

THE EFFECT OF ECONOMIC RISK FACTORS ON FOREIGN DIRECT INVESTMENTS INFLOWS: A RESEARCH ON TURKIC WORLD

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Abstract

The movement of capital among countries' economies in its favor accounts for international capital mobility which can be realized in the form of direct and indirect investments. It is accepted that the most important factors determining the attractiveness of foreign direct investment are economic / political stability. In this study, causality relationships between the net foreign direct capital inflows (FDI) of countries such as Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Türkiye, Turkmenistan, and Uzbekistan and economic policy uncertainty index (EPU), uncertainty index (WUI), geopolitical risk index (GPR), as well as fear indexes (VIX) are examined using the Granger causality methods. Then, Breitung and Candelon frequency causality analysis was used to determine whether the causality relationship between the variables is permanent or temporary. Analyses were carried out using annual frequency data between 1993-2021. According to the results of the study, different country-specific causality relationships were determined.

Keywords: Uncertainty and Risks, Causality Analysis, Foreign Capital Inflows

JEL Classification: C22, D81, E22

BELİRSİZLİK FAKTÖRLERİNİN DOĞRUDAN YABANCI SERMAYE YATIRIMLARI ÜZERİNE ETKİSİ: TÜRK DÜNYASI ÜZERİNE BİR ARAŞTIRMA

Öz

Doğrudan ve dolaylı yatırım şeklinde gerçekleşebilen uluslararası sermaye hareketliliği ülke ekonomileri arasında sermayenin kendi lehine yer değiştirmesinin bir sonucudur. Doğrudan yabancı yatırımların çekiciliğini belirleyen en önemli faktörlerin ise ekonomik/politik istikrar olduğu kabul edilmektedir. Bu çalışmada öncelikle Azerbaycan, Kazakistan, Kırgızistan, Tacikistan, Türkiye, Türkmenistan ve Özbekistan gibi ülkelerin net doğrudan yabancı sermaye girişleri (FDI) ile ekonomik politika belirsizlik endeksi (EPU), küresel belirsizlik endeksi (WUI), jeopolitik risk endeksi (GPR) ve korku endeksi (VIX) arasındaki nedenselliğin varlığı Granger nedensellik analizi ile test edilmiştir. Daha sonra ise değişkenler arasındaki kalıcı mı yoksa geçici mi nedensellik ilişkisinin olduğunu tespit etmek amacıyla Breitung ve Candelon frekans nedensellik analizi kullanılmıştır. Çalışma 1993-2021 tarihleri arasında yıllık frekans verilerinden yararlanılarak analizler gerçekleştirilmiştir. Çalışma sonuçlarına göre ülkeye özgü farklı nedensellik ilişkileri tespit edilmiştir.

Anahtar Kelimeler: Belirsizlik ve Riskler, Nedensellik Analizi, Yabancı Sermaye Girişleri

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1. INTRODUCTION

The movement of capital among countries' economies in its favor accounts for international capital mobility which can be realized in the form of direct and indirect investments. While underdeveloped countries encounter a significant capital restriction in their efforts of economic development, the capital factor is relatively abundant in developed countries. Such an imbalance among countries in terms of capital abundance results in inefficient resource allocation in the world economy (Kula, 2003:2). Countries that wish to take advantage of capital mobility may benefit from various policy instruments such as removal of barriers to capital, alluring foreign exchange rates and interest policies. Foreign direct investments (FDI) can be in the form of establishing new companies, opening branches, building new facilities, purchasing existing facilities, mergers with companies, full or partial company acquisitions/takeovers, or participating in joint ventures as well as license agreements (Çinko, 2009:118). Indirect capital investments (portfolio investments), however, are made by savers on stocks, bonds, and similar financial instruments to earn profits in international capital markets (İskenderoğlu and Karadeniz, 2011:2). Nowadays, both developed and developing countries undertake intensive efforts to allow FDI inflows. Because foreign capital investments pose as determining factors in the growth and development of the relevant countries. FDI, in particular, make various contributions to the country's economy such as capital accumulation, technological improvement, management quality, foreign trade opportunity, employment, sector discipline, skilled labor force, and risk-sharing (Anbar and Suleymanlı, 2016:102). Also, FDI maintain foreign currency accumulation, and thus investment funding may be realized. This circumstance can result in resource allocation efficiency as well as distribution and production efficiency that may have an impact on production. The factors that may have an impact on FDI tend to yield diversity in the literature. As stated in Çolak and Alakbarov (2017), there are a number of studies that deal with the impact of FDI flows on different macro-economic indicators at either individual country level or country groups as well. On the other hand, the studies could be distinguished into micro-level (industry level) or macro level. This stems from the fact that FDI's are in pursuit of natural resources, markets, efficiency, and strategic assets. In a broader sense, the factors determining the appeal of foreign direct investment can be classified as economic/political stability, comparative/competitive advantages, protection of property rights, and foreign trade domains. Among these factors, especially economic/political stability is considered to have the highest impact on FDI inflows. In the empirical literature, there are various studies asserting that economic/political stability, geopolitical risks, global uncertainty, and volatility may directly affect capital movements. Whether or not the asserted economic/political uncertainties and risks cause impacts on direct capital investments in the countries of the Turkic world constitutes the main subject of this research study. Unlike the studies in the literature, the study employs the relevant uncertainty and risk indices together and investigates whether these variables cause a permanent or temporary causality on foreign direct capital, revealing the originality of the study. It is expected that this procedure will add uniqueness to the study. The study consists of five sections. In the first section, information on direct and indirect capital flows is presented, and a literature review on the factors affecting direct capital inflows is mentioned in the second section. In the next section of the study, knowledge regarding the methods and data used in the analyses is given. In the next section, the obtained findings pertinent to the analysis results and evaluations regarding these findings are included. In the final section, evaluations and suggestions are made in compliance with the findings.

2. LITERATURE

Upon evaluating the research studies conducted on Türkiye and other countries regarding the factors influencing FDI inflows, it becomes evident that various micro-, macro-, and global indicators

have been utilized. To provide a coherent narrative, the studies are categorized into two main groups: those focusing on Türkiye and those examining other countries.

Focusing on the studies that include Türkiye in their analysis, Yapraklı (2006), one of the pioneering contributions, examined data from 1970 to 2006. The study highlighted that FDI inflows are positively influenced by gross domestic product (GDP) and openness, while being negatively impacted by labor costs, the real exchange rate, and the foreign trade deficit. Furthermore, a bilateral causal relationship was identified between FDI inflows and both GDP and the real exchange rate. Similarly, Karagöz (2007), examining data from 1970 to 2005, argued that the one-period lagged value of foreign direct investment and trade openness significantly impacted FDI inflows. Building upon these findings, Kar and Tatlısöz (2008), utilizing data from 1980 to 2003 and incorporating a broader range of independent variables, asserted the existence of a positive relationship between FDI inflows and variables such as international net reserves, gross national product, openness ratio, electricity production index, and investment incentives, while identifying negative relationships with real exchange rates and labor costs. Further, Susam (2008), focusing on data from 1998 to 2007, concluded that foreign direct investments were mostly positively affected by the improvement of the budget balance, economic stability in the public sector, and the rise in domestic investments. However, the study highlighted the adverse impacts of the 2008 global financial crisis on FDI inflows. Emir and Bank (2009), incorporating macroeconomic factors and various risk indicators, emphasized that political risk, economic risk, and macroeconomic stability of the host country significantly influenced FDI inflows, highlighting the role of country risk in shaping investment decisions. Additionally, Biniş and İpek (2010), examining data from 2001 to 2009, found that global crises had adverse effects on FDI inflows toward Türkiye. Koyuncu (2010), analyzing data from 1990 to 2009, noted that FDI inflows were significantly influenced by changes in GDP, trade openness, and net international reserves in the previous period. Acaravcı and Bostan (2011), utilizing quarterly data from 1992:Q1 to 2007:Q1, demonstrated that increases in GDP and investments positively impacted FDI inflows in the long run. Building on this, Aydemir and Genç (2015), using quarterly data from 1991:Q4 to 2014:Q3, identified GDP, trade openness, unit labor costs, and inflation as critical economic determinants of FDI inflows. While GDP, trade openness, and unit labor costs positively influenced FDI inflows, inflation exerted a negative impact. Similarly, Çiftçi and Yıldız (2015), analyzing data from 1974 to 2012, observed that FDI inflows were positively associated with GDP, the real exchange rate, and financial improvement variables but negatively affected by the foreign trade deficit and external debt variables. Yalçınkaya (2019), studying quarterly data from 1992:Q1 to 2018:Q2, incorporated global uncertainty and risk indicators, concluding that global economic, political, and geopolitical uncertainties predominantly exerted negative impacts on FDI inflows, albeit with variations across periods.

Focusing on studies conducted in other countries, Schneider and Frey (1985), one of the earliest contributions, analyzed data from 1976, 1979, and 1980. Their findings revealed that FDI inflows increased with higher per capita GNP and reduced balance of payments deficits, while political instability had a negative effect. In the context of the USA, Erramilli and D'Souza (1995), examining data from 175 companies during 1985–1986, observed that both internal and external uncertainties significantly influenced FDI inflows. Extending the scope to Latin America, Bengoa and Sanchez-Robles (2003), analyzing data from 18 countries between 1970 and 1999, concluded that economic freedom was a key positive determinant of FDI inflows. Moreover, Asiedu (2006), focusing on data from 1984 to 2000 for 22 African countries, highlighted the importance of natural resources, large markets, low inflation, good infrastructure, an educated population, openness to foreign investment, reduced corruption, political stability, and a reliable legal system in driving FDI inflows. Similarly, Busse and Hefeker (2007), analyzing data from 1984 to 2003 for 83 developing countries, emphasized

the significance of governmental stability, internal/external conflicts, corruption, ethnic tensions, law and order, democratic accountability, and bureaucratic quality in attracting FDI inflows.

In OECD countries, Özcan and Arı (2010), using data from 1994 to 2006, demonstrated that growth rates, infrastructure levels, and inflation positively influenced FDI inflows, while openness and current account balance variables exhibited negative associations. Zeren and Ergun (2010), examining EU member countries from 1995 to 2007, highlighted the positive roles of GDP growth rates, openness ratios, and development levels, while noting the adverse impacts of current account balances and gross capital accumulation. Extending the analysis to developing countries, Arbatlı (2011), utilizing data from 2000 to 2007, pointed to the role of global risk aversion indices (e.g., the Volatility Index-VIX) and uncertainty in shaping FDI inflows. Similarly, Arik et al. (2014), studying data from Brazil, China, India, Russia, Mexico, Indonesia, and Türkiye from 1990 to 2011, revealed that market size, openness, and economic stability were key determinants of FDI inflows. Bekaert et al. (2014), analyzing data from 1994 to 2009 for 43 countries, underscored the importance of mitigating political risks in enhancing FDI inflows. Benacek et al. (2014), focusing on European countries from 1995 to 2008, corroborated the significant influence of political risks on foreign investors' decisions. Similarly, Çetin and Seker (2014), using data from 1996 to 2011 for OECD countries, identified trade openness and financial improvements as long-term positive determinants of FDI inflows. In the context of Romania, Rădulescu and Druica (2014), analyzing data from 2000 to 2010, reported that monetary factors such as high interest rates and inflation attracted FDI inflows, while financial factors like direct taxes played a less significant role. Artan and Hayaloğlu (2015), examining OECD countries from 1990 to 2012, highlighted the predominance of institutional indicators, including government stability, socio-economic conditions, and law and order, over economic indicators in influencing FDI inflows.

Additional studies, such as those by Ngendakumana and Kaseke (2015), Bal and Akça (2016), and Julio and Yook (2016), emphasized the varying roles of trade deficits, market volume, trade openness, and political uncertainty across regions. Similarly, Albulescu and Ionescu (2018), focusing on EU member countries, highlighted the adverse impacts of monetary policy uncertainties and the positive role of banking sector stability on FDI inflows. Krol (2018) and Chen et al. (2019), extending the analysis to the USA and a global sample of 126 countries, respectively, reiterated the detrimental effects of political and economic uncertainties on FDI inflows. Finally, Economou (2019), examining data from Southern European countries, concluded that market size, gross capital accumulation, and economic freedoms, particularly the protection of property rights and monetary freedom, consistently exhibited positive impacts on FDI inflows, while unit labor costs exerted negative effects....

3. METHODOLOGY AND DATA

The study, the ratio of FDI to national income, the global economic policy uncertainty index data (EPU), the global geopolitical risk index (GPR), the global uncertainty index (WUI), and the annual data of the Volatility Index (VIX) (the global fear index) of countries such as Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Türkiye, Turkmenistan, and Uzbekistan are utilized over the period 1993-2021. In the study, the direct net foreign capital inflow used as the dependent variable refers to the sum of short-term capital which corresponds to the net capital inflow realized to obtain a permanent management revenue in an enterprise operating in an economy other than the investor, as indicated in the equity, reinvestment of earnings, other long-term capital and balance of payments. This series indicates net inflows from foreign investors in the reporting economy and is divided by GDP (World Bank). The relevant dataset was obtained from the World Bank. The EPU developed in Baker et al. (2016), GPR developed in Caldara and Iacoviello (2017) and WUI developed in Ahir et al. (2018) data were obtained from the website www.policyuncertainty.com. The VIX data have been obtained from

the Chicago Options Exchange (CBOE) website <http://www.cboe.com/>. Table 1 presents the GDP growth rates and FDI/GDP ratios of the countries according to the World Bank data. .

Table 1: GDP Growth and FDI/GDP Ratios of the Countries by Years

Countries	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Azerbaijan	2.2	5.8	2.8	1.1	-3.1	0.2	1.5	2.5	-4.3	5.6
	(3.53)	(5.89)	(7.63)	(11.88)	(7.02)	(2.98)	(3.13)	(3.12)	(1.19)	(-3.13)
Kazakhstan	4.8	6.0	4.2	1.2	1.1	4.1	4.1	4.5	-2.5	4.3
	(4.23)	(3.30)	(3.57)	(12.54)	(2.83)	(0.05)	(1.85)	(2.05)	(4.21)	(2.22)
Kyrgyz Republic	-0.1	10.9	4.0	3.9	4.3	4.7	3.8	4.6	-8.4	3.6
	(8.34)	(4.59)	(17.13)	(9.09)	(-1.39)	(1.74)	(4.78)	(4.55)	(-5.16)	(2.90)
Tajikistan	7.5	7.4	6.7	6.0	6.9	7.1	7.6	7.4	4.4	9.2
	(3.35)	(3.58)	(5.78)	(3.48)	(2.60)	(2.94)	(2.62)	(2.56)	(1.31)	(0.96)
Türkiye	4.8	8.5	4.9	6.1	3.3	7.5	3.0	0.8	1.9	11.4
	(1.42)	(1.42)	(2.23)	(1.60)	(1.29)	(1.67)	(1.19)	(1.26)	(1.09)	(1.69)
Turkmenistan	11.1	10.2	10.3	6.5	6.2	6.5	6.2	6.3
	(7.30)	(8.80)	(8.50)	(6.20)	(5.50)	(4.87)	(4.7)	(4.71)	(2.59)	(3.21)
Uzbekistan	7.1	7.3	6.9	7.2	5.9	4.4	5.4	5.7	1.9	7.4
	(0.92)	(1.05)	(1.27)	(2.03)	(3.04)	(1.24)	(4.00)	(3.87)	(2.89)	(3.03)

Values in parentheses indicate the FDI / GDP ratios. Upon evaluating the data presented in Table 2, the shares of the countries' FDI inflows in their economic growths, except for Türkiye and Uzbekistan, seem to loom large.

Firstly, the Augmented Dickey-Fuller (ADF) test developed by Dickey and Fuller (1981) and the Philips and Perron (PP) traditional unit root test developed by Philips and Perron (1988) are performed on the data to be used in the analysis along with the stationarity tests in this study. Subsequently, the Granger (1969) causality test is performed, as well as the frequency causality test which was developed by Breitung and Candelon (2006). Thus by Breitung and Candelon (2006) reveals the permanent and temporary causality between the variables by performing a developed form of Granger (1969) causality test.

The Granger Causality test should be performed on stationary datasets. Besides the test itself forces to figure out a bilateral, unilateral or no causality relationship between two time-series. In Granger (1969), the term causality is described as the measurement of the situation in which X's past values are used for the prediction of Y. The test class with the situation in which X's past values are not employed. According to the model, if the previous values yield more exact predictions, it can be stated that X is the Granger cause of Y. Measurements in the relevant test are realized with the F and Wald tests. The Granger causality analysis starts with the estimation of the following VAR model for two unit root free series (Asteriou and Hall, 2011:322):

$$y_t = a_1 + \sum_{i=1}^n \beta_i x_{t-i} + \sum_{j=1}^m \gamma_j y_{t-j} + \varepsilon_{1t} \quad (1)$$

$$x_t = a_2 + \sum_{i=1}^n \theta_i x_{t-i} + \sum_{j=1}^m \delta_j y_{t-j} + \varepsilon_{2t} \quad (2)$$

Upon evaluating this process, although the Granger Causality test yields certain results about the causal relationship among the series, the F and Wald tests used in the method content reveal the long-term relationship rather than the short-term relationship. To solve such a problem, causality measurement for frequencies depending on the decomposition of spectral density functions was

proposed in studies such as Geweke (1982), Hosoya (1991), and Yao and Hosoya (2000). Frequency domain causality is preferred since it allows for the evaluation of the Granger causality at different frequencies being a conveniently applicable model based on linear restrictions (Yanfeng, 2013). In their 2006 study, Breitung and Candelon developed a testing methodology based on a two-vector autoregressive vector model, grounded in a linear assumption concerning autoregressive parameters. The method depicted in Equation 3 is employed to assess both the presence of a causality relationship between variables and the nature of causality, determining whether it is temporary or permanent (Bozoklu and Yılcı, 2013).

$$M_{a \rightarrow b}(\omega) = \log \left[\frac{2\pi f_x(\omega)}{|\psi_{11}(e^{-i\omega})|^2} \right] = \log \left[1 + \frac{|\psi_{12}(e^{-i\omega})|^2}{|\psi_{11}(e^{-i\omega})|^2} \right] \quad (3)$$

According to the equation if $|\Psi_{12}(e^{-i\omega})| = 0$ for any ω whether permanent or transitory frequencies, there will be no causality from variable a to variable b (Ciner, 2011). Frequency causality test was preferred in this study because, unlike other causality tests, it reveals whether causality has a permanent or temporary effect.

4. FINDINGS

Descriptive statistics are calculated first regarding the variables used in the study. Descriptive statistics of the relevant variables are presented in Table 2.

Table 2: Descriptive Statistics

Variables		Mean	Maximum	Minimum	Standard Dev.
EPU		130.6750	320.0442	62.5273	63.5583
GPR		96.8092	176.3016	50.9146	29.0635
WUI		18195.77	40648.58	8725.704	7798.65
VIX		20.1363	32.1030	12.3925	5.6451
(FDI)	Azerbaijan	13.8235	55.0759	-3.1263	14.7719
	Kazakhstan	6.7323	13.0129	0.1969	3.7517
	Kyrgyz Republic	4.4305	17.1312	-5.1603	4.3558
	Tajikistan	3.4611	13.1022	0.5473	3.3323
	Türkiye	1.3036	3.6535	0.3060	0.8805
	Turkmenistan	6.6847	22.5236	2.3909	4.2151
	Uzbekistan	1.5801	4.1605	-0.1797	1.2052

From the descriptive statistics in Table 2, it is seen that the highest and the lowest volatilities among the uncertainty and risk indicators belong to the geopolitical risk index and the VIX fear index, respectively. Upon evaluating the country statistics regarding the ratios of net foreign direct investment inflows to GDP ratio (FDI), it is seen that the highest and the lowest ratios on average belong to Azerbaijan and Türkiye, respectively. Upon considering the standard deviation of the values of the relevant ratio, the highest and the lowest volatilities are detected to belong to Azerbaijan and Türkiye, respectively. In order to determine the stationarity of the data, prior to detecting the causality relationship among variables, the ADF and PP tests are performed. The ADF and PP test results are presented in Table 3.

Table 3: Unit Root Tests

Variables	ADF		PP	
	Constant	Constant and Trend	Constant	Constant and Trend
EPU	-1.2823	-2.5802	-1.2061	-2.4914
ΔEPU	-4.9051*	-5.0236*	-3.7173*	-3.7452**
GPR	-2.5121	-2.4652	-2.5315	-2.4847
ΔGPR	-5.9339*	-5.8194*	-5.9261*	-5.8132*

WUI		-2.5349	-4.2274**	-2.5189	-4.0863**
Δ WUI		-5.2606*	-5.0220*	-9.8092*	-8.5912*
VIX		-3.281**	-3.2388	-3.176**	-2.9930
Δ VIX		-6.1703*	-6.0457*	-6.2245*	-6.0995*
FDI	Azerbaijan	-1.5794	-4.3843*	-1.8144	-1.9366
	Δ Azerbaijan	-4.5682*	-4.5335*	-4.2189*	-4.3760*
	Kazakhstan	-3.173**	-3.4060	-3.099**	-3.3269
	Δ Kazakhstan	-7.8564*	-7.8685*	-8.1249*	-8.2447*
	Kyrgyz Republic	-3.9793*	-4.0731*	-4.129**	-3.8937**
	Δ Kyrgyz Republic	-6.0068*	-5.9667*	-8.1005*	-8.0496*
	Tajikistan	-1.8436	-1.6426	-3.536**	-3.4033
	Δ Tajikistan	-10.538*	-10.5666*	-10.538*	-10.566*
	Türkiye	-2.2311	-2.3763	-2.3475	-2.5599
	Δ Türkiye	-4.7554*	-4.6613*	-4.7554*	-4.6613*
	Turkmenistan	-2.7202	-2.5698	-2.7202	-2.5698
	Δ Turkmenistan	-6.2799*	-6.2596*	-6.2799*	-6.2596*
	Uzbekistan	-2.6332	-3.5206	-2.5329	-3.5206
	Δ Uzbekistan	-7.1880*	-7.0463**	-4.3708*	-7.2138*

* 1% and ** 5% indicate significance.

Upon evaluating the ADF and PP test results of the variables included in the analysis concurrently, it is determined that the variables contain unit root at the level except Kyrgyzstan, and the difference series are stationary. Regarding these results, the causality analyses can be performed using difference series of variables. The causality test results between EPU index and FDI are presented in Table 4.

Table 4: Results of the Granger Causality from EPU Index to FDI

Direction of Causality	F Statistic	Result
Δ EPU \rightarrow Δ Azerbaijan	0.5223	No Granger causality.
Δ EPU \rightarrow Δ Kazakhstan	5.4047*	There is Granger causality.
Δ EPU \rightarrow Δ Kyrgyz Republic	3.2623**	There is Granger causality.
Δ EPU \rightarrow Δ Tajikistan	1.5978	No Granger causality.
Δ EPU \rightarrow Δ Türkiye	4.3189*	There is Granger causality.
Δ EPU \rightarrow Δ Turkmenistan	0.8774	No Granger causality.
Δ EPU \rightarrow Δ Uzbekistan	0.8274	No Granger causality.

* 1% and ** 5% indicate significance.

According to the Granger (1969) causality analysis results presented in Table 4, it is concluded that causality exists from the change in EPU to the change in FDI for Kazakhstan, Kyrgyzstan, and Türkiye. In Table 5, The causality test results between GPR index and FDI are presented.

Table 5: Results of Causality from GPR Index to FDI

Direction of Causality	F Statistic	Result
Δ GPR \rightarrow Δ Azerbaijan	3.3271**	There is Granger causality.
Δ GPR \rightarrow Δ Kazakhstan	0.4007	No Granger causality.
Δ GPR \rightarrow Δ Kyrgyz Republic	0.0193	No Granger causality.
Δ GPR \rightarrow Δ Tajikistan	1.6825	No Granger causality.
Δ GPR \rightarrow Δ Türkiye	5.4144*	There is Granger causality.
Δ GPR \rightarrow Δ Turkmenistan	0.5296	No Granger causality.
Δ GPR \rightarrow Δ Uzbekistan	0.1311	No Granger causality.

* 1% and ** 5% indicate significance.

According to the results presented in Table 5, a causality from the change in the GPR index to the change in the FDI is detected for Azerbaijan and Türkiye, whereas no causality is determined for other countries. In Table 6, The causality test results between WUI index and FDI are presented.

Table 6: Results of Causality from WUI Index to FDI

Direction of Causality	F Statistic	Result
$\Delta WUI \rightarrow \Delta \text{Azerbaijan}$	0.1945	No Granger causality.
$\Delta WUI \rightarrow \Delta \text{Kazakhstan}$	1.7268	No Granger causality.
$\Delta WUI \rightarrow \Delta \text{Kyrgyz Republic}$	3.0366*	There is Granger causality.
$\Delta WUI \rightarrow \Delta \text{Tajikistan}$	0.6552	No Granger causality.
$\Delta WUI \rightarrow \Delta \text{Türkiye}$	4.3783*	There is Granger causality.
$\Delta WUI \rightarrow \Delta \text{Turkmenistan}$	0.3115	No Granger causality.
$\Delta WUI \rightarrow \Delta \text{Uzbekistan}$	0.2528	No Granger causality.

* 5% indicate significance.

Upon evaluating the Granger (1969) causality test results presented in Table 6, a causality running from the change in WUI to the change in FDI is detected for Kyrgyz Republic and Türkiye. No statistically significant result can be detected for other countries. The causality test results between VIX index and FDI are presented in Table 7.

Table 7: Results of Causality from VIX Index to FDI

Direction of Causality	F Statistic	Result
$\Delta VIX \rightarrow \Delta \text{Azerbaijan}$	2.04515	No Granger causality.
$\Delta VIX \rightarrow \Delta \text{Kazakhstan}$	3.0636**	There is Granger causality.
$\Delta VIX \rightarrow \Delta \text{Kyrgyz Republic}$	0.0151	No Granger causality.
$\Delta VIX \rightarrow \Delta \text{Tajikistan}$	2.0818	No Granger causality.
$\Delta VIX \rightarrow \Delta \text{Türkiye}$	7.1445*	There is Granger causality.
$\Delta VIX \rightarrow \Delta \text{Turkmenistan}$	3.5859**	There is Granger causality.
$\Delta VIX \rightarrow \Delta \text{Uzbekistan}$	0.3468	No Granger causality.

* 1% and ** 10% indicate significance.

Upon evaluating the results regarding the VIX fear index and FDI presented in Table 7, it is concluded that causality exists from the change in the VIX fear index to the change in FDI for Kazakhstan, Türkiye, and Turkmenistan; whereas no statistically significant results can be obtained for other countries.

Upon evaluating the Granger (1969) causality test results in terms of countries, Türkiye is determined as the most affected country by the relevant uncertainty and risk indexes. Relatively higher degrees of openness in the highly functioning capital markets of both countries, in particular, would be considered to account for such an impact. Tajikistan and Uzbekistan are seen as the countries that is not statistically affected by the change in the relevant indexes. It can be asserted that the reasons such as the lack of an efficient capital market of the relevant countries, Their relatively more closed economy, and serious ethical problems may cause such an outcome.

The Breitung and Candelon frequency domain causality tests are performed to determine whether the causal relationships among variables are temporary or permanent. In this context, firstly, the results of frequency domain causality from the change in the EPU index to the change in the FDI are presented in Table 8.

Table 8: Results of the Frequency Domain Causality from EPU Index to FDI

Direction of Causality	Permanent Causality $w = 0.5$	Temporary Causality $w = 2.0$
$\Delta EPU \rightarrow \Delta \text{Azerbaijan}$	1.0446	1.0447
$\Delta EPU \rightarrow \Delta \text{Kazakhstan}$	6.6399**	13.9790*
$\Delta EPU \rightarrow \Delta \text{Kyrgyz Republic}$	5.0503***	9.4331*
$\Delta EPU \rightarrow \Delta \text{Tajikistan}$	1.7699	1.9472

$\Delta EPU \rightarrow \Delta \text{Türkiye}$	12.3469*	26.5309*
$\Delta EPU \rightarrow \Delta \text{Turkmenistan}$	0.6810	1.8107
$\Delta EPU \rightarrow \Delta \text{Uzbekistan}$	0.0982	0.6464

* 1%, ** 5% and ***10% indicate significance.

According to the frequency domain causality test results presented in Table 8, it is concluded that the causality running from the change in the EPU index to the change in FDI is both permanent and temporary for Kazakhstan, Kyrgyzstan, and Türkiye. For other countries, however, no statistically significant result can be detected. Table 9 presents the results of frequency domain causality running from the change in the GPR index to the change in the FDI.

Table 9: Results of the Frequency Domain Causality from GPR Index to FDI

Direction of Causality	Permanent Causality	Temporary Causality
	w = 0.5	w = 2.0
$\Delta GPR \rightarrow \Delta \text{Azerbaijan}$	12.9219*	4.8692***
$\Delta GPR \rightarrow \Delta \text{Kazakhstan}$	0.0852	1.2059
$\Delta GPR \rightarrow \Delta \text{Kyrgyz Republic}$	0.0770	0.1477
$\Delta GPR \rightarrow \Delta \text{Tajikistan}$	4.0475	3.9911
$\Delta GPR \rightarrow \Delta \text{Türkiye}$	8.6724**	7.9821**
$\Delta GPR \rightarrow \Delta \text{Turkmenistan}$	0.2888	1.0911
$\Delta GPR \rightarrow \Delta \text{Uzbekistan}$	0.0537	0.0271

* 1%, ** 5% and ***10% indicate significance.

According to the frequency domain causality test results presented in Table 9, it is concluded that the causality running from the change in the GPR index to the change in the FDI is both permanent and temporary for Azerbaijan and Türkiye. In Table 10, the results of frequency domain causality running from the change in the WUI index to the change in the FDI are presented.

Table 10: Results of the Frequency Domain Causality from WUI Index to FDI

Direction of Causality	Permanent Causality	Temporary Causality
	w = 0.5	w = 2.0
$\Delta WUI \rightarrow \Delta \text{Azerbaijan}$	0.3640	0.1309
$\Delta WUI \rightarrow \Delta \text{Kazakhstan}$	1.0980	3.7501
$\Delta WUI \rightarrow \Delta \text{Kyrgyz Republic}$	5.8752**	9.0367*
$\Delta WUI \rightarrow \Delta \text{Tajikistan}$	1.1029	2.4785
$\Delta WUI \rightarrow \Delta \text{Türkiye}$	10.4587*	13.8964*
$\Delta WUI \rightarrow \Delta \text{Turkmenistan}$	0.3341	0.3886
$\Delta WUI \rightarrow \Delta \text{Uzbekistan}$	1.5639	0.8496

* 1% and ** 5% indicate significance.

The causality running from the change in the WUI index to the change in FDI is determined both permanent and temporary for Kyrgyz Republic and Türkiye. For other countries, however, neither permanent nor temporary causality relationship is detected among the variables. In Table 11, results of the frequency domain causality running from the change in the VIX fear index to the change in FDI are presented.

Table 11: Results of the Frequency Domain Causality from VIX Index to FDI

Direction of Causality	Permanent Causality	Temporary Causality
	w = 0.5	w = 2.0
$\Delta VIX \rightarrow \Delta \text{Azerbaijan}$	0.3595	3.7272
$\Delta VIX \rightarrow \Delta \text{Kazakhstan}$	4.0849	2.6386
$\Delta VIX \rightarrow \Delta \text{Kyrgyz Republic}$	0.1447	0.0290
$\Delta VIX \rightarrow \Delta \text{Tajikistan}$	5.5114**	0.2100
$\Delta VIX \rightarrow \Delta \text{Türkiye}$	5.0671**	8.4926*
$\Delta VIX \rightarrow \Delta \text{Turkmenistan}$	5.1115**	2.1794
$\Delta VIX \rightarrow \Delta \text{Uzbekistan}$	0.8114	0.1036

* 1% and ** 5% indicate significance.

According to the results presented in Table 11, it is detected that the causality running from the change in VIX fear index to the change in FDI is permanent for Turkmenistan and Tajikistan, whereas both permanent and temporary for Türkiye. For other countries, no such causal relationship is detected.

CONCLUSION

Various factors that are effective in the development of countries can be mentioned. Nevertheless, capital inflows involve the most emphasized issues in developing countries. Determining the factors which result in the capital inflows toward the countries of the Turkic world constitutes the subject of this study. The causes of direct capital movements toward Kazakhstan, Kyrgyzstan, Tajikistan, Türkiye, Turkmenistan, and Uzbekistan are explicated through the causality tests proposed by Granger (1969) and Breitung and Candelon (2006) utilizing, in particular, the annual data of EPU, GPR, WUI, and VIX over the period 1993-2021.

The results obtained from the study put forth the fact that the changes in economic policy uncertainty lead to both temporary and permanent direct capital movements toward Kazakhstan, Kyrgyzstan, and Türkiye. It can be claimed that the change in the global geopolitical risk index merely causes both temporary and permanent capital inflows for Azerbaijan and Türkiye. Nonetheless, it is detected that the changes in the global uncertainty index have both temporary and permanent causal impacts for Kyrgyz Republic and Türkiye. In addition, it is detected that the causality running from the change in VIX fear index to the change in FDI is permanent for Turkmenistan and Tajikistan, whereas both permanent and temporary for Türkiye. When compared to the literature, the study's findings align with previous research: the impact of EPU on FDI is consistent with the results of Yapraklı (2006), Karagöz (2007), and Kar and Tatlısöz (2008); the influence of GPR on FDI corresponds with the findings of Emir and Bank (2009); the effect of VIX on FDI is in line with Arbatlı (2011); and the results regarding the impact of WUI on FDI are consistent with the studies of Yalçınkaya (2019) and Chen et al. (2019). Even when the literature on Türkiye is meticulously examined with the researchers' utmost effort, no study has been identified that yields findings substantially different from those obtained in this study. This demonstrates that the causal relationships methodologically constructed from EPU to FDI, from GPR to FDI, from VIX to FDI and from WUI to FDI exhibit a consistent and stable structure.

It is thought that countries producing policies to eliminate geopolitical risks and reducing uncertainties by determining more transparent policies in their economic policies will directly contribute positively to net foreign capital inflows. Upon evaluating the results of the study on a country-specific basis, it may be suggested that policymakers should take measures according to whether the detected causal relationship is permanent or temporary, and according to the factor determining the causal relationship. The permanent effects of the VIX index in certain countries (e.g., Türkiye and

Turkmenistan) may indicate that these nations are more vulnerable to global market fluctuations. This underscores the need to strengthen financial market regulations to ensure the stable continuation of capital inflows. Türkiye appears to exhibit a greater response to both economic and geopolitical uncertainties compared to other countries. These findings underscore Türkiye's position as a strategic economic and political hub within the Turkic world. To further strengthen Türkiye's role in the region, the establishment of regional cooperation platforms and the promotion of trade and investment agreements among Turkic countries could be considered. Indeed, each of the countries included in the analyses has its own specific structural features. Examination of the subject in accordance with the structural and macroeconomic stability of each country may be useful in a broader sense. Nevertheless, this thought would constitute the subject of new studies. Additionally, the study was conducted only on the Turkish World. In future studies, it is recommended to conduct similar studies in other countries as it will contribute to the literature in terms of generalizing the results.

Etik Beyan

“The Effect of Economic Risk Factors on Foreign Direct Investments Inflows: A Research On Turkic World” başlıklı çalışmanın yazılması ve yayınlanması süreçlerinde Araştırma ve Yayın Etiği kurallarına riayet edilmiş ve çalışma için elde edilen verilerde herhangi bir tahrifat yapılmamıştır. Çalışma için etik kurul izni gerekmemektedir.

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Extended Abstract

The Effect of Economic Risk Factors on Foreign Direct Investments Inflows : A Research On Turkic World

Nowadays, both developed and developing countries undertake intensive efforts to allow FDI inflows. Because foreign capital investments pose as determining factors in the growth and development of the relevant countries. FDI, in particular, make various contributions to the country's economy such as capital accumulation, technological improvement, management quality, foreign trade opportunity, employment, sector discipline, skilled labor force, and risk-sharing (Anbar and Suleymanlı, 2016). As stated in Çolak and Alakbarov (2017), there are a number of studies that deal with the impact of FDI flows on different macro-economic indicators at either individual country level or country groups as well. In the empirical literature, there are various studies asserting that economic/political stability, geopolitical risks, global uncertainty, and volatility may directly affect capital movements. Whether or not the asserted economic/political uncertainties and risks cause impacts on direct capital investments in the countries of the Turkic world constitutes the main subject of this research study. Unlike the studies in the literature, the study employs the relevant uncertainty and risk indices together and investigates whether these variables cause a permanent or temporary causality on foreign direct capital, revealing the originality of the study. It is expected that this procedure will add uniqueness to the study.

The study, the ratio of FDI to national income, the global economic policy uncertainty index data (EPU), the global geopolitical risk index (GPR), the global uncertainty index (WUI), and the annual data of the Volatility Index (VIX) (the global fear index) of countries such as Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Türkiye, Turkmenistan, and Uzbekistan are utilized over the period 1993-2021. Firstly, the Augmented Dickey-Fuller (ADF) test and the Philips and Perron (PP) traditional unit root test are performed on the data to be used in the analysis along with the stationarity tests in this study. Subsequently, the Granger (1969) causality test is performed, as well as the frequency causality test which was developed by Breitung and Candelon (2006).

Upon evaluating the Granger (1969) causality test results in terms of countries, Türkiye is determined as the most affected country by the relevant uncertainty and risk indexes. Relatively higher degrees of openness in the highly functioning Türkiye capital markets, in particular, would be considered to account for such an impact. Tajikistan and Uzbekistan are seen as the countries that is not statistically affected by the change in the relevant indexes. It can be asserted that the reasons such as the lack of an efficient capital market of the relevant countries, Their relatively more closed economy, and serious ethical problems may cause such an outcome.

The results obtained from the study put forth the fact that the changes in economic policy uncertainty lead to both temporary and permanent direct capital movements toward Kazakhstan, Kyrgyzstan, and Türkiye. It can be claimed that the change in the global geopolitical risk index merely causes both temporary and permanent capital inflows for Azerbaijan and Türkiye. Nonetheless, it is detected that the changes in the global uncertainty index have both temporary and permanent causal impacts for Kyrgyz Republic and Türkiye. In addition, it is detected that the causality running from the change in VIX fear index to the change in FDI is permanent for Turkmenistan and Tajikistan , whereas both permanent and temporary for Türkiye.

It is thought that countries producing policies to eliminate geopolitical risks and reducing uncertainties by determining more transparent policies in their economic policies will directly contribute positively to net foreign capital inflows. Upon evaluating the results of the study on a country-specific basis, it may be suggested that policymakers should take measures according to whether the detected causal relationship is permanent or temporary, and according to the factor determining the causal relationship. Indeed, each of the countries included in the analyses has its own specific structural features. Examination of the subject in accordance with the structural and macroeconomic stability of each country may be useful in a broader sense. Nevertheless, this thought would constitute the subject of new studies. Additionally, the study was conducted only on the Turkish World. In future studies, it is recommended to conduct similar studies in other countries as it will contribute to the literature in terms of generalizing the results.
