The Effects of Political Risk and Economic Policy Uncertainty on Foreign Direct Investments: A Panel Cointegration Analysis for Selected EU Countries

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ABSTRACT

Political risk and economic policy uncertainty have an impact on many macroeconomic variables in the economy. One of the most crucial of these variables are foreign direct investment. Foreign investors refrain from investing in the economies of high policy uncertainty and direct their investment to the economies where there is political stability and no uncertainty in the economy. This study attempted an econometric model to illustrate the long-run relationships among political risk, economic policy uncertainty and foreign direct investment inflows of five EU countries during the period 2001-2014. Westerlund and Edgerton (2007)'s panel LM bootstrap panel cointegration test is applied to discover empirical support for the presence of the cointegration relationship between the variables. Finally, the cointegration coefficients are estimated by using the Pesaran (2006)'s CCE estimator. The empirical findings show positive coefficients for political stability in Germany, France, England and Spain while statistically significant and negative coefficients for economic policy uncertainty in France and Spain. In addition, the variable of economic freedom has statistically significant and positive effect on foreign direct investments for only England and the openness of trade variable has statistically significant and positive effect on it for Spain and Italy.

Keywords: Political risk, economic policy uncertainty, foreign direct investment inflows, panel cointegration.

Jel Classification: D8, D81, F21.

Siyasi Risk ve Ekonomik Politika Belirsizliğinin Doğrudan Yabancı Yatırımlara Etkileri: Seçilmiş AB Ülkeleri İçin Bir Panel Eşbütünleşme Analizi

ÖZ

Politik risk ve ekonomik politika belirsizliği bir ekonomide birçok makroekonomik değişken üzerinde etkiye sahiptir. Bu değişkenlerden en önemlilerinden birisi de doğrudan yabancı sermaye yatırımlarıdır. Yabancı yatırımcılar politik riskin ve ekonomik politika belirsizliğinin yüksek olduğu ekonomilere yatırım yapmaktan kaçınırlarken, yatırımlarını politik istikrarın olduğu ve ekonomide belirsizliklerin olmadığı ekonomilere yönlendirmektedir. Bu çalışma, beş AB ülkesinin 2001-2014 dönemine ait politik risk, ekonomik politika belirsizliği ve doğrudan yabancı sermaye girişleri arasındaki uzun vadeli ilişkileri açıklamak için ekonometrik bir model denemektedir. Çalışmada değişkenler arasındaki eşbütünleşme ilişkisinin varlığına ampirik destek bulmak için Westerlund ve Edgerton'nun (2007) panel LM bootstrap panel eşbütünleşme testi uygulanmıştır. Son olarak, eşleşme katsayıları Pesaran'nın (2006) CCE tahmincisi kullanılarak tahmin edilmiştir. Ampirik bulgular Almanya, Fransa, İngiltere ve İspanya'da politik istikrar için pozitif katsayılar gösterirken, Fransa ve İspanya'da ekonomik politika belirsizliği için istatistiksel olarak anlamlı ancak negatif katsayılar göstermektedir. Ayrıca, ekonomik özgürlüğün değişkenliği sadece Birleşik Krallık için doğrudan yabancı yatırımlar üzerinde istatistiksel olarak anlamlı ve olumlu bir etkiye sahiptir ve ticaret açıklığı değişkeninin İspanya ve İtalya için istatistiksel olarak anlamlı ve olumlu bir etkisi vardır.

Anahtar Kelimeler: Politik risk, ekonomik politika belirsizliği, doğrudan yabancı yatırım girişleri, panel eşbütünleşme

Jel Kodları: D8, D81, F21.

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1. INTRODUCTION

Foreign capital investments are generally investments that arise as a result of the acquisition of a firm in a country or the establishment capital of a newly established firm or the purchase of the assets of an existing firm in financial markets. These foreign capital investments affect political risk and economic policy risk. This situation can be explained by the stability. Decreasing the risks in the national economies and policies is interpreted as increasing stability.

The search of economists for answers to questions related to macroeconomic performance differences between the countries prepared the ground to put forward different views since the beginning of 1990s. Political and institutional variables began to be included in the models with these views (Şanlısoyand Kök, 2010: 102). In terms of representing policy variable, while democracy was the most commonly used variable before, then it is political risks or political instability variable. The variable representing the institutional variable is the uncertainty of economic policy representing the uncertainty emerge due to the institutions' not being able to produce policies.

The concept of political risk is discussed in the study of Alesina and Perotti (1993) for the first time. Alesina and Perotti (1993) dealt with political risks under political violence, changes of government (constitutional or not) and social unrest headings. The frequent changes of government, social unrest and political violence in a country, means that there is high political risk in that country. Political risk is handled in International Country Risk Guide-ICRG prepared by Political Risk Services (PRS) after Alene and Perotti (1993) and an index is formed to express the political risk of a country. The index of PRS in ICRG is calculated by taking the following 12 components into account (PRS, 2016);

- government stability,
- investment profile,
- socio-economic conditions,
- external confusion,
- internal confusion,
- influence of the military to policy,
- corruption
- ethnic tensions,
- religious tensions,
- regulations and law,
- democratic responsibility and
- quality factor of bureaucracy

The highest value of the calculated index is accepted as "100" and the minimum value is "0". Accordingly, the political risk in a country rating between 0 to 49,9 indicates very high risk, 50 to59,9 is high risk, 60 to 69,9 is moderate risk, 70 to 79,9 is low risk and 80 or higher values are a very low risk.

Political risk paved the way for the emergence of different concepts over time. The most important of these concepts is no doubt economic policy uncertainty term which also represent institutional variable included in the models. The high political risk in a country increases uncertainty in the decisions of the institutions which leads to uncertainty in economic policy. Uncertainty experienced in economic policy adversely affect economic performance over time.

It has been essential to create an index in order to make the economic policy uncertainty concept, which has so much emphasis on the economic performance of the countries, more concrete. On this requirement, firstly Baker et al. (2013) calculated the index for economic policy uncertainty for US, Russia, Japan, China, India, Canada and some European countries (Spain, France, Italy, Germany and the UK). Baker et al. (2013) calculated the index in different ways for the US and European countries. The economic policy uncertainty index calculated for the United States consists of three main sub-indices. This sub-indices;

- News index-based economic policies; 10 national newspapers (New York Times, USA Today, Chicago Tribune, Los Angeles Times, Washington Post, Boston Globe, Miami Herald, San Francisco Chronicle, Wall Street Journal and Dallas Morning News) are used to calculate the index. Article, news and columns including combination of economy, economic, uncertainties or unclear, or open council or central banks or the laws or regulations or the white house words are scanned in these newspapers. Articles with these three phrases are collected for each newspaper and divided by the number of all articles in each newspaper. Then arrangements are made for each newspaper so as to make the standard deviation of the index value to be 1and each newspaper involved in the index with that value. Monthly values were collected for 10 newspapers and monthly index is obtained.
- Expiring tax regulations index; US Congressional Budget Office data are used for this index. If the expire date of the tax arrangements of temporary tax regulations is further, the weight is less, if it is the closer, the weight is high.
- Index of mismatch in expectations; The third index is obtained from the distribution seen in the expectations of economic variables. This is divided itself in two as Distribution Index Inflation Expectations and Distribution of Public Expenditure Expectations Indexes. As economic variables, associated with monetary policy a year after distribution of inflation expectations and associated with fiscal policy distribution of federal government local government spending expectations are used.

The main economic policy uncertainty index is composed of weighting standard deviation of these three sub-indices are equalized to 1. The main index was created as weighting the news based index as 1/2 and weighting other indices; Expiring Tax Regulations Index, Inflation Expectations Distribution Index and Distribution of Public Expenditure Expectations Index as 1/6. The index created in this way for the US is also calculated for Europe. The index of economic policy uncertainty calculated for Europe is a different from the index generated for the USA. This difference is that expiring tax regulations index used for US is not included in the index of economic policy independence for Europe. Therefore, in the index calculated for European economic policy uncertainty, news based index is weighted at 50 percent and index of mismatch in expectations is weighted at 50 percent. Expectations regarding inflation and government budget balance is used in creation of index of mismatch in expectations.

Since the beginning of 1990s, in order to reveal the differences in the macroeconomic performance of the countries, led to the inclusion of Political risk and economic policy uncertainty indexes created in recent years in the models. With the inclusion of these indexes to models, the previously undetectable effects of "political risk and economic uncertainty" variables on macro-economic variables have started to be detected. Empirical results shows that political risks and economic uncertainties have an impact on many macroeconomic variables and they especially play a decisive role on foreign direct investment.

The purpose of this study is to analyze the effect of political risks and economic policy uncertainty on foreign direct investment in the selected countries of European Union (Germany, France, Britain, Spain and Italy). In accordance with this purpose, empirical studies related with foreign direct investment, political risk and economic policy uncertainty for Turkey and other countries/groups of countries in the literature to be reviewed in the second part of the study. and in the third part providing information about the data and methodology used in the study, empirical application and the findings reached in the application will be presented. In the last chapter, the main findings achieved from the application will be summarized and proposals will be made.

2. LITERATURE REVIEW

The history of political risk and economic policy uncertainty index is not very old.For this reason the number of empirical studies carried out on the variables is a few. Most of the few studies in the literature intends to analyze the effect of political risks or economic policy uncertainty on economic growth. There aren't many studies in the literature which analyze the effect of political risks and economic policy uncertainty on foreign direct investment. Most of the existing work either address the impact of the political risk on foreign direct investment or the impact of policy uncertainty on foreign direct investment. There is little work to analyze the impact of both political risk and economic policy uncertainty on foreign direct investment. Because of this situation in the literature review, primarily the studies covering the effect of political risk on foreign direct investment will be studied, following the effects of economic uncertainty on foreign direct investment will be viewed.

One of the earliest studies addressing the impact of political risk or instability on foreign direct investment is by Schneider and Frey (1985). Schneider and Frey investigated the political and economic determinants of foreign direct investment in their study covering 80 underdeveloped countries. They found a negative relationship between political instability and foreign direct investment.

Brunetti et al. (1997) analyzed the impact of institutional and political variables of the 1993-1995 period on foreign direct investment in 20 transition economies, formerly the Soviet Union Country.As a result of the analysis, one of the policy variables, the political stability variable, was found to be significant in the model and the political stability in the transition economies was found to be an important determining factor on foreign direct investments.

Lemi and Asefa (2001) analyzed the impact of economic and political uncertainty on foreign direct investment in African economies using the GARCH-Generalized Autoregressive Heteroscedastic model. The result of the analysis concluded that the uncertainty has a significant effect on foreign direct investments.

Campos and Nugent (2003) have identified a causality relationship towards investment from political instability in their study in which they analysed the relationship between political instability and investments for 94 nations. This is the result of the causality relationship being particularly strong in low-income countries.

Sekkat and Veganzones-Varoudakis (2004) analyzed the relationship between political risk and foreign direct investment by panel data method for 72 countries. The result of the analysis showed that there is a negative relation between political risk and foreign direct investment.

Busse and Hefeker (2005) examined the effects of the political risk and institutions on foreign direct investment in developing countries using data from 1983-2003. In the study forming the political risk index using the basic 12 different components; it is found that government stability, ethnic tensions and lack of internal confusion , the protection of law and order and fundamental democratic rights are the important determinants of foreign direct investment.

Demirtaş and Akçay (2006) investigated the effects of institutional factors (right of speech and accountability, political stability, bureaucracy's effectiveness, rule of law, the quality of the regulations and the fight against corruption) on direct foreign investment by using data from 1995-2002 in 71 developed and developing countries. Research results has shown that there is a positive relationship between institutional factors such as political stability, bureaucracy's effectiveness, accountability, rule of law, quality of regulations and fight against corruption and direct foreign investment.

Tosun et al. (2008) analyzed the effects of political instability on investment profile and macroeconomic performance for the period 1987-2003 in Middle East and North Africa (MENA) region including Turkey. The result of the analysis presented political risk or political instability and macroeconomic performance have an inverse relationship.

Azam et al. (2012) analyzed the impact of uncertainty in political risk and macroeconomic policies on foreign direct investment in South Asian economies with the ARDL (Autoregressive Distributed Lags) model. The result of the analysis showed that the uncertainty in political risk and macroeconomic policy negatively affected foreign direct investment in South Asian economies.

Gedik (2013) analyzed the determinants of foreign direct investment in 11 OECD countries for 1995-2008 with dynamic panel data and Arellano-Bover (1995) and Blundell-Bond (1998) Generalized Moments Method (GMM). In the study Gedik, separated the determinants of foreign direct investment in three as; financial, institutional, economic and political factors, and created three different models. The result of the study revealed that direct foreign investment do not prefer the environments with political and institutional risk or instability.

Khan and Akbar (2013) examined the relationship between political risk and foreign direct investment for 94 countries using annual data for the period 1986-2009. 12 basic components constituting the political risk index were used in the study. In the study involving various country groups, the results show that there is a significant but negative relationship between most of the political risk indicators and foreign direct investment, and that this relationship is strongest in the group of high middle income countries.

Gulen and Ion (2013) tested the impact of economic policy uncertainty on corporate and sectoral corporate capital investments using the political uncertainty index of Baker, Bloom and Davis (2012). The result of the test indicat-

ed that a strong and negative relationship between uncertainty in economic policies and investments in firms and sectors exists. They also found that uncertainty in economic policies during the 2007-2009 crisis caused a 32% decline in institutional investors, that is, the two-thirds decline in institutional investors stemmed from uncertainty in economic policies.

Wang et al. (2014) investigated the impact of economic policy uncertainty on corporate investments of companies traded in China at firm level. But the results of the study proved that institutional investments of the companies with high paid-up capital, using additional financing and non-state firms are less affected by economic policy uncertainty.

Kang et al. (2014) analyzed the impact of economic policy uncertainty and its components on firm-level investments using 1985-2010 data in the analysis, it is clear that economic policy uncertainty suppresses and negatively impacts firm-level investment decisions (especially that the news-based political shocks have a significant negative long-term impact on the firm's investment) but that doesn't influence investment decisions very large firms (around 20% of firms that trade).

Artan and Hayaloglu (2015) analyzed the economic and institutional determinants of foreign direct investment using panel data for 29 OECD countries using annual data for the period 1990-2012. In the analysis, twelve subcomponents which constitutes the political risk index were used: investment profile, government stability, internal and external confusion, socio-economic conditions, religious tensions, corruption, laws and regulations, military influence in politics, ethnic tensions, democratic accountability and bureaucratic quality. Analysis results determined that key determinants of foreign direct investment in OECD countries are corporate indicators such as government stability, socio-economic status, investment profile, internal confusion, military influence on politics, religious tensions, law and order, bureaucratic quality and ethnic tensions rather than economic indicators.

One of the earliest studies of the influence of uncertainty on investments belongs to Bernanke (1983). Bernanke states that there is a relationship between uncertainty and investments, and that investment decisions of investors are influenced by this uncertainty when uncertainty increases. Bernanke's this statement is also known in the literature as the political uncertainty hypothesis.

Kılıç (2015) tests the effects of economic, social and political globalization on the growth levels of developing countries and causality relationship between the variables by using fixed effects least squares method and Granger causality test developed by Dumitrescu-Hurlin (2012) for 74 developing countries between 1981-2011 period. The results implied that economic growth levels of selected developing countries were positively affected by the economic and political globalization whereas social globalization affected economic growth negatively.

Metin and Akcan (2017) examined the relationship between globalization and foreign trade. In order to analyse the effect of globalization on foreign trade, the annual data belonging to the 1970-2016 period have primarily been tested in terms of steadiness with Generalised Dickey Fuller unit root test, then Johansen Cointegration Test has been applied so as to analyse the long term conintegration situation of variables with same level of steadiness, and it has been concluded that the series are cointegrated. Lastly, Granger causality test has been applied in order to define the causality side of the variables. According to the findings of the research it is found out that economical and political globalization lead to foreign trade whereas no causality relationship has been depicted between social globalization and foreign trade.

Kurt and Kılıç (2018) examines the effect of economic and political stability on tourism demand by using data between the periods of 2002–2015 and the Autoregressive Distributed Lag Bound Test (ARDL) boundary test approach analysis. The results of the analysis suggest a positive relationship between economic stability and tourism demand. Moreover, the study reveals a negative relationship between inflation (consumer price index) and real foreign currency rates.

When the literature analyzing the effects of uncertainty in political risk and economic policies on foreign direct investment is examined both the increase in political risks and the increase in uncertainty in economic policies cause investors to postpone their decisions on their investments or led them to countries that have less uncertainty of political stability and economic policies.

3. EMPIRICAL ANALYSIS

This paper establishes an econometric model to show the long-run relationships among political risk, economic policy uncertainty and foreign direct investment inflows of five EU countries during the period 2001-2014. Westerlund and Edgerton (2007)'s panel LM bootstrap panel cointegration test is applied to find empirical support for the existence of the cointegration relationship between the variables. Finally, the cointegrationcoefficients areestimated by using the Pesaran (2006)'s CCE estimator that has adequate small sample properties even under a considerable degree of heterogeneity and dynamics, and for comparably small values of N and T.

3.1. Model and Data

In the analysis of long-run relationship between among political risk, economic policy uncertainty and foreign direct investment inflows by consolidating a balanced panel from 5 EU countries, the study uses economic freedom and trade openness as control variables considers as follows:

$$LFDI_{it} = \delta_0 + \delta_1 PR_{it} + \delta_2 EPU_{it} + \delta_3 FREE_{it} + \delta_4 OPEN_{it} + u_{it} \quad (1)$$

Where LFDI, PR, EPU, FREE and OPEN are foreign direct investment inflows, political risk, economic policy uncertainty, economic freedom and trade openness, respectively. The annual data covering the period of 2001 to 2014 is used in the study. The data is collected from the databases of World Bank's World Development Indicators (2015), the Public Risk Services Group (2015), www.policyuncertainty.com and the Heritage Foundation (2015). This sample is selected based on the data availability. Germany, France, United Kingdom, Spain and Italy dealt are within this study.

Table 1 shows the variables used in the study and their descriptive statistics. The cross-sectional dimension is 5 units and the time dimension is 14 years. There are 70 observations for the all variables in total. According to Table 1, the means of all variables used for the analysis are close neither to their minimum nor maximum value, which shows that there isn't any disproportion.

Table 1: Global Descriptive Statistics.

	LFDI	PR	EPU	FREE	OPEN
Mean	22.94470	79.35714	129.2032	68.22571	58.90646
Median	24.39214	79.58333	117.5137	68.80000	55.87712
Maximum	26.25845	90.29167	305.4302	80.40000	85.88923
Minimum	-23.74000	67.75000	59.48790	58.00000	45.60911
Std. Dev.	8.074300	5.154837	54.51265	6.050648	9.768648

Source: Authors' estimations

Figure 1 and 2 illustrate the trend of the all variables for the selected countries for the period 2001 to 2014.

Figure 1. The Graphical Presentation of FDI in Selected Countries for the Period 2001 to 2014.

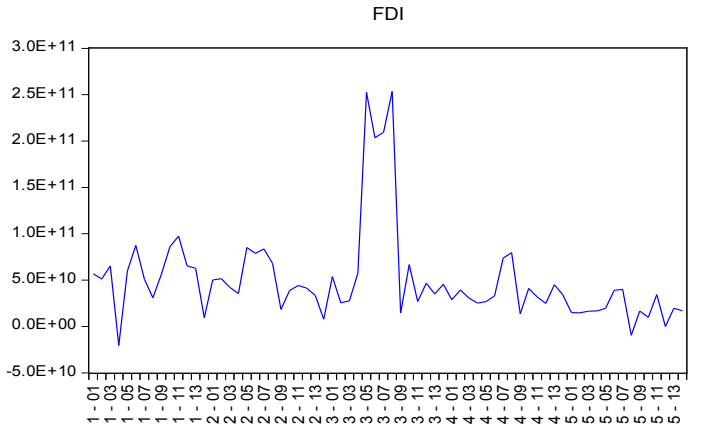
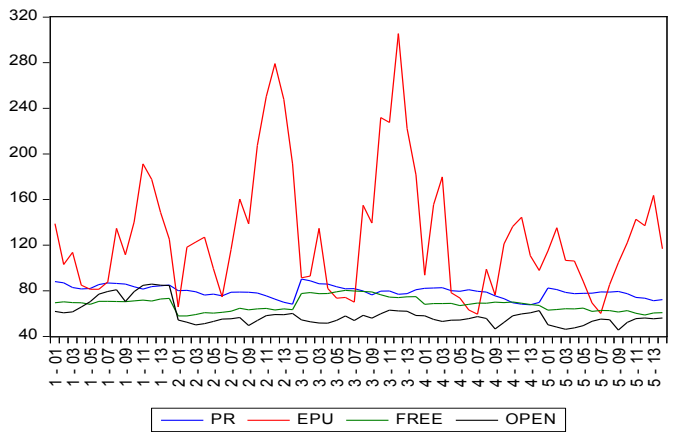


Figure 2. The graphical presentation of PR, EPU, FREE and OPEN in selected countries for the period 2001 to 2014.



3.2.Method and Empirical Results

After obtaining the descriptive statistics, basically, the existence of cross-sectional dependence is examined. Then, the order of integration in the variables is tested. Thirdly, panel cointegration is tested and finally, the long-run parameter is estimated.

3.2.1 Cross-sectional Dependency Test

The first phase of the study, before investigating the presence of the long-run relationships among the variables, the cross sectional dependency or independency across countries should be examined. This kind of correlation can emmerge from common global shocks with different impacts across countries (Samadi and Rad 2013). Taking cross-sectional dependence between countries into consideration makes a meaningful effect on results of panel data analysis. So, unit root and cointegration tests should be selected with respect to cross-sectional dependence results. Various tests, such as Breusch-Pagan test, and Pesaran (2004) CD tests, were applied to examine cross sectional dependency. In this study, the Lagrange multiplier test statistic (CD_{BP}) developed by Breusch and Pagan (1980) is employed to examine the existence of cross-sectional dependence. The underlying hypothesis is that the *expanding* interdependence of world economies has required the control of cross-sectional dependence; i.e., a shock affecting individuals forming a panel may also have impact on other individuals.

The test statistics can be calculated using the following panel data model:

$$y_{it} = \alpha_i + \beta_i'.x_{it} + \mu_{it} \text{ for i=1,2,…,N; t=1,2,…,T} \quad (2)$$

In the cross-sectional dependence test considered, the null and the alternative hypotheses of no cross-sectional dependence are as follows:

$H_0 : Cov(\mu_{it,}\mu_{jt}) = 0$ for all t and $i \neq j$

$H_0 : Cov(\mu_{it,}\mu_{jt}) \neq 0$ for at least some $i \neq j$

The test statistic developed by Breusch and Pagan (1980) is as follows:

$$CD_{BP} = T.\sum_{i=1}^{N-1}\sum_{j=i+1}^{N}\hat{\rho}_{ij}^2 \underset{\sim}{} \chi^2_{N.(N-1)/2}$$

where $\hat{\rho}_{ij}$ shows the estimation of the correlation coefficient among the residuals obtained from individual OLS estimations of Equation (2). Under the null hypothesis of no cross-sectional dependency the LM_{BP} test, is used when N is fixed and T goes to infinity, which is asymptotically distributed as chi-squared with N(N-1)/2 degrees of freedom.

3.2.2 Panel Stationarity Test

Given the notoriously low power of individual country-by-country tests for unit roots and cointegration, it may be preferable to pool the time series of interest and conduct panel analysis.

O'Connell (1998) and Pesaran (2007) stated that the panel unit root tests which do not account for cross-sectional dependence of the contemporaneous error terms cause substantial size distortions. In this study, we implement the panel stationarity test proposed by Hadri and Kurozumi (2012), considering the cross-sectional dependence.Hadri and Kurozumi (2012) consider the following equation:

$$y_{it} = z_t'\delta_i + f_t.\gamma_i + \varepsilon_{it}, \quad \varepsilon_{it} = \phi_{i1}.\varepsilon_{it-1} + ... + \phi_{ip}.\varepsilon_{it-p} + v_{it} \text{ for i=1,...,N, t=1,...,T} \quad (3)$$

where z_t' is deterministic, $z_t'\delta_i$ is the individual effect while f_t is a one-dimensional unobserved common factor, γ_i is the loading factor, and ε_{it} is the individual-specific error, following an AR(p) process.

For the correction of cross-sectional dependence, for each i, Hadri and Kurozumi (2012) regress y_{it} on $w_t = \left[z'_t, \overline{y}_t, \overline{y}_{t-1}, ..., \overline{y}_{t-p} \right]$ and construct the following test statistic:

$Z_A = \dfrac{\sqrt{N}(\overline{ST} - \xi)}{\zeta}$ where $\overline{ST} = 1/N.\sum_{i=1}^{N} ST_i$ with $ST_i = \dfrac{1}{\hat{\sigma}_i^2.T^2}\sum_{t=1}^{T} S^w{}_{it}$, where $S_{it}{}^w = \sum_{s=1}^{t}\hat{\varepsilon}_{is}$, $\hat{\sigma}_i^2$ is the estimator of the long-run variance.

Hadri and Kurozumi (2012) called Z_A statistic as the panel-augmented KPSS test statistic, due to the fact that ST is the average of the Kwiatkowski et al. (1992) test statistic across i. They construct S_{it}^w using these regression residuals. So, it can be seen that numerators of each ST_i weakly converges to $\frac{1}{T^2}\sum_{t=1}^{T}(S_{it}{}^w)^2 \Rightarrow^{T} \sigma_i^2\int_0^1 \left[V_i^{\varepsilon}(r) + \tilde{\gamma}_i R_N\right]^2$, where $\tilde{\gamma}_i = \gamma_i / \overline{\gamma}$, R_N is $O_p(1/\sqrt{N})$ over $0 \le r \le 1$ $\sigma_i^2 = \sigma_{vi}^2/(1-\varphi_{i1}-...-\varphi_{ip})^2$

Hadri and Kurozumi (2012) divide the numerator of each ST_i by a consistent estimator of the long-run variance σ_i^2 to correct for serial correlation and estimate the AR(p) model augmented by the lags of $\overline{y}_t$ for each i by the

least-squares method,

$$y_{it} = z'_t\hat{\delta}_i + \hat{\varphi}_{i1}.y_{it-1} + ... + \hat{\varphi}_{ip}.y_{it-p} + \hat{\Psi}_{i0}\overline{y}_t + ... + \hat{\Psi}_{ip}\overline{y}_{t-p} + \hat{v}_{it}.$$

Hadri and Kurozumi (2012) obtain the estimator of the long-run variance by

$$\hat{\sigma}^2_{iSPC} = \frac{\hat{\sigma}^2_{vi}}{(1-\hat{\varphi}_i)^2} \text{ where } \hat{\sigma}^2_{vi} = 1/T.\sum_{t=1}^{T}\hat{v}^2_{it} \text{ and } \hat{\varphi}_i = \min\left\{1 - \frac{1}{\sqrt{T}}, \sum_{j=1}^{p}\hat{\varphi}_{ij}\right\}.$$

Finally, Hadri and Kurozumi (2012) create the test statistic of Z_A^{SPC} as below:

$$Z_A^{SPC} = \frac{1}{\hat{\sigma}^2_{iSPC}.T^2}\sum_{t=1}^{T}(S_{it}^{w})^2$$

Under a null hypothesis, this test states that series do not contain unit root, while an alternative hypothesis states that series contain unit root. Moreover, the null distribution of statistic Z_A^{SPC} is asymptotically standard normal, while it diverges to infinity under the alternative hypothesis. In addition, the test allowing serial correlation and cross-sectional dependence can be used in which both T<N and T>N.

From the point of view of the findings of Table 2, the Hadri and Kurozumi (2012)'s panel stationary test, which takes into account cross-sectional dependence is applied. The results in Table 2 show that the null hypothesis of stationary can be rejected at the usual significance level for the LFDI, EPU, OPEN variables in their levels. Thus, according to Table 2, the variables of LFDI, EPU, OPEN are I(1) variables while the other variables, PR and FREE are I(0) variables.

Table 2. Results for theHadri-Kurozumi (2012) Stationary Test and CD_{BP} Cross-sectional Dependence Test.

Variable	Z_A^{SPC} stat. (p-value) at level	Z_A^{SPC} stat. (p-value) at first difference	CDBP stat. (p-value)
LFDI	35,0062*** (0,00)	1,78 (0,09)	19,383** (0,03)
EPU	18,7565*** (0,00)	-0,21 (0,58)	10,749 (0,37)
PR	-1,3202 (0,90)	-	25,722*** (0,00)
OPEN	2,6183***(0,00)	1,00 (0,15)	27,533*** (0,00)
FREE	-1,3599 (0,91)	-	12,083 (0,28)
For Equation (1)	-	-	18,6478** (0,045)

***, ** denote statistical significance at the 1 and 5% level, respectively
Source: Authors' estimations

In addition, Table 2 reports CD_{BP} test results confirming the presence of the cross sectional dependence both in the mostly panel series and in the aggregate model. This finding implies that a shock that occurred in one of the 5 EU countries seems to be transmitted to other countries.

3.2.3. Panel Cointegration Test

We implement a relatively new panel cointegration test presented by Westerlund and Edgerton (2007). This panel bootstrap cointegration test bases on LM test of McCoskey and Kao (1998) which does not take into account the cross-sectional dependency. Westerlund and Edgerton (2007)'s panel bootstrap cointegration test considers the cross-sectional dependence and allows autocorrelation and heteroscedasticity in cointegration equation. In addition, it permits correlation to be accommodated both within and between the individual cross-sectional units. Furthermore, it is based on the sieve-sampling scheme, and has the advantage of significantly reducing the distortions of the asymptotic test (Afonso and Rault 2009).

Westerlund and Edgerton (2007) tests cointegration under null hypothesis. The LM statistic is calculated with the following equation:

$$LM_N^+ = \frac{1}{N.T^2}\sum_{i=1}^{N}\sum_{i=1}^{T}\hat{w}_i^{-2}.s_{i,t}^2$$

where $\hat{w}_i^{-2}$ and $s_{i,t}^2$ denote the long-run variance of the error terms and the partial sums of the error terms, respectively. The null hypothesis of the test suggests that the cointegration relationship existed for all countries in the panel.

The panel cointegration results reported in Table 3 for a model including a constant term clearly indicate the presence of a cointegrating relationship between the all series. In other words, the series tend to move together in the long-run. Therefore, the analysis with level values of series will not fall suspicious regression problem.

Table 3. Results of Westerlund and Edgerton (2007) LM Bootstrap Panel Cointegration Test.

Test statistic	Bootstrap prob. value
33,332	0.103

Bootstrap critical values are obtained from 1,000 replications.

3.2.4 Panel Cointegration Estimation

Long-term regression coefficients are estimated by Common Correlated Effects Model after the existence of the cointegration relationship between the series are confirmed by using the Westerlund and Edgerton (2007) LM bootstrap panel cointegration test. Pesaran (2006) suggested common correlated effects (CCE) estimators to estimate heterogeneous panel data models with a multifactor error structure. The basic idea is to filter the cross-unit specific regressors by means of cross-section averages of the dependent variable and the observed regressors. So, cross-sectional dependence can be eliminated since the unobserved common factors can be well approximated by those cross-section averages. Therefore, the number of the stationary factors doesn't need to be estimated. Kapetanios et al. (2011) extend the work of Pesaran (2006) to the case where the unobserved common factors are non-stationary. They show that the CCE estimators are consistent even in the presence of unit roots in the unobserved common factors and are also robust to structural breaks in the mean of those unobserved factors (Dobnik, 2011).

Pesaran (2006) consider the following linear heterogeneous panel data model:

$$y_{it} = \alpha_i^{'}.d_t + \beta_i^{'}.x_{it} + e_{it} \text{ fori=1,...,Nandt=1,...,T} \quad (4)$$

where d_t is a (nx1) vector of observed common effects, which include deterministic such as intercepts or seasonal dummies. x_{it} is a (kx1) vector of observed individual specific regressors on theithcross-section unit at time t, and the errors have the multifactor structure,

$$e_{it} = \gamma_i^{'}.f_t + \varepsilon_{it}, \quad (5)$$

where f_t is the (mx1) vector of unobserved common effects and ε_{it} are the individual-specific errors assumed to be independently distributed of (d_t, x_{it}). However, the unobserved factors f_t could be correlated with (d_t, x_{it}), and to allow for such a possibility, Pesaran (2006) adopt the general model for the individual specific regressors,

$$x_{it} = A_i^{'}.d_t + \Gamma_i^{'}.f_t + v_{it}, \quad (6)$$

where A_i and Γ_i are (nxk) and (mxk), factor loading matrices with fixed components, and v_{it} are the specific components of x_{it} distributed independently of the common effects and across i, but assumed to follow general

covariance stationary processes.

Combining equations (4)-(6) yields the system

$$\underset{((k+1)x1)}{z_{it}} = \begin{pmatrix} y_{it} \\ x_{it} \end{pmatrix} = \underset{((k+1)xn)}{B_i'} \underset{(nx1)}{d_t} + \underset{((k+1)xm)}{C_i'} . \underset{(mx1)}{f_t} + \underset{((k+1)x1)}{u_{it}}$$

where

$$u_{it} = \begin{pmatrix} \varepsilon_{it} + \beta_i'.v_{it} \\ v_{it} \end{pmatrix}, B_i = (\alpha_i \quad A_i)\begin{pmatrix} 1 & 0 \\ \beta_i & I_k \end{pmatrix}, C_i = (\gamma_i \quad \Gamma_i)\begin{pmatrix} 1 & 0 \\ \beta_i & I_k \end{pmatrix},$$

I_k is an identity matrix of order k. The rank of is determined by the rank of the (mx(k+1)) matrix of the unobserved factor loadings $\tilde{\Gamma}_i = (\gamma_i \quad \Gamma_i)$.

Pesaran (2006) suggested the use of cross-section averages of the dependent variable, y_{it}, and the regressors, x_{it}, as proxies for the unobserved common factors. [1]

Pesaran (2006) presents two estimators of the means of the cross unit-specific slope coefficients. One is the mean group (MG) estimator developed in Pesaran and Smith (1995) and the other is a generalization of the fixed effects (FE) estimator that considers potential cross-sectional dependence. First, the common correlated effects mean group (CCEMG) estimator is a simple average of the individual CCE estimators $\hat{b}_i$,

$$\hat{b}_{MG} = N^{-1}.\sum_{i=1}^{N} \hat{b}_i$$

$$\hat{b}_i = (X_i'\bar{M}X_i)^{-1}(X_i'\bar{M}y_i),$$

where $X_i = (x_{i1},...,x_{iT})', y_i = (y_{i1},...,y_{iT})$ and $\bar{M} = I_T - \bar{H}(\bar{H}'\bar{H})^{-1}\bar{H}'$ with $\bar{H} = (D, \bar{Z})$,

where D and $\bar{Z}$ denote the (Txn) and (Tx(k+1)) matrices of observations on d_t and $\bar{z}_t$, respectively.[2]

Second, the common correlated effects pooled (CCEP) estimator is given by

$$\hat{b}_p = \sum_{i=1}^{N}(\theta_i X_i'\bar{M}X_i)^{-1}\sum_{i=1}^{N}(\theta_i X_i'\bar{M}y_i)$$

.

Typically, the (pooling) weights θ_i are set equal to 1/N, although in the general case where σ_i^2 differs across i,

Pesaran (2006) shall see it will be optimal to set $\theta_i = \sigma_i^{-2} / \sum_{j=1}^{N}\sigma_j^{-2}$.

The results of the long-run estimates are reported in Table 4 for each country. Having established panel cointegration between foreign direct investments, political risk and economic policy uncertainty, we now estimate the equation (1) by using the Pesaran (2006)'s CCE estimator. Table 4 displays the results from estimating the equation (1). According to Table 4, CCE estimations show statistically significant and positive coefficients for pr in Germa-

1 See Pesaran (2006) for details on the underlying assumptions.

2 $\bar{z}_t = \bar{B}'d + \bar{C}'.f_t + \bar{u}_t$, in which $\bar{z}_t = \frac{1}{N}.\sum_{i=1}^{N} z_{it}$.

ny, France, England and Spain while show statistically significant and negative coefficients for epu in Spain and France. The signs of the coefficients of free and open, which are used as control variables, have differentiated for each country. The variable of free has statistically significant and positive effect on lfdi for only United Kingdom and the variable of open has statistically significant and positive effect on lfdi for Spain and Italy.

Surprisingly, according to Table 4, the effect of economic freedom on foreign direct investments is estimated as statistically significant and negative for the countries of France and Spain. This result can be interpreted as follows: The negative effect of economic policy uncertainty and the positive effect of political stability on foreign direct investments in those countries are more predominant than those of economic freedom.

Table 4. CCE Estimates of All Cross Section Units.

		Germany	**France**	**England**	**Spain**	**Italy**
	coeff	1,51	0,262	0,138	0,081	0,747
pr	se(NW)	0,526	0,061	0,03	0,02	0,566
	t(NW)	2,874525	4,295081967	4,6	4,05	1,319788
	coeff	0,002	-0,008	0,011	-0,005	0,15
epu	se(NW)	0,025	0,002	0,002	0,002	0,023
	t(NW)	0,08	-4	5,5	-2,5	6,521739
	coeff	-0,306	-0,045	0,039	-0,006	-0,116
Free	se(NW)	0,177	0,006	0,008	0,002	0,071
	t(NW)	-1,72881	-7,5	4,875	-3	-1,6338
	coeff	-0,789	0,013	-0,024	0,072	7
Open	se(NW)	0,808	0,093	0,036	0,015	0,92
	t(NW)	-0,97649	0,139784946	-0,666666667	4,8	8,080435

se(NW) is the standard error based on Newey-West type variance estimator of eq(50) in Pesaran (2006).

4.CONCLUSION

Political instability is regarded by economists as a serious malaise harmful to economic performance. Political instability is likely to shorten policymakers' horizons leading to suboptimal short term macroeconomic policies. It may also lead to a more frequent switch of policies, creating volatility and thus, negatively affecting macroeconomic performance.

At the same time, a higher political risk in a country increase ambiguity in the decisions of institutions and thus causing uncertainty in economic policies. Uncertainty in economic policies affects economic performance negatively over time.

Empirical studies in recent years indicate that political risk and economic uncertainty have an impact on many macroeconomic variables and it plays a decisive role on foreign direct investment.

In this study foreign direct investment inflows by consolidating a balanced panel from 5 EU countries, the study uses economic freedom and trade openness as control variables considers. and this study showed that there are some effect of political instability on (FDI).

This paper has analyzed the long-run relationships among political risk, economic policy uncertainty and foreign direct investment inflows of five EU countries during the period 2001-2014. Westerlund and Edgerton (2007)'s panel LM bootstrap panel cointegration test was applied to find empirical support for the presence of the cointegration relationship between the variables. Finally, the cointegration coefficients were estimated by using the Pesaran (2006)'s CCE estimator that has satisfactory small sample properties even under a substantial degree of heterogeneity and dynamics, and for relatively small values of N and T.

CCE estimations have showed statistically significant and positive coefficients for political stability in Germany, France, England and Spain while show statistically significant and negative coefficients for economic policy un-

certainty in Spain and France. The signs of the coefficients of economic freedom and trade openness, which are used as control variables, have differentiated for each country. The variable of economic freedom has statistically significant and positive effect on foreign direct investments for only United Kingdom and the variable of trade openness has statistically significant and positive effect on foreign direct investments for Spain and Italy.

Surprisingly, the effect of economic freedom on foreign direct investments was estimated as statistically significant and negative for the countries of France and Spain. However, this result can be interpreted as follows: The negative effect of economic policy uncertainty and the positive effect of political stability on foreign direct investments in those countries are more predominant than those of economic freedom.

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