used to evaluate the performance in undeveloped country markets.

Büberkökü (1997), is investigates the relationship between developing and developed countries' stock and exchange rates. The stock and exchange rates discussed in the study are said to be important markets in the financial system. For this reason, it has been said that the importance of these markets has increased more in the paper. It has been said that there are studies explaining both markets in the literature. It is also said that studies support both theories. But it has been said that there seems to be a lack of consensus. The developed countries discussed in the study are examined as Japan, Canada, England, Switzerland, Germany and Australia. Emerging countries are Singapore, South Korea and Turkey have been analyzed. Engle-Grange and Johansen tests were applied to the methods used in the analysis. In the paper, it is stated that in the short-term studies, Granger causality test, VAR impulse-response function and variance decomposition were examined. The study is examined between 1998-2008. No one-way causality is found for Canada and Switzerland in the analysis results. But in study found no causation for Japan, Germany, England and Australia. In the paper found one-way causality from exchange rate to stock for Singapore and South Korea. In the study Turkey are said causality of the stocks to exchange rate be determined . At the same time, it has been said that there is no long-term relationship in any country other than Sinapur. As a result of the study, it is stated that the causality between stock and exchange rates differs for developing countries and developed countries. It has been mentioned that the differences that occur may be caused by various factors.

Aksoylu and Görmüş (2018), although CDSs have been an important indicator of the risk of default in recent years, studies have been carried out considering that CDSs also affect country premiums. In this study, it is stated that examinations were carried out considering the asymmetry between financial variables and causality. Turkey, Brazil, Argentina, Mexico, Indonesia, Philippines, Poland, Malaysia, and Portugal developing countries consisting of the CDS premiums and the US dollar between the years 2005-2015 is said to be investigated by the exchange rate. At the same time, it is seen that the 10-year government bond rate and VIX index are investigated. It has been said that financial solutions have been investigated in order to avoid exposure to credit risk as well as risk. It is emphasized that CDSs are among the most used loan derivatives. It has also been said that CDSs are important for investors

to anticipate country risk. As a result of the study, found that CDS premiums and selected financial variables have asymmetric causality. In the study used two types of tests in the analysis. It is stated that symmetrical and asymmetrical tests are used in the study. These tests appear to be the Granger causality test and the Hatami-J test. For the Granger causality test, they detected causality only for Indonesia from the exchange rate to the CDS. They could not find causality for other countries. At the same time Hatami-J of CDS correct exchange rate for Argentina, Indonesia, and been found positive shock to Portugal and Argentina, Indonesia, the Philippines, Poland, Portugal and Turkey are said to be seen to negative shocks. As a result of the studies conducted for the VIX index, it is said to be the index with the most correlation. For this reason, Argentina, Indonesia, Philippines, Malaysia and Poland are found to have relationships for the VIX index as a result of the Granger causality test. For Hatami-J, have achieved positive results for Argentina, Malaysia and Portugal towards CDS premiums in the VIX index. But when looking at negative shocks, could not see causality in Argentina and Malaysia. In addition, as a result, it is stated that CDS premiums and financial variables are more successful than the Granger test for Hatami-J asymmetric consensus.

Şahin and Sümer (2014), conducted using advanced and emerging markets to examining associated with stock exchanges in Turkey between 2009-2014. The acceleration in financial markets with globalization can be cited as the reason for the study. In the literature study, it is said that there are many studies in which world stock markets interact. In the study, it is said that the stock exchanges of the USA, Germany, Japan, England and France are taken as developed country stock exchanges. Developing country stock exchanges are said to be China, Russia, India, Kazakhstan, Indonesia, Brazil and Egypt. When the study look at the Turkish stock market and developed country stock markets in the analysis, it is said that the developing stock markets are sensitive. While analyzing the data, it is stated that the time series are analyzed by VAR method. At the same time, individual unit root test was used in all countries. On the other hand, it is aimed to examine the causality relationships of the data with the Granger Causality test. It has been said that it does not affect other stock exchanges for China, India, Japan, France and Egypt. For this reason, determined that the fragility in the stock markets is mostly for internal dynamics in the study. In other countries, it is seen that stock exchanges affect other countries. Only the German stock market is rumored Turkey is not thought to affect the stock market in study. Finally, the stock

market is the impact on the stock market in Turkey Turkey's foreign trade was said to be important countries. At the same time the fortunes of the stock market in developing countries than in developed countries, Turkey stock exchanges have determined that it is accurate, and sensitive.

Arestis, Demetriades and Luintel (2001), the economies of five developing countries are examined in the study. In the study is aimed to keep the effects of banking system and stock market volatility under control with the data of developing countries. With the increase of measures for stock markets, it is said that a new area of research has emerged that focuses on the relationship between financial development and economic growth in the study. On the other hand, it is said that the changes in the development of the stock market explain the growth volatility in countries. In the article has been said that there is a wide picture of the relations between stock markets and growth due to the decline in growth between countries. Time series methods are said to be used to control commercial banking sector and stock market effects. In the study is also said to be used to examine the relationship between growth and stock market development. In the analysis, the developed economy as Germany, United States of America, Japan, United Kingdom and France as the countries that constitute the stock market indicator for a long time in the study. Underdeveloped countries are not considered in the study and it is stated that the reason for this is that they could contribute to the stock market by forming a late stage in economic development. However, the study is thought to be valuable, as it may affect the policies of less developed countries. In the analysis results of the study, is stated that economic growth could be supported for banks and stock exchanges. However, it is concluded that the effects are strong only for the first. On the other hand, it has been said that the economic growth contribution for stock markets may have been exaggerated by growth regressions between countries. In the study has been concluded that econometric advantages can be used in stock markets as well as financial development and growth. On the other hand, it has been stated that the growth between countries may decline in order to be able to handle causality and endogeneities. It can be concluded that with the decline in economic growth, the probability of damage decreases. The time series method can provide benefits. It is emphasized that even if the econometric results are not considered, the results can reveal important details. On the other hand, in the light of the results, it has been determined that it can contribute to the long-term production

increase for the stock markets. It is also said that it can obtain a small portion in the banking system. It has been observed that it creates effects for the increase in production for France, Germany and Japan for stock markets and banks. It is concluded that financial development and growth is statistically less for the United Kingdom and the United States. But the study is said that it is moving towards financial development for growth. For the results of this analysis of study, is thought that it can stimulate growth in the long term. On the other hand, it is thought that Japan and France might have negative effects on stock market volatility. For the UK, the negative effects of stock market volatility on financial development and output are considered insignificant. For Germany, it has been found that the volatility in the stock market is insignificant. In the article is determined that it does not support the hypothesis with the results obtained. On the other hand, it has been conclusively obtained with the analysis results that their importance has negative effects on financial, monetary and external volatility. In the results of the analysis, it is said that the growth regression that occurs in countries for the relations between the stock and growth has completed the findings. On the other hand, it is thought that countries may experience a decline in growth. As a result of the analysis of study determined that the obtained results are observed. As a result, it has been found that the development in the market supports the economic growth.

THIRD PART

IDENTIFICATION OF CDS STRUCTURES OF DEVELOPING COUNTRIES

1. PURPOSE OF THE RESEARCH

The purpose of the thesis are to reveal the relationships on the Stock Market, VIX and CDS values for BRICS-T (Brazil, Russia, India, China, South Africa and Turkey) countries global crisis indicators. It is seen that the problems in countries have increased after the 2008 financial crisis. It also created various risks in countries after the 2008 financial crisis. At the same time, it is seen that CDS and VIX indices, as well as credit ratings, are of great importance in the globalizing world. After the financial crisis of 2008, a decrease was observed in the credit ratings of the countries. In other words, times of global crisis create fear in countries. It is also a major concern for investors and politicians. Since all the fluctuations that occur have great effects, they affect countries economically. In order to reveal these effects, it is aimed to present results by considering CDS, VIX and Stock Markets index values in the thesis.

While the study, two methods were used to examine the data. The first method used in the study was ADF (Generalized Dickey-Fuller) test to find out whether the series are stable or not. When using the ADF test unit root test, the unit root test results were obtained by checking the values of 1%, 5% and 10%. After the unit root test results were applied, ARDL test was applied for BRICS-T countries as the second method. The ARDL/bound test continued to be implemented and developed by Pesoran and Shin in 2001. The purpose of the ARDL test was to examine stagnation states within the results of $I(0)$ and $I(1)$. As another purpose of the ARLD/Bound test, it is aimed to make a decision by looking at the long-term relationship.

In the methods used in the thesis, it is seen that the values of CDS, VIX and Stock Market are affected by global reasons. Daily data were used while dealing with data. At the same time, it is seen that the data of some countries are not available. Otherwise, it is observed that the credit ratings are affected by global factors and the ratings change annually. It can be said that the series affect each other while creating the models. It is seen that there are many studies on the subject in the literature. But at the same time, it is seen that there are few studies on the VIX index in the literature. Recently, the VIX index has started to attract the attention of researchers and it is seen that studies are being done. It is seen that most of the studies have been conducted on

the CDS values. On the other hand, credit ratings have also been a subject that attracted the attention of researchers.

2. CONTENT OF THE RESEARCH

In the thesis, the global effects between the CDS, VIX and Stock Markets indices of BRICS-T countries have been investigated. For BRICS-T countries, daily data were taken from 2008 to 2020. Since it was difficult to access the data of India while handling the data, daily data between the years 2015-2020 were used. At the same time data for Turkey after 2009 it began to be taken as a daily data. The data covered in the study are taken from Bloomberg Terminal, Investing.com and World Governments Bond official site. At the same time, daily data were obtained from the official site of each country while present the data.

In order to avoid mistakes during the analysis during the study, harmonization has been made for the CDS, VIX and Stock Market indices for the BRICS-T countries. The days (weekends, official holidays, etc.) where the indices are not calculated by considering the dates on common days are not included in the calculations. It is aimed that CDS, VIX and Stock Market indices are compatible. In this way, it was aimed to prevent the lack of observation from affecting the study. At the same time, analyzes for BRICS-T countries are handled separately for each country.

3. METHODS

In the course of the study, 2 methods were used in the analysis part. Firstly, descriptive statistics for these methods are created for BRICS-T countries and interpretations are made for countries. Descriptive statistics were analyzed and interpreted separately for each country. At the same time, after applying the ADF unit root test of the stationary test applied for the CDS, VIX and Stock Market indices of BRICS-T countries, the Autoregressive Distributed Lag Bound Test (ARDL / Bound Test) was applied in the analysis. While applying the ARDL / Bound Test, it is aimed to find out whether there is a long-term relationship for developing countries. During the study, all tests applied were analyzed with the E-views program. The methodologies about the tests used are explained in the subsection.

3.1. ARDL BOUND TEST

ARDL test is also known as ARDL Bound Test. ARDL Test was also called Delay Distributed Autogrative Bound Test. ARDL bound test was developed in 2001 by Muhammad Hashem Pesoran and Sangcheol Shin. ARDL Bound test is said to be the

model used to test the concept of cointegration with the combination of the series for at least two non-stationary series. ARDL model aims to investigate the Foreign Direct Investments (FDI) or long and short term effects of macroeconomic indicators (Uzungören & Akalin, 2016: 69). ARDL bound test approach Pesaran (1997), Pesaran & Smith (1998), Pesaran & Shin (1999), Pesaran et al (2001). At the same time, the ARDL bound test method has recently become a more effective and frequently used method compared to the cointegration tests of Johansen (1988), Johansen Juselius (1990) and Engle-Granger (1987) (Turna, 2017: 80). ARDL Test has many advantages compared to other cointegration methods. In contrast to other cointegration techniques, ARDL test does not impose a restrictive assumption that all variables under study should be combined in the same order (Şimşek, 2016: 71).

ARDL approach is based on the least squares method and unlike classical cointegration analysis, it is not necessary to apply a unit root test beforehand in ARDL analysis (Esen vd., 2012: 256). ARDL test does not have the conditions to be stationary like other cointegration tests. On the other hand, it aims to express a stationary combination for two non-stationary series. At the same time, ARDL test has more advantages than other cointegration tests. In the ARDL test model, it provides an advantage over other cointegration tests since the variables are not taken into account in the integration degree. It brings about spurious regression in non-stationary time series depending on time series. At the same time, the difference is made in series in order to ensure stability.

When the applying ARDL test, it is examined in two parts. First, for the ARDL test, the variables of the subject and model are examined, and whether it is in the long term or short term. Flexibility will be decided by using the ARDL test in the test results. At the same time, under the condition that there is a cointegration relationship, long and short runs are tested among variables. In order to determine lag lengths, long and short term relationships between dependent and independent variables are determined. In order to determine lag lengths, AIC and SHC (Schwartz) selection criteria of dependent and independent variables are used. On the other hand, the smallest criterion among the lag lengths constitutes the lag length of the model (Baykut, 2020: 101). The first unconstrained error correction model defined for the ARDL test by Pesaran and Shin is given below:

$$\Delta Y_t = \alpha_0 + \sum_{i=1}^m \alpha_{1i} \Delta Y_{t-i} + \sum_{i=0}^m \alpha_{2i} \Delta M_{t-i} + \sum_{i=0}^m \alpha_{3i} \Delta E_{t-i} + \alpha_4 Y_{t-1} + \alpha_5 M_{t-1} + \alpha_6 E_{t-1} + \mu_t$$

In order to determine that there is an ARDL test cointegration relationship, the coefficients of the first period lags of dependent and independent variables are tested collectively by applying the F-statistics test (Wald test) to determine significance. H0 hypotheses expressing the absence of cointegration between variables of the ARDL test are formed. These H0 hypotheses are as follows:

$$H_0: \mathbf{a}_1 = \mathbf{a}_2 = \dots = \mathbf{a}_k = 0 \longrightarrow \text{No cointegration hypothesis}$$

ARDL test is the alternative H0 hypothesis expressing the presence of cointegration in variables is as follows:

$$H_1: \mathbf{a}_1 \neq \mathbf{a}_2 \neq \dots \neq \mathbf{a}_k \neq 0 \longrightarrow \text{Cointegration exists alternative hypothesis}$$

The ARDL testing technique is preferred when the I(0) and I(1), or when there were both combinations dealing with variables integrated in different order. However, if the situation is I(2) for the ARDL model, this technique becomes disabled. It is also examined that when using the ARDL test technique, there is only one long-term relationship between basic variables of small and size. In the basic variables have a long-term relationship, it is determined by the F-statistics (Wold Test). The distribution of F-statistics is not standard regardless of whether the variables in the system are I (0) and I(1) (Nkoro & Uko, 2016: 81). However, ARDL test technique, where I(2) is not used. Although there are no requirements for ARDL testing, unit root testing is recommended. In order to avoid misapplication, prediction and interpretation based on forecasting and policy stance, it is necessary to investigate the necessary conditions that reveal the ARDL co-integration technique. If the conditions are complied with, it may lead to inconsistent and unrealistic estimates with the erroneous determination of the model and its effect on the estimation and policy (Nkoro & Uko, 2016: 63). The formula to be used to the applying the ARDL bound test is as follows (Baykut, 2020: 101):

$$\Delta Y_t = \alpha_0 + \sum_{i=1}^m \alpha_{1i} \Delta Y_{t-i} + \sum_{i=0}^m \alpha_{2i} \Delta X_{t-i} + \alpha_3 X_{t-i} + \alpha_4 X_{t-1} + e_t$$

In the ARDL test, after the long-term is determined, the optimum delay length should be selected using standard criteria such as Swartz Bayesian (SBC) or Akaike

Information (AIC). So the next step is to determine the long-run and short-run coefficients in the models. The long-term formula for the ARDL test is as follows (Özçalık, 2014: 367):

$$Y_t = \alpha_0 + \sum_{i=1}^m \alpha_{1i} Y_{t-i} + \sum_{i=0}^m \alpha_{2i} M_{t-i} + \sum_{i=0}^m \alpha_{3i} E_{t-i} + \mu_t$$

Error correction term is used ARDL short run model. The short run dynamic model can be present as follows (Özçalık, 2014: 367):

$$\Delta Y_t = \alpha_0 + \sum_{i=1}^m \alpha_{2i} \Delta Y_{t-i} + \sum_{i=0}^m \alpha_{3i} \Delta M_{t-i} + \sum_{i=0}^m \alpha_{4i} \Delta E_{t-i} + \alpha_1 EC_{t-i} + \mu_t$$

In the ARDL error and short-run test, the ARDL long model formulation with Y dependent variables and two independent variables (E and M) can be predicted by the above formulas by econometrics and statistics programs. The EC in the ARDL test formula shows the Error Correction Model. ARDL Error Correction Model aims to show how soon shocks that occur due to independent variables will stabilize in the long term.

The advantages of the ARDL bound test model can be listed as follows:

- In the ARDL model, it is not necessary to determine the stationarity levels of the variables before applying the boundary test. The reason for this is: It is possible to apply the boundary test regardless of the presence of I(0) and I(1) variables to be used in the ARDL model. According to the critical values, I(0) and I(1), the tabulated variables should be tested against the possibility of being I(2) (Baykut, 2020: 101). When the ARDL model is applied, the model cannot be applied to the stationary variables in the second difference.

- ARDL model has better statistical properties than Engle Granger test. At the same time, it can be said that the ARDL model gives more reliable results in small samples compared to the Johansen and Engle-Granger tests. Although ARDL test takes more time than other tests for cointegration analysis, it can give good results.

ARDL bound test method also has many advantages over other classical cointegration tests. Accordingly, for the ARDL model (Turna, 2017: 81):

- ARDL test is flexible compared to other cointegration tests and is applied without paying attention to the degree of integration between variables.
- ARDL bound test can be applied for small samples.

- ARDL bound test method provides the opportunity to distinguish short and long term movements.

- Thanks to the ARDL bound test, it is possible to obtain the dynamic unrestricted error correction model with a simple linear transformation method.

- ARDL bound test reveals more advanced statistical results compared to Engle-Granger (1987) test due to its application of dynamic unlimited error correction model (UECM).

- ARDL bound test, when the number of samples or observations is low, Engle-Granger (1987) and Johansen Juselius (1990) reveal more reliable results than cointegration applications.

3.2. GRANGER CAUSALITY

Statistically, causality is the obtaining of predicted future values of a time series variable by influencing the past period values of itself or another associated time series variable (Takım, 2010: 326).

Granger causality test is a statistical hypothesis test that measures whether it is useful in predicting from one time series to another time series. On the other hand, Granger causality test is the test used to determine the direction of the causality of this relationship statistically if there is a time-dependent delayed relationship between two variables. The Granger causality test is first developed by Clive Granger, who won the economics award in 1969. Granger Causality Test was developed in the 1960s and continued to be used after 1969 and became prevalent. Granger causality test aims to investigate the causality between variables that occur in time series. Granger causality test can be said as a probabilistic explanation. On the other hand, experimental data are used to determine the Granger causality test correlation models. Granger causality test is seen as simpler than other tests. The Granger causality test cannot cause for the future and the past. And causality can only be possible if the past causes the present or the future. In the Granger causality test, the cause always occurs before the result. The reason for this necessitates a time delay between cause and effect. At the same time, the Granger causality test can be determined for a group of stochastic processes. If there is between two deterministic processes for Granger Causality, it is not possible to know the causality.

The Granger causality test use the number of lags in the models must first be determined. When the Granger causality test is based on the VAR model, the number of

lags should be determined using the AIC and SC criteria according to the VAR model. Vector autoregressive (VAR) models have been used frequently to test Granger causality relationships between two subsets of variables. In the VAR framework, Granger causality test is based on null hypothesis which is formulated as zero restrictions on the coefficients of the lags of a subset of the variables. Wald test is standard tool for testing zero restrictions on the coefficients of VAR processes. If the variables in the VAR system are stationary, then Wald statistic has an asymptotically chi-square distribution with q degrees of freedom, where q is the number of restrictions under the null hypothesis (Emirmahmutoglu & Kose, 2011: 870). At the same time, a unique advantage of the VAR model is that it treats each variable in the system as potentially endogenous and relates each to its own past values and to the past values of all other variables included in the model. Engle and Granger (1987) and Granger (1988) have pointed out that a VAR model in levels with non-stationary variables may lead to spurious results and a VAR model in first differences with co-integrated variables is mis-specified (Akinboade & Braimoh, 2010: 156).

In a bi-variate framework, the first variable is said to cause the second variable in the Granger sense if the forecast for the second variable improves when lagged variables for the first variable is taken into account (Granger, 1969). The introduction of a panel data dimension permits the use of both cross-sectional and time series information to test the causality relationships between two variables. In particular, by increasing the number of observations, this procedure raises the degrees of freedom. Thus, it noticeably improves the efficiency of Granger causality tests (Hoffmann vd., 2005: 313).

A standard bivariate dynamic structural model on which the Granger causality test is based can be expressed by the formula (www.ekolar.com, 2018):

$$y_t = \alpha_1 + \sum_{i=0}^n \beta_i X_{t-i} + \sum_{j=1}^m \gamma_j Y_{t-j} + e_{1t}$$

$$x_t = \alpha_2 + \sum_{i=1}^n \theta_i X_{t-i} + \sum_{j=1}^m \delta_j Y_{t-j} + e_{2t}$$

In the Granger causality test, all delayed values for x that are meaningful alone according to the t-tests are protected if they add strength to the explanatory power of the correlation according to the F-test together with the lags. In the Granger causality test

extended regression representation, the shortest lag length i , which makes the lagged value for x significant, can be said as the longest lag length j .

Also, $H_0 = x, y$ is not the Granger causality test of \longrightarrow no lag is preserved for x in the above formula

In the Granger Causality Test, it can be said as a clean sequence process with no correlation for Error terms. For the Granger model, the following four possible situations can be stated (www.ekolar.com, 2018):

- The delayed x values for the first formula of the Granger causality test are statistically different from zero by the group, and the delayed y values in the second formula are not statistically different from zero. Therefore, X_t causes Y_t .
- At the same time, the delayed y values in the second formula are statistically different from zero by the group, and according to the first formula, the delayed x values are not statistically different from zero. As a result, Y_t causes X_t .
- On the other hand, for Granger causality, all sets of x and y values in both formulas are statistically non-zero. Therefore, there is bidirectional causality between X_t and Y_t .
- Finally, the x and y values in both formulas are not statistically different from zero for the entire set. Therefore, X_t and Y_t can be said independently from each other.

In the light of the conditions given for the Granger causality test found above, it can be said that the Error term is not sensitive to deviations from the assumption that it is normally distributed. For the error term of this Granger causality test, it can be said that it is particularly useful in financial economics as many financial variables are not normally distributed.

When calculating the F-statistic in the Granger causality test, it is first necessary to make sure that the time series is constant. At the same time, the data must be transformed to eliminate the possibility of autocorrelation in the Granger causality test. On the other hand, the Granger causal test should make sure that it does not have any unit roots for the F-statistics model. Because when Granger causality test runs, it will distort the test results and prevent the emergence of correct results.

Granger causality test is as follows in the formula for calculating F statistics (Takım, 2010: 327):

$$F: \frac{(ESS_R - ESS_{UR})/q}{ESS_{UR}/(n - k)}$$

ESS: Sum of Error Squares

UR: Unrestricted Model

R: Constrained Model

As a result of the calculation, if it is determined that the F statistic is greater than the F value, the null values are rejected. At the same time, if the F test has many variables or if the delay is too high, the F test may cause power loss. It is also easier to run the F-test, even though it is possible to get the same result in both versions.

The null hypothesis is rejected if the calculated F statistic (m: n-2m) at the degree of freedom α is greater than the table value at the significance level (Takım, 2010: 327).

Ho = not Granger's cause,

H1 = Granger's cause.

The rejection of the hypothesis indicates that the coefficients in the model are significant. The Granger causality test is very sensitive to the number of lags, and the direction of causation can vary depending on the number of delayed terms. For this reason, Granger causality test can be performed for different delays, as well as the delay length can be determined separately for the independent variables in the model (Takım, 2010: 327).

4. ANALIZING AND RESULTS

In the analysis part of the thesis, the subject that is wanted to be addressed is the global effects of CDS, VIX and Stock Market indices. On the other hand, investors want to minimize global risk possibilities by taking less risk in financial markets while investing. At the same time, it is aimed to find the global effects of countries by analyzing the most researched and most important issues while investing. CDS, VIX and Stock Market data were handled daily and analyzed. In the analysis part, it is seen that the indices affect each other and create a global effect. At the same time, it can be said that the effects on countries in times of global crisis have increased and may have profound effects on the indexes of countries as well as causing declines in credit ratings. Therefore, in the analysis, it is aimed to investigate the effects of the indices of developing countries on each other. For developing countries, their stagnation is analyzed by looking at descriptive statistics. After determining whether the countries are

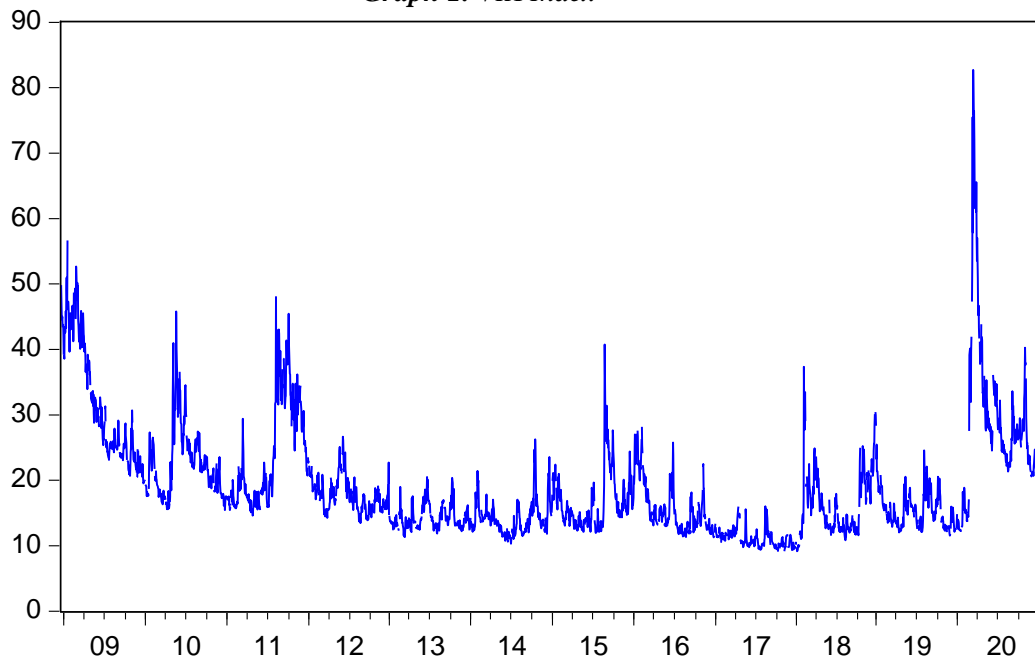
stable or not, the long-term relations of the countries were examined by applying the ARDL / Bound test. During the analysis, the data were used daily and at the same time, analysis was made with the E-view program. Analysis results will be obtained by interpreting the results obtained as a result of the analysis.

4.1. IDENTIFYING DEVELOPING COUNTRIES WITH THE VIX INDEX OVER CDSs

4.1.1. Developing Countries of the Descriptive Statistics

4.1.1.1. VIX Index Descriptive Statistics of the Developing Countries

Graph 1. VIX Index



Graph 1 shows the course of daily data of the VIX index between the years 2008-2020. The data conducted between the years 2008-2020 were taken from the Bloomberg website. In addition to being one of the important indicators of the American economy, the VIX index is one of the most important indices recently followed by developing countries. When the VIX index graph is examined, it is seen that it is in an increase trend in 2008. It is seen in the graph that the VIX index was at 58 points in 2008. It seems that it was not affected by the global crisis experienced in 2008. In 2009, the VIX index entered a decrease trend. And until 2011, it is seen that there are occasional increase and decrease. The increase and decrease trends of the VIX index can determine the difference and volatility depending on the buy-sell options. After the first quarter of 2011, there was a decrease trend. It is seen that the VIX index is in the horizontal trend flow between 2012-2015. It is observed that after the rise in the second quarter of 2015, it has entered a decrease trend again. At the same time, it is seen that

there are decreases and increases from 2015 to 2019. It is seen that the rising trend has reached its highest level after the last quarter of 2019. The VIX index reached the highest level by exceeding 80 points. The reason for this can be said as the sudden changes in stock markets. At the same time, it is thought that the risk for the financial markets has increased and the future situations may fall into a bad situation for the country. The effect of COVID-19, which affects all countries of the world in 2020, is also seen in the graphic. COVID-19 has been called a pandemic in the world and COVID-19 was had great effects on the economy. As seen in the chart, it started in the first quarter of 2020 and COVID-19 was had great effects on the VIX index. At the same time it was seen in the graph that the VIX index declined to 40 points in 2020.

Table 4. VIX Descriptive Statistics

Series: VIX	
Sample: 12/17/2008 12/31/2020	
Observations 2779	
Mean	19.22417
Median	16.56000
Maximum	82.69000
Minimum	9.140000
Std. Dev.	8.577440
Skewness	2.096340
Kurtosis	9.458447
Jarque-Bera	6865.300
Probability	0.000000

VIX Index Descriptive Statistics are shown in Table 4. For the VIX index descriptive statistics, daily data between the years 2008-2020 were taken from the Bloomberg website. According to the Table 4 is looked at, determining values such as mean, median, maximum, minimum, skewness and kurtosis were obtained. Although the VIX index is important for America, it has influenced all countries lately. Developed countries and developing countries have recently followed the VIX index. Since the VIX index is the same for developing BRICS-T countries as in other countries, a general interpretation has been made. Its mean value is 19.22417 in the VIX index. The median value was found to be 16.56000. The VIX index was the maximum value 82.69000, the minimum was 9.140000. Std. Dev. was 8.577440, Skewness value

is 2.096340. The tail and slant shape can be decided for the VIX index by looking at the Skewness value. The Kurtosis value of the VIX index has been determined as 9.458447.

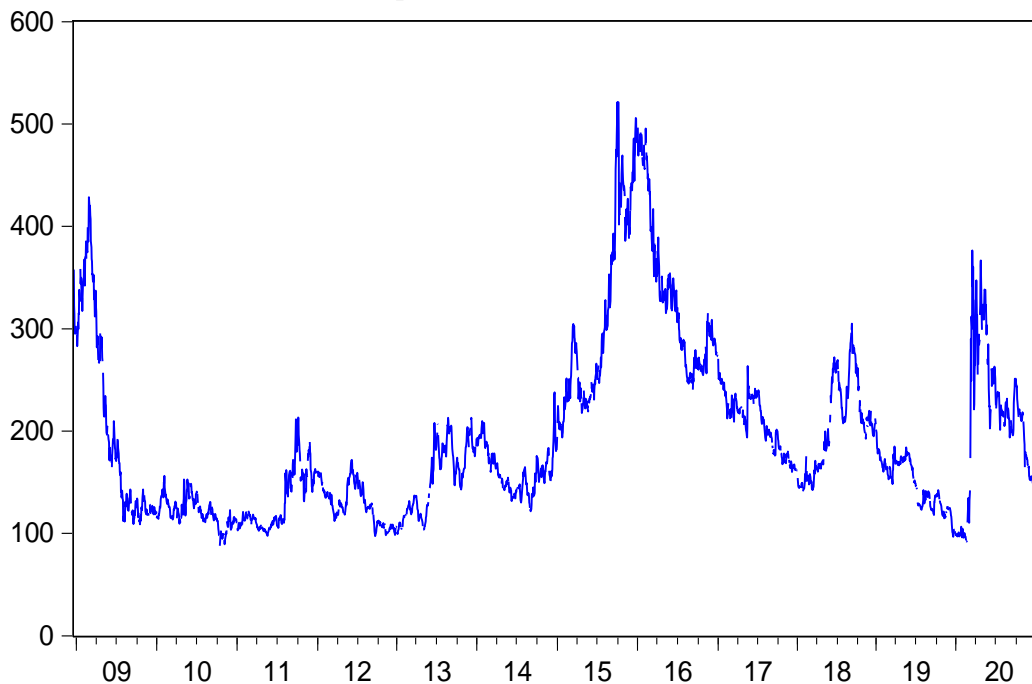
Table 5. Unit Root Test Results on VIX Index

Variables	ADF	
	Level	Decision
VIX	-5.742118 (0.0000)	I(0)

In Table 5, the Unit Root test of the VIX level daily data between the years 2008-2020 are examined. According to at the VIX level, it was determined that the absolute valuation for the critical value of 1%, 5% and 10% significance levels was small. Therefore, VIX level is stationary in Unit Root test. It can be said that the decision of the result VIX level determined by the ADF test is determined as I(0). At the first level, the first difference is not required, as the VIX level is stable. The decision of the result of the Unit Root test is considered to be VIX Level I(0).

4.1.1.2. Descriptive Statistics of the Brazil

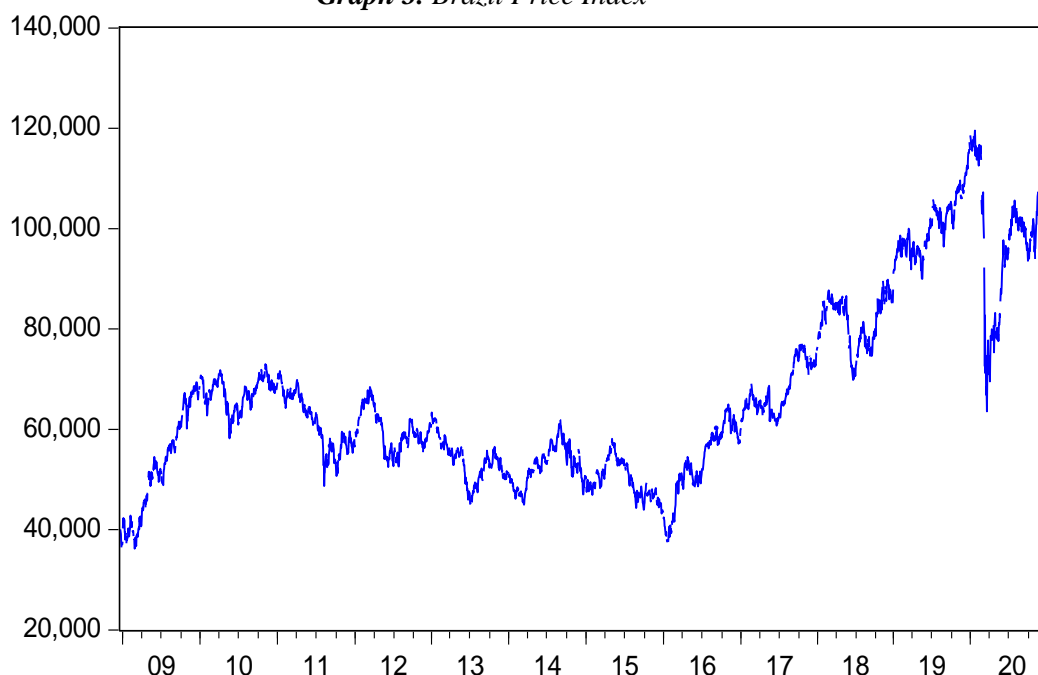
Graph 2. Brazil CDS



Graph 2 shows as the Brazilian CDS graphic. The graph is thought that the increases and decreases in the Brazilian CDS graphic were affected by the economic activity and economic crises caused by the country. When looking at Brazil's CDS graphic, daily data between 2008-2020 were used. In the light of these data, a table was created and tried to be interpreted. In the looking at the Brazilian CDS graphic, it is seen that affected by the 2008 global crisis. Brazil, which is among the developing countries

due to the 2008 global crisis, was affected by the value losses in the stock markets. At the same time, it is thought that there were effects on Brazilian CDS values due to the depreciation of the country currencies and bank borrowings caused by the global crisis. In the graphic 2, the country economy was affected by the global crisis in 2008 and it is seen that the CDS value exceeded 400. Due to the declining that occurred in Brazil's economy in 2013, Brazil entered recession in 2014. Due to this situation, it is seen that CDS values, which are low as seen in graph 1, have increased from 2014 until to 2017. The why reason for this increase can be said as the recovery of the Brazilian economy in 2014. As seen in Graphic 2, the CDS value of Brazil reached the highest level by increasing to 500 in 2015-2016. The reason for this may be the economic effects in the country. At the same time, it reached the highest levels after the recession in 2014. On the other hand, spending too much money in the country in 2014 has appered new events. And by affecting the Brazilian CDS in the presidential elections, it was able to regress the country's economy. The highest value in 2015-2016 can be said as the protests referred to as the "Brazilian Spring". After 2016, it can be determined by looking at the graph that the Brazilian economy continues fixed. The declines are in the Brazilian economy started to recover in 2017. In 2018, it can be said that the Brazilian economy returned to normal. Another point where the increase in the Brazilian CDS chart was also high is seen as 2019. It is thought that the economic activities that occurred in the country in 2019 may have effects. In other years, there are no situations that could have a major impact on the country. It was seen that the effect of COVID-19 on the CDS value in 2020 has a small effect. According to the increases and decreases continue at a normal level, it is seen that there is an increase with the effect of COVID-19. For this reason, normally increases and decreases are detected in CDS values. At the same time, when the graph is examined, it is seen that there are normal level breaks because the Brazilian CDS does not have great effects, except for the points where the breakage is very high.

Graph 3. Brazil Price Index



In the look at the Graph 3 of the Brazilian price index, it is seen that there is not much difference between the increase and decrease trends between the years 2008-2020. It is seen that the price index was at 40000 in 2008 due to the economic crisis and then the Brazil price index was in an increasing trend. Internal and external factors can be shown as the reason for the decreases and increases in Brazilian price indices. Due to these factors, the country may sometimes experience downward trends. It is seen that there is an upward trend in the Brazilian price index after 2009 and then the normal increases and decreases continue. It is seen that the downward trend in 2015-2016 decreased to the level of 40000 as in 2008 due to the internal problems in the country. After 2016, it has started to rise regularly in the country. It can be seen in the graph that the highest trend in the Brazilian price index rose to 120000 in the first quarter of 2019. In the second quarter of 2019, the situation reversed and it is seen that the country's price index decreased significantly. It can be said that this decline in the Brazilian price index was experienced due to various reasons. It is seen that there is an increase in the Brazilian price index in 2020. It was seen that there is an increase in the Brazilian price index in 2020. COVID-19 can be shown as the reason for this increase in 2020. COVID-19 was had an impact on the price index as it has a pandemic event effect in the country. It can be said that Brazil's economic activities and various reasons may cause an increase in the price index.

Table 6. Brazil Descriptive Statistics

Date: 02/26/21 Time: 14.12 Sample: 12/16/2008 12/30/2020			
	CDS	FIYAT	VIX
Mean	193.5874	66466.59	19.16711
Median	168.4980	61750.17	16.47000
Maximum	521.3600	119527.6	82.69000
Minimum	87.97400	36234.69	9.140000
Std. Dev.	84.82734	18312.48	8.556023
Skewness	1.388498	0.991933	2.092989
Kurtosis	4.729796	3.200299	9.387487
Jarque-Bera	1290.265	479.2551	7030.279
Probability	0.000000	0.000000	0.000000
Sum	560048.5	1.92E+08	55450.45
Sum Sq. Dev.	20809899	9.70E+11	211710.4
Observations	2893	2893	2893

Descriptive statistics for Brazil were shown in the Table 6. Brazil was examined between the years 2008-2020 while calculating descriptive statistics. The descriptive statistics of Brazil show the variables of the CDS, price and VIX indices. For Brazil, 2008-2020 is for the period the CDS mean 193.5874: mean price 664666.59: and the VIX index mean was determined as 19.16711. The Brazilian CDS maximum value is 521.3600, the minimum value is 87.97400: the maximum value of the price is 119527.6, the minimum value is 36234.69: The maximum value of VIX is 82.69000 and the minimum value is 9.140000. Brazil Std. Dev. CDS is 84.82734, price is 18312.48 and VIX is 8.556023. Skewness values are CDS 1.388498, price 0.991933, VIX 2.092989. For the Brazilian descriptive statistics, the Kurtosis value is CDS 4.729796, the price is 3.200299 and the VIX index is 9.387487. Since the Kurtosis value is greater than 3 for CDS, price and VIX, it can be said that the series continues in a sharp and steep course. Jarque-Bera value is CDS 1290.265, price is 479.2551 and VIX 7030.279. The Brazilian index for observations was determined as 2893 for 3 variables at the same.

Table 7. Unit Root Test Results on Brazil CDS Level

Variables	ADF	
	Level	Decision
CDS-Brazil	-2.630122 (0.2667)	I(1)

According to the results of the Unit-Root Test in Table 7, it was determined that the series was not stable because the level of significance of 1%, 5% and 10% in the Brazilian CDS level was large by looking at the absolute valuation result according to the critical values on the ADF test technique. It was determined that the constant and linear trend reported in the hypothesis for the Brazilian CDS level is not stable in this way. In order to stabilize the Brazilian CDS level, the first difference of the CDS level needs to be taken again. With the time series not being stationary for the Brazilian CDS level, the unit root test was determined as I(1). It also includes a serial unit root at the Brazilian CDS level.

Table 8. Unit Root Test Results on Brazil D(CDS) Level

Variables	ADF	
	First Difference	Decision
CDS-Brazil	-25.04225 (0.0000)	I(0)

In Table 8, the Brazilian CDS Level First Difference of the Unit Root Test was looked. Brazil CDS Level First Difference was determined to be stable because it was lower than the absolute valuations by looking at the critical values for the ADF test technique according to the 1%, 5% and 10% significance level. The Brazilian CDS level was found to be not stable during the first analysis and therefore the first difference was taken. It can be said that it is stable for the Brazilian CDS level first difference and it is stable with a linear trend. While Brazil CDS level decision is determined as I(1), when the Brazilian CDS Level First Difference is examined, unit root test is determined as decision I(0). For this reason, the decision is determined as I(0) as a result of the series root test.

Table 9. Unit Root Test Results on Brazil BOVESPA Level

Variables	ADF	
	Level	Decision
PRICE-Brazil	-1.590885 (0.7967)	I(1)

The Brazil Price index level for the results of the series are shown in Table 9. When the series are analyzed in terms of 1%, 5% and 10% significance levels in price index levels the critical values for the ADF test technique were examined, it was determined that the series is large in the absolute valuation. The Brazilian price index is not stable as it was large in the absolute valuation. Brazil price index level the serial

decision was determined as I(1). Therefore, for the price index level including unit root test, the decision can be said as I(1).

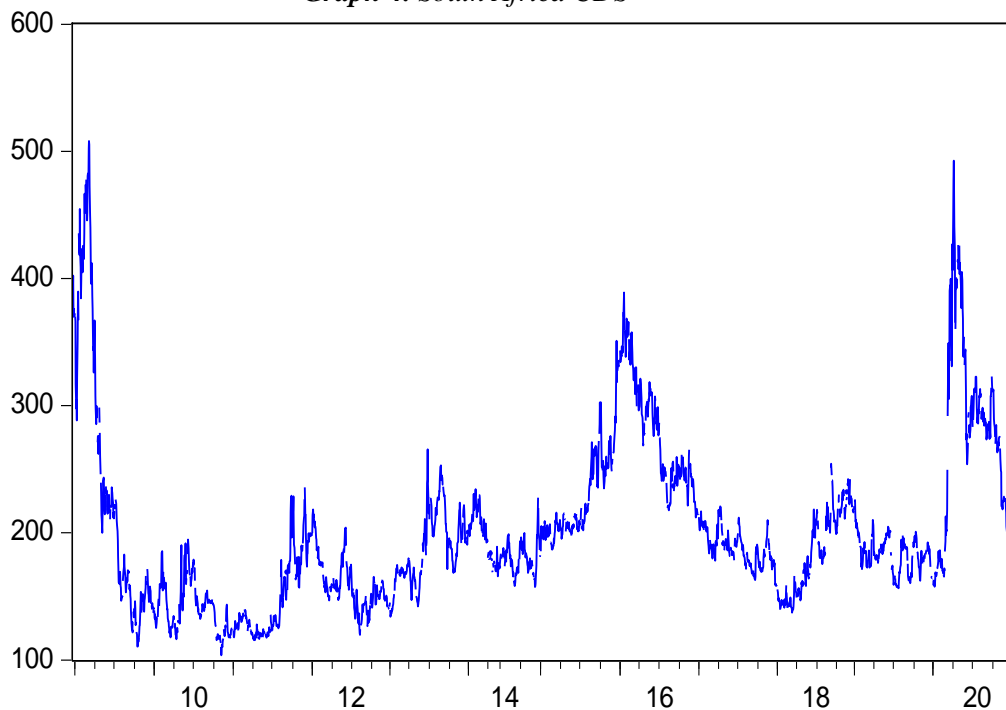
Table 10. Unit Root Test Results on Brazil D(BOVESPA) Level

Variables	ADF	
	First Difference	Decision
PRICE-Brazil	-36.00386 (0.0000)	I(0)

In Table 10, the Brazilian price index first level was calculated with the Unit Root Test method. According to the at Table 10, it has been determined by the ADF test technique that the Brazilian price index for the first level with a significance level of 1%, 5% and 10% and its critical values are smaller than the absolute valuation. It was determined by the root test method that the Brazilian price index first level was stable. For this reason, the Brazilian price index decision at the first level was found to be I(0). And since the decision for the Brazilian price index was determined as I(1) at the first time, the decision at the first level was determined as I(0), for the Brazilian price index the decision was determined as I(0).

4.1.1.3. Descriptive Statistics of the South Africa

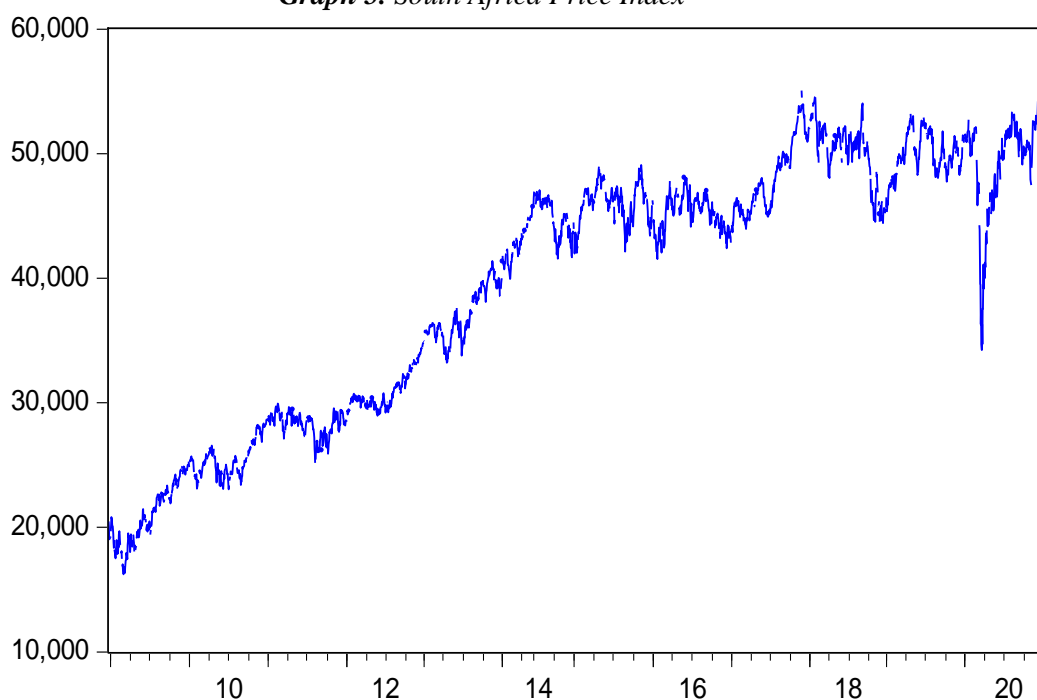
Graph 4. South Africa CDS



In Graphic 4, the daily data of South Africa CDS values for the years 2008-2020 are available. The values of the South African CDS data were graded between 100 and 600 points. It was seen that the effects of the global crisis that occurred in 2008 also had

effects in South Africa. After the global crisis, it is seen that the CDS value has the highest value in South Africa. It is observed that there was a decrease trend in South African CDS values after 2009. A normal increase and decrease trends in the country's CDS values between 2009-2011 are detected. It is seen that the increased a little in 2012. These increases and decreases usually occur in the country due to internal problems and external factors. It is observed that the CDS value has been affected over time due to the political and economic problems in the country. At the same time, with the inclusion of South Africa among the BRICS countries in 2011, it caused an increase in CDS values, over a little. It is seen that there is a normal increase trend after 2012. In South Africa, it is seen that the country started to borrow in 2016, causing an increase in the CDS value. It can be said that there is a South African CDS effect due to the fall of the South African currency to its lowest levels. South Africa, which reached its highest levels after 2008, is seen to be causing an increase trend with the economic impact of external influences on the country. Due to the increase in the dollar, there has been a great impact on the South African economy. Due to these effects, it is seen in the graph that the South African CDS reached its highest level. At the same time, the CDS value in South Africa was affected by COVID-19 in 2020 and changed the graph. The global impact of the pandemic that occurred in 2020 was felt in South Africa, as in other countries, and in the first quarter of 2020, the CDS values changed. Towards the last quarter of 2020, it is seen that there is a decrease in the CDS value.

Graph 5. South Africa Price Index



South Africa price indices were shown in Graphic 5. The data in Graphic 5 consists of daily data between the years 2008-2020. The South African price index in 2008 appears to be at a low level. The reason for this can be said to be the impact of the global crisis on stock markets. It is seen that there is an increase trend in the price index after 2009. There is a continuous increase trend between 2009-2014. In the second quarter of 2014, the trend has become stable. It was seen that this stagnation continues until 2017. It continued at a normal level from the last quarter of 2017 to the first quarter of 2018. Presidency delegations can be shown as one of the events affecting the situation in the South African price index between 2009-2018. At the same time, we can say that the low performance in South Africa's economy has been observed recently. At the same time, the declines in the stock markets caused a decrease in the South African price index in 2019 to a certain extent. Graphic 5 shows that the price index has increased in 2020. One of the reasons for the increase trend of 2020 can be said as COVID-19, which has an economic impact. As one of the reasons affecting the price index graph in the country, it can be said that an increase trend occurred in the graph due to COVID-19, which emerged in the first quarter of 2020 and was a lot of impact on the country and was an impact on the economy.

Table 11. South Africa Descriptive Statistics

Date: 03/01/21 Time: 13.34			
Sample: 12/17/2008 12/31/2020			
	CDS	FIYAT	VIX
Mean	201.6242	39555.13	19.22417
Median	186.8380	44065.55	16.56000
Maximum	507.9320	55484.28	82.69000
Minimum	103.7560	16230.19	9.140000
Std. Dev.	65.14223	10436.59	8.577440
Skewness	1.591877	-0.489103	2.096340
Kurtosis	6.061402	1.837155	9.458447
Jarque-Bera	2258.919	267.3742	6865.300
Probability	0.000000	0.000000	0.000000
Sum	560313.6	1.10E+08	53423.97
Sum Sq. Dev.	11788470	3.03E+11	204384.3
Observations	2779	2779	2779

Table 11 shows were seen the descriptive statistics of South Africa. Throughout the dealing with descriptive statistics, a table was created using daily data between 2008-2020. In the light of this table 11, using CDS, VIX and PRICE indices as

variables, average, maximum, minimum, Std. Dev., Skewness and Kurtosis values have been reached. South Africa's average CDS value is 201.6242, PRICE 39555.13 and VIX value is 19.22417. Median values were respectively CDS value 186.8380, PRICE 44065.55 and VIX 16.56000. South Africa maximum CDS value 507.9320, minimum value 103.7560: The maximum for the price is 55484.28 and the minimum is 16230.19: For VIX, the maximum is 82.69000. It was found to be a minimum of 9.140000. On the other hand, Skewness values are CDS 1.591877, PRICE value is -0.489103, VIX value is 2.096340. Std. Giant. CDS 65.14223, PRICE value is 10436.59, VIX value is 8.577440. The Kurtosis value for South Africa was 6.061402 for the CDS, while the Price for the Price was 1.837155 and the VIX value was 9.458447.

Table 12. Unit Root Test Results on South Africa CDS Level

Variables	ADF	
	Level	Decision
CDS-South Africa	-4.493923 (0.0015)	I(0)

In Table 12, daily data between the years 2008-2020 at the ADF Unit Root Test South Africa CDS Level are analyzed. According to the South African CDS level, the critical value of 1%, 5% and 10% significance levels was found to be small for the ADF test. Therefore, the South African CDS level is stable in the Unit Root test. The result determined by the ADF test can be said to be determined as the decision of the South African CDS level I(0). Since the South African CDS level at the first level is stable, there is no need to take the first difference. The South African CDS Level decision of the result of the Unit Root test is considered to be I(0).

Table 13. Unit Root Test Results on South Africa SA40 Level

Variables	ADF	
	Level	Decision
PRICE-South Africa	-3.353917 (0.0580)	I(1)

The results of the daily data of the series were shown in Table 13 for the South Africa price index level. When the series were examined according to the significance levels of 1%, 5% and 10% at the price index levels, when the critical values for the ADF test technique are examined, it has been determined that the absolute valuation is greater than 10% in the series. Therefore, the South African price index is not stable as it is greater than the absolute valuation. South Africa Since the price cannot be

determined as stable at the first time at the index level, the first difference should be considered. South Africa The serial decision at the price index level can be determined as I(1). Therefore, for the South African price index level including unit root test, the decision can be said as I(1).

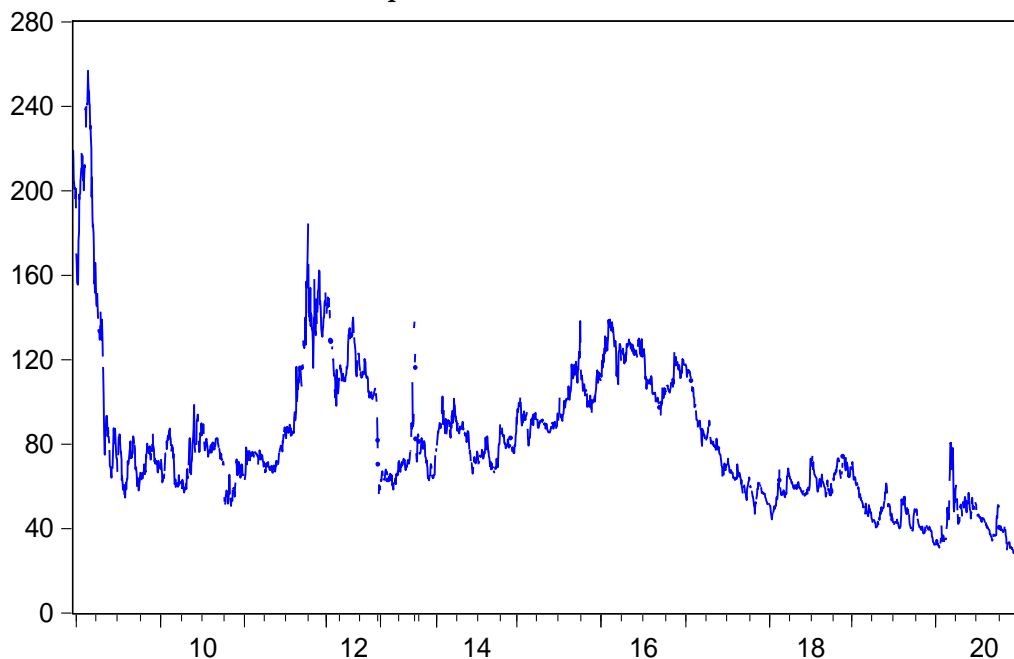
Table 14. Unit Root Test Results on South Africa D(SA40) Level

Variables	ADF	
	First Difference	Decision
CDS-South Africa	-25.04225 (0.0000)	I(0)

In Table 14, the results of daily data between the years 2008-2020 were calculated with the Unit Root Test method of the first level of the South Africa price index. According to the Table 14, it has been determined that the South African price index is stable with the ADF test technique, with 1%, 5% and 10% significance level for the first level and its critical values are small compared to its absolute valuation. This unit, where the South African price index was stable at the first level, was determined by the root test method. For this reason, the South African price index decision at the first level was found to be I(0). At the same time, while the decision for the South African price index was I(1) at the first time, the decision at the first level was determined as I(0). Therefore, the decision for the South African price index has been determined as I(0).

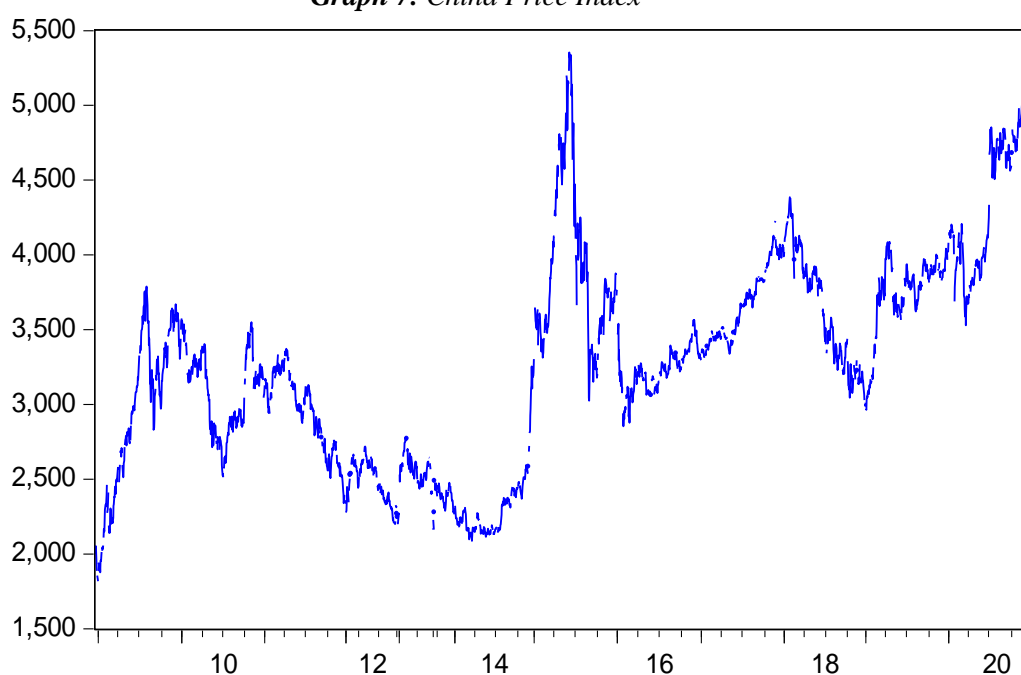
4.1.1.4. Descriptive Statistics of the China

Graph 6. China CDS



Graph 6 above shows the values were between the years of China CDS 2008-2020. According to collecting data between 2008-2020, it was analyzed as daily data. The graph 6 was formed with the effect of these data, and although the increase and decrease trends in CDS values for China are observed regularly, it is seen that there are increases from time to time due to various factors. China CDS was also affected by the impact of the global crisis in 2008. The economic crisis that occurred in 2008 had great effects on the country's stock markets and caused a decrease. However, China was more affected by the financial crisis in 2008 in the Chinese stock market. Because of this effect, the Chinese CDS value is seen as the highest level between 2008 and 2020. After 2008, the CDS values decreased, and until 2012, there were increase and decrease trends for the Chinese CDS value at normal levels. At the same time, it was observed that the country's debt increased in 2010 in the Chinese economy. In 2012, the Chinese economy appears to have slowed down growth. After the last quarter of 2012, while it was observed that the Chinese CDS values were in an increased trend, this situation continued until the first quarter of 2016. After 2016, it is seen that there are normal increases in the Chinese CDS value. This decline stopped with COVID-19 in March 2020. With the emergence of COVID-19 in China and its spread in a short time, the country has been affected. And many economic activities for China have been disrupted. In addition, there was a risk in paying credit premiums for China. Because with the slowdown in economic activities, borrowing has also increased. Graph 6 shows that the decreases in CDS values continue after the second quarter of 2020.

Graph 7. China Price Index



The change in the Chinese price index between 2008-2020 was seen in Graph 7. In 2008, the economic crisis caused a decline in the Chinese price index, as it had an impact all over the world. It is seen that there is an increase trend in the price index after 2008. However, due to the high debt of China in 2010, it is seen that the price index is in a decrease trend. In 2011, with the introduction of local governments to provide loans for China, it started to rise. It is seen that the declining trend in the Chinese price index after 2011 continued until 2012. However, it is seen in Graph 7 that with the liberalization of banks in 2012, they are in a normal trend. It is known that economic revival steps were taken for China in 2014. Thus, the upward trend has increased after the first quarter of 2014. At the time when China held the highest price index, China had a collapse. After the second quarter of 2015, the normal increase and decrease trends in the Chinese price index continued. In the Chinese price index, slowdown in the economy started in 2018. With the slowdown in the economy, it is seen that China continued its downward trend until the last quarter of 2018. After 2018, the country started to increase again, but in 2020, the Chinese economy experienced a decline again. COVID-19 was felt more deeply in the Chinese economy, which started in 2019 and continued in 2020. At the same time, it is seen that the global trade volume has decreased due to the effect of COVID-19 on the Chinese price index and has an effect on the price index.

Table 15. China Descriptive Statistics

Date: 03/01/21 Time: 13.42			
Sample: 12/16/2008 12/31/2020			
	CDS	FIYAT	VIX
Mean	81.99840	3272.146	19.32676
Median	75.42000	3275.749	16.48500
Maximum	256.6930	5353.751	82.69000
Minimum	27.68300	1817.722	9.140000
Std. Dev.	33.52407	679.0674	8.813183
Skewness	1.469122	0.275042	2.044674
Kurtosis	6.755501	2.741045	9.095828
Jarque-Bera	2408.235	39.15220	5706.988
Probability	0.000000	0.000000	0.000000
Sum	208439.9	8317795	49128.62
Sum Sq. Dev.	2855736	1.17E+09	197365.0
Observations	2542	2542	2542

Table 15 shows were the China descriptive statistics at the daily data between the years 2008-2020. Along with daily data, the results of CDS, Price and VIX indices according to variables were shown in Table 15. At the looking at the China descriptive statistics, values such as mean, median, maximum, minimum, kurtosis and skewness were found in the table. The China average CDS was 81.99840, the Price was 3272.146 and the VIX value was 19.32676. Median values for China are CDS 75.42000, Price 3275.749 and VIX value is 16.48500. China maximum values are CDS 256.6930, Price 5353.751 and VIX value is 82.69000. China minimum values were CDS 27.68300, Price 1817.722 and VIX 9.140000. Std. Dev. in China descriptive statistics CDS is 33.52407, Price is 679.0674 and VIX index is 8.813183. The Skewness value for China is the CDS 1.469122, the Price is 0.275042, and the VIX Skewness value is 2.044674. According to the looking at the Kurtosis values is China CDS 6.755501, Price 2.741045 and VIX 9.095828. While looking at the Chinese Jarque-Bera values, it was determined as 2408.235 for CDS, Price 39.15220 and VIX 5706.988. Also observations are 2542 for CDS, Price and VIX.

Table 16. Unit Root Test Results on China CDS Level

Variables	ADF	
	Level	Decision
CDS-China	-4.050393 (0.0012)	I(0)

The CDS index values of the China unit root test are shown in Table 16. When the results of the China Unit Root test are examined in Table 16, it is determined that the series is stationary with -4.050393 as a result of the absolute values according to the critical values depending on the significance level of 1%, 5% and 10% at the CDS level. It has been found to be constant for the China CDS level. At the same time, since the China CDS value was stable, ADF Unit Root test was determined as I (0).

Table 17. Unit Root Test Results on China SHANGAI Level

Variables	ADF	
	Level	Decision
PRICE-China	-3.076236 (0.1122)	I(1)

In the China ADF Unit Root Tests in Table 17, the price index values were formed with daily data between the years 2008-2020. In the China price index ADF Unit Root Test, when the series are analyzed according to the critical values depending on the significance level of 1%, 5% and 10%, it was determined as -3.076236 in their

absolute values. With the result found, it can be said as not stationary because it is determined to be greater than the critical values. On the other hand, the China price index level has a fixed and linear trend. However, as a result of the ADF Unit Root tests, the decision was determined as I(1) because it is not stable in the China price index.

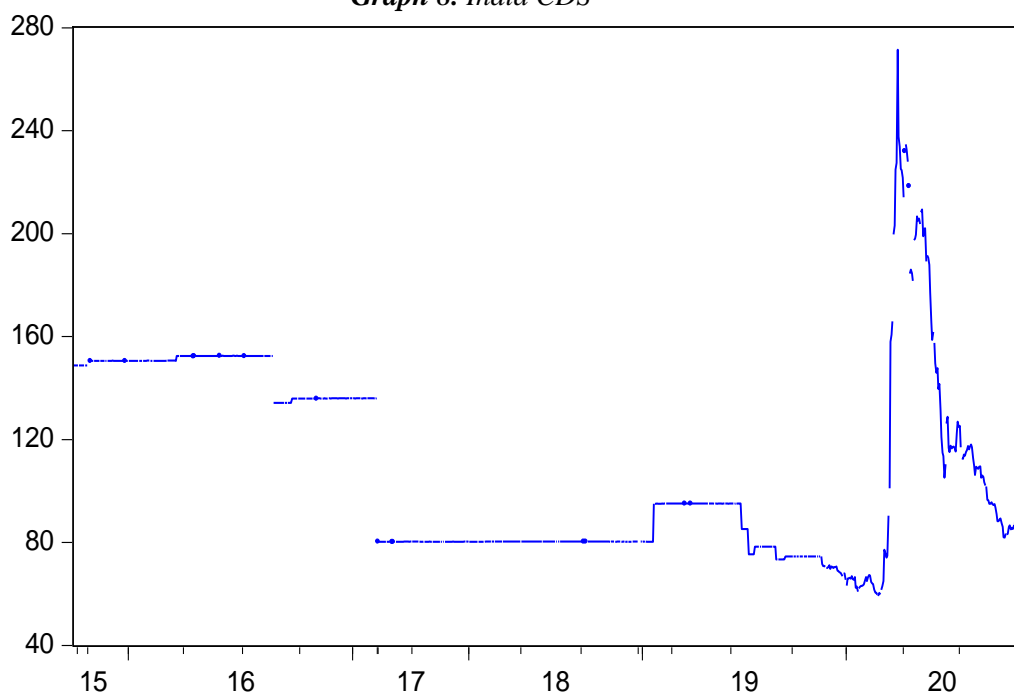
Table 18. Unit Root Test Results on China D(SHANGAI) Level

Variables	ADF	
	First Difference	Decision
PRICE-China	-49.47439 (0.0000)	I(0)

In Table 18, in the price index first difference China Unit Root Tests were formed with the data between the years 2008-2020. In the first difference of the Chinese price index, in the ADF Unit Root Test, the series were found to be small in their absolute values when analyzed according to the critical values, depending on the significance level of 1%, 5% and 10%. It was defined as stationary because it was determined by taking the first difference of the result from the critical value to the smaller value. On the other hand, the Chinese price index level was a fixed and linear trend. However, as a result of the ADF Unit Root tests, the decision was determined as I(1) because it is not stable in the China price index, when analyzed by taking while the decision was determined as I(0) because the China price index first difference became.

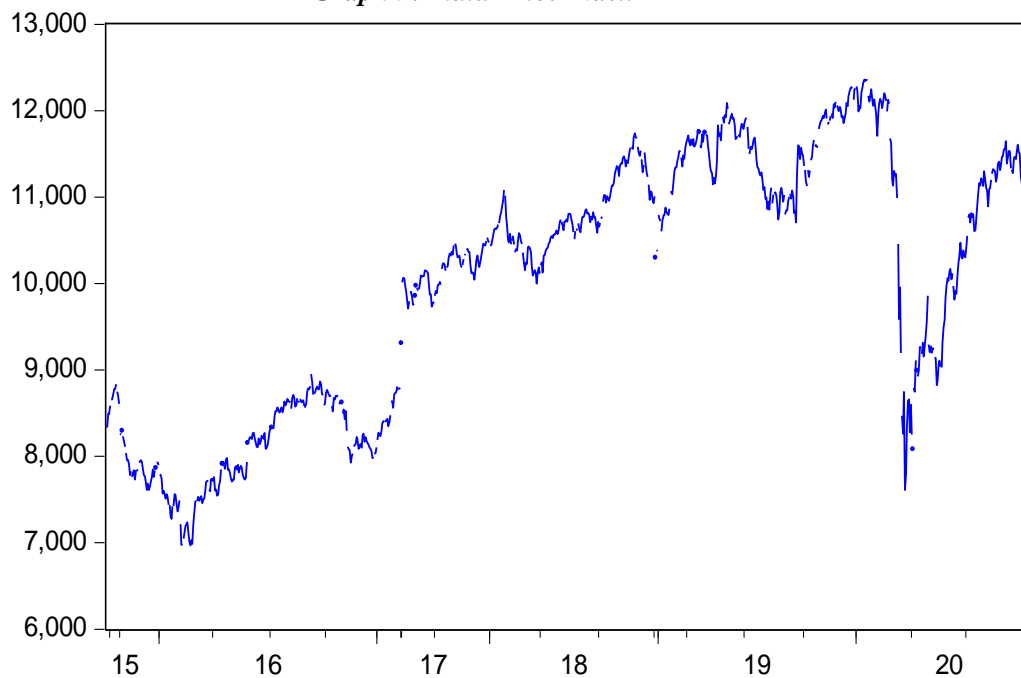
4.1.1.5. Descriptive Statistics of the India

Graph 8. India CDS



Graphic 8 shows the variables of India CDS values between 2015-2020. According to look at the graphic 8, it is seen that there is not much change in the CDS values of India and there are decreases and increases from time to time when they are generally at a normal level. From 2015 to the first quarter of 2016, India CDS values have maintained a stable trend. It is observed that there is a clear downward trend in CDS values due to the political, economic and social events in the country in 2016. However, after this decrease, the decrease occurred in the third quarter of 2016 in the graph caused the CDS values to decrease further. At the same time, the economy of India has grown in 2015-2016. Until the last quarter of 2017-2018, India continued to progress at its normal levels again. In 2019, it is observed that there was a slight increase in the country due to internal and external factors and a downward trend in India CDS values started after the first quarter. It is seen that the most change in CDS values in developing India reached the highest levels in 2020 due to COVID-19. It is seen in the graph that after the first quarter of 2020, decreases in CDS values started to occur.

Graph 9. India Price Index



The changes in the Indian price index between 2015 and 2020 were shown in Graphic 8. Due to internal and external factors occurring in India, regular increases and decreases are seen in the Graphic 8. Domestic investments increased in 2015-2016 as economic growth was considered in the country. However, due to the turmoil that arose in the country in 2016, it is seen that the price index decreased. India, which started to increase after 2016, faced decreases from time to time. Since there were no internal and

external factors in the country in 2017-2019, the country price index continued to increase regularly. However, it is seen that there is a sharp decline in 2020, which started after the last quarter of 2019. As internal and external factors, COVID-19 has had an impact on the country's economic, social and political framework. Towards the end of 2020, the Indian price index started to increase.

Table 19. India Descriptive Statistics

Date: 03/01/21 Time: 13.46			
Sample: 3/26/2015 9/29/2020			
	_IMDI	VALUE	VIX
Mean	9994.255	109.8182	17.52962
Median	10381.58	95.07000	14.68500
Maximum	12362.30	271.4900	82.69000
Minimum	6970.600	59.24000	9.140000
Std. Dev.	1496.018	37.33730	8.896623
Skewness	-0.312348	0.874495	3.155740
Kurtosis	1.726165	3.239144	16.70413
Jarque-Bera	77.66443	120.2316	8783.031
Probability	0.000000	0.000000	0.000000
Sum	9254680.	101691.6	16232.43
Sum Sq. Dev.	2.07E+09	1289518.	73213.66
Observations	926	926	926

Descriptive statistics of India are shown in Table 19. In Table 19, the variable statistical values of India CDS, Price and VIX index are examined in detail. The _IMDI average for India is 9994.255: VALUE average 109.8182: The VIX average is 17.52962. Median values for India were determined as _IMDI 10381.58, VALUE 95.07000, VIX 14.68500. At the same time, the maximum value of India _IMDI is 12362.30, the minimum value is 6970,600. India VALUE maximum value is 271.4900, minimum value is 59.24000. VIX index India's maximum value is 82.69000 while its minimum value is 9.140000. As seen in Table 16, the skewness values of India were found as _IMDI 0.312348, VALUE 0.874495 and VIX 3.155740, respectively. On the other hand, the kurtosis values are _IMDI 1.726165, VALUE 3.239144, VIX 16.70413. India Std. Giant. _IMDI is 1496.018, VALUE 37.33730, VIX 8.896623. Jarque-Bera India values are seen in the table as _IMDI 77.66443, VALUE 120.2316, VIX 8783.031. At the same time, the values of observations, which are among the descriptive statistics of India, are 926 for IMDI, VALUE and VIX indices.

Table 20. Unit Root Test Results on India CDS Level

Variables	ADF	
	Level	Decision
CDS-India	-3.317598 (0.0640)	I(1)

Table 20 shows the table formed as a result of the data of the India CDS index values of the ADF unit root test between 2015-2020. According to the results of the Indian Unit Root test are examined in Table 20, since the ADF test was determined as -3.317598 (0.0640) as a result of the absolute values of the ADF test, depending on the significance level of 1%, 5% and 10% at the CDS level, the series It has been determined that it is not stable. India CDS has been determined the table 20 that it is not stable. At the same time, it was determined in Table 20 that it has a constant and linear trend for the Indian CDS level. On the other hand, since the Indian CDS value is not stable, the ADF Unit Root test was determined as I(1).

Table 21. Unit Root Test Results on India D(CDS) Level

Variables	ADF	
	First Difference	Decision
CDS-India	-8.005912 (0.0000)	I(0)

In the India CDS First Difference Unit Root Test was shown in Table 21. At same time the results of the Indian ADF Unit Root test are examined in Table 21, it is determined that the series is stationary at the CDS level, as the absolute values are lower than the significance level of the critical values, depending on the significance level of 1%, 5% and 10%. The reason for taking the CDS first difference level of the Unit Root test for India was to take the difference again, since the Unit root test was not stationary at the CDS first level. At the same time, it is determined in Table 21 that it has a constant and linear trend for the India CDS First Difference level. Since the India D(CDS) value is stable, the ADF Unit Root test was determined as I(0).

Table 22. Unit Root Test Results on India Nifty-50 Level

Variables	ADF	
	Level	Decision
PRICE-India	-1.974654 (0.6139)	I(1)

In Table 22, the India price index values in the Unit Root Tests were formed with daily data between 2015-2020. In the India price index ADF Unit Root Test, when the series are analyzed according to the critical values depending on the significance

level of 1%, 5% and 10%, their absolute values were determined as -1.974654. Since the obtained price index is higher than the critical values with the Unit Root result, it has been determined as not stable. In addition, as a result of the ADF Unit Root tests, India is not stable in the price index, so the decision was been determined as I(1).

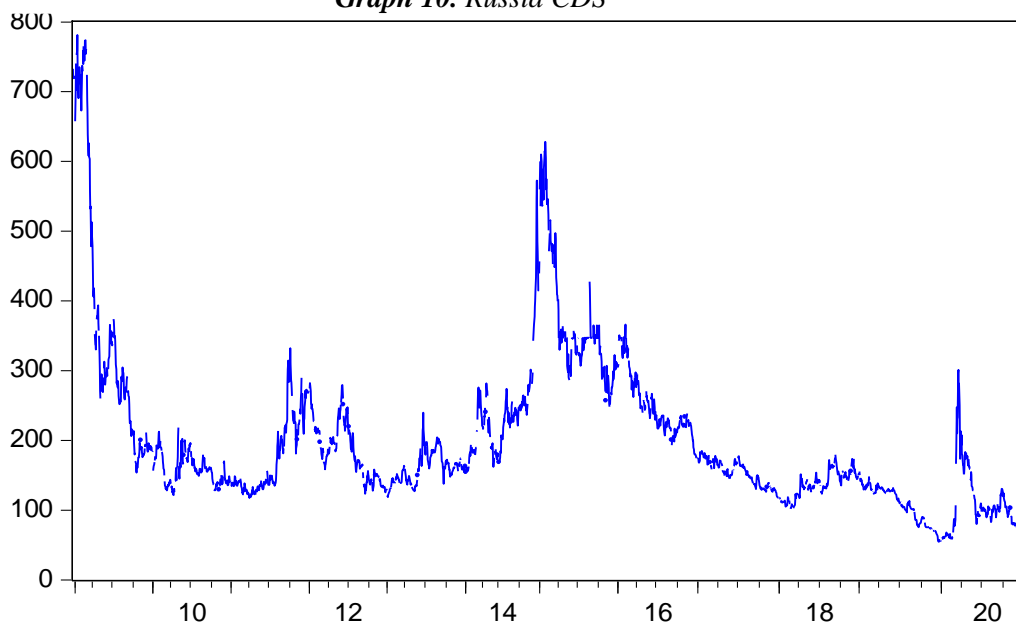
Table 23. Unit Root Test Results on India D(Nifty-50) Level

Variables	ADF	
	First Difference	Decision
PRICE-India	-29.14221 (0.0000)	I(0)

Table 23 in the India price index first difference Unit Root Tests, the price index was re-calculated since the values in the first difference are not stable at the first level. In the India price index first difference, the series in the ADF Unit Root Test were found to be small in their absolute values when analyzed according to the critical values, depending on the significance level of 1%, 5% and 10%. The Indian price index is defined as stable since it is determined by taking the first difference and the value less than the critical values. On the other hand, the first difference level of the Indian price index has a fixed and linear trend. However, as a result of the ADF Unit Root tests, India is not stable in the price index, so the decision was determined as I(1), and when the Indian price index was analyzed by taking the first difference, it became stable. Therefore, the decision for in the India Price Index first difference was determined as I(0).

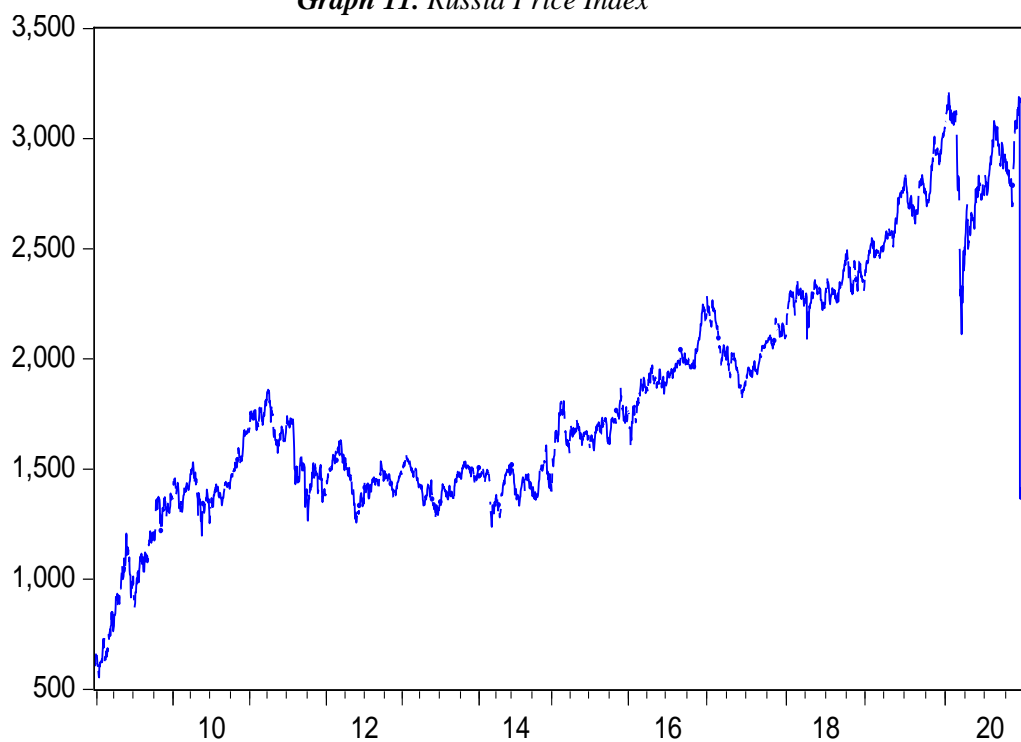
4.1.1.6. Descriptive Statistics of the Russia

Graph 10. Russia CDS



Graphic 10 shows the Russian CDS graph. It is thought that the increases and decreases in the Russian CDS graphic were affected by the economic activity and economic crises caused by Russia. When looking at the CDS chart of Russia, daily data between the years 2008-2020 were used. A graphic was created in the light of this daily data and it was tried to be interpreted. According to the Russian CDS graph, it is seen that it was economically affected by the 2008 global crisis. Due to the 2008 global crisis, the Russian stock market was also affected by the loss of value in the stock markets. On the other hand, it is thought that the unemployment caused by the global crisis occurred in the country and the country should focus on their own production rather than external resources, which has effects on the Russian CDS values. The country was affected by the global crisis in 2008 and it is seen as the CDS value reached the highest level. It is seen that Russia continued to increase and decrease steadily until 2014. Russian CDS values faced an economic crisis after the cold war. It has been observed that the economic crisis experienced in 2014 lasted for two years due to bad management. The declines in the Russian economy started in 2014 and continued until 2019. As seen in Graphic 10, the impact of COVID-19 in CDS value in 2020 occurred in Russia, it is seen that the effect of COVID-19 is minimal. While the decreases in Russia CDS values continue, it is seen that there is an increase with the effect of COVID-19.

Graph 11. Russia Price Index



According to the looking at the Russian price index chart in Graphic 11, it is seen that there is not much difference between the daily data and the increasing and decreasing trends between the years 2008-2020. It is seen in the graph that there are continuous increases in the Russian price index. It is observed that the price index was at the lowest levels in 2008 due to the economic crisis and then the price index was in an increasing trend. Internal and external factors can be shown as the reason for the decreases and increases in the Russian price indices. Due to these factors, the country may sometimes have declining or normal trends. It is observed that there is an increase trend in the Russian price index after 2009 and then the normal increases and decreases continue. It is seen that the normal trend continues in 2014 due to the unexpected economic crisis in Russia. After 2015, the Russian price index has started to rise regularly. It can be seen in the graph that it reached its highest level in the last quarter of 2019 as the time of the highest trend in the Russian price index. It is seen that there are decreases and increases in the Russian price index in 2020. COVID-19 can be shown as the reason for this increase and decrease in 2020. As COVID-19 has a pandemic effect in the country as in the world, it has had an impact on the price index. It can be said that Russia's economic activities and various reasons may cause an increase in the price index.

Table 24. Russia Descriptive Statistics

Date: 03/01/21 Time: 13.46 Sample: 3/26/2015 9/29/2020			
	CDS	FIYAT	VIX
Mean	200.8147	1823.721	19.13650
Median	166.9635	1675.085	16.44000
Maximum	781.2610	3209.220	82.69000
Minimum	54.64000	553.6200	9.140000
Std. Dev.	112.6282	547.7052	8.546655
Skewness	2.367593	0.549905	2.123998
Kurtosis	10.38088	2.669166	
	9.696165		
Jarque-Bera	8683.227	148.9408	7100.662
Probability	0.000000	0.000000	0.000000
Sum	544207.8	4942285.	51859.91
Sum Sq. Dev.	34363992	8.13E+08	197879.7
Observations	2710	2710	2710

Table 24 shows the descriptive statistics of Russia. While calculating the descriptive statistics of Russia, it was calculated using daily data between the years 2008-2020. Descriptive statistics of Russia show the variables of CDS, price and VIX indices with descriptive statistical values such as mean, median, maximum, minimum. For Russia, the CDS average for the period 2008-2020 is 200.8147: average price 1823.721: and the VIX index average was determined as 19.13650. For Russia CDS, its maximum value is 781.2610, its minimum value is 54.64000: the maximum value of the price is 3209,220, the minimum value is 553,6200: The maximum value of VIX is 82.69000 and the minimum value is 9.140000. Russia Std. Dev. CDS is 112.6282, price is 547.7052 and VIX is 8.546655. Skewness values are CDS 2.367593, price 0.549905, VIX 2.123998. For the descriptive statistics of Russia, the Kurtosis value is CDS 10.38088, the price is 2.669166 and the VIX index is 9.696165. Since the Kurtosis value is less than 3 for CDS, price and VIX, it can be said that the series continues in a horizontal and tailed course. Median values, another variable, are 166.9635 for CDS, price is 1675.085 and 16.44000. Jarque-Bera value is CDS 8683.227, price is 148.9408 and VIX 7100.662. The Russian index for observations was determined as 2710 for 3 variables as the same.

Table 25. Unit Root Test Results on Russia CDS Level

Variables	ADF	
	Level	Decision
CDS-Russia	-4.412383 (0.0021)	I(0)

The CDS index values of the Russia ADF unit root test are shown in Table 25, with the data for the years 2008-2015. When the results of the Russia Unit Root test are examined in Table 25, it is determined that the series is stationary with -4.412383 as a result of the absolute values according to the critical values depending on the significance level of 1%, 5% and 10% at the Russia CDS level. At the same time, since Russia CDS index value is stable, Unit Root test was determined as I(0).

Table 26. Unit Root Test Results on Russia RTSI Level

Variables	ADF	
	Level	Decision
PRICE-Russia	-3.119988 (0.1017)	I(1)

The Russia price index values of the ADF unit root test are shown in Table 26. When the results of the Russia ADF Unit Root test are examined in Table 26, it has

been determined that the series is not stable at the Russia CDS level, as the result is greater than the significance level as a result of the absolute values according to the critical values, depending on the significance level of 1%, 5% and 10%. Since the Russia CDS value is not stable, the ADF Unit Root test was determined as I(1).

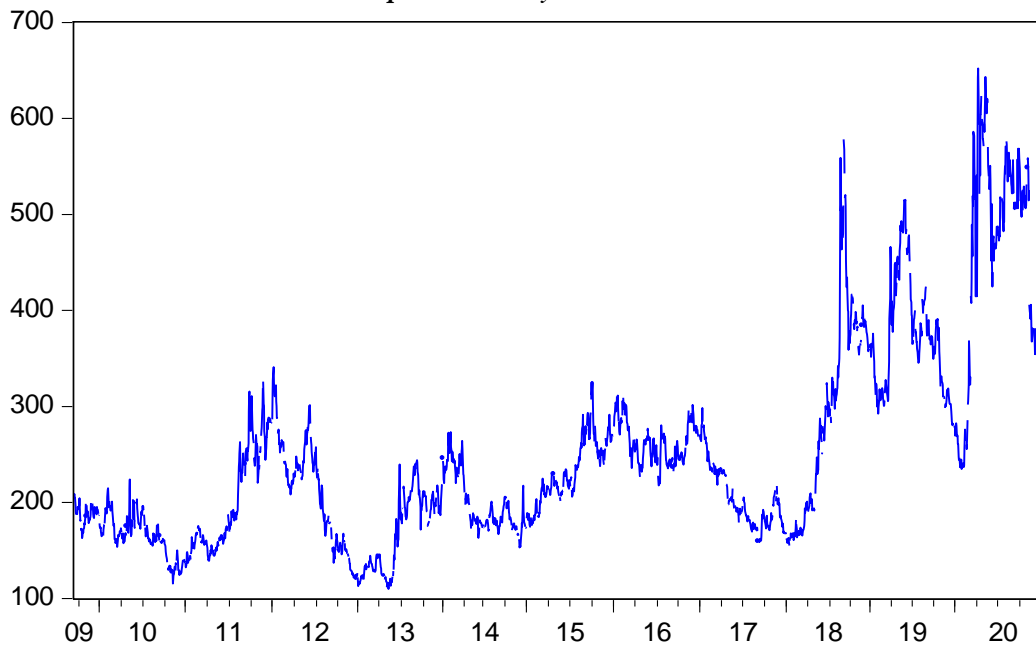
Table 27. Unit Root Test Results on Russia D(RTSI) Level

Variables	ADF	
	First Difference	Decision
PRICE-Russia	-51.99437 (0.0000)	I(0)

Table 27 shows the price index first difference values of the Russia ADF unit root test. When the first difference results of the Russia Unit Root Test price index are examined in Table 27, it is determined that the series is stationary because the price index is less than the significance level as a result of the absolute values according to the critical values depending on the 1%, 5% and 10% significance level at the first difference level. At the same time, it can be said that the reason for the first difference in the Russia price index is that it is not stable at the first level. On the other hand, since the value of the Russia price index in the first difference is stable, the ADF Unit Root test has been determined as I(0).

4.1.1.7. Descriptive Statistics of the Turkey

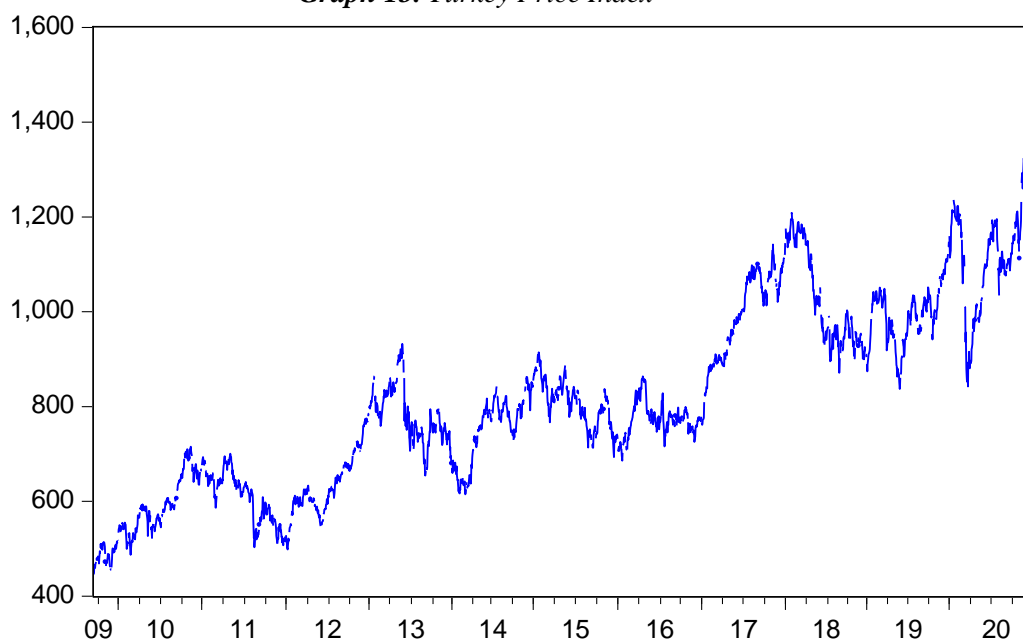
Graph 12. Turkey CDS



Turkey CDS values in Graphic 12, there are data belonging to 2008- 2020. Turkey data from 700 points to 100 ratings they belong to CDS data is made. The effects of the global crisis occurred in 2008, it is seen that the influence in Turkey. CDS

values in Turkey after the global crisis seems to have a low value. Turkey from 2008 until the first quarter of 2010, the value of CDS is seen that you normally trend. It is determined that there is an increasing trend in the country's CDS values after 2010. In addition to an increase in 2011, it is observed that there was still an increase despite the country's many problems. At the same time as the reason for the increase in Turkey's CDS value trends in 2013, though domestic factors have led to rise less. It is seen that the normal increasing trend continues after 2013. Turkey is well worth the CDS with start growth in the national economy in 2017 seems to be reason to change. After 2018 until the end of 2019. Turkey is seen that the steady increase in the value of CDS. In other news, Turkey CDS value in 2020, Covid-19 has been deceived into graphics with the highest value. Formed in 2020 the world felt the effects of the pandemic as much as in other countries has also created a change in Turkey in the first quarter of 2020 the value of CDS. It is seen that the economic, social and political impact of COVID-19 is very high. In the last quarter of 2020 towards Turkey CDS was also seems the decrease trend.

Graph 13. Turkey Price Index



Turkey price index Graph 13, days of data between the years 2009-2020 can be seen Graphic 13. The data contained in the index as the reason for the low level of prices in 2009. Turkey is seen as the global financial crisis continued in 2008. After 2009, the price index is seen that Turkey increase trend. Also it said that Turkey had a difficult period in 2009. There is a continuous increase trend between 2010 and 2011. Growth can be shown as the reason for these increases. At the same time in 2011.

Turkey also seen regular increases and decreases in the price indices of many problems although the country. Normal increases and decreases are observed in the price index level starting from 2013 until 2017. In 2016, besides social and economic problems, foreign exchange and borrowing crises also occur. Price index in Turkey in 2017 began to form increase trend. Currency and debt crisis in 2018, Turkey was formed. For this reason, it is seen that it continues at a normal level in 2018.2020 Turkey price index increase trend consists of graph 13 shows. As the reasons for the increase trend of 2020, it can be said as COVID-19, which has left economic effects in the country, as well as the decline in foreign exchange reserves. Turkey could be said that the price index chart in effect the most important emerging in the first quarter of 2020 as one of the reasons and leaving many effects in the countries of the world and the economy as the effects of that Covidien-19 because the chart increase trend occurred.

Table 28. Turkey Descriptive Statistics

Date: 03/01/21 Time: 13.52 Sample: 9/09/2009 12/31/2020			
	_IMDI	CDS	VIX
Mean	817.3732	1823.721	19.13650
Median	788.3300	1675.085	16.44000
Maximum	1479.910	3209.220	82.69000
Minimum	445.8500	110.0050	9.140000
Std. Dev.	195.9657	104.5747	7.402366
Skewness	0.416376	1.443445	2.621549
Kurtosis	2.572043	4.750916	15.12672
Jarque-Bera	95.44247	1241.157	19003.84
Probability	0.000000	0.000000	0.000000
Sum	2135796.	653290.1	47294.57
Sum Sq. Dev.	1.00E+08	28564485	143124.6
Observations	2613	2613	2613

Turkey descriptive statistics in Table 28 shows the values calculated using daily data between the years 2009-2020. Turkey descriptive statistics CDS prices and the VIX index variables mean, median, maximum, minimum, kurtosis, skewness shows with values such as descriptive statistics. The Turkey for _IMDI mean 817.3732: CDS mean 250.0154: and VIX index average was determined as 18.09972. Turkey median values 788.3300, CDS 223.1600, the VIX is 16.05000. The maximum value for Turkey CDS 651.9100, minimum value 110.0050: The maximum value of _IMDI is 1479.910, the minimum value is 445.8500: The maximum value of VIX is 82.69000 and the minimum

value is 9.140000. Turkey Std. Dev. CDS 104.5747, _IMDI 195.9657 and VIX 7.402366. Skewness values are CDS 1.443445, _IMDI 0.416376, VIX 2.621549. Kurtosis value for Turkey descriptive statistics CDS 4.750916, 2.572043 and the VIX index is now 15.12672. Turkey Jarque-Bera value of CDS 1241.157, _IMDI 95.44247 and the VIX is 19003.84. 3 variants for the same in Turkey index observations have been identified as 2613.

Table 29. Unit Root Test Results on Turkey CDS Level

Variables	ADF	
	Level	Decision
CDS-Turkey	-3.437911 (0.0467)	I(0)

In the ADF Unit root test Turkey's CDS index values in the 2009-2020 years Table 29 was seen in the light of the daily data. According to the Table 26 in Turkey CDS unit root test results are analyzed, CDS level range 1%, 5% and 10% series was determined to be stable depending on the significance level as a result of the absolute values according to the critical value being less than the confidence level. Turkey looking at the table for CDS index level was found to be constant and linear trend. On the other hand, the Turkey ADF unit root tests CDS index value I(0) are detected.

Table 30. Unit Root Test Results on Turkey BIST-100 Level

Variables	ADF	
	Level	Decision
PRICE-Turkey	-2.394224 (0.3824)	I(1)

Turkey price index value of the ADF unit root test are shown in Table 30. Table 30 Turkey price index level when the unit root test results are analyzed, CDS level range 1%, 5% and 10% has been found that, as a result of absolute values than the critical value, depending on the significance level in the series is greater than the significance level with -2.394224 not stable. Because it is not stable level of the price index for Turkey was determined to be necessary receipt of the first different. At the same time the Turkey price index value is not stable, the ADF Unit Root test was determined as I(1).

Table 31. Unit Root Test Results on Turkey D(BIST-100) Level

Variables	ADF	
	First Difference	Decision
PRICE-Turkey	-33.44413 (0.0000)	I(0)

Table 31 in the Turkey's price index first difference value is seen ADF unit root test. According to the Turkey price index in Table 31, the Turkey price first difference unit root test results are analyzed, the price index series 1%, 5% and 10% in the first difference level as a result of the absolute values than the critical value, depending on the significance level of the series because it is smaller than the significance level to be stable in the price index first difference has been determined. Turkey price index first difference to be stable for in level and first level of the price index to which Turkey was determined to be not stable recalculated. At the same time the Turkey price index first difference value is stable, the ADF Unit Root test was determined as I(0).

4.1.2. Developing Countries of the Summary Result Test

As seen in the table 32, in order to determine the structure of the developing BRICS-T countries and to apply causality tests as well as ARDL test, it is necessary to first determine at what level the decision is stationary. For this reason, the results were obtained by examining the table unit root tests with ADF. While examining the ADF unit root tests, examinations were made with CDS, VIX and stock market data. The results of the ADF test of BRICS-T countries are shown in the Table 32.

Table 32. Summary Result Test

Country	Stock Exchange	VIX	CDS	Appropriate Model
Brazil	I(1)	I(0)	I(1)	ARDL
South Africa	I(1)	I(0)	I(0)	ARDL
China	I(1)	I(0)	I(0)	ARDL
India	I(1)	I(0)	I(1)	ARDL
Russia	I(1)	I(0)	I(0)	ARDL
Turkey	I(1)	I(0)	I(0)	ARDL

Table 32 when viewed from Brazil (BOVESPA), South Africa (SA40), China (SHANGHAI), India (NIFTY-50), Russia (RTS), and Turkey (BIST 100) unit root tests ADF data based on the results of the stock market, VIX and CDS values were examined. It has been determined that BRICS-T countries are not stable in their stock market values. In VIX values, it is seen that a stable decision is obtained for BRICS-T

countries. When looking at the CDS values for BRICS-T countries, a level non-stationary result was obtained according to the ADF results of the unit root tests for Brazil and India. For Brazil and India, the decision is determined as I(1). South Africa, China, CDS values according to the ADF unit root test results for Russia and Turkey was determined to be stable. South Africa, China, according to the decision unit root test results for Russia and Turkey I(0) unless otherwise determined.

4.1.3. ARDL / Bound Test Results of the BRICS-T Countries

ARDL/Bound Test is applied in order to investigate the effects of CDS, VIX and Stock Exchange indices on the BRICS-T countries. As a result of the examinations, it is determined that the ARDL bound test will be applied according to the stagnation status of the BRICS-T countries. It is observed that the ARDL model is generally used in the analysis and is generally used in the literature because it has different levels of stability for BRICS-T countries. It is sufficient for one of the series obtained for the ARDL model to be stationary at level. At the same time, it is sufficient for one of the other series to be stationary at the first difference. For BRICS-T countries, the unit root test decisions for CDS, VIX and Stock Exchange indices are determined as I(0) and I(1), so the ARDL model can be used. It is found that the results obtained for BRICS-T countries are equally not stable for all of them. At the same time, it was determined that the variables of CDS, VIX and Stock Exchange indices for BRICS-T countries are not second-order stationary I(2). At the same time, ARDL/Bound Test can be used to determine the long-term relationship of CDS, VIX and Stock Exchange indices.

Using CDS, VIX and stock market indices as dependent variables, it is aimed to explain by looking at past data between 2008-2020. At the same time, when the ARDL bound test is applied, it is seen that the CDS for BRICS-T countries affects VIX and the Stock Exchange. On the other hand, it is seen that VIX and Stock Exchange indices for BRICS-T countries affect each other just like the CDS. In order to apply the ARDL model, the Unrestricted Error Correction Model: ECM model must first be created for the series. Then AIC (Akaike Information Criterion) is taken into consideration and calculations are made and a statistical model based on the autoregressive delay distributed model is established. When the ARDL model was established for BRICS-T countries, it was determined that there was no relationship only for China. For other developing countries for long-term relationships ARDL strong it has been found to be of long-term relations to Brazilian, India, Turkey, Russia and South Africa.

4.1.3.1. Brazil ARDL/ Bound Test Result

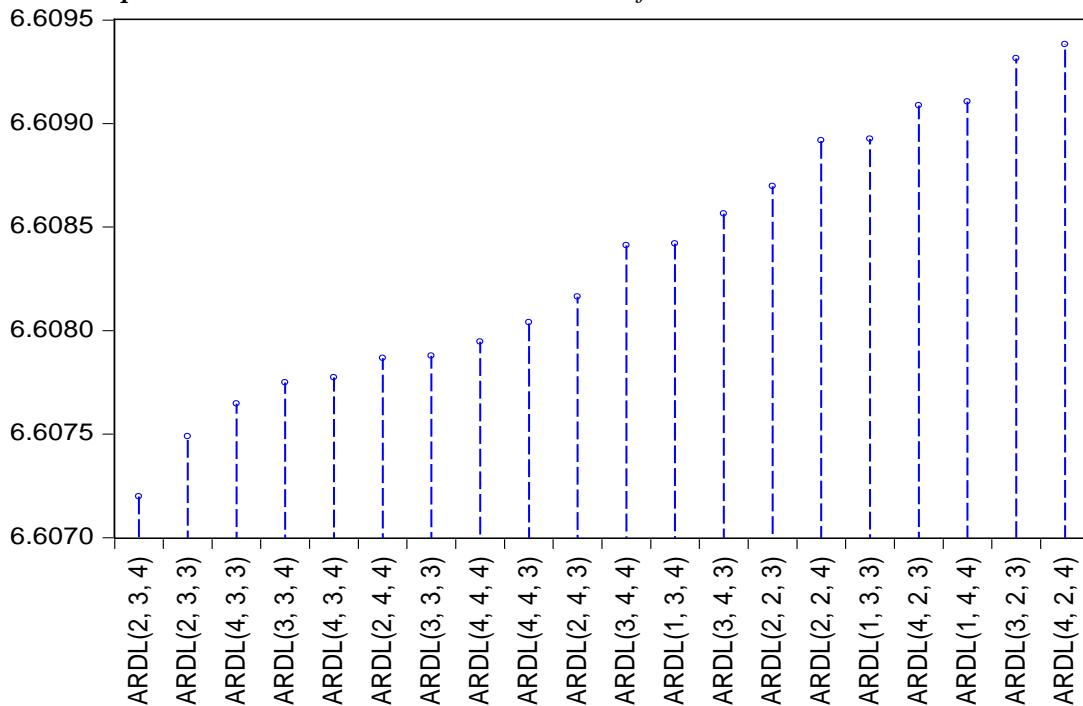
Brazil in establishing the bound test was aimed to find the existence of a long-term relationship. In order to find the long-term relationship for Brazil, the unrestricted error model was first established in order to understand the Bound Test. Brazil to build a model, Akaike Information Character (AIC) was selected and a distributed autoregressive delay model was created. Table 33 below shows the Brazil model.

Table 33. Brazil of the ARDL(2,3,4) Model Prediction Results

Selected Model: ARDL (2,3,4)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CDS(-1))	-0.043568	0.018560	-2.347443	0.0190
D(FIYAT)	-0.003794	0.000122	-31.20995	0.0000
D(FIYAT(-1))	-0.000456	0.000142	-3.212370	0.0013
D(FIYAT(-2))	-0.000319	0.000121	-2.635909	0.0084
D(VIX)	0.314877	0.069179	4.551658	0.0000
D(VIX(-1))	0.656544	0.072041	9.113511	0.0000
D(VIX(-2))	0.195427	0.073340	2.664680	0.0077
D(VIX(-3))	-0.113485	0.067482	-1.681715	0.0927
C	2.570205	0.873831	2.941308	0.0033
@TREND	0.001327	0.000319	4.165282	0.0000
FIYAT(-1)	-5.44E-05	1.42E-05	-3.839426	0.0001
VIX(-1)	0.064794	0.017987	3.602189	0.0003
CDS(-1)	-0.010520	0.002467	-4.263949	0.0000

Brazil depending on the dependent variable results of the CDS, VIX and Stock Market indices, the autoregressive delay distributed model is ARDL(2,3,4) in Table 33. In the Brazil model, the historical values for the variables were described for the two periods as well as the current values for the CDS, VIX and Stock Market variables. Brazil models, the ARDL(2,3,4) model with the smallest AIC values was chosen. 20 models of the AIC, which are the smallest AIC values of possible models for the Brazil model are shown in Graph 14.

Graph 14. 20 Models with the Lowest Akaike Information Criterion in the Brazil



Graph 14 shows 20 models with the lowest AIC criteria for Brazil. Brazil in the looking at the model obtained, it is important that there is no error term autocorrelation problem for the ARDL(2,3,4) model. For this reason, the explanatory variables of delayed values for Brazil will not be consistent for the parameters in the model and the parameters in the model. On the other hand, depending on the model, it was determined using the Breusch-Godfrey LM test in order to determine whether the error term was an autocorrelation problem. At the same time Brazil look at the test results, it was found that there was no autocorrelation problem for Brazil.

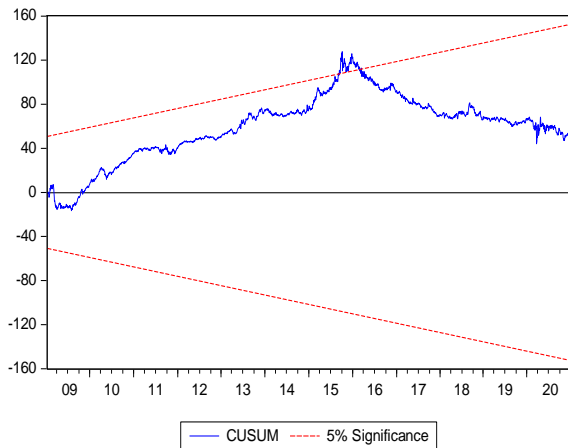
Table 34. Brazil Bound Test Results

k	f-statistic	Critical values at the significance level in % 1		Critical values at the significance level in %2.5		Critical values at the significance level in %5		Critical values at the significance level in %10	
		Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound
2	5.42	4.99	5.85	4.37	5.16	3.88	4.61	3.38	4.02

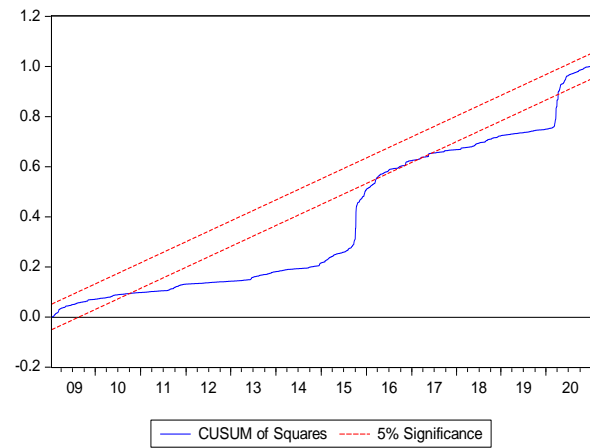
In the table 34, it is examined whether there is a long-term relationship between the variables for Brazil. In the table 34, the entire significance level of the F-statistic value must be greater than the upper bound. At the same time, critical values of %1, %2.5, %5 and %10 are seen in the table. It is seen that the F-statistic value calculated for the Brazil bound test is 4.74. When the critical values are considered, long-term significance could not be obtained at %1 critical values for Brazil. However, when

looking at the lower and upper values for %2.5, %5 and %10 critical values, it is seen that Brazil is not among the F-statistics values. Therefore, it can be seen that there is a long-term relationship since the F-statistics is higher than the upper bound of %2.5, %5 and %10 critical values.

Graph 15. Brazil CUSUM Test



Graph 16. Brazil CUSUM of Squares Test



As seen the at Graph 15 and Graph 16, CUSUM and CUSUM of Squares Tests for Brazil are seen. CUSUM and CUSUM of Squares Tests %5 significance levels are seen to be outside the critical values. Brazil graphs shows that the coefficients estimated to explain the indices for Brazil are not stable, although have a long-term relationship for the model. Brazil the results of the CUSUM and CUSUM of Squares tests are examined together, it is possible to conclude that the ARDL/bound test results are insufficient.

4.1.3.2. Russia ARDL/ Bound Test Results

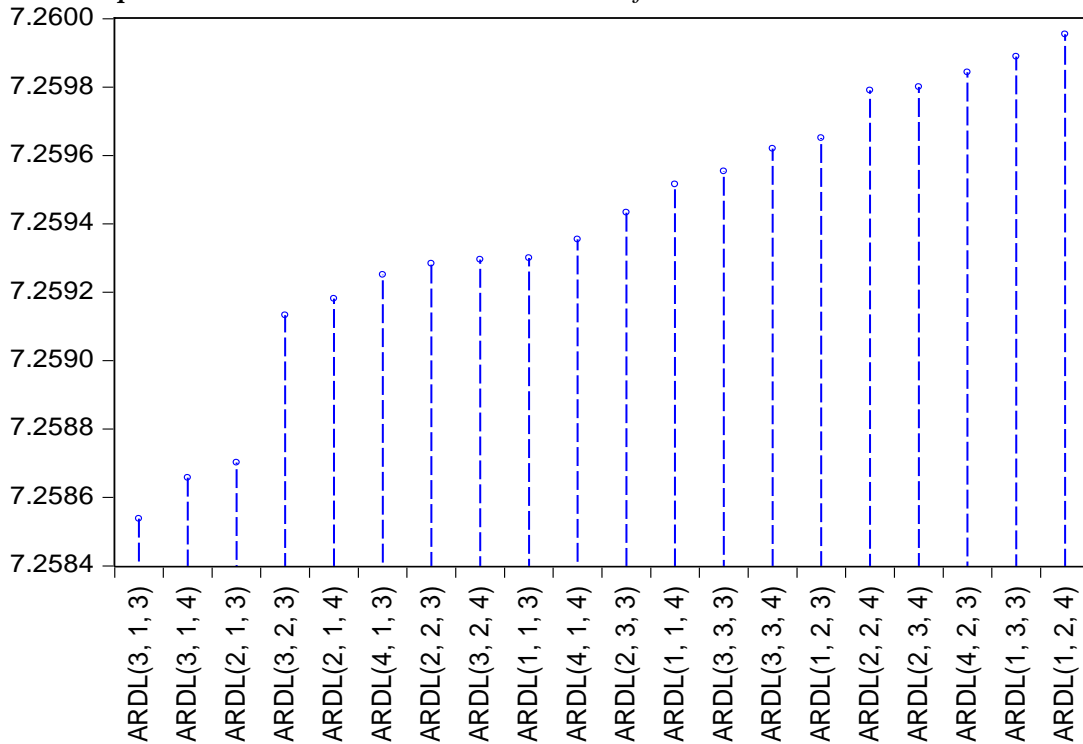
In the implementing the Russia boundary test was applied in order to determine the long-term relationships of CDS, VIX and Stock Exchange indices. However, while performing the bound test for Russia, the unrestricted error correction model was first created. A distributed model with autoregressive delay obtained by selecting the Akaike Information Criterion (AIC) for the model selection criterion for Russia was created. Table 35 shows the ARDL(3,1,3) model for Russia.

Table 35. Russia of the ARDL(3,1,3) Model Prediction Results

Selected Model: ARDL(3, 1, 3)				
Note: final equation sample is larger than selection sample				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
CDS(-1)	1.029651	0.018661	55.17681	0.0000
CDS(-2)	-0.065903	0.026799	-2.459161	0.0140
CDS(-3)	0.028199	0.017871	1.577916	0.1147
FIYAT	-0.041327	0.004186	-9.873825	0.0000
FIYAT(-1)	0.040652	0.004191	9.699216	0.0000
VIX	0.549824	0.091464	6.011392	0.0000
VIX(-1)	0.769700	0.119576	6.436893	0.0000
VIX(-2)	-0.508081	0.119541	-4.250268	0.0000
VIX(-3)	-0.802131	0.094847	-8.457087	0.0000
C	2.472372	1.023507	2.415588	0.0158

Depending on the dependent variable results of the CDS, VIX and Stock Market indices for Russia, the estimated autoregressive lag distributed model is determined as ARDL(3,1,3) in Table 35. For Russia, the variables describe the historical values for the two periods as well as the current values for the CDS, VIX and Stock Exchange variables of the historical values. For the Russian models, the ARDL(3,1,3) model with the smallest AIC values was chosen. 20 models, which are the smallest AIC values of the possible models for the Russian model, are shown in Graphic 17.

Graph 17. 20 Models with the Lowest Akaike Information Criterion in the Russia



In the Russia, Graph 17 shows 20 models with the lowest AIC criteria. When looking at the model obtained for Russia, it is important that there is no error term autocorrelation problem for the ARDL(3,1,3) model. For Russia, therefore, the explanatory variables of the delayed values will not be determined consistently for the parameters in the model and the parameters in the model. At the same time, it was determined using the Breusch-Godfrey LM test in order to determine whether the error term is an autocorrelation problem depending on the model. When the test results for Russia are examined, it is found that there is no autocorrelation problem.

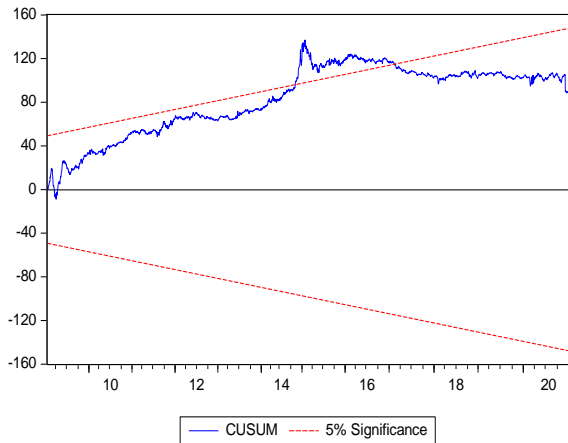
Table 36. Russia Bound Test Results

k	f-statistic	Critical values at the significance level in %1		Critical values at the significance level in %2.5		Critical values at the significance level in %5		Critical values at the significance level in %10	
		Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound
2	4.74	4.13	5	3.55	4.38	3.1	3.87	2.63	3.35

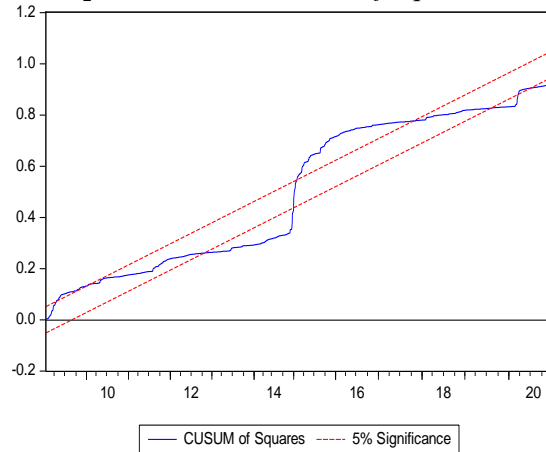
Russia is examined in Table 36 whether there is a long-term relationship between the bounds test variables. Table 36 shows the critical values of %1, %2.5, %5 and %10 for the Russia bound test. It is seen that the F-statistic value calculated for the Russia bound test is 4.74. When the critical values are considered, a long-term relationship could not be obtained at 1% critical values for Russia. However, when the

lower and upper bounds values for %2.5, %5 and %10 critical values for Russia are considered, it is seen that there is no long-term relationship between the F-statistics values. Therefore, it is possible to say that there is a long-term relationship since the critical values of %2.5, %5 and %10 for the Russia F-statistic are higher than the upper bound.

Graph 18. Russia CUSUM Test



Graph 19. Russia CUSUM of Squares Test



In the look at Graph 18 and Graph 19 for the Russian ARDL / Bound test, CUSUM and CUSUM of Squares Tests are seen. CUSUM and CUSUM of Squares Tests %5 significance levels were found to be outside of their critical values. As a result of the graphs, it shows that the coefficients estimated to explain the indices for Russia are not stable for the model, although the Russia models have a long-term relationship. In the ARDL / bound test results are examined together with the CUSUM and CUSUM of Squares Tests, it is possible to say that the result of the Russia ARDL / bound test is insufficient.

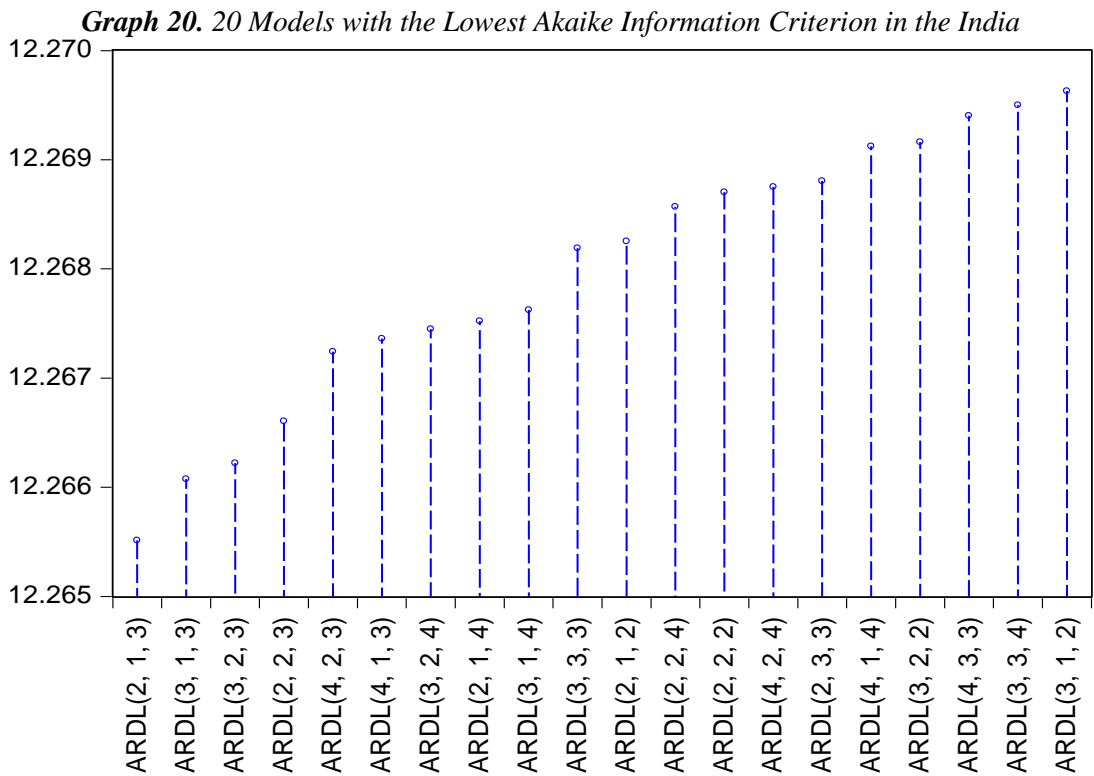
4.1.3.3. India ARDL/Bound Test Results

For the India ARDL / bound test was applied to determine the long-term relationships of CDS, VIX and Stock Exchange indices. In the India performing ARDL / bound testing, first the unrestricted error correction model is established. A distributed model with autoregressive delay obtained by selecting the Akaike Information Criterion (AIC) for the model selection criterion for India was created. Table 37 below shows the model for India.

Table 37. India of the ARDL(2,1,3) Model Prediction Results

Selected Model: ARDL(2, 1, 3)				
Note: final equation sample is larger than selection sample				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
_IMDI(-1)	0.876509	0.033551	26.12476	0.0000
_IMDI(-2)	0.080862	0.032989	2.451179	0.0144
VALUE	-6.214326	0.969283	-6.411261	0.0000
VALUE(-1)	5.666863	0.957812	5.916467	0.0000
VIX	-14.46056	1.686772	-8.572914	0.0000
VIX(-1)	-1.278470	2.195042	-0.582435	0.5604
VIX(-2)	8.820338	2.154389	4.094124	0.0000
VIX(-3)	3.286322	1.770152	1.856519	0.0637
C	458.6088	94.11521	4.872845	0.0000
@TREND	0.203271	0.037638	5.400658	0.0000

In the India estimated autoregressive delay distributed model ARDL(2,1,3) model is determined in Table 37, depending on the dependent variable results of CDS, VIX and Stock Market indices. In the model for India, the historical values for the variables are described in addition to the current values for the CDS, VIX and Stock Market index variables, as well as the historical values for the two periods. For the Indian ARDL / bounds test model, the ARDL(2,1,3) model with the smallest AIC values was chosen. 20 models, which are the smallest AIC values of the possible models for the Indian ARDL(2,1,3) model, are shown in Graph 20.



For India, Graph 20 shows 20 AIC models with the lowest AIC criteria. In the looking at the model obtained for India, it is important that there is no error term autocorrelation problem for the ARDL(2,1,3) model. Therefore, the explanatory variables of delayed values for India cannot be consistently said for the parameters in the model and in the model. Besides, depending on the model, it was determined using the Breusch-Godfrey LM test in order to determine whether the error term is an autocorrelation problem. When the test results for India are examined, it is found that there is no autocorrelation problem.

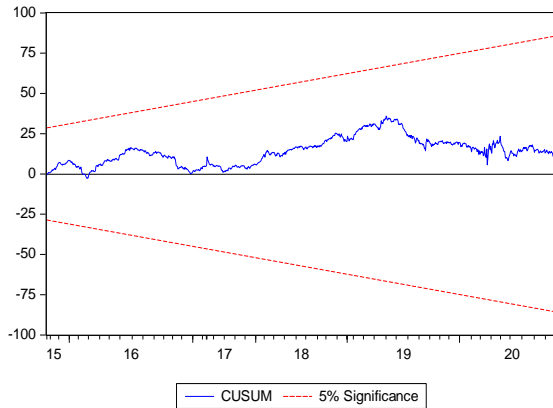
Table 38. India Bound Test Results

k	f-statistic	Critical values at the significance level in %1		Critical values at the significance level in %2.5		Critical values at the significance level in %5		Critical values at the significance level in %10	
		Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound
2	9.81	4.99	5.85	4.37	5.16	3.88	4.61	3.38	4.02

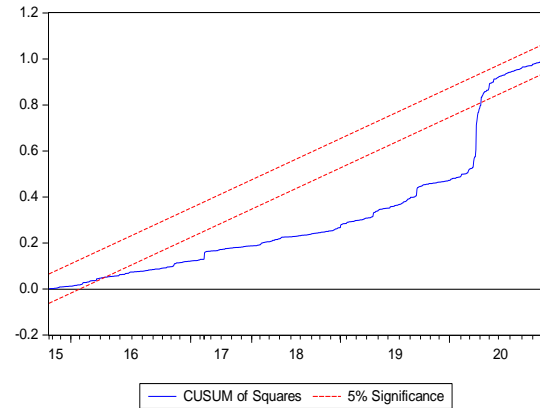
Whether there is a long-term relationship between the variables in the India bound test is shown in Table 38. Critical values of %1, %2.5, %5 and %10 are examined in Table 38 for the India bound test. It is seen that the F-statistic value calculated for the India bound test is 9.81. When the lower and upper bound values for the critical values of %1, %2.5, %5 and %10 for the India bound test results are

considered, it is seen that there is long-term relationship between the F-statistics values. It is possible to say that there is a long-term relationship between the bound test results of India, since it is higher than the upper bound of the critical values of %1, %2.5, %5 and %10 for India F-statistics.

Graph 21. India CUSUM Test



Graph 22. India CUSUM of Squares Test



In the look at Graph 21 and Graph 22 for the Indian ARDL/Bound test, CUSUM and CUSUM of Squares Tests are seen. Although the CUSUM and CUSUM of Squares Tests are among the critical values of the significance level of the CUSUM test for the critical values of the 5% significance level, it has been determined that the 5% significance level of the CUSUM of Squares Test is outside the critical values. As a result of the graphs, it shows that the coefficients estimated to explain the indices for India are not stable for the model although they have a long-term relationship. When the results of the CUSUM and CUSUM of Squares tests are examined together, it is possible to say that the results of the Indian ARDL bound test are insufficient.

4.1.3.4. China ARDL/Bound Test Results

Table 39. China Bound Test Results

k	f-statistic	Critical values at the significance level in %1		Critical values at the significance level in %2.5		Critical values at the significance level in %5		Critical values at the significance level in %10	
		Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound
2	3.93	5.15	6.36	4.41	5.52	3.79	4.85	3.17	4.14

Table 39 shows whether there is a long-term relationship between variables for the China bound test. For the China bound test, the lower and upper bounds for the critical values of %1, %2.5, %5 and %10 in Table 39 were examined. It is seen that the

F-statistic value calculated for the China bound test is 3.93. When the lower and upper bound values for %1, %2.5, %5 and %10 critical values for the China bound test results are considered, it is seen that there is no long-term relationship for the F-statistics values. Since it is below the critical values of %1 and %2.5 for the China F-statistic, it is seen that there is no long-term relationship. At the same time, it can be said that the model is unstable, since the F-statistic value of the China margin test is between %5 and %10 critical values. Therefore, it is possible to say that the margin test results for China do not have a long-term relationship.

4.1.3.5. Turkey ARDL/Bound Test Results

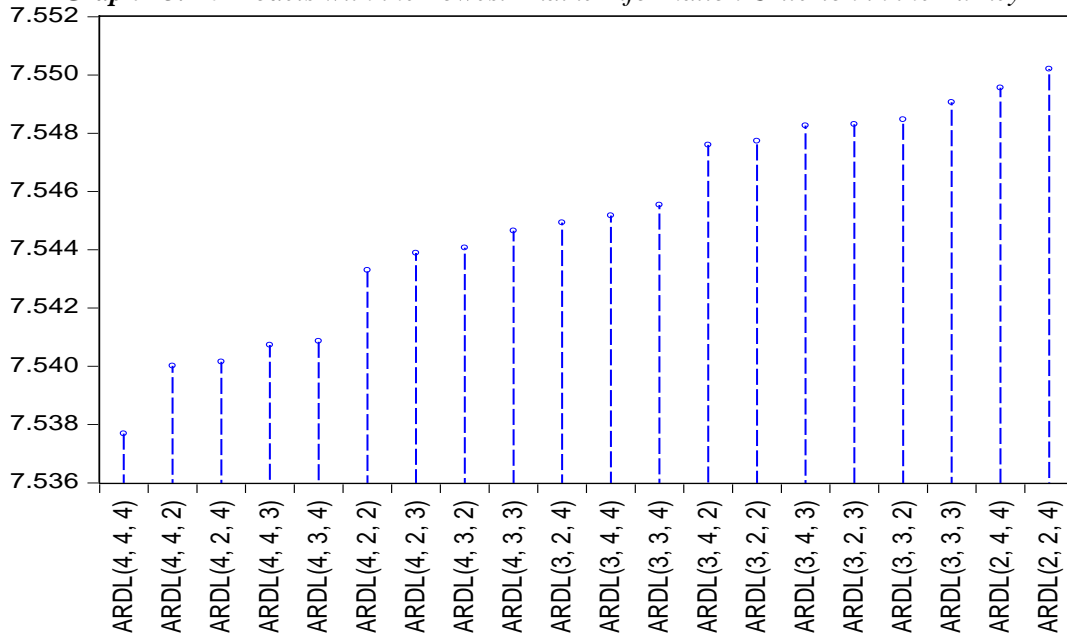
In the Turkey CDS, VIX and stock markets index to determine the long-term relationship indicase ARDL / Bound test. But for Turkey ARDL /bound test while first unrestricted error correction model was created. Akaike Information Criterion (AIC) for model selection criteria for Turkey that is formed is achieved by selecting autoregressive distributed lag model. Table 40 shows the ARDL model for Turkey.

Table 40. Turkey of the ARDL(4,4,4) Model Prediction Results

Selected Model: ARDL(4, 4, 4)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
CDS(-1)	0.822123	0.019538	42.07880	0.0000
CDS(-2)	0.211053	0.025119	8.402090	0.0000
CDS(-3)	-0.144164	0.024964	-5.774818	0.0000
CDS(-4)	0.088668	0.019129	4.635186	0.0000
_IMDI	-0.276208	0.017700	-15.60473	0.0000
_IMDI(-1)	0.097384	0.025133	3.874735	0.0001
_IMDI(-2)	0.172435	0.025299	6.815903	0.0000
_IMDI(-3)	-0.061957	0.025450	-2.434457	0.0150
_IMDI(-4)	0.059751	0.018669	3.200455	0.0014
VIX	0.134458	0.112686	1.193212	0.2329
VIX(-1)	0.650935	0.147143	4.423816	0.0000
VIX(-2)	-0.597211	0.148411	-4.024044	0.0001
VIX(-3)	0.333281	0.147581	2.258299	0.0240
VIX(-4)	-0.362440	0.115233	-3.145290	0.0017
C	4.238819	1.804298	2.349289	0.0189
@TREND	0.004383	0.001016	4.314903	0.0000

For Turkey in the CDS, VIX and stock market index dependent variable, depending on the results of Table 40, estimated autoregressive distributed lag model is ARDL(4,4,4). The Turkey model variables historical values for CDS, VIX and Stock Market index values for the past two semesters as well as the present values for the variables are also described. ARDL(4,4,4) having the smallest AIC value for Turkey models model is selected. 20 models with the smallest AIC value of the probable model for Turkey Graph 23 shows models.

Graph 23. 20 Models with the Lowest Akaike Information Criterion in the Turkey



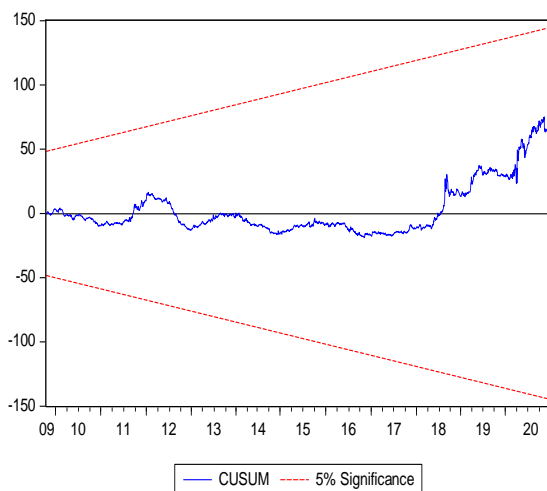
Graph 23 for Turkey with the lowest AIC is seen by 20 models. When you look at the model obtained for Turkey ARDL (4,4,4) model error term is important for the absence of autocorrelation problems. Therefore delayed for Turkey in the value of the explanatory variables and model parameters are consistent for the model (consistent) will not be detected. At the same time, it was determined using the Breusch-Godfrey LM test in order to determine whether the error term is an autocorrelation problem or not, depending on the model. When the look at the test results it was found to be the autocorrelation problem for Turkey.

Table 41. Turkey Bound Test Results

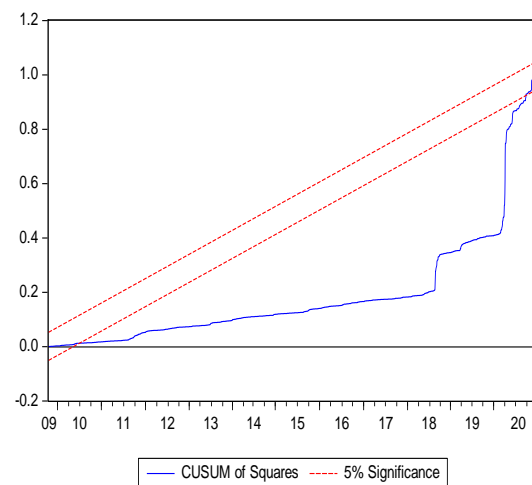
k	f-statistic	Critical values at the significance level in %1		Critical values at the significance level in %2.5		Critical values at the significance level in %5		Critical values at the significance level in %10	
		Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound
2	7.55	4.99	5.85	4.37	5.16	3.88	4.61	3.38	4.02

Whether long-term relationship between the variables in Table 41 for Turkey ARDL /Bound Test looked through. Table 41 at %1, %2.5, %5 and %10 critical bounds values are seen to Turkey. F-statistic value calculated for Turkey bounds test was determined to be 7.55. When the looking at the critical value for Turkey, it is observed that the long-term relationship for the upper and lower bounds values for the critical value of %1, %2.5, %5 and %10. So the F-statistic values for Turkey, due to higher than the upper bound of %1, %2.5, %5 and %10 critical value ARDL / bound test value of the test results that the long-term relationship and can be said to be significant.

Graph 24. Turkey CUSUM Test



Graph 25. Turkey CUSUM of Squares Test



Turkey ARDL/bound test when viewed Graph 24 and Graph 25 CUSUM and CUSUM of Squares tests are seen. CUSUM and CUSUM of Squares Test has been found that although the critical values of Turkey CUSUM test significance level for critical values of the level of 5% significance Turkey CUSUM of Squares outside the critical value of the 5% significance level of the test. Graphs of estimated coefficients for the model to describe the results shows that the index for Turkey, although stable long-term relationship. CUSUM and CUSUM of Squares, as well as the test ARDL /bound test results when examined together Turkey ARDL/bound of the test results we can say is inadequate.

4.1.3.6. South Africa ARDL/Bound Test Results

ARDL/Bound test was applied to determine the long-term relationships of CDS, VIX and Stock Exchange indices for South Africa. However, while performing ARDL / bound testing for South Africa, an unrestricted error correction model was created first. A distributed autoregressive delay model obtained by selecting the Akaike Information

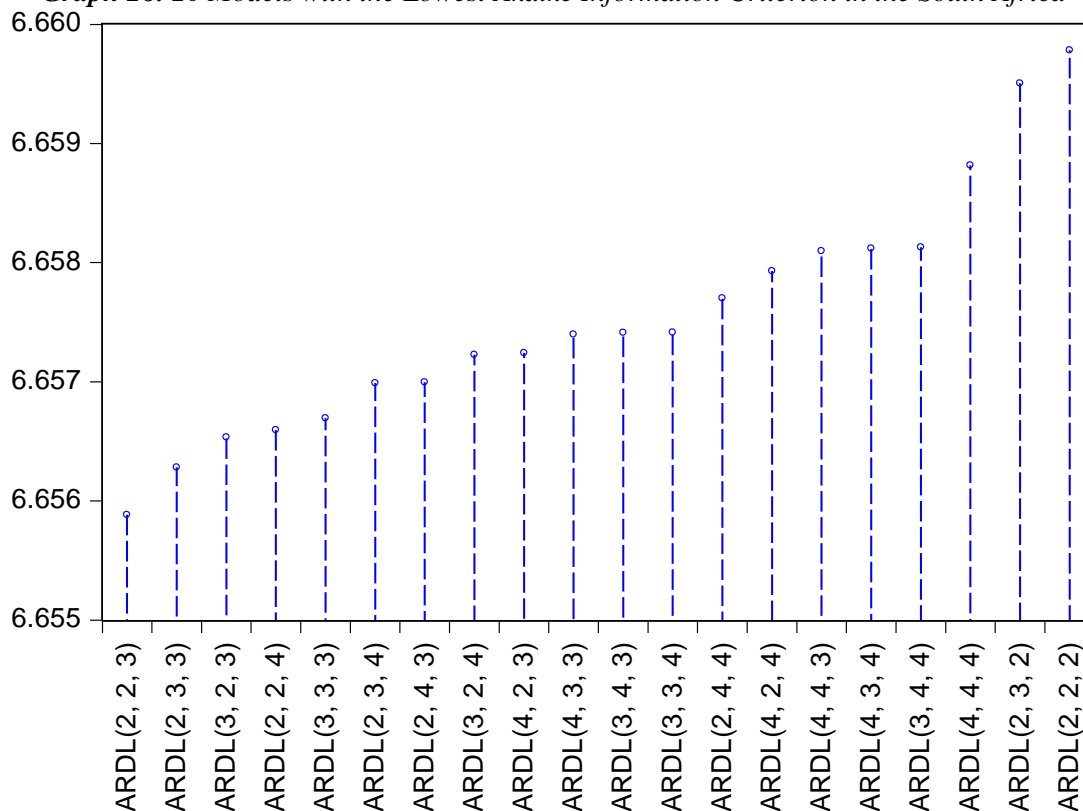
Criterion (AIC) for the model selection criterion for South Africa was created. ARDL(2,2,3) model is seen in Table 42 for South Africa.

Table 42. South Africa of the ARDL(2,2,3) Model Prediction Results

Selected Model: ARDL(2, 2, 3)				
Note: final equation sample is larger than selection sample				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
CDS(-1)	1.064096	0.018832	56.50610	0.0000
CDS(-2)	-0.079433	0.018702	-4.247228	0.0000
FIYAT	-0.005606	0.000299	-18.76235	0.0000
FIYAT(-1)	0.007146	0.000399	17.90062	0.0000
FIYAT(-2)	-0.001470	0.000314	-4.687676	0.0000
VIX	0.409709	0.069564	5.889660	0.0000
VIX(-1)	0.273470	0.090270	3.029456	0.0025
VIX(-2)	-0.293424	0.088076	-3.331479	0.0009
VIX(-3)	-0.263636	0.073691	-3.577594	0.0004
C	-2.082428	0.795828	-2.616680	0.0089

For South Africa in the depending on the dependent variable results of the CDS, VIX and Stock Markets index indices, the distributed model of autoregressive lag is estimated as ARDL(2,2,3) in Table 42. The model for South Africa describes the historical values of the variables for the two periods, as well as the present values for the CDS, VIX and Stock Market variables. For the South African models, the ARDL(2,2,3) model with the smallest AIC values was chosen. 20 models, which are the smallest AIC values of possible models for the South African model, are shown in Graph 26.

Graph 26. 20 Models with the Lowest Akaike Information Criterion in the South Africa



Graph 26 shows 20 models with the lowest AIC criteria for South Africa. In the looking at the model obtained for South Africa, it is important that there is no error term autocorrelation problem for the ARDL(2,2,3) model. Therefore for South Africa, the explanatory variables of the delayed values will not be determined consistently for the parameters in the model and the parameters in the model. At the same time, it was determined using the Breusch-Godfrey LM test in order to determine whether the error term was an autocorrelation problem depending on the South African model. In the look at the test results for South Africa, it is found that there is no autocorrelation problem.

Table 43. South Africa Bound Test Results

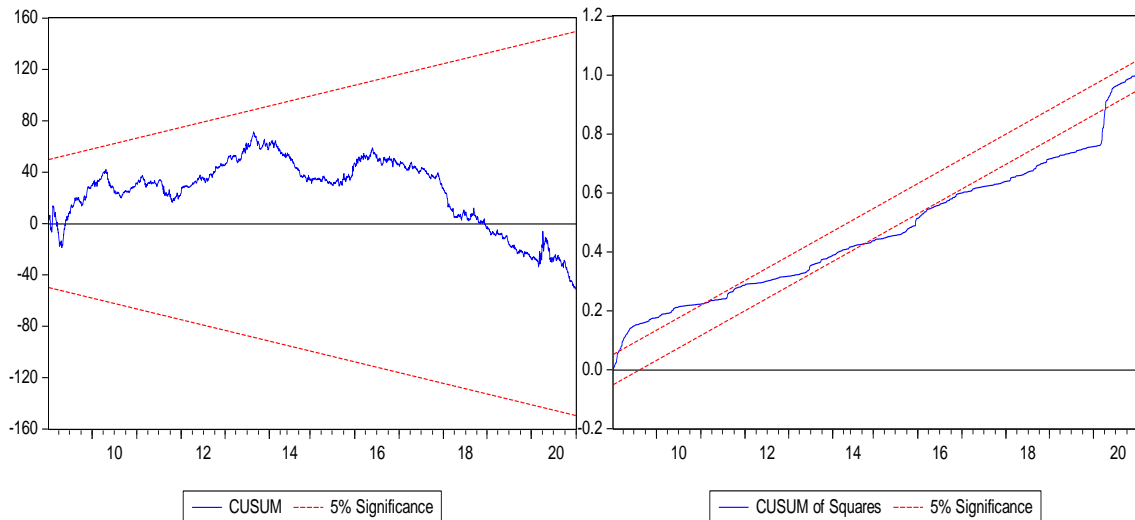
k	f-statistic	Critical values at the significance level in %1		Critical values at the significance level in %2.5		Critical values at the significance level in %5		Critical values at the significance level in %10	
		Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound
2	9.59	4.13	5	3.55	4.38	3.1	3.87	2.63	3.35

In the table 43, ARDL / Bound Test was used to see whether there is a long-term relationship between variables for South Africa. In the table 43, the entire significance level of the F-statistic value must be greater than the upperbound. At the same time, the table 43 shows the critical values of %1, %2.5, %5 and %10 for South Africa in

ARDL/bound test. It is seen that the F-statistic value calculated for the South African bound test is 9.59. Looking at the critical values for South Africa, it is seen that the lower and upper bound values for the critical values of %1, %2.5, %5 and %10 are not between the South African F-statistics value. Therefore, it can be seen that the value of the South African F-statistic bound test results has a long-term relationship, since the F-statistics is higher than the upper bound of the critical values of %1, %2.5, %5 and %10.

Graph 27. South Africa CUSUM Test

Graph 28. South Africa CUSUM of Squares Test



In the sight at Graph 27 and Graph 28 for South Africa, CUSUM and CUSUM of Squares Tests can be seen. Although the South Africa CUSUM and CUSUM of Squares Tests are among the critical values of the significance level of the South Africa CUSUM test for the critical values of the 5% significance level, it has been determined that the 5% significance level of the South Africa CUSUM of Squares Test is outside the critical values. As a result of the graphs, it shows that the coefficients estimated to explain the indices for South Africa are not stable for the model although they have a long-term relationship. When the results of the CUSUM and CUSUM of Squares tests are examined together, it is possible to say that the results of the South Africa ARDL/bound test are insufficient.

CONCLUSION

By the reason of the globalization in the world, the borders formed in countries have disappeared. The crisis that occurs in one country thanks to globalization is spreading quickly among other countries. For this reason, the crisis causes the geography to be wide by having a wide area. Risks increase due to developments in markets and economies between countries. For this reason, the problems that occur in the markets in the globalizing world, risk management and risk protection methods have been tried to be addressed in all countries. Although it started in a country, especially in times of crisis, the crisis has cost the whole world. The 2008 crisis can be cited as the most important example. Although the 2008 crisis emerged in the developed country, it affected the economies of the whole world in one day. At the same time, the crisis in 2008 caused great damage to the economies of the world countries. Countries that want to avoid the crisis and risks have tried to take measures to protect countries economies. The aimed to keep the economies of the country under control thus indices are such as CDS, Credit rating and VIX. Although the credit rating method is the most used method, it can be said that it carries a little risk. However, CDSs also carry little risk and protect the investors from risks by taking them under protection. For this reason, CDS is the most traded product among loan derivatives and has the most place in the liquid market. VIX index is seen as the subject that has been followed and researched recently. Countries try to avoid risks by following the VIX index, that is, the fear index.

T-BRICS developing countries in the study, Brazil, Russia, India, China, South Africa and Turkey for 12 years of data were examined. Investigations were made by looking at CDS, VIX and stock market data between 2008-2020. In some countries, the years are handled differently because the data cannot be accessed in full. There has been difficulty in obtaining data for India. Therefore, India CDS, VIX and stock market data were analyzed between 2015-2020. It is aimed to prevent errors by harmonizing CDS, VIX and stock market indices. During the reconciliation, official holidays, weekends and non-trading days were not included in the study. By comparing CDS, VIX and stock market indices for BRICS-T countries, it is aimed to determine the effects of global risk factors on country stock markets. In addition to the studies in the literature, it is thought that the study will contribute to the literature with the use of CDS, VIX and stock market indices together.

In the analysis results of the study, analysis was made for countries by looking at CDS, VIX and stock market indices for countries. During the analyzing, the results were obtained by applying ADF and ARDL/buond tests. Based on the ADF unit root test for Brazil, it has been determined that it is stable at the level in CDS, VIX and stock market indices. While it could not be determined as stationary while applying the analysis, it was determined as stationary at the first level. At the same time, with the determination of the Brazilian indices as stable at the level, ARDL test was applied and it was determined that there was a long-term relationship. For Brazil, it has been determined that CDS, VIX and stock market indices both affect each other and are affected by global risks.

For Russia, an analysis was made for the CDS, VIX and Stock Market indices for the years 2008-2020. Observation the ADF unit root test for Russia, the CDS index was found to be I(0), VIX I(0), and stock market I(1) index. In the Russia ADF test, the CDS and VIX indices were determined to be stable at the level and the stock market index not stable at the level. While it could not be determined as stable while applying the analysis, it was determined as stable at the first level. At the same time, the ARDL test was applied by looking at the stability of the Russian indices. As a result of the ARDL / bound test, it has been determined that there is a long-term relationship. For Russia, it has been determined that CDS, VIX and stock market indices both affect each other and are affected by global risks.

In the India, an analysis was made for the CDS, VIX and Stock Market indices for the years 2015-2020. Looking at the ADF unit root test analysis results for India, the CDS index was found to be I(1), VIX I(0), and stock market I(1) index. In the Indian ADF unit root test, VIX indices were determined to be stable at the level and the CDS and stock market index as not stable at the level. While the analysis could not be determined as stable for India, it was determined as stable at the first level. On the other hand, ARDL test was applied by looking at the stability of Indian indices. As a result of the ARDL /bound test, it has been determined that there is a long-term relationship. For India, it has been determined that CDS, VIX and stock market indices both affect each other and are affected by global risks.

China, an analysis was made for the CDS, VIX and Stock market indices for the years 2008-2020. Observation the ADF unit root test analysis results for China, the CDS index was found to be I(0), VIX I(0), and stock market I(1) index. In the China ADF unit root test, the CDS and VIX indices were determined to be stable at the level and the

stock market index as not stable at the level. On the other hand, the ARDL / bound test was applied by looking at the stability of the China indices. As a result of the ARDL /bound test, it was determined that there was no long-term relationship. It can be said that CDS, VIX and stock market indices for China have no effect and are only affected by global risks.

Analysis of the CDS, VIX and Stock Market indices for the years 2008-2020 for South Africa was performed. Looking at the ADF unit root test analysis results for South Africa, the CDS index was determined as I(0), VIX I(0) , and stock market I(1) index. In the South Africa ADF unit root test, the CDS and VIX indices were determined to be stable at the level, and the stock market index as not stable at the level. While it could not be determined as stationary when applying the analysis for South Africa, it was determined as stationary at the first level. On the other hand, the ARDL / bound test was applied by looking at the stable or not stable status of the South Africa indices. It has been determined that there is a long-term relationship as a result of the South African ARDL / bound test. For South Africa, it has been determined that CDS, VIX and stock market indices both affect each other and are affected by global risks.

Turkey, the CDS, VIX and Stock market index analysis was conducted for the years 2009-2020. As to the ADF unit root test results for analysis of Turkey CDS index I(0), VIX I(0) and the stock market I(1) index have been detected. Turkey is still in the ADF unit root test in CDS levels and the VIX is stable was identified as the stock index level is not stable. Turkey is also looking at the situation is not stable or stable indices ARDL /bound test. Turkey ARDL /bound test result has been determined that the long-term relationship. Turkey CDS, VIX and the stock market index have been identified as affected by both the global risks that affect both together.

Analysis results for the BRICS-T countries in the ADF and the ARDL/ bound test results according to Brazil, Russia, India, South Africa and Turkey has been determined that the long-term relationship. However, it has been observed that there is no long-term relationship for China. It is considered to be an important study for the developing BRICS-T countries in future studies. For similar studies to be carried out in the future, together with the examination of developed countries as well as developing countries, it may be suggested to use different methods and techniques of different periods of the time series of CDS, VIX and Stock Market indices in countries. For the further thesis study, it is recommended to make a research on MSCI Emerging Markets Index countries by applying not only CDS and VIX Index but also MOVE Index and JP

Morgan Volatility Index to detecting the effects of risk indicators on emerging markets stock indices.

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