Yıldız Social Science Review, Vol. 7, No. 2, pp. 123–136, 2021

Yıldız Social Science Review

Web site information: https://yssr.yildiz.edu.tr
DOI: 10.51803/yssr.872075

Original Article / Orijinal Makale

Spillovers Between Institutional Interactions Index, Market Risk and Return: Case of Turkey (2007-2020)

Kurumlarla İlişkiler Endeski, Piyasa Getiri ve Riskleri Arasındaki Yayılma Etkisi: Türkiye Örneği (2007-2020)

Sadi UZUNOĞLU[a], Caner ÖZDURAK[b], Serap DURSUN[a]

[a]*Department of Economics, Trakya University, Edirne, Turkey*
[b]*Department of Financial Economics, Yeditepe University, Istanbul, Turkey*

[a]*Trakya Üniversitesi, Ekonomi Bölümü, Edirne, Türkiye*
[b]*Yeditepe Üniversitesi, Finansal Ekonomi Bölümü, İstanbul, Türkiye*

ARTICLE INFO

Article history
Received: 12 December 2007
Accepted: 13 June 2008

Key words:
Arch-garch model, bist100 ındex, cds, exchange rate, relations with institutions

MAKALE BİLGİSİ

Makale Hakkında
Geliş tarihi: 13 Aralık 2007
Kabul tarihi: 13 Haziran 2008

Anahtar kelimeler:
Arch-garch modeli, bıst 100, cds, döviz kuru, kurumlarla ilişkiler

ABSTRACT

One of the key components of political stability is relations with institutions, which refers to the relationships between the government and higher judicial organ, government and presidency, government and military bureaucracy, government civil bureaucracy and independent economic institutions, and relations with international institutions. The importance of institutions for economic development and stability has been thoroughly discussed by both the old and new schools of institutional economics, who developed theses against the Classical and Neo-Classical paradigms. In the study, we utilized VAR-VECH-TARCH models to understand spillover effects between our newly introduced Institutional Interaction Index (II), markets return (BIST 100, FX), and risks (CDS). The Institutional Interaction Index, the novelty of this paper, was obtained from data published daily by S. Bilişim. According to the results especially in the long-term spillover exists between all variables. The results from this study support institutionalist approaches. As the relations with institutions deteriorate, BIST100 and FX rate volatilities, that is, instability, increases due to the increase in market risks.

Cite this article as: Uzunoğlu, S., Özdurak, C., & Dursun, S. (2021). Spillovers Between Institutional Interactions Index, Market Risk and Return: Case of Turkey (2007-2020). *Yıldız Social Science Review*, *7*(2), 123–136.

ÖZ

Politik istikrarın önemli belirleyicilerinden biri de kurumlarla ilişkilerdir. Kurumlarla ilişkiler; iktidar-yüksek yargı, cumhurbaşkanlığı-hükümet, hükümet- askeri bürokrasi, hükümet sivil bürokrasi-özerk ekonomik kurumlar ve uluslararası kurumlarla ilişkileri kapsamaktadır. Ekonomik gelişmişlik ve istikrar için kurumların önemi Klasik ve Neo-klasik paradigmaya karşı tezler geliştiren eski ve yeni kurumsal iktisat okulları tarafından derinlemesine tartışılmış, günümüzde de tartışılmaya devam etmektedir. Bu çalışmamızda VAR-VECH-TACH mo-

***Sorumlu yazar / Corresponding author**
*E-mail: isadiuzunoglu@trakya.edu.tr

dellerini kullanarak yeni tanıttığımız Kurumlarla İlişkiler Endeksi (II), piyasa getirileri (BIST 100, FX) ve piyasa riskleri (CDS) arasındaki yayılmaları analiz ettik. Bu bağlamda makalenin en önemli farklılık yaratan kısmı S. Bilişim tarafından günlük olarak yayınlanan verilerden, hazırlanan Kurumlarla İlişkiler Endeksini kullanarak politik riski günlük olarak sayısallaştırarak modellere dahil etmemizdir. Modellere göre politik istikrarsızlık arttıkça piyasa risklerinin artması sonucu piyasa getirilerine doğru bir yayılma etkisi olduğu sonucuna varılmıştır.

Atıf için yazım şekli: Uzunoğlu, S., Özdurak, C., & Dursun, S. (2021). Spillovers Between Institutional Interactions Index, Market Risk and Return: Case of Turkey (2007-2020). *Yıldız Social Science Review, 7(2), 123–136.*

1. INTRODUCTION

In recent economics literature, institutionalists have argued that economies with inclusive institutionalist structures are better able to sustain economic performance and achieve stability, which leads to economic growth. Acemoğlu D. & Robinson J.A. defined sufficiently centralized and pluralistic political institutions as "inclusive political institutions" and defined institutions that fail to meet either of these conditions as "exploitative institutions". The authors highlighted the powerful synergy between economic and political institutions and argued that exploitative political institutions will concentrate power in the hands of a narrow elite who will take few steps to limit that power. In such cases, the elites generally structure economic institutions to exploit the resources of the rest of society. The present authors assert that exploitative economic institutions naturally accompany exploitative political institutions. Inclusive institutions, which widely distribute power, operate to remove the economic institutions that seize the sources of the majority, impose barriers to entry, and manipulate market operations so only a small segment of society can benefit. Political and economic institutions, which ultimately have choices, can be inclusive and stimulate economic growth. Naturally, economic growth and technological change will create new firms through "creative destruction". This change is a change from old to new. As a matter of course, the old firms will resist this change. Since inclusive institutions allow this transformation, they can become targets in the political arena. Conversely, institutions can be exploitative, which means they can become a formidable obstacle to economic growth and technological change (Acemoğlu D. & Robinson J.A., 2015, p. 80-84).

As can be seen in the Appendix, in Figure 5, the Political Stability Index (PSI) published daily by the PSI consists of various sub-indices, one being Institutional Interactions. The index consists of the relationships between the government and higher judicial organ, the presidency and the government, the government and the military bureaucracy, the government civil bureaucracy and autonomous economic institutions, and the relations with international institutions. Lower index scores indicate deterioration in the relationships among related institutions, whereas higher scores indicate that the relations among institutions are compatible with the legal and institutional legislation within the framework of constitutional principles and serve to generate stability in terms of institutional experience, accumulation, and independence.

This study focuses on the PSI sub-index of Institutional Interaction to examine the interaction between credit default swap (CDS), foreign exchange (FX), and Borsa Istanbul (BIST), or Istanbul Stock Exchange. By examining this interaction, the function imposed on institutions by institutional economists can be tested with three important indicators. As known, in unstable economies, CDSs rise, and significant volatility is experienced in the Stock Exchange Index and FX rates. In these cases, economic stability deteriorates to a great extent. On the other hand, high CDS rates limit the inflow of external sources and increase its costs as well. Excess volatility in the FX rate negatively affects growth in many respects, such as causing inflation and uncertainty.

2. LITERATURE

In the literature review, there was no study found on the Institutional Interaction that looked specifically at the relationship between CDS, Stock Market Index, and FX rate. However, some studies that explore the concept of Institutional Interaction and its impact on economic performance, such as growth. The study will therefore be the first attempt of its kind. Institutional Interaction, one of the determinants of political stability, is a sub-index of the Political Stability Index. Therefore, different studies addressing political stability and the relationship between CDS, the equity market, and/or FX basket were guiding for the present study.

Regarding the related works, Artan and Hayaloğlu (2014) conducted a co-integration analysis of the relationship between institutional structure and economic growth in Turkey for the period of 1972-2009 based on real GDP, political liberties, gross fixed capital formation, public consumption expenditure, foreign trade (the sum of exports and imports), and inflation rate. The results from the study showed that while political freedom, taken as an indicator of the level of institutional structure, had a positive effect on long-run economic growth, there was no relationship found between institutional structure and economic growth in the

short run.

Davis, L. S. (2010) developed a formal model to investigate the relationship between institutional quality, existing property rights, and institutional flexibility, and the ability to develop new institutions, relating these aspects of institutional structure to dynamic economic performance. This model attempts to advance this convergence by developing a theory of growth that takes into account the economic historical distinction between institutional quality and institutional flexibility. The analysis suggests that institutional flexibility plays a central role in economic growth. The model is also used to highlight the relatively temporary gains from reforms on institutional quality, an aspect of the analysis that may prove useful to understand prolonged periods of stagnation in developed countries and the fragility of growth experienced in some countries. According to the study findings, an increase in institutional quality lowers market transaction costs, producing an immediate but short-lived increase in the rate of economic growth. In contrast, an increase in institutional flexibility results in a delayed but permanent increase in economic growth.

Knack, S. and Keefer, P. (1995) aimed to advance this convergence by developing a growth theory that takes into account the historical economic difference between institutional quality and institutional flexibility. The study examined the impact of property rights on economic growth using indicators provided to potential foreign investors by country risk assessors. The indicators included evaluations of contract enforceability and risk of expropriation. Results from the research suggested strong supports for three hypotheses. First, political violence and Gastil's index of political and civil liberties indicators (Freedom House Index) do not adequately represent the quality of institutions that protect property rights. More accurate indicators are required to properly explain the impact of institutions. Second, institutions that protect property rights are crucial to economic growth and investment, and the impact of institutions on growth continues even after the investment is controlled. This indicates that the security of property rights affects not only the size of the investment but also the efficiency of input allocation. Third, stronger evidence for controlled convergence emerges when institutions are regulated.

Jensen, N. (2008) examined the relationship between democratic institutions and foreign direct investment (FDI) flows. In the study, qualitative data collected from 28 interviews with investors, political risk insurers, plant location consultants, and international lawyers who represent multinational companies and price data collected from political risk insurance companies were used to directly test how local political institutions affect the premiums paid by multinational companies for state expropriation and contract disputes. According to the study results, democratic institutions have lower risk levels due to the restrictions imposed on executives in democratic regimes. In other words, democratic regimes appear to reduce risks for multinational investors, particularly by increasing restrictions on executives.

Scully, G. W. 1988 analyzed the compound growth rates of production per capita and Farrell-type efficiency measures for 115 market economies for the 1960-80 period by comparing them against measures of political, civil, and economic liberty. It was found that the institutional framework had significant and profound effects on the efficiency and growth rate of economies. Politically open societies subject to the rule of law, private property, and market allocation of resources, grow at two and one-half times the rate and are two and one-half times as productive as societies in which these freedoms are restricted.

Easterly et al. (2006) examined the effect of social cohesion level on institutional structure and the relationship between institutional structure and economic growth. The variables applied to the regression analysis included the concept of social cohesion, the number of ethnic groups (determined based on the language spoken), the Gini coefficient, the middle-class share in income, the measure of trust, income per capita, and income growth. To determine the institutional structure, in addition to the Freedom House's indices of political rights and civil liberties, variables such as government accountability and effectiveness, quality of bureaucracy, and the rule of law were used. According to the study results, more social cohesion leads to better institutions, and better institutions in turn lead to higher growth.

Yıldırım, S. 2010 examined the effect of institutions on economic growth by considering the dynamic structure of institutions. In the study, a panel data analysis was conducted using the economic freedoms index, the political rights and civil liberties index, education, distance from technology frontier, and GDP. According to the results of the study, countries with better institutional structures have higher growth rates, and an increase in the economic freedom or the political and civil rights of citizens in countries that are far from the technology frontier slows these countries' growth rates; in other words, the position of a country in relation to the technology frontier indicates how the institutional structure will affect the country's growth rate. In a country far from the technology frontier, an improvement in institutional structure increases the growth rate less than that of a country closer to the technology frontier. These findings indicate that the farther a country in question is from the technology frontier, the more the effect of political and civil rights and economic liberties slows down the growth rate. It was stated that the effect of the institutional structure (its ability to protect rights and increase freedom) on a country's growth rate is high only in countries close to the technology frontier.

Şahin, E. E. and Özkan (2018) applied the panel data analysis method to examine the relationship between the CDS, BIST100, and FX rate for Turkey using the monthly data from the period of 2012-2017. According to the study findings, a bi-directional causality relationship was found between the BIST100 index and CDS, while no causality rela-

tionship was found between the BIST100 index and FX rates.

Yamak T. (2017) examined the effect of Institutional Quality Factors on Economic Growth in the Gulf countries. To measure economic growth, the study applied the flexible generalized least squares method (FGLS) and panel data analysis, using the inputs of real income per capita, gross fixed capital formations, central government final consumption expenditures, foreign trade volume, life expectancy at birth, and institutional quality indicators for the period 1995-2014. According to the results of the study, in the six Gulf Arab Countries, a positive and significant relationship was identified between economic growth and the institutional quality variables of "Expression and Accountability" and "Control of Corruption", while a negative and significant relationship was identified between economic growth and the institutional quality variables of "Rule of Law" and "Regulatory Quality". There was no significant relationship found between economic growth and the institutional quality variables of "Political Stability and Absence of Violence" and "Government Effectiveness". In our study, we will utilize VAR-VECH-TARCH models to analyze the interactions and exhibit spillovers in a holistic approach.

3. METHODS

Usually, financial data suggest that some time periods are riskier than others. The goal of such models is to provide a volatility measure that can be used in financial decision making with risk analysis, portfolio selection, and derivative pricing (Engle 1982, Engle and Ng 1993). An important characteristic of such asset prices is that "bad" news has a more persistent impact on volatility than "good" news has. Most of the stocks have a strong negative correlation between the current return and future volatility. This is called "the leverage effect", which refers to the well-established relationship between stock returns and both implied and realized volatility. A standard explanation ties the phenomenon to the effect a change in market valuation of a firm's equity has on the degree of leverage in its capital structure, with an increase in leverage producing an increase in stock volatility (Figlewski and Wang 2000). Glosten et al. (1993) showed how to allow the effects of good and bad news to have different effects on volatility. In a sense, $\varepsilon t-1 = 0$ is a threshold such that shocks greater than the threshold have different effects than shocks below the threshold. Consider the threshold–GARCH (TARCH) process:

$$h_{t=}\alpha_0 + \alpha_1\varepsilon_{t-1}^2 + \lambda_1 d_{t-1}\varepsilon_{t-1}^2 + \beta_1 h_{t-1} \quad (1)$$

where d_{t-1} is a dummy variable that is equal to one if $\varepsilon_{t-1} < 0$ and is equal to zero if $\varepsilon_{t-1} \geq 0$. The intuition behind the TARCH model is that positive values of ε_{t-1} are associated with a zero value of d_{t-1}. Hence if $\varepsilon_{t-1} \geq 0$, the effect of ε_{t-1} shocks on h_t is $\alpha_1\varepsilon_{t-1}^2$ when $\varepsilon t_{-1} < 0$, $d_{t-1} = 1$, and the effect of an ε_{t-1} shock on h_t is $(\alpha_1 + \lambda_1)\varepsilon_{t-1}^2$. If $\lambda_1 > 0$, negative shocks will have larger effects on volatility than positive shocks.

This method is extended from VAR–GARCH, which is proposed by Ling and McAleer (2003). An examination of the conditional returns and conditional volatility can be conducted with meaningful estimated parameters via this structure. This method is composed of two parts, namely the VAR model and asymmetric VECH–TARCH model, which are used to explore the joint evolution of conditional returns and volatility spillovers between different financial markets. First, the VAR model extends the univariate autoregressive (AR) to vector autoregressive (VAR) by internalizing the related variables into endogenous variables to examine the contagion and spillover effect between major financial markets.

The basic mathematical expression of the VAR model is as follows:

$$R_t = C + A_1 R_{t-1} + A_2 R_{t-2} + \cdots + A_k R_{t-k} + \varepsilon_t$$
$$\varepsilon_t \mid I_{t-1} \sim N(0, H_t) \quad (2)$$

where R_t refers to the value of endogenous variables vector at time t, C is the constant vector, matrix A is the estimated coefficients and k is the lag operator. Residual vector ε_t is assumed to be normally distributed with a zero mean and constant variance where the market information available at time $t-1$ denoted as d_{t-1}. The lag order of (k) VAR structure is decided via AIC criterion, FPE criterion and LR.

In this approach we incorporate a three-dimensional model to examine the news spillover between different markets. Suppose that our model structure is as follows:

$$\varepsilon_{i,t} = \upsilon_{i,t}.\, h_{i,t},\ \upsilon_{i,t} \sim N(0,1) \quad (3)$$

$$h_{i.t} = c_i + a_i\varepsilon_{t-1}^2 + \beta_i h_{i,t-1} \quad (4)$$

$$H_t = C^T C + A^T \varepsilon_{t-1}\varepsilon_{t-1}^T A + B^T H_{t-1} B \quad (5)$$

Equation (3) specifies the relation between the residual term $\varepsilon_{i,t}$ and the conditional variance $h_{i,t}$. $\upsilon_{i,t}$, which is normally distributed with a zero mean and constant variance. α, β are the coefficients. $H_{i,t}$ represents the conditional variance–covariance matrix, C represents the lower triangular matrix, A and B are square arrays. If C^TC is positive, then it is almost positive.

$$H_t = \begin{bmatrix} h_{11,t} & h_{12,t} & h_{13,t} \\ h_{12,t} & h_{22,t} & h_{23,t} \\ h_{31,t} & h_{32,t} & h_{33,t} \end{bmatrix}$$

$$C = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix} \quad A = \begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix} \quad B = \begin{bmatrix} b_{11} & b_{12} & b_{13} \\ b_{21} & b_{22} & b_{23} \\ b_{31} & b_{32} & b_{33} \end{bmatrix}$$

where $h_{11,t}$, $h_{22,t}$, $h_{33,t}$ in the matrix H_t represent the conditional variances. Matrix A is the ARCH coefficients of the model, a_{11}, a_{22}, a_{33} represent the ARCH effect while Matrix B is the GARCH coefficients of the model, b_{11}, b_{22}, b_{33} are the GARCH effect.

In consideration of the asymmetric effect, diagonal VECH is:

$$H_t = A_0 + \sum_{i=1}^{p} A_i \otimes H_{t-i} + \sum_{i=1}^{q} B_i \otimes \varepsilon_{t-1}\varepsilon_{t-1}^{T} \quad (6)$$

where the conditional variance–covariance equation of a bivariate (VECH) TARCH model has the following form:

$$VECH(H_t) = C + AVCEH(\varepsilon_{t-1}\varepsilon'_{t-1}) + BVECH(H_{t-1}H'_{t-1}) + DVECH(\varepsilon_{t-1}\varepsilon'_{t-1})(d_{t-1}) \quad (7)$$

where the last term on the RHS of Equation (7) depicts the asymmetries. In this context, the diagonal bivariate VECH model is as follows:

$$h_{11,t} = C_{01} + a_{11}\varepsilon_{1,t-1}^2 + b_{11}h_{11,t-1} \quad (8)$$

$$h_{12,t} = C_{02} + a_{33}\varepsilon_{1,t-1}\varepsilon_{2,t-1} + b_{22}h_{12,t-1} \quad (9)$$

$$h_{22,t} = C_{03} + a_{33}\varepsilon_{2,t-1}^2 + b_{33}h_{22,t-1} \quad (10)$$

The coefficient a_{11} refers to the ARCH process in the residuals from asset *i* which depicts the fluctuations of the assets reflecting the impact of external shocks on fluctuations. The ARCH effects measure the short-term persistence while the GARCH effect measures the long-term persistence. The a_{33} coefficient represents the ARCH process in the second asset residuals and the parameters between asset *i* and asset *j*. The calculation of the time-varying beta coefficient is done as

$$\beta_{it}^{BG} = \hat{h}_{12,t}/\hat{h}_{22,t} \quad (11)$$

where the symbol ^ indicates the estimated values of conditional variance.

4. DATA AND EMPIRICAL RESULTS

The effect of relationships with institutions on the equity market and FX basket[1] in Turkey was examined using the daily data for the period between January 1, 2007 and March 30, 2020. Models were also expanded with CDS returns, as the CDS[2] data had a significant impact on both markets.

Descriptions of the series used in the study are presented below in Table 1. We again narrowed the period between March 15, 2011, and March 30, 2020, to analyze the impact of Arab Spring[3] which is a major milestone for II. Considering its impact on Turkey, we started the Arab Spring period with the beginning of pro-democracy protests in Syria.

The Augmented Dickey Fuller (ADF) was used to test the stationarity of the variables before creating the model. The inputs of the GARCH model were then determined. The descriptive statistical information of the data is presented in Table 2. In examining the kurtosis and skewness values, the high Jarque-Bera values indicated that the data are not normally[4,5] distributed. The ADF test results indicat-

Table 1. Data Set Description

Series	Description of Series	Source
RII = the return of the Institutional Interaction Index	The return of Institutional Interaction Index	S Bilişim Consultancy
RFX = the return of foreign exchange basket	Exchange rate is taken as a basket. ((Euro+Dollar)/2) and its return was calculated	TRCB Evds
RCDS= returns of CDS	5-year CDs yield returns of Turkey credit default swap series	Investing.com
RBIST100= the return of BIST 100 index	BIST100 = the return of the Borsa İstanbul 100 index	TRCB Evds

[1] The foreign exchange basket is generally used when the local currency is closely related to foreign currencies. For example, in Turkey, the US dollar gains weight in trade and external borrowing, whereas the Euro is dominant in some service areas and trade. In such a case, the value of the Turkish Lira against the US dollar and Euro can be easily measured by creating a FX basket.

[2] CDS (Credit Default Swap) is a financial instrument that eliminates the bond risk that a person who is holding a financial instrument will not be paid for a certain amount of their receivable at the end of maturity. There is a cost of 1% for every 100 CDS base points calculated for countries. Countries with high CDS premiums and the institutions in these countries bear higher costs to meet their borrowing requirements. Therefore, the CDS premium is an important, up-to-date, and reliable indicator for countries.

[3] The Arab Spring was a series of anti-government protests, uprisings, and armed rebellions that spread across much of the Arab world in the early 2010s. It began in response to oppressive regimes and a low standard of living, starting with protests in Tunisia. From Tunisia, the protests then spread to five other countries: Libya, Egypt, Yemen, Syria, and Bahrain, where either the ruler was deposed (Zine El Abidine Ben Ali, Muammar Gaddafi, Hosni Mubarak, and Ali Abdullah Saleh) or major uprisings and social violence occurred including riots, civil wars, or insurgencies.

[4] Another way to determine whether the data distribution is normally distributed is to look at the mean, mode, and median values. These values coincide in normal distribution. The closer these statistics are to each other, the closer the distribution is to a normal distribution. The distribution skews the further these values diverge from one another.

[5] Another way to test for normal distribution is to look at the skewness and kurtosis coefficients. The skewness coefficient is 0 at normal distribution. A negative skewness coefficient indicates a right-skewed distribution, while a positive skewness coefficient indicates a left-skewed distribution. The kurtosis coefficient is 3 in normal distribution. A positive kurtosis coefficient indicates that the distribution has thicker tails, while a negative kurtosis coefficient indicates a light-tailed distribution.

[6] The Ergenekon and Sledgehammer cases became instrumental for the political and ideological transformation that the AKP had been planning by changing the institutional power balances (Saraçoğlu and Yeşilbağ, 2015: 991), especially between the elected political power and the military. Turkish military played a key role in the nation building process; hence the modernization era was also stimulated by the Army. It can be argued that, having a role like this, the military elites from the very beginning of the Republican era up to present, have not been experiencing any appreciable difficulties in placing themselves in the political life. Unlike its counterparts, the Turkish Army has a considerable amount of political and institutional autonomy which ultimately leads to emphasize its role in guarding the state from "internal enemies" (Burak, 2011). Sledgehammer (Balyoz) case in 2010, which claimed that "alleged coup plans were prepared by military officers" and accordingly indicted retired and serving generals including the then Chiefs of the land forces, of the navy, and of the air forces for "establishing a structure outside the military hierarchy and attempting to overthrow the government and constitutional order" (European Commission, 2010: 7). Consequently, the 2011 Arab Spring marked another turn in the Turkish foreign policy. The Arab Spring revealed several contradictions, constraints as well as opportunities for Turkish foreign policy, all of which are of key relevance both to Turkey and to its transatlantic partners. This process enabled Turkey to end the conflict of institutional power in favor of politicians whether it became good or bad is still arguable and this started the rally of Institutional Interaction Index after 2011.

Table 2. Descriptive Statistics

	RBIST100	RCDS	RFX	RII
Mean	0.000291	0.000340	0.000448	-0.000244
Median	0.000672	-0.000850	0.000144	0.000000
Maximum	0.121281	0.358551	0.143402	1.470639
Minimum	-0.110633	-0.358972	-0.090399	-1.174020
Std. Dev.	0.016201	0.034522	0.008375	0.049020
Skewness	-0.333818	0.382409	1.527513	3.210556
Kurtosis	7.261029	17.396210	39.480850	444.739100
Jarque-Bera	2731	30509	196728	28650020
Probability	0.000000	0.000000	0.000000	0.000000
ADF Test Level	-58.63	-55.14	-36.25	-10.75
	[0.0000]	[0.0000]	[0.0000]	[0.0000]

Notes: Between parenthesis: p-values. The number of observations is 3523. ADF Tests refer to Augemented Dickey Fuller test for the presence of unit root for long differences (returns).

ed that all data are stable. The descriptive statistical values of the variables are presented below in Table 2.

Figure 1 presents the graphs of the series that constitutes the data set. According to the graphs, after the rapid recovery it experienced after 2011[6], the Institutional Interaction Index[7] has been on a downward trend since 2017. The FX basket, on the other hand, started on a highly accelerated increasing trend after 2018, with the CDS premiums following this movement in the same period. After 2018, CDS premiums and the BIST100 index moved almost the same, and the correlation between them increased significantly. This points to the pressure in the markets created by the deterioration in the relations with institutions, in parallel with the volatility in CDSs because of the fluctuations experienced in the stock market, the FX rate, and the government-higher judicial organ, presidency-government, government-military bureaucracy, government civil bureaucracy-autonomous economic institutions, and relations with international institutions after the Pastor Brunson crisis.

The daily logarithmic returns, r_t, for use in the models

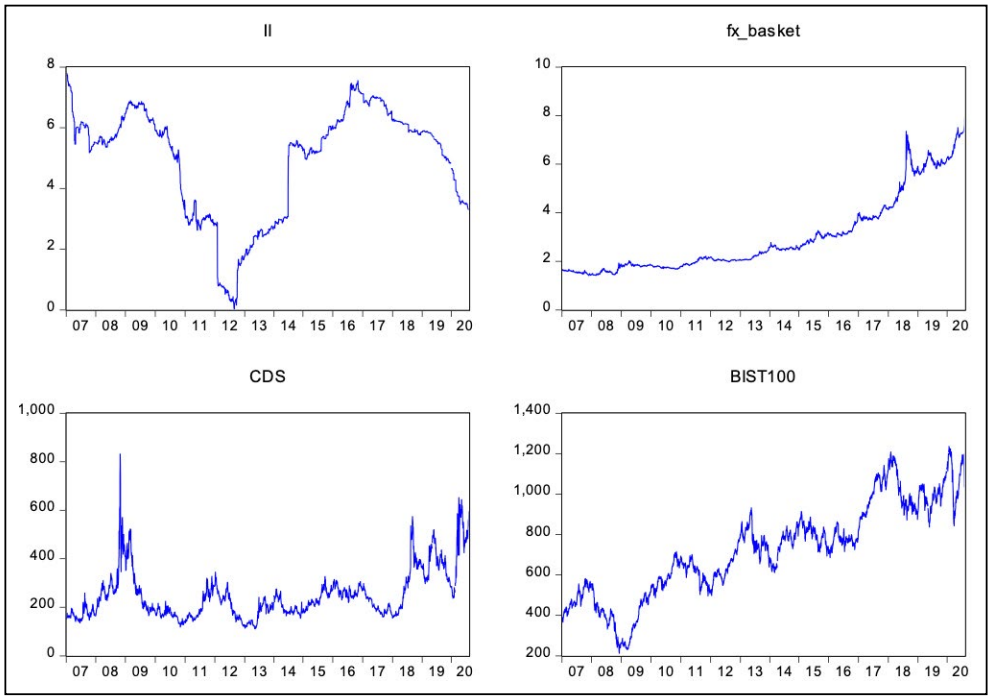

Figure 1. The Graphs on Returns of the BIST100, CDS, FX Rate, and the Institutional Interaction Index.

[7] Detailed methodology of the Index is represented in the Appendix part
[8] Although the Institutional Interaction Index is not an investable asset like BIST100, FX, or CDS, the rate of increase of the index was calculated as yield due to the way it is used in the GARCH models, and therefore it was included in the analysis.

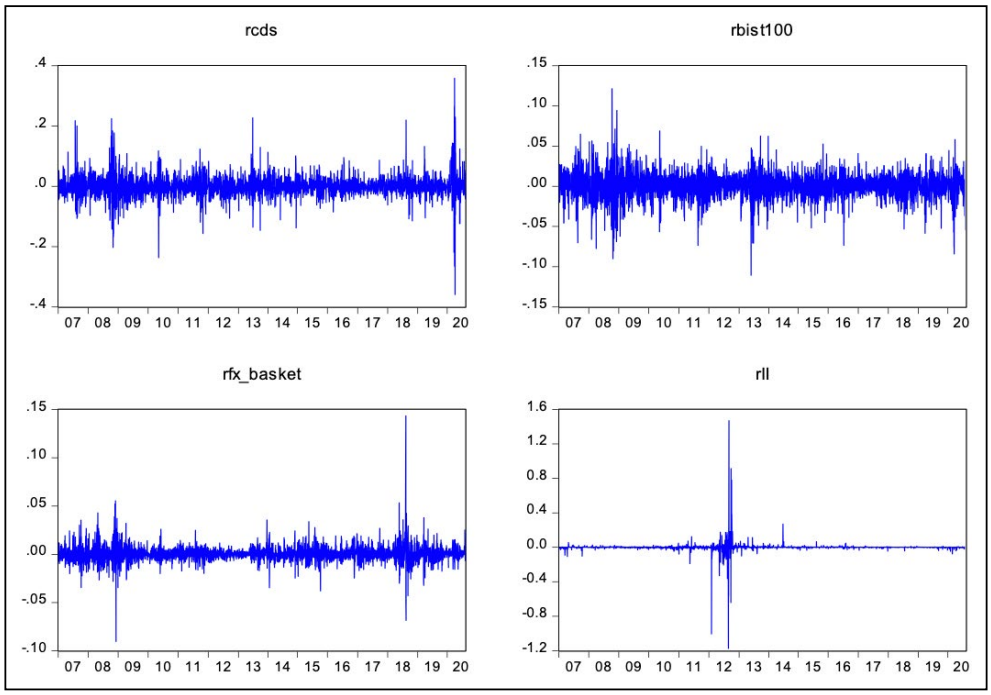

Figure 2. The Graphs on Returns of BIST100, CDS, FX, and the Institutional Interaction Index

were derived from the following calculation[8]:

$$r_t = \frac{\ln(P_t)}{\ln(P_{t-1})}$$

Figure 2 presents the return graphs of the BIST100, CDS, FX, and Institutional Interaction Index. FX yields climbed to record levels in 2018 due to the foreign exchange crisis, while CDSs were impacted by concerns over difficulties in paying external debt with the loss in the value of the Turkish Lira. The effects of the break in the Institutional Interaction Index in 2012 due to Arab Spring contagion are clearly seen in the charts.

We constructed two different model systems with three different VAR[9] system specifications which are equity markets model (Model 1) and market risk (Model 2). In this context,

VAR System Specification for Model 1:

$$\begin{aligned}
RBIST100_t &= \alpha_1 + \beta_1 RBIST_{t-1} + \beta_2 RBIST100_{t-2} + \beta_3 RII_{t-1} + \beta_4 RII_{t-2} + \beta_5 RCDS_{t-1} + \beta_6 RCDS_{t-2} \\
RII_t &= \alpha_2 + \beta_7 RBIST100_{t-1} + \beta_8 RBIST100_{t-2} + \beta_9 RII_{t-1} + \beta_{10} RII_{t-2} + \beta_{11} RCDS_{t-1} + \beta_{12} RCDS_{t-2} \\
RCDS_t &= \alpha_3 + \beta_{13} RBIST100_{t-1} + \beta_{14} RBIST100_{t-2} + \beta_{15} RII_{t-1} + \beta_{16} RII_{t-2} + \beta_{17} RCDS_{t-1} + \beta_{18} RCDS_{t-2}
\end{aligned} \quad (13)$$

This model system represents the relationship between equity markets (BIST 100), institutional interactions (II), and market risk (CDS). According to the results represented in Table 3 Panel A, the own conditional ARCH effects (a_{ii}) are significant at the %1 level for all variables which indicates that all variables are influenced by the volatility of their own dynamics. There is no significant volatility spillover over effect among II and CDS in the short term since a_{23} is not statistically significant even at 10% level. However, volatility spillover over effect among BIST100-II and BIST100-CDS is detected in the short term since a_{12} and a_{13} are statistically significant at 1% and %5 level respectfully. Moreover, the own conditional GARCH effects (b_{ii}) in matrix B are all significant at %1 level for all related markets in Model 1. Consequently, for the long-term volatility spillovers, the volatility spillover exists only between BIST100 and CDS as only b_{13} is significant at %1 level. As a result, we can conclude that a volatility spillover between equity markets and market risk strongly exists in the long term, which is consistent with the modern finance theory.

Finally, the D matrix refers to the asymmetric coefficients. According to the results only d_{11} and d_{33} are significant at %1 and %5 level respectfully. Positive coefficients mean that good news increases volatility. The coefficients of d_{13} is positive, which indicates that good news to equity market increases the volatility while the coefficients of d_{33} is negative, which indicates that bad news to market risk increases the volatility. Last but not least, asymmetric volatility does not exist among all variables in Model 1.

VAR System Specification for Model 2:

$$\begin{aligned}
RFX_t &= \alpha_1 + \beta_1 RFX_{t-1} + \beta_2 RFX_{t-2} + \beta_3 RII_{t-1} + \beta_4 RII_{t-2} + \beta_5 RCDS_{t-1} + \beta_6 RCDS_{t-2} \\
RII_t &= \alpha_2 + \beta_7 RFX_{t-1} + \beta_8 RFX_{t-2} + \beta_9 RII_{t-1} + \beta_{10} RII_{t-2} + \beta_{11} RCDS_{t-1} + \beta_{12} RCDS_{t-2} \\
RCDS_t &= \alpha_3 + \beta_{13} RFX_{t-1} + \beta_{14} RFX_{t-2} + \beta_{15} RII_{t-1} + \beta_{16} RII_{t-2} + \beta_{17} RCDS_{t-1} + \beta_{18} RCDS_{t-2}
\end{aligned} \quad (14)$$

In Model 2, the relationship between foreign exchange basket (FX), institutional interactions (II), and market risk (CDS) are analyzed. The own conditional ARCH effects (a_{ii}) are significant at the %1 level for all variables. These results indicate that all variables are influenced by the volatility of

[9] Since we detected cointegration even with higher level of lag numbers for all variables we used VECM models with two lags. The lag structure was decided due to lag length criteria test of Eviews.

Table 3. VAR-VECH-TARCH Models

Panel A: Estimation results of VAR-VECH-TARCH (1,1) models for all perid

Model 1: Equity Markets	Coefficient		z-Statistic	P-Value	Model 2: FX Markets	Coefficient		z-Statistic	P-Value
M(1,1)	0.0000	***	8.4040	0.0000	M(1,1)	0.0000	***	9.6443	0.0000
M(1,2)	0.0000		0.5204	0.6028	M(1,2)	0.0000		0.3404	0.7335
M(1,3)	0.0000		-1.1152	0.2648	M(1,3)	0.0000	***	2.7326	0.0063
M(2,2)	0.0000	***	16.3972	0.0000	M(2,2)	0.0000	***	16.1100	0.0000
M(2,3)	0.0000		0.2601	0.7948	M(2,3)	0.0000		0.2836	0.7767
M(3,3)	0.0000	***	11.4893	0.0000	M(3,3)	0.0000	***	11.8287	0.0000
A1(1,1)	0.0451	***	4.9166	0.0000	A1(1,1)	0.2409	***	17.8026	0.0000
A1(1,2)	-0.2225	**	-2.2651	0.0235	A1(1,2)	-0.0417		-0.5908	0.5547
A1(1,3)	0.0187	***	2.4387	0.0147	A1(1,3)	-0.0195	**	-2.0195	0.0434
A1(2,2)	1.1075	***	16.1123	0.0000	A1(2,2)	1.05557	***	14.9298	0.0000
A1(2,3)	-0.0739		-0.6628	0.5075	A1(2,3)	-0.0534		-0.4674	0.6402
A1(3,3)	0.1767	***	16.4280	0.0000	A1(3,3)	0.1789	***	16.9024	0.0000
D1(1,1)	0.1183	***	10.2454	0.0000	D1(1,1)	-0.1510	***	-10.9091	0.0000
D1(1,2)	-0.0002		-0.0010	0.9992	D1(1,2)	0.0023		0.0223	0.9822
D1(1,3)	-0.0045	**	-0.4475	0.6545	D1(1,3)	-0.0513	***	-2.9459	0.0032
D1(2,2)	0.0025		0.0249	0.9801	D1(2,2)	0.0284		0.2594	0.7953
D1(2,3)	0.0027		0.0125	0.9900	D1(2,3)	0.0077		0.0392	0.9687
D1(3,3)	-0.0979	***	-7.8739	0.0000	D1(3,3)	-0.1063	***	-8.8319	0.0000
B1(1,1)	0.8528	***	81.6014	0.0000	B1(1,1)	0.8198	***	85.6725	0.0000
B1(1,2)	0.2491		0.7083	0.4788	B1(1,2)	0.7796	***	2.5330	0.0113
B1(1,3)	0.9393	***	37.3204	0.0000	B1(1,3)	0.9297	***	39.2805	0.0000
B1(2,2)	0.7638	***	434.3706	0.0000	B1(2,2)	0.7657	***	410.5196	0.0000
B1(2,3)	0.4732		0.5532	0.5801	B1(2,3)	0.5545		0.5442	0.5863
B1(3,3)	0.8279	***	91.9200	0.0000	B1(3,3)	0.8324	***	99.1222	0.0000

Note: *, **,* represent 1%, 5% and 10% significance respectively.**

Panel B: Estimation results of VAR-VECH-TARCH (1,1) models after Arab Spring period

Model 1: Equity Markets	Coefficient		z-Statistic	P-Value	Model 2: FX Markets	Coefficient		z-Statistic	P-Value
M(1,1)	0.0000	***	3.6255	0.0003	M(1,1)	0.0000	***	6.1054	0.0000
M(1,2)	0.0000		0.4568	0.6478	M(1,2)	0.0000		0.4206	0.6741
M(1,3)	0.0000		-0.6280	0.5300	M(1,3)	0.0000		0.1270	0.8989
M(2,2)	0.0000	***	12.3233	0.0000	M(2,2)	0.0000	***	8.0436	0.0000
M(2,3)	0.0000		-0.3084	0.7578	M(2,3)	0.0000		-0.2341	0.8149
M(3,3)	0.0001	***	8.4971	0.0000	M(3,3)	0.0001	***	8.7962	0.0000
A1(1,1)	0.1074	***	3.4449	0.0006	A1(1,1)	0.2532	***	11.7841	0.0000
A1(1,2)	0.0420	**	1.5320	0.1255	A1(1,2)	-0.0014		-0.2674	0.7892
A1(1,3)	0.1593	***	6.1895	0.0000	A1(1,3)	0.0092		0.1514	0.8796
A1(2,2)	0.0164	***	4.3343	0.0000	A1(2,2)	0.0116	***	2.9242	0.0035
A1(2,3)	**0.0623**	***	**2.5103**	**0.0121**	A1(2,3)	0.0097		0.2058	0.8370
A1(3,3)	0.2364	***	8.5536	0.0000	A1(3,3)	0.2175	***	7.3452	0.0000
D1(1,1)	0.0000		0.0000	1.0000	D1(1,1)	-0.0010		-0.0212	0.9831
D1(1,2)	0.0000		0.0000	1.0000	D1(1,2)	-0.0039		-0.3716	0.7102
D1(1,3)	0.0000		0.0000	1.0000	D1(1,3)	-0.0001	***	-0.0004	0.9997
D1(2,2)	0.0000		0.0003	0.9998	D1(2,2)	0.0039		1.1268	0.2598
D1(2,3)	0.0000		0.0000	1.0000	D1(2,3)	0.0002		0.0022	0.9983
D1(3,3)	0.0000		0.0000	1.0000	D1(3,3)	-0.0002		-0.0042	0.9967
B1(1,1)	0.8289	***	24.3489	0.0000	B1(1,1)	0.7499	***	41.7469	0.0000
B1(1,2)	**0.8954**	***	**13.5579**	**0.0000**	B1(1,2)	1.0047	***	119.7924	0.0000
B1(1,3)	0.7498	***	17.0477	0.0000	B1(1,3)	0.4834		0.1201	0.9044
B1(2,2)	0.9673	***	405.2011	0.0000	B1(2,2)	0.9702	***	324.7822	0.0000
B1(2,3)	**0.8099**	***	**4.9973**	**0.0000**	**B1(2,3)**	**0.9021**	***	**2.6609**	**0.0078**
B1(3,3)	0.6782	***	29.5538	0.0000	B1(3,3)	0.7036	***	34.2933	0.0000

Note: *, **,* represent 1%, 5% and 10% significance respectively.**

their markets. Besides, there is no significant volatility spillover over effect between FX-II and CDS-II in the short term since a_{12} and a_{23} are not statistically significant even at the 10% level. However, a_{13} is significant at 5% level leading a volatility spillover over effect between FX and CDS. Moreover, the own conditional GARCH effects (b_{ii}) in matrix B are all significant at %1 level for all related markets in Model 2. Consequently, for the long-term volatility spillovers, the volatility spillover between FX-II and FX-CDS are all significant at 1% level that are b_{12} and b_{13}. As a result, we conclude that volatility spillover between mentioned markets exists in the long term. Finally, the D matrix refers to the asymmetric coefficients. According to the results only d_{11} and d_{33} are significant at %1 level and negative coefficients mean that bad news increases the volatility. The coefficients d_{11} and d_{33} are negative which indicates that bad news to FX basket and the market risk increases the volatility. Finally, asymmetric volatility exists only between FX and CDS in Model 2. As mentioned earlier since Arab Spring is a milestone for Institutional Interaction Index, we also applied all models for a second period in Table 3 Panel B. In this period, we can see that volatility spillover over effect occurs among CDS and II

in short term in Model 1. Also, in the long-term volatility spillover over effect occurs among BIST100-II and CDS-II in Model 1. In Model 2 in the long-term only volatility spillover over effect occurs among CDS and II.

If we summarize the results, we can conclude that volatility spillover between institutional interaction index and equity market exists in the short and long term. For the second period results, we see volatility spillover between institutional interaction index and CDS also exists in both the short and long term. Also, volatility spillover between institutional interaction index and equity market is still valid in both short and long term. In Model 2 we observe volatility spillover between II and FX basket only in short term for all period results. In the second period results volatility spillover between the II-FX basket and II-CDS occurs in the long period as well. Finally, we can show the movement of

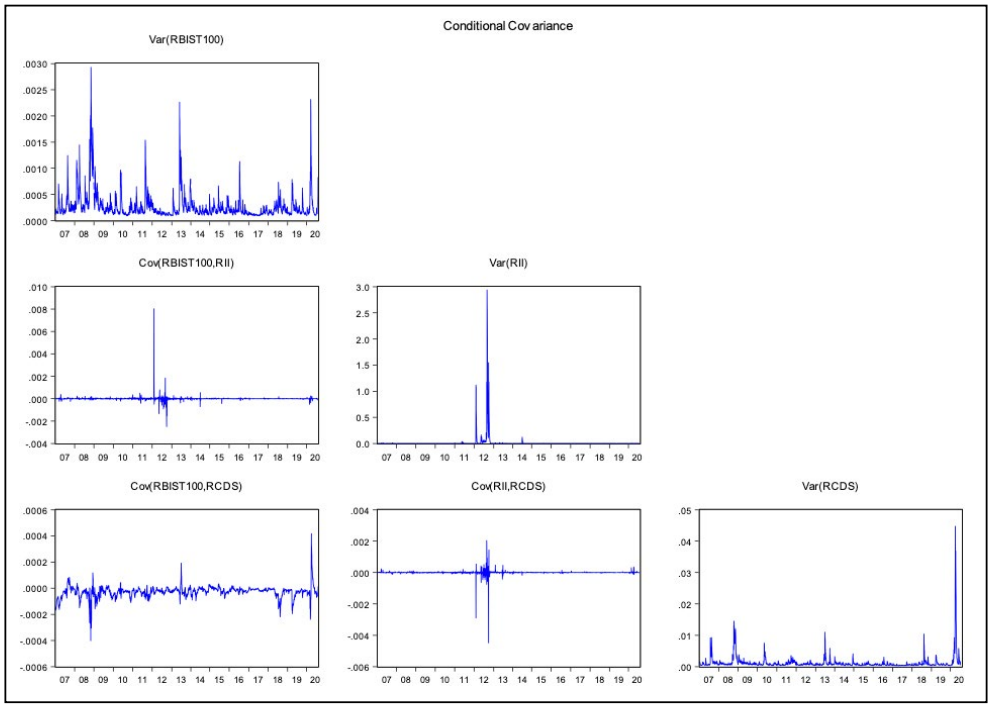

Figure 3. Conditional Correlation Model 1.

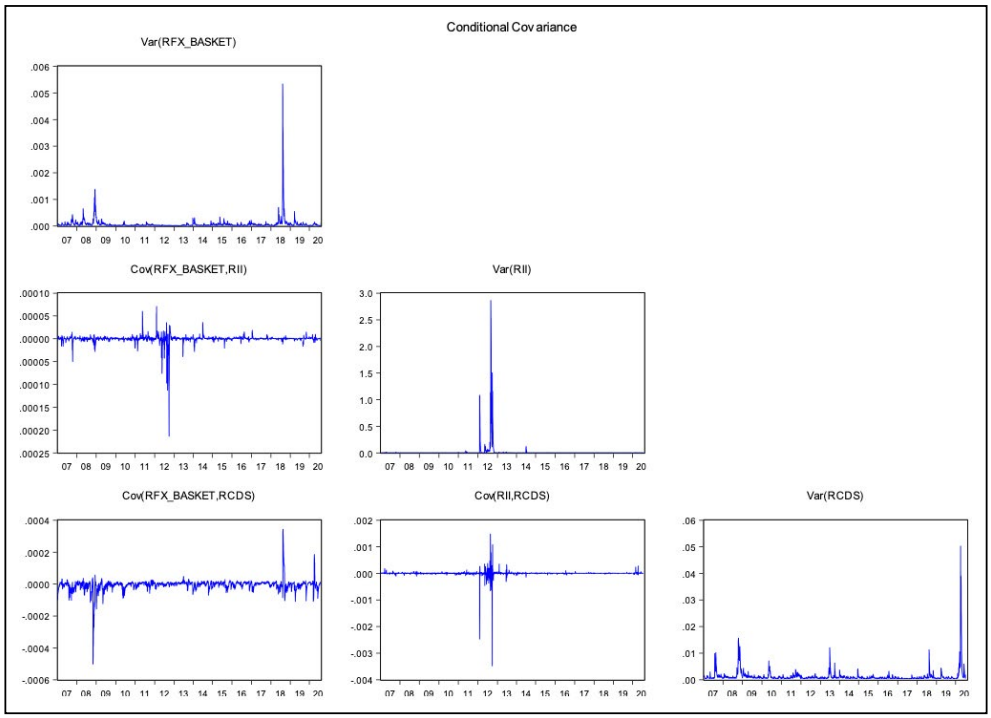

Figure 4. Conditional Correlation Model 2.

the conditional covariance and the conditional correlation of II, FX, BIST 100 and CDS in Model 1 and 2 for overall period according to Figure 3 and 4. Impact of 2011 on II is quite visible in these graphs.

5. CONCLUSION

One of the key components of political stability is relations with institutions, which refers to the relationships between the government and higher judicial organ, government and presidency, government and military bureaucracy, government civil bureaucracy and independent economic institutions, and relations with international institutions. The importance of institutions for economic development and stability has been thoroughly discussed by both the old and new schools of institutional economics, who developed theses against the Classical and Neo-Classical paradigms.

The novelty of this paper is the Institutional Interaction Index which allows us to measure the relationships between government and higher judicial organ, presidency and government, government and military bureaucracy, government civil bureaucracy and autonomous economic institutions, and relations with international institutions in a daily base which allows us to quantify and incorporate II into time series model. The higher the Institutional Interaction Index, the greater the tendency towards stability, whereas the lower this index, the greater the deterioration in stability. As stated in the institutionalist approaches, the involvement of institutions is important for economic growth and economic stability.

In the study, the relationship between the Institutional Interaction Index, a sub-index of the Political Stability Index, and BIST100, FX basket rate, and CDS was analyzed, and we can conclude that volatility spillover between institutional interaction index and equity market exists in the short and long term. For the second period results, we see volatility spillover between institutional interaction index and CDS also exists in both short and long term. Also, volatility spillover between institutional interaction index and equity market is still valid in both the short and long term. In Model 2 we observe volatility spillover between II and FX basket only in short term for all period results. In the second period results volatility spillover between the II-FX basket and II-CDS occurs in the long period as well. As the bottom line we can sum up the results as II has more impact on markets and markets risk create volatility spillover impact on both equity market and FX market obviously. The results from this study support institutionalist approaches. As the relations with institutions deteriorate, BIST100 and FX rate volatilities, that is, instability, increases due to the increase in market risks. Unquestionably, albeit ironically, volatility investors derive profits from these volatilities.

6. APPENDIX: THE SUB INDEXES THAT CREATE PSI AND THE COMPUTATION METHODOLOGY

The political participation in democratic societies, procures decision making and implementation about comprehensive, thoroughly, and vital issues. In the regimes where political participation is not adequate, it drifts apart from being inclusive in decision making and applying and maintaining social order becomes harder. Stability means, when looked at its Arabic origin, "the determination of the decisions". Therefore, "Political Stability" states determination about the implementation of the decisions. In the regimes where there is no political order, making, implementing, updating, and extending the decisions is quite hard. Financial markets rapidly evaluate the value of political development and stability, and they choose the shortest way for adapting to their expectations. Political order and stability play a part in, not only the financial markets' but also in all the economic actors' future decisions. Within this framework, the gaugeability of Political Stability and effective usage of it becomes important. The foundations of The Political Stability Index that is calculated based upon the case series are primarily the rule of law and legal security principles.

6.1. PSI Consists of the Whole Sub Rules and Indexes (Table 4)

6.1.1. Basic Legitimacy and Management Norms

"State of Law" has been documented in the verdicts of high courts particularly in the Supreme Court and The

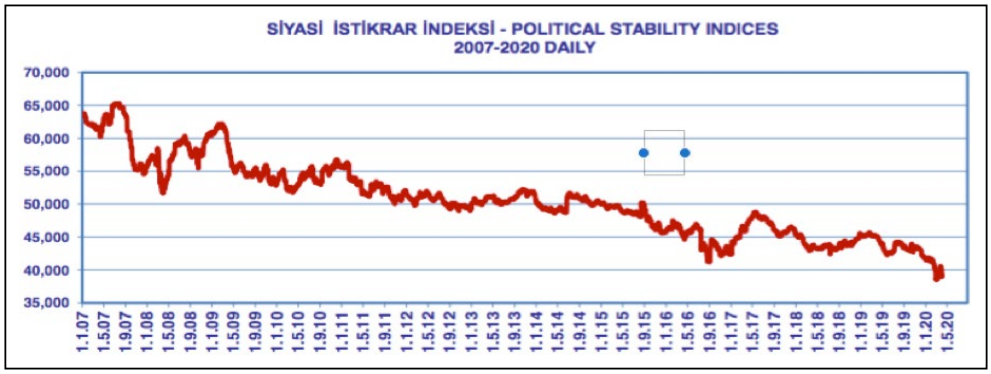

Figure 5. Political Stability İndices 2007-2020.

Table 4. Sub-Indexes of PSI and Their Weights (%)

	Index Share (%)	Total Basic Indicator (Excluding Lower and Upper Groupings)
Basic Legitimacy and Management Norms	15	16
Parliamentary Support, The Structure	15	25
Government: Establishment and Operation	10	13
Policy Implementation Effectiveness and Governance	10	14
Relations with Institutions	15	22
Relations with Foreign Political Actors	5	10
Bureaucratic Capacity and Usage	5	10
Political Violence	10	10
Economic Stability Factors	15	13
Political Stability Index	100	133

Source: Compiled from PSI Introduction and Calculation Methodology documents.

Council of State. Compliance with the Constitution and the laws, the lawfulness of all acts and acts of the state, the assurance of individual rights, the implementation of separation of powers, equality, assurance of legal judges, effectiveness of criminal and criminal law principles, legal administration, openness to judicial remedy and administrative judiciary, judicial independence and judge guarantee, Judiciary according to conscientious opinion, observance of the Constitution and etc. are followed under this caption.

Basic Legitimacy and Stability of Management Norms are structured in two main sections: With the above details, the essence of the Republic in which the legitimacy norms are included, and the basic characteristics of the state are in the first group with high coefficients. The second group includes management norms and procedures (with appointing powers-bureaucratic procedures and regulatory transaction categories) with lower coefficients.

Basic legitimacy norms of the Turkish political system are the type of state and the characteristics of the republic defined in the constitution. These are the immutable principles of the Constitution. Changes or attempts to change the principles of the constitute are a violation of basic legitimacy norms. These violations are summarized under two headings as basic and secondary variables. In the definition of basic legitimacy norms, primarily the Constitutional text and if there is no clarity, the verdicts of the high court are taken as basis.

The basic management norms are Preservation of the legal order and implementation order defined in the Constitution, the internal regulations of the Parliament, laws or laws on the establishment and functioning of ministries (Law no 3046 etc.).

6.1.2. Parliamentary Support, The Structure

The basic characteristic of the political system in Turkey is parliamentary democracy. According to the Constitution and state traditions, the highest / **final binding decision place** is still the Parliament. Even though their final decision is based on qualified / rigid decisions, that is as so. After the new Presidential system was put into operation, although different discussions have been made on this issue and although the importance of parliamentary support and structure seems to have decreased, the structure, composition, continuity, and variability of the government's (administration's) parliamentary support are critical. The parliamentary support of the government (the administration) with how many parties and representatives, party disciplines and its sub-indicators, deputy transfers, tendencies in legislative activities, the actions in the budget and critical law negotiations are among the reviewed matters. The following of the working conditions and working hours of the Parliament, including the commissions; the presentation of the laws as draft and proposal, the quality of the regulation, their voting and acceptance, briefly, the performance of the parliament and its quality are monitored under this caption.

6.1.3. Government: Establishment and Operation

The institutional body of political stability at the center of the parliamentary regime is the government. Even if the majority cannot be achieved in the parliament during the crisis period, the basis is the ability to take and implement political decisions, in short, the existence and functioning of the government. Even if there is a sufficient political majority in the parliament, this is not a guarantee for the establishment of government.

6.1.4. Policy Implementation Effectiveness and Governance

In governance (accountability-transparency-consistency) and impact analysis (scope-dimensioning of the political problem, clarification of its content, determination and inclusion of relevant parties, clarification of causes and effects, harmonization with targets, making processes and measures measurable and clarified, measuring the effects of solution management and evaluation of the audit, etc.), detailed issues are included in the analysis by passing through certain filters.

The processes of controlling and evaluating the presentation-formation-decision-making-implementation-implementation results of the government's political choices and practices or governance processes in general are monitored and evaluated. The basic reasoning styles of the government in terms of political decision-making, the quality of the regulations made, their appropriateness, the impurities they cause, if any, impact analysis are examined in this topic.

6.1.5. Relations with Institutions

The Turkish political system has been structured by two sections of power, reflected in the decisions of the high court and been subject to the evaluations of valuable public lawyers beyond political scientists. With the direct election of the president by the people, the function and criticality of the second power section have come to the fore.

The first section has been architected through the assembly and the government; and the second has been architected through the Presidency - "the high public bureaucracy" - over the higher judicial bodies. "The core of the high public bureaucracy"; is the diplomatic and military bureaucracy. Diplomatic bureaucracy has also undertaken the memory function of the system. Finance, Internal Affairs, Religious Affairs, Autonomous Economic Boards, some elements of the high judiciary in the center are included in the high public bureaucracy.

6.1.6. Relations with Foreign Political Actors

Centered in monitoring foreign policy relations within the PSI are Turkey's foreign policy preferences. Although taking caring of monitoring global trends, the dynamics of the international political system, will not be included in the analysis before its effects on Turkey became concrete. The indicative of concretization should be clear and observable. Analysis and risk measurements of global political developments can be made competently by various organizations.

Within the PSI, "Turkey, with its institutional structure" is the one that has been taken into the center in terms of foreign political actors. **The bundle of "foreign policy goal" summarized as full independence-full security and prosperity** is critical in this respect. Security and regime sensitivities in the field of foreign policy are extremely effective. One of the serious risks within the PSI is, the emphasis on the immediate and voluminous internationalization of the risk patterns of the Turkish political system.

Within the PSI, the direction and degree of relations with foreign political actors are distinguished in terms of US-EU-international institutions and neighbors. It has been monitored in four sub-parameters. **The four sub parameters that are monitored in relations with the USA are; relations between military bureaucracies, relations between civil bureaucracies, relations between high level politicians, and public perception**. Relations with the USA covers almost 40 percent of the sub-sector total share. The reason why relations with the EU has a lower share in the sub-sector is to sterilize the effect of bureaucratic-economic ties concentrated on its positioning within the general model. Russia's initially increasing energy dependency relationship, increased unity of Turkey's public tax revenues and exports of Russia, relative parallelization on the Black Sea and Middle East policy are assessed under this chapter.

The evaluation of relations with all actors influencing the politics of the country, especially the USA-EU, is under discussion. In addition to institutions such as NATO-UN-World Bank-IMF, relations with near-far neighboring countries are monitored.

6.1.7. Bureaucratic Capacity and Usage

Modern societies have suffered extensive and long-term difficulties due to the breadth and depth of bureaucracy and even its effectiveness. Bureaucratic obstacles or supports are known to have an impact on political, social and economic trends. In terms of brief political analysis, the current position of the issue of bureaucratic capacity and usage during political stability is the centrality of the parallelism of bureaucratic capacity-economy. The social state stands at the base of the parallelism. The prominent mechanism in the current molding of parallelization is being bank focused and the activation of the autonomous economic bureaucratic institutions' architecture. The general orientation of bureaucratic capacity and its full use are evaluated together with the level reached in terms of generality-equality-variability-compatibility and consistency in the provision and regularity of public services.

6.1.8. Political Violence

Widespread or singular incidents of violence affecting political stability, whether they are of a political nature or not, are monitored in the topic. Border conflicts, non-country-level external conflicts, bureaucratic pollution and gangs with intense and widespread impact, military and security-related contamination are included. Increases in religious and ethnic activities, even if they are crude and non-violent, and excessive ideological activities are also measured. Excessive deviation from justice statistics, continuous violations of legal and implementation regularities, attacks and looting of domestic and foreign representative offices, stores-widespread chains, attacks on financial institutions, violence and continuous violations of public order, possible or actualized threats to general health are monitored and evaluated.

6.1.9. Economic Stability Factors

The economic system and its sub-developments are the main channels of the social and political system's adaptability to life. Social change begins or is driven by the economy. The political analysis of economic stability is not intended to predict whether the economy is or will be in good condition or not. Economy is occasionally in good condition or bad. The issue of political value is how and to what extent

the assessments affect voters' political choice and their decisions for the elected.

What is measured within the scope of PSI is whether economic actors comply with the requirements of the economy or not. Prices may decrease, interest rates may increase, etc. What stands out is to preserve the rationality of the reactions given in return for the product or service whose price is increasing. The contrary situation is to hand over the solution, which economic actors should reveal, to the political area. And this feeds political instability. The Economic Stability Factors should examine the economy itself as well as the mechanics of its articulation with the political system. The articulation of the economy with bureaucratic capacity has been emphasized above.

In the first section, price volatility, the severity of economic waves, liquidity and credit volatility, conditions that determine the general investment environment, public and critical private sector indebtedness amounts and rates, as well as employment, growth, interest, investments, foreign investments, developments in the field of energy are monitored. The most critical price volatility is in subsistence products and services. The prices that determine the necessity goods, energy-accommodation-transportation-communication expenditures are monitored with the highest coefficients. Indirect and common taxes, health-medicine-education etc. expenses are also included in monitoring.

The short-term, general securities investment regime, restrictions on foreign currency and similar liquid values, tax controls and restrictions, nationalization, if any, tariffs, payment cancellations, trade barriers and labor market constraints are observed in the second section. Long-term focus is investment-commercial and general demand constraints. During the economic expansion period, protectionism is scored as a cut below negative.

What is monitored in the third part is the realization of the economic targets set in the plan-program, action plans and budgets. Whether the targets are set correctly, whether there is a disruption-negative effect in the mechanisms of establishing and realizing economic expectations, and if any, reasonable or unreasonable causes are monitored.

Finally, debt delays, delays, and accumulations in loan payments, sudden, unfounded or large expropriations, large or widespread contract cancellations, heavy or widespread public-status contract term changes, sudden-bulky-specific tax regulations or decisions, foreign currency or deposit focused extraordinary controls are specially monitored and evaluated.

Expectation-realization differences are high at macro level; the differences of what can be seen as micro, such as sub-items of public finance, are scored with a low coefficient. Especially **inbounded bankruptcies, strikes, layoffs are recorded severely negatively**. Investments are mostly placed in short-long term measures.

6.2. PSI Calculation Method

The total basic indicators handled in the PSI calculation are 133. Basic indicators have 2 to 28 sub indicators. There are many first indicators among the sub-indicators, especially the economic ones. It is not very meaningful to give a total number of indicators, since there are indicators that are activated and remain in the background and those that should not be activated simultaneously.

The above-mentioned political case series, which are open, accessible and based on concrete records, are measured by including them in the model subject to certain principles. By converting the measurements, PSI and its change are made observable. The model, registration and operating principles, together with its sub-sectors and parameters, are formalized and kept in the Basic Status by the Notary.

There are 8 basic categories in the scoring of indicators. The sign is either positive (+) or negative (-). Scores are made as strictly 1 and 0.875, severe 0.75 and 0.625, likely 0.50 and 0.375, probability 0.25 and 0.125. The scores of the indicators can change according to the degree of direction and gaining effectiveness at different times. Scoring is calibrated according to time, conjuncture, marginal and resource filters.

Ethics: There are no ethical issues with the publication of this manuscript.

Peer-review: Externally peer-reviewed.

Conflict of Interest: The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Authorship Contributions: Concept: S.U., C.Ö., S.D.; Design: S.D., C.Ö.; Supervision: S.U.; Resources: S.U., S.D.; Data collection and/or processing: C.Ö., S.D.; Analysis and/or interpretation: C.Ö.; Literature search: S.D.; Writing Manuscript: C.Ö., S.D.; Critical review: S.U.

Financial Disclosure: The authors declared that this study has received no financial support.

REFERENCES

Acemoğlu, D., & Robinson, J. A. (2015). *Ulusların Düşüşü: güç, zenginlik ve yoksulluğun kökenleri.* Doğan Kitap.

Artan, S., & Hayaloğlu, P. (2014). Kurumsal Yapı ve İktisadi Büyüme İlişkisi: Türkiye Örneği. *Sosyoekonomi, 22*(2). https://doi.org/10.17233/se.65623 [CrossRef]

Bolatoğlu, N. (2007). Politik İstikrarsızlığın Hüküm Sürdüğü Bir Ekonomide Reel Döviz Kurunun Stokastik Davranışı: Türkiye Üzerine Ampirik Bulgular, 1971-2002. *Hacettepe Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 25*(2), 1-13. https://dergipark.org.tr/en/pub/huniibf/issue/7873/103440

Burak, B. (2011). The Role of the Military in Turkish Politics: To Guard Whom and From What?, *European Journal of Economic and Political Studies. 4*(1), 143-169.

https://www.acarindex.com/dosyalar/makale/acarindex-1423880526.pdf

Davis, L. S. (2010). Institutional flexibility and economic growth. *Journal of Comparative Economics, 38*(3), 306-320. https://doi.org/10.1016/j.jce.2010.05.001 [CrossRef]

Easterly, W., Ritzen, J., & Woolcock, M. (2006). Social cohesion, institutions, and growth. *Institutions, and Growth (August 2006)*. https://www.cgdev.org/sites/default/files/9136_file_WP94.pdf [CrossRef]

Engle, Robert F., Victor K. Ng, (1993) Measuring and testing the impact of news on volatility, *Journal of Finance 48*, 1749-1778. https://doi.org/10.1111/j.1540-6261.1993.tb05127.x [CrossRef]

Engle, R. F. (1982). Autoregressive conditional heteroscedasticity with estimates of the variance of United Kingdom inflation. *Econometrica: Journal of the Econometric Society*, 987-1007. https://doi.org/10.2307/1912773 [CrossRef]

European Commission (2010) Turkey 2010 Progress Report, SEC (2010)1327, 9 November, Brussels. https://www.avrupa.info.tr/sites/default/files/2016-11/tr_rapport_2010_en.pdf

Figlewski and Wang 2000) Figlewski, Stephen., and Xiaozu. Wang. 2000. Is the Leverage Effect" a Leverage Effect?. *SSRN Electronic Journal*. https://dx.doi.org/10.2139/ssrn.256109 [CrossRef]

Glosten, L. R., R. Jagannathan, and D. E. Runkle. (1993). On the Relation between the Expected Value and the Volatility of the Nominal Excess Returns on Stocks. *Journal of Finance, 48*: 1779-1801. https://doi.org/10.1111/j.1540-6261.1993.tb05128.x [CrossRef]

Jensen, N. (2008). Political risk, democratic institutions, and foreign direct investment. *The Journal of Politics, 70*(4), 1040-1052. https://doi.org/10.1017/S0022381608081048 [CrossRef]

Knack, S., & Keefer, P. (1995). Institutions and economic performance: cross-country tests using alternative institutional measures. *Economics & Politics, 7*(3), 207-227. https://doi.org/10.1111/j.1468-0343.1995.tb00111.x

Ling, S., & McAleer, M. 2003. Asymptotic Theory for a Vector ARMA-GARCH Model. *Econometric Theory*, Vol. 19(2), pp. 280-310. https://www.jstor.org/stable/3533354?seq=1 [CrossRef]

S. Bilişim Danışmanlık, Siyasi İstikrar İndeksi: Siyasi Performansın Standartları, Kısa Siyasi Analizin Standartları, Kısa Siyasi Analizin Araçları, Siyasi Risk İzlek Standartları, Ekim 2010

Saraçoğlu, Cenk and Yeşilbağ, Melih (2015) AKP Döneminde Türkiye: Minare ile İnşaat Gölgesinde in G. Atılgan, C. Saraçoğlu and A. Uslu (et al) *Osmanlı'dan Günümüze Türkiye'de Siyasal Hayat*, Yordam Yayınları, pp. 871-957.

Scully, G. W. (1988). The institutional framework and economic development. *Journal of Political Economy, 96*(3), 652-662. https://doi.org/10.1086/261555 [CrossRef]

Şahin, E.E. ve Özkan, O. (2018) Kredi Temerrüt Takası, Döviz Kuru ve BİST100 Endeks İlişkisi. *Hitit Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 11*(3), 1939-1945 https://doi.org/10.17218/hititsosbil.450178 [CrossRef]

Teletar E.& Cangir N., Türkiye İçin Politik İstikrarsızlık Endeksleri: 1955–2009 Dönemi. *Sosyo-Ekonomi*, 2014-1 / 140101. https://doi.org/10.17233/se.73988 [CrossRef]

Yamak, T. (2017). Kurumsal Kalite Faktörlerinin Ekonomik Büyüme Üzerindeki Etkisi: Körfez Ülkeleri Örneği. *Siyaset, Ekonomi ve Yönetim Araştırmaları Dergisi, 5*(4). https://doi.org/10.25272/j.2147-7035.2017.5.4.04 [CrossRef]

Yıldırım, S. (2010). Kurumların dinamik yapısının ekonomik büyüme üzerine etkisinin analizi. *Anadolu Üniversitesi Sosyal Bilimler Dergisi, 10*(3), 111-126. https://app.trdizin.gov.tr/publication/paper/detail/TVRBNE1UQTBOQT09

Yılmaz, A., & Çetiner, Ö. (2017). Risk İn Turkish Economy; The Linkage Between Credit Default Swap (CDS), Current Account Deficit and Exchange Rate. *Uluslararası Sosyal Araştırmalar Kongresi*, 563-576. https://www.researchgate.net/publication/320531465_RISK_IN_TURKISH_ECONOMY_THE_LINKAGE_BETWEEN_CREDIT_DEFAULT_SWAP_CDS_CURRENT_ACCOUNT_DEFICIT_AND_EXCHANGE_RATE