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Araştırma Makalesi

The Impact of Terrorism on Foreign Direct Investment: The Case of Turkey

Terörizmin Doğrudan Yabancı Yatırımlar Üzerindeki Etkisi: Türkiye Örneği

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Abstract

Foreign Direct Investment (FDI) is a key source of foreign exchange, new jobs and bleeding-edge technology transfers for the developing countries. However, terrorist attacks in a country are an important factor determining the preferences of companies in investing abroad.

Turkey has been facing both internal and external terrorist groups' attacks since the late 1980s. In this context, this study discussed the impact of terrorism on FDI inflows in Turkey for the period 1990-2019. Autoregressive Distributed Lag (ARDL) bounds testing approach to co-integration was used in the study. The study revealed that terrorism affects FDI in Turkish economy positively and not significantly in the short-run, while negatively and significantly in the long-run. Furthermore, the impact of some supportive variables- inflation, trade openness, military expenditure and remittances on FDI and terrorism in the model was also examined in the paper. The results concluded that trade openness shows a negative and significant impact on FDI both in the short-run and long-run. Remittances shows a negative and significant result. This indicate that there is a short-run negative relationship between remittances and FDI. Inflation shows a positive but not a significant impact on FDI, and military expenditure also shows a negative and non-significant impact in the short run, which normally has to be positive.

Key Words: *foreign direct investment, terrorism, trade openness, military expenditure, ARDL cointegration*

JEL Classification: *F10, F21, H56*

Öz

Doğrudan Yabancı Yatırım (DYY), gelişmekte olan ülkeler için dövizin, yeni istihdam alanlarının ve en yeni teknoloji transferinin hayati bir kaynağıdır. Ancak bu noktada, bir ülkedeki terör saldırıları, şirketlerin yurtdışına yatırım yapma tercihlerini belirleyen önemli bir faktördür.

Türkiye 1980'li yılların sonlarından beri ülke içi ve ülke dışındaki terör örgütlerinin saldırılarına maruz kalmaktadır. Bu bağlamda, çalışma 1990-2019 dönemi için terörizmin Türkiye'nin DYY girişlerine etkisini ele almaktadır. Çalışmada eşbütünleşme analizi için Dağıtılmış Gecikmeli Otoregresif Model (ARDL) sınır testi kullanılmıştır. Çalışma, terörizmin Türkiye ekonomisinde DYY'yi kısa vadede olumlu ve anlamsız, uzun vadede ise olumsuz ve anlamlı olarak etkilediğini ortaya koymuştur. Ayrıca, enflasyon, ticarete açıklık, askeri harcama ve işçi dövizleri gibi bazı destekleyici değişkenlerin DYY ve terörizm üzerindeki etkisi de makalede incelenmiştir. Sonuçlar, ticarete açıklığın hem kısa vadede hem de uzun vadede DYY üzerindeki olumsuz ve önemli bir etki gösterdiğine işaret etmektedir. İşçi dövizleri, olumsuz ve anlamlı bir

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sonuç göstermektedir. Bu, işçi dövizleri ile DYY arasında kısa vadeli negatif bir ilişki olduğunu göstermektedir. Enflasyon, DYY üzerinde olumlu, ancak önemli bir etki göstermemektedir. Son olarak, askeri harcamalar da kısa vadede, olumsuz ve önemli olmayan bir etki gösterir.

Anahtar Kelimeler: *doğrudan yabancı yatırım, terörizm, ticari açıklık, askeri harcama, ARDL eşbütünleşme*

Jel Sınıflandırması: *F10, F21, H56*

1. Introduction

Foreign Direct Investment (FDI) has been considered to have the capacity to augment the domestic investment in the host economy to bring about more opportunities arising from better utilization of both human and raw material resources which first of all have attracted the foreign investment (Onimisi, 2014). Low saving rates of developing countries and inadequate capital issues cause them to be weak about investments. Thus, developing countries fall behind in terms of economic growth. As a result of the capital coming from abroad and turning into investment as FDI, both employment is created and technology transfer is provided to the country. FDIs have various forms such as acquisitions, joint ventures, or completely new investments in the host country. The most beneficial impact of them is undoubtedly creating new jobs and increasing employment in the host country (Sayar, 2018). According to Peric (2019), the benefits of FDI differs worldwide. For developing countries, these are technology and knowledge, while for developed countries these are increase in average wage and increase in employment.

The importance of FDI for the development of developing countries makes it necessary to investigate the factors that affect these investments (Purtul & Kandemir, 2020). Bandyopadhyay & Younas (2014) opined that FDI is a critical source of global capital and technologies to promote growth in developing countries. According to them, growth of developing countries can be ruined by terrorism because it can reduce FDI inflows in these countries. Besides, Blomberg & Mody (2005) also pointed out that terrorism has a more damaging effect in developing countries than it has in developed ones.

The channels through which terrorism affects FDI can be specified and explained with four major titles (Akıncı et al., 2015) : In a country where terrorist acts are intense, the decrease in tourism activities and consequently in tourism revenues causes a reduction in the number of foreign investments due to the risk that may be encountered. Firms and individual investors, who direct their investments from countries with high terrorism risk to the countries with a developed welfare and security level, estimate that the transaction costs will increase due to the firms and facilities protected due to possible actions even in the absence of direct terrorist activities, and therefore the expected returns will be limited. In addition, a company operating in areas of conflict is constantly busy with ensuring the safety of its employees and has to pay additional insurance costs. 2) In case terrorist activities target FDIs and portfolio investments, the capital stock that the country can obtain in the future decreases due to a reduction in the investment capacity of the foreign market. 3) Terrorism destroys the infrastructure system leading to economic disruption. Having a good infrastructure system in terms of transportation, communication and input is vitally important for a country to attract FDI. In this context, terrorism, which increases the level of uncertainty about the future of the economy, shrinks employment opportunities that are expected to gain momentum along with foreign investments and reduces the volume of investment. 4) Resources used to stop terrorist activities and catch terrorists create an opportunity cost. If the expected costs, which will manifest itself in connection with terrorist activities, do not exceed the expected costs of the privileges to be given to terrorist groups, then the decision to fight terrorism will be optimum.

The difference between terror and terrorism is perhaps one of the most important distinctions to be considered when describing the term “terrorism”. Terrorism is described as the use of terror tactics in a planned, systematized and continuous manner towards a political goal. It is distinct

from the idea of terror as a strategy. Terror refers to horror and fear, while terrorism adds continuity and political content to this concept (Altay et al., 2013).

This study analyses the linkage between terrorism and FDI inflows in Turkey for the period 1990-2019. In addition, the impact of some supportive variables- inflation, trade openness, military expenditure and remittances on FDI and terrorism in the model is examined. In this sense, this article attempts to make policy proposals based on the study's scientific results. As a contribution to the extant literature, this study tries to find out whether the supportive variables, as well as terrorism, can be a determinant of FDI using different estimation methods and examining a different time period for Turkey.

The remainder of the paper is structured as follows: Section 2 is a review of the literature on the relationship between terrorism and FDI. Section 3 goes into the methodology, which includes data sources, model specification, and research methods. Section 4 discusses the empirical findings and outcomes. Section 5 concludes with a summary of the conclusion and policy proposals.

2. Literature Review

Terrorism's effect on FDI inflows is poorly understood and needs to be justified both theoretically and practically. Terrorism generally creates fear, economic uncertainty and erosion of confidence, therefore foreign investors discourage to make investment in high-risk countries and choose to invest in countries with a lower risk of terrorism (Enders & Sandler, 1996; Efobi & Asangu, 2016). In general, it can be argued that terrorist acts in the host nation discourage FDI. Higher FDI inflows, then again, boost economic growth and job prospects in the host country. This may help to reduce terrorism by raising the opportunity cost of it. However, FDI may also create income inequality in the host country. These kinds of investments usually need skilled labor force so new jobs created by foreign businesses may raise the wage gap between skilled and less-skilled labor force (Shahzad et al., 2016). As a result, terrorism and FDI theoretically influence each other.

Every country's economic growth is affected badly by terrorism. Terrorism causes policymakers to abandon profitable investments in favor of spending on less efficient industries such as the military and other defense-related activities. (Shahbaz & Shabbir, 2012).

In one of the first studies which investigates the impact of terrorism on FDI, Enders & Sandler (1996), found that terrorist attacks decrease FDI inflows to Spain by 13.5 % and to Greece by 11.9 % using the net annual FDI data from 1970 to 1991. This result clearly proved that terrorism has a negative impact on capital formation and economic growth potentials in these nations.

Among other studies, Kang & Lee (2007) used panel data from 1980 to 2000 to examine the effect of terrorism on FDI flows. As a result of their study, they found that terrorism reduces FDI inflows by 0.3-0.6 %. Rasheed & Tahir (2012) used co-integration analysis to see whether there was a long-term association between terrorist attacks and FDI in Pakistan between 2003 and 2011, and then they applied Granger analysis to assess causality. It was concluded that FDI has a tendency to decrease with the increase of terrorist incidents in Pakistan. Filer & Stanisic (2013) analyzed the relationship between foreign direct investments and portfolio investments and terrorism based on 25 years of data in 160 countries with panel data analysis and concluded that terrorist incidents reduce foreign direct investments. It was obtained that foreign direct investments are more susceptible to terrorist incidents than portfolio investments. Kinyanjui (2014) assessed the terrorism-FDI nexus on Kenya, using secondary data on terrorism attacks and FDI from 2010 to 2012. The study concluded that terrorism has a damaging effect on FDI in Kenya by using a multiple regression model. Haider & Anwar (2014) used monthly time series data from 2001 to 2011 and they found that terrorism affects FDI negatively especially in sectors like communication, trade, financial business and construction in Pakistan. Recently, Bano et al. (2019) investigated the major determinants of FDI inflows in Pakistan within the light of the 2008

global financial crisis. They discovered that terrorism is a minor factor for FDI inflows to Pakistan, but it becomes significant after the financial crisis. Finally, Polyxeni & Theodore (2019) examined the effects of terrorist activity in 18 developing economies using the Feasible Generalized Least Squares (FGSL) in panel data for the period 1970-2016. They found that terrorism acts as a deterrent on FDI for emerging economies.

In the literature, the general consensus asserts that increases in terrorist attacks limit FDI inflows into the host country (Mancuso et al., 2010). However, it is possible to come across studies in the literature that contradict this view. For example, Li (2006), by measuring the impact of terrorist activities as a form of political violence on FDI, obtained that contradict the findings of other studies. Using data from 129 countries for the period 1976-1996, he discovered that terrorist attacks had no statistically significant impact on the probability of a country being chosen as a direct investment destination. The study also stated that unforeseen terrorist attacks do not cause any change in investor behavior in terms of investment location selection or investment amount. Similiarly, Radic (2018), found that terrorism has no significant effect on the FDI inflows in tourism. The author employed system-GMM estimator for dynamic panel data models for 50 countries between 2000 and 2016. Osgood & Simonelli (2020) studied terrorism's impact on FDI inflows. They asserted that FDI inflows are not affected by terrorist attacks or any political violences as long as the host country has a good investment climate and solid institutional infrastructure. Recently, Lanouar & Shahzad (2021) studied the effect of terrorism on capital movements in South Asian countries' big cities for the period 1990-2016. The results revealed that terror incidents have the highest negative effect on FDI in big cities, among the three types of capital inflow, namely FDI, foreign portfolio investment and debt.

There are also several studies in the literature regarding terrorism-FDI nexus in Turkey. For example, Ak & Inal (2017) found no cointegration relationship between terrorism and FDI by using hidden cointegration approach for the period 1980-2015. Furthermore, they do not procure a connection between economic growth and terrorism. Bildirici (2018) analyzed the relationship between growth, FDI, terrorist attacks and energy usage for Turkey from 1970 to 2015. She revealed a significant causal nexus between variables. Altay et al. (2013) also analyzed the terrorism's impact in Middle East countries for the period 1996-2010. Turkey, Egypt and Saudi Arabia are included in the scope of the research. FDI, export, import, economic growth, tourism, unemployment and national income per capita was used as variables. It was observed that terrorism negatively affects all the sectors especially tourism.

A summary of the extant literature between terrorism and FDI is presented in Table 1:

Table 1. Literature Review

Author(s)	Methodology	Period of Time	Country	Results
Enders & Sandler (1996)	Vector autoregressive (VAR) model	1970-1991	Greece and Spain	Terrorism has a negative impact on FDI inflows.
Li (2006)	Panel Data Analysis	1976-1996	129 countries	Terrorism has no statistically significant effect on FDI.
Kang & Lee (2007)	Cross-Country Panel Data Analysis	1980-2000	Many countries	Terorism is negatively and significantly related with FDI.
Rasheed & Tahir (2012)	Co-integration Analysis, Granger Causality Analysis	2003-2011	Pakistan	Terrorism has a negative impact on FDI inflows.

Altay et al. (2013)	Panel Data Analysis	1996-2010	Middle East countries	Terrorism negatively affects FDI, tourism, international trade, growth and unemployment.
Filer & Stanisic	Panel Data Analysis	1970-2004	160 countries	Terrorist incidents reduce FDI inflows.
Kinyanjui (2014)	Multiple Regression Model	2010-2012	Kenya	Terrorism has a negative impact on FDI.
Ak & Inal (2017)	Hidden Cointegration, Hatemi-J Asymmetric Causality Methods	1980-2015	Turkey	There is no relationship between terrorism and FDI.
Radic (2018)	Dynamic Panel Data Analysis	2000-2016	50 countries	Terrorism has no effect on FDI in tourism.
Bildirici (2018)	ARDL	1970-2015	Turkey	There is a significant causal relationship between terrorism, FDI, growth and energy usage.
Polyxeni & Theodore (2019)	FGSL in panel data	1970-2016	18 countries	Terrorism has a negative impact on FDI in emerging countries.
Lanouar & Shahzad (2021)	Dynamic Panel Data Analysis	1990-2016	South Asian countries	Terrorism has the highest negative impact on FDI, among the three types of capital inflow.

Source: Authors' compilation

When the literature is examined in general terms, it is seen that there are mixed results in the relationship between terrorism and foreign direct investment for both Turkey and the rest of the world. For this reason, this issue seems worthwhile to study in a broader perspective.

3. Data and Methodology

3.1 Data Sources

The data for analyzing the impact of terrorism on FDI were generated from World Economy Index. The time series data used ranges from 1990 to 2019. Since a data set of 30 years is required for the time series and all the data is available in the same data source used, the necessary data is obtained in this time period. The dependent variable is foreign direct investment (FDI), while independent variables stated as: Terrorism (TER), Trade Openness (TOP), Remittances (REM), Inflation rate (INF), and Military expenditure (ME).

3.2 Model Specification

In accordance with the study's purpose, and keeping in mind the importance of security in obtaining an investment, an economic model is constitutive in model specification since it provides a categorical partial relationship between the dependent and independent variables (Ari and Bello, 2020), as expressed in equation 1:

FDI = F (TER, TOP, REM, INF, ME, e_t..... (1)

Where

FDI = Foreign direct investment

TER = Terrorism

TOP = Trade openness

INF = Inflation rate

ME = Military expenditure

et = Error term

The economic model in equation (1) can be transposed in to an econometrics model as expressed in equation 2:

$$\ln FDI_t = \beta_0 + \beta_1 \ln TER_t + \beta_2 TOP_t + \beta_3 \ln \mathrm{R}\, EM_t + \beta_4 INF_t + \beta_5 \ln ME_t + e_t \text{.....(2)}$$

β_0 Is the coefficient of the lagged-dependent variable that identifies the comprehensive modification of FDI. β_1 - β_5 are coefficients of the regressors that expressed in logarithm, while TER, TO, REM, INF, and ME remained as previously defined.

3.3 Rationale for the Variables Used

Selection of independent variables that can help in explaining the dependent variable is of paramount importance by carefully selecting the variables in order to avoid misspecification in the model. Terrorism was selected due to its relevance in terms of global macroeconomic imbalances. Remittances were also selected because of their importance in the literature; it is estimated that $372 billion in remittances were received in 2011, surpassing official development assistance in supporting global growth and development (ODA). The sum of imports and exports normalized by GDP is the measure of trade openness. The stricter the authorities are in monitoring cross-border commerce, the more illegal trading occurs, which encourages terrorism and has a negative impact on FDI.

3.4 Estimation Strategy

3.4.1 Stationarity Testing

Before measuring the relationship between variables, it is important to prove the compatibility of the co-integration levels of the selected variables. Stationarity is defined as the absence of a unit root in a data series, which means that the mean, variance, and auto covariance remain constant over time (Brooks, 2014). Furthermore, a stationarity series at level is represented by I (0). However, if the mean, variance, or covariance of data series is not constant over time, then the series refers to a non-stationary (presence of unit root). In this case, the first and second differences of the series are taken. It is denoted as (I) and (2), respectively. For this purpose, ADF test of stationarity and Philips-Perron are employed in the study. The functional format of the ADF has been transferred to Equation (3) as shown in Gujarati & Porter's (2009) book.

$$\Delta Z_t = \beta_1 + \beta_{2t} + \delta Z_{t-1} + \sum_i^n = 1\delta i \Delta Z_{t-1} + \varepsilon_t \text{.....(3)}$$

Where ΔZ_t = variable series that are to be tested for stationarity, Z_{t-1} = lagged series ΔZ_{t-1} = (ΔZ_{t-1} - ΔZ_{t-2}) and ΔZ_{t-2} = (ΔZ_{t-2} - ΔZ_{t-3}) shows the first and second difference terms of the series, t shows the time subscript, whereas ε_t is the white noise error term. If the calculated ADF value is greater than the critical value at the 5% significance level, the null hypothesis is rejected. Besides, the stationarity of the series is concluded at a given order. That gives the method of checking the integration order of series.

3.4.2 The Co-integration Technique

To investigate the long-run relationship between model variables, the ARDL approach to co-integration is widely employed. Pesaran & Shin (1997) and Pesaran, Shin, & Smith (2001) proposed this ARDL method. For example, these conventional methods require that all variables must be integrated in the same integration order under normal conditions, i.e. (1). They are unpopular due to their presumption of the same integration order. The ARDL has several benefits over traditional co-integration methods. Initially, even though the variables are not integrated in the same order of integration, the ARDL approach to co-integration can be used. This demonstrates that the ARDL method can be used even though the variables have the same type as I (1) or I (0). Another benefit of the ARDL strategy is that it produces reliable data in both the short and long term. Also, ARDL can be used even if the sample size is small; unlike some others that requires large sample size. ARDL also differentiate the dependent variable from independent variables, and also separate the short-run and long-run outcomes. Finally, even though some of the regressors are endogenous, long-run effects measured using ARDL are unbiased.

The study utilized the ARDL model to examine the long and short term relationship among indicators. The ARDL model for co-integration in the short-run can be written as

$$\Delta(\ln FDI_t) = \alpha_0 + \sum_{i=1}^{p} \alpha_1 \Delta(TER_{t-1}) + \sum_{i=0}^{p} \alpha_2 \Delta(\ln TOP_{t-1}) +$$

$$\sum_{i=0}^{p} \alpha_3 \Delta(\ln REM_{t-1}) + \sum_{i=0}^{p} \alpha_4 \Delta(INF_{t-1}) + \sum_{i=0}^{p} \alpha_5 \Delta(\ln ME_{t-1})$$

$$+\gamma_1 \ln TER_{t-1} + \gamma_2 \ln TOP_{t-1} + \gamma_3 \ln REM_{t-1} + \gamma_4 INF_{t-1} + \gamma_5 \ln ME_{t-1} + \varepsilon_t \ldots\ldots\ldots(5)$$

Here, Δ is the first deviation operator. And $\alpha_1 \ldots\ldots\ldots \alpha_5$ shows the short-term variation of the model while parameters $\beta_1 = \beta_2 = \ldots\ldots = \beta_5$ represent the long –term connection.

The null hypothesis is:

$$H_o : \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = o$$

$$H_1 : \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq o$$

Refusal of null hypothesis (Ho) will support the presence of co-integration. If there is co-integration in the model then long term connection would be estimated by the following equation:

$$\Delta(\ln FDI_t) = \alpha_0 + \sum_{i=1}^{p} \alpha_1 \Delta(\ln TER_{t-1}) + \sum_{i=0}^{p} \alpha_2 \Delta(TOP_{t-1}) +$$

$$\sum_{i=0}^{p} \alpha_3 \Delta(\ln REM_{t-1}) + \sum_{i=0}^{p} \alpha_4 \Delta(INF_{t-1}) + \sum_{i=0}^{p} \alpha_5 \Delta(\ln ME_{t-1}) + \varepsilon_t \ldots\ldots\ldots(6)$$

4. Results and Discussion

The results of ADF unit root test used to test the stationarity of variables chosen in the model are shown in Table 2.

Table 2. ADF Result of the Unit Root Test

Variable	Order of integration	Included in the model	ADF test statistics	McKinnon Critical value
$lnFDI_t$	I(1)	Intercept	-4.8911	5% = -2.9719
$lnTER_t$	I(1)	Intercept	-5.1299	1% = -3.7115
TOP_t	I(1)	Intercept	-7.9287	1% = -3.7880
$lnREM_t$	I(1)	Intercept	-3.0044	5% = -2.9718
INF_t	I(0)	Intercept	-4.7538	1% = -3.7240
$lnME_t$	I(1)	Intercept	-5.8457	5% = -2.9718

Source: Author's computation using E-views 10

The outcome of the unit tests demonstrates the existence of a unit root (non-stationary) as compared to the alternative hypothesis of the absence of a unit root (stationary). The ADF statistics (normally in absolute terms) must be greater than the standard critical value at the 1%, 5%, or 10% level of significance. That is the only way to use ADF to determine when a variable is stationary. The ADF results in Table 2 reveal that only inflation is stationary at level at 1 percent significance level while all other variables in the table are stationary at first difference. This means inflation is integrated at order 0 [I(0)] while FDI, TER, TOP, REM and ME are integrated at order 1 [I(1)]

Table 3. Phillips-Perron Test of Unit Root

Variable	Order of integration	Included in the model	ADF test statistics	McKinnon Critical value
$lnFDI_t$	I(1)	Intercept	-7.1232	5% = -2.9719
$lnTER_t$	I(1)	Intercept	-5.2791	5% = -3.6032
TOP_t	I(1)	Intercept	-6.0638	10% = -3.2253
$lnREM_t$	I(0)	Intercept	-2.3678	5% = -2.9718
INF_t	I(1)	Intercept	-5.2011	1% = -3.7240
$lnME_t$	I(1)	Intercept	-5.8457	10% = -2.6251

Source: Author's computation using E-views 10

Table 3 presents the Philips- Perron (PP) unit root test starts with the critical values (in absolute terms) at 1%, 5%, and 10 % levels of significance. According to PP test results, it is seen that all the variables used in the study- foreign direct investment, terrorism, trade openness, remittances, inflation, and military spending- are not stationary at the level with the exception of remittance but they become stationary at integration of order one, i.e. I(1), at 1%, 5%, and 10% significance levels, respectively. However, lnREM is stationary at level suggesting that it is integrated at order 0 [I(0)].

Table 4. Result of Bounds Test Approach to Co-integration

Significance level	Asymptotic		Symptotic for Finite Sample: n=30	
	Lower bound	Upper bound	Lower bound	Upper bound
10%	2.08	3.00	2.407	3.52
5%	2.39	3.38	2.91	4.19
1%	3.06	4.15	4.13	5.76
F-Statistics Actual Sample=30	5.4121*	K= 5	5.4121	K= 5

*Indicates computed statistic falls above the upper bounds value of 5% and 10% level of significance

Source: Computed by authors using E-views

The results of the bounds test approach to co-integration are seen in Table 4. The table shows that the value of F-statistics is 5.4121. Therefore we can say that it is higher than the upper and lower critical values at 5% and 10% levels of significance. This suggests that the null hypothesis of no co-integration between FDI and independent variables (terrorism, trade openness, remittances, inflation, and military spending) is rejected at 5%. In other words, it means that FDI and the explanatory variables have a long-run relationship in Turkey over the study period. A long-run relationship between them allows the estimation of long-run and short-run effects of independent variables on FDI.

Table 5. Long-run Coefficient Estimated Using the ARDL Approach

ARDL (1,0,1,0,0,0) selected based on AIC,32 observation used for the period between 1990-2019				
Variables	coefficient	Standard error	t-statistics	P. values
C	4.8859	1.8288	2.6716	0.0143
$lnFDI_t$	0.3694	0.1730	2.1345	0.0447
$lnTER_t$	-0.0026	0.0010	-0.2661	0.0266
TOP_t	-0.0558	0.0266	-2.0938***	0.0486
$lnREM_t$	-1.2533	0.9042	-1.3860	0.1803
$lnINF_t$	0.0016	0.0082	0.1937	0.8482
$lnME_t$	-0.9760	0.4094	-2.3839	0.0266

Note: *** denote significance level at 1%. FDI is the dependent variable.

Source: computed by authors using E-view 10

The result from the model shows that terrorism is the core variable which has negative and significant long-run relationship with foreign direct investment (Dependent variable). Terrorism is significant at 5 percent, and it implies that 1 percent increase in terrorism leads to about 0.003 percent decrease in FDI in Turkey in the long run. This shows that as the terrorism increases the foreign direct investment tend to decreases because investors (Foreign investors) would be discouraged from investing in Turkey in the long run. This is consistent with the findings of Abadie & Gardeazabal (2008), who found that terrorism affects allocation of profitable investment across industrial regions and countries, reduces expected capital returns and creates

instability. Table 5 also manifests that trade openness has negative and significant long-run connection with FDI at 5% in Turkey. This signifies that, in the long run, a 1 percent rise in trade openness results in 0.056% reduction in Turkish FDI. This outcome contradicts the original notion that there is positive relationship between FDI and trade openness as indicated by Qamar uz Zaman et al (2018). This is plausible as Turkish FDI usually flows into capital-intensive industries like automotive and electronics.

The table again depicts that remittance has a negative but insignificant long-run link with FDI in Turkey during the study period. This implies that the money sent home by nationals living in other countries does not considerably reduce Turkish FDI. Similarly, inflation is found in Table 5 to have positive but insignificant long-run impact on FDI in Turkey. Although insignificant; inflation, if steady and reasonable, signals the propensity to maximize profits by investors in terms of increasing the real value of foreign currency and high demand for the services or goods to be invested in. Finally, Table 5 reveals that military expenditure has negative and significant long-run effect on FDI at 5% significance level. This is telling that FDI reduces about 0.98 percent as military expenditure goes up by a percentage. Superficially, this finding contradicts the general sentiment that the more government spend wisely on military the greater the security of the country which serves as the basis to encourage foreign investors to come to the host country as argued by Pacific et al (2017). However, too much military spending might imply that government is currently fighting to contain violence, wars or terrorism or it is expecting the prevalence of such violence, conflicts, wars or terrorisms in the country, which could scare foreign investors from the country.

The short-run results in Table 6 show that lagged value of FDI has positive and significant effect on the current value of FDI at 10% level of significance, while terrorism has also positive but insignificant effect on Turkish FDI.

Table 6: Short Run Coefficient Estimated Using the ARDL Approach

ARDL (1,0,1,1,0) selected based on AIC,32 observation used for the period between 1990-2019				
Variables	coefficient	Standard error	t-statistics	P. values
C	3.1108	1.7405	1.7872	0.0877
$lnFDI_{t-1}$	0.3701	0.1859	1.9906	0.0591
$D(lnTER_{t})$	0.8600	0.0010	0.0078	0.9938
TOP_{t-1}	0.0011	0.0187	0.1921	0.8494
$D(TOP_t)$	0.0421	0.0194	2.1709	0.0415
$D(lnREM_t)$	-0.0955	0.9591	-0.9958	0.0302
$D(INF_t)$	-0.0150	0.0088	-0.0651	0.9482
$D(lnME_t)$	-0.6880	0.0141	-1.6617	0.1107
ECT(-1)	-0.6375	0.1423	-4.4817	0.0002
$R^2 = 0.6486$ F = 6.7684 D-W = 1.6758				

Source: Computed by author using E-views 10

In the short run, lagged value of trade openness is found to be positive but not significant; indicating that trade openness has an insignificant positive short-run relationship with FDI in Turkey. This also shows that a one percent rise in trade openness will inconsiderably promote FDI by 0.001 percent. More so, the change in current value of TOP has positive and significant short-run effect on FDI in Turkey. By implication, the investors would be encouraged to engage in investment due to the influx of business activities from other countries which goes in line with international trade theory postulates stated by Bimal (2017). Table 6 shows that remittances have a negative and significant short-run effect on FDI as the remittances go up by 1 percent, FDI rises by about 0.1%. This result indicates that there is a short run negative relationship between remittances and FDI. This is not farfetched because high remittances imply low returns on capital as remittances increase the supply of loanable funds. Similarly, both inflation and military expenditure have negative but insignificant short-run impact on FDI. Lastly, error correction term implies that the model is converging, that if there is any disturbance in the equilibrium, the model will automatically adjusts itself, by reducing the disturbances by about 64 percent annually.

4.1 Diagnostic Test

Table 7 presents post-estimation or diagnostic tests of the estimated models. These are serial correlation LM test, heteroscedasticity test, normality test and Ramsey zero test. The result shows us that the null hypothesis cannot be ignored and F statistics for testing cannot be rejected. The F-Statistics were found to be 1.574 with a probability value of 0.231, which indicates that there is no serial correlation in the model.

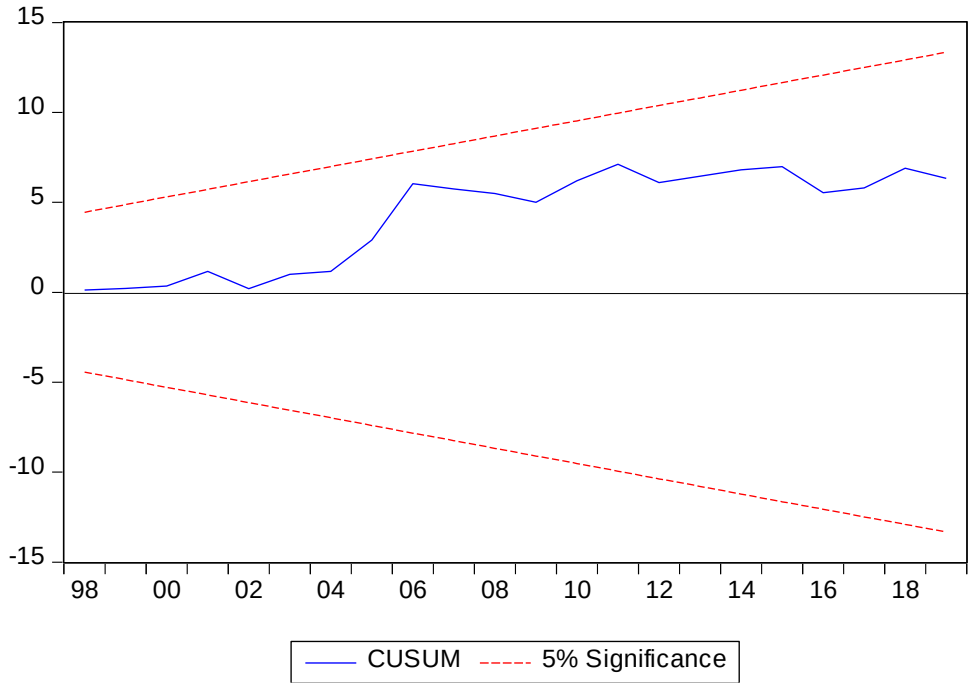
Table 7. Diagnostic Test Result

Diagnostics test techniques	**Statistics**	**Probabilities**
Serial correlation (LM test)	0.9700	0.3950
Heteroscedasticity(Breusch-Pagan-Godfrey test)	0.9580	0.475
Normality test (Jarque- Bera)	10.5802	0.7500
Ramsey RESET test	2.4423	0.1330

Source: Computed by author using e-views 10

Table 7 displays that the model passes all the diagnostic tests. We can say that the model is normally distributed because there is no serial correlation. In another saying, heteroscedasticity and linearity checks are successful for our model.

The research certified the model's stability on this occasion in order to investigate the stability of the estimated ARDL model. In other words, to determine whether there is a structural break related to the variables, the CUSUM test, which uses the squares of the reversible error terms, investigates the structural break of the variables (Brown et al., 1975). When the CUSUM statistic is within the critical limits (between two lines) at the 5% significance level, the H_0 hypothesis, which indicates that the coefficients in the ARDL model are stable, will be accepted. Graph 1 depicts the outcomes of CUSUM test. At the 5% significance level, the critical line remains within the boundary and shows that the model is stable.



Graph 1. CUSUM Test Results

Source: Computed by author using E-views 10

5. Conclusion and Recommendations

We tried to determine the effect of terrorism on FDI in Turkey in an empirical way using time series data from 1990 to 2019. The Autoregressive Distributed Lag (ARDL) bounds testing technique is used for co-integration. In excess, the analysis made known that terrorism has a positive but not a significant impact in short run while it is negative and significant in the long run. This indicates that terrorism affects foreign direct investment in Turkish economy. Terrorist incidents related to terrorism increase the uncertainty and affect the investment decisions of foreign investors in the long term negatively. When the channels of terrorism affecting FDI are examined, it is seen that especially tourism is very important for the Turkish economy and is seriously affected by terrorist activities. Therefore, sensational terrorist acts in major touristic cities such as Istanbul, Izmir, and Antalya may reduce the number of foreign direct investments and visitor tourists in these cities. On the other hand, trade openness shows a negative and significant impact both in the short-run and long-run. It indicates the positive relationship between the two variables. Remittances show a negative and significant result. This indicates that there is a short-run negative association between remittances and FDI. One percent increase in remittances decreases FDI by about nine percent. This is caused as result of less transfers by nationals whose resides in other countries into Turkish economy which signal the investors not to invest more due to the expectation of null marketing activities.

Inflation shows a positive but not a significant impact on foreign direct investment, traditionally the relationship between the inflation and foreign investment must be mutually exclusive. This is because a higher inflation indicates the currency devaluation which gives room for investors to purchase the raw materials at a cheaper rate as compared to other nations. Military expenditure also shows a negative and non-significant impact in the short run which normally must be positive. This result contradicts the widely held assumption that the more the government spends wisely on military, the higher becomes the country's security, which serves as the foundation for enticing foreign investors to come to the host country.

Based on the study’s results, Turkish government and money market institutions need to react quickly to reduce uncertainty and give confidence to foreign investors after terrorist attacks.

According to the results of the study, it can be argued that improving the economic, social and legal structure for Turkey is more effective in attracting foreign direct investment and giving confidence to foreign investors rather than increasing military spending. Besides, it is imperative for Turkish government to ensure the smooth operation of trade activities that can curtail the illegal influx of funds from other countries which can give confidence for foreign investors to operate in the economy.

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Research Article

The Impact of Terrorism on Foreign Direct Investment: The Case of Turkey

Terörizmin Doğrudan Yabancı Yatırımlar Üzerindeki Etkisi: Türkiye Örneği

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Genişletilmiş Özet

Çalışmanın Arka Planı

Doğrudan Yabancı Yatırım (DYY), gelişmekte olan ülkeler için döviz, yeni istihdam alanları ve en yeni teknolojinin transferi için hayati bir kaynaktır. Gelişmekte olan ülkelerin kalkınmasında DYY'nin önemi, bu yatırımları etkileyen faktörlerin araştırılmasını gerekli kılmaktadır. Bu noktada, bir ülkedeki terör saldırıları, şirketlerin yurtdışına yatırım yapma tercihlerini belirleyen önemli bir faktördür. Türkiye 1980'li yıllardan beri ülke içi ve ülke dışındaki terör örgütlerinin saldırılarına maruz kalmaktadır. Önceleri Türkiye'nin doğu ve güneydoğu bölgelerinde yoğunlaşan terör eylemleri, daha sonraki yıllarda çeşitli terör gruplarınca büyükşehirlerde bombalı saldırılar düzenlenerek gerçekleştirilmiştir.

Çalışmanın Amacı

Terörizmin DYY girişleri üzerindeki etkisi literatürde iyi analiz edilmemiştir. Bu nedenle, hem teorik hem de pratik olarak gerekçelendirilmesi gerekmektedir. Terörizm genellikle korku, ekonomik belirsizlik ve güven aşınması yaratır, bu nedenle yabancı yatırımcılar yüksek riskli ülkelere yatırım yapmaktan caydırır ve daha az terörizm riski olan ülkelere yatırım yapmayı tercih eder. Bu çalışma, 1990-2019 dönemi için Türkiye'de terörizm ve DYY girişleri arasındaki bağlantıyı analiz etmektedir. Ayrıca modeldeki bazı destekleyici değişkenler olan enflasyon, ticarete açıklık, askeri harcama ve işçi dövizlerinin DYY ve terörizm üzerindeki etkisi incelenmiştir. Bu bağlamda, bu makale çalışmanın ampirik bulgularına dayanarak politika önerileri yapmaya çalışmaktadır.

Çalışmanın Metodolojisi

Çalışmada eşbütünleşme analizi için Dağıtılmış Gecikmeli Otoregresif Model (ARDL) sınır testi kullanılmıştır. ARDL, geleneksel eşbütünleşme yaklaşımlarına göre birçok avantaja sahiptir. Başlangıçta, eşbütünleşmeye ARDL yaklaşımı, değişkenler aynı entegrasyon sırasında entegre edilmemiş olsa bile kullanılabilir. Bu, değişkenler I (1) veya I (0) ile aynı formda olsa bile ARDL yaklaşımının kullanılabileceğini göstermektedir. ARDL yaklaşımının bir diğer avantajı, hem kısa hem de uzun vadeli dönemler için doğru sonuçlar vermesidir.

Çalışmada, 1990-2019 döneminde terörizmin DYY üzerindeki etkisine ilişkin kullanılan zaman serisi verileri Dünya Ekonomi Endeksi'nden elde edilmiştir. Bağımlı değişken doğrudan yabancı

yatırımdır (DYY), bağımsız değişkenler ise şu şekilde ifade edilir: Terörizm (TER), Para Transferi (REM), Enflasyon oranı (INF) ve Askeri harcamalar (ME).

Çalışmanın Sonucu

Terörizmin kısa vadede olumlu ve önemli bir etkisinin olmadığı, uzun vadede ise olumsuz ve önemli olduğu sonucuna ulaşılan analizde, terörizmin Türkiye ekonomisi için doğrudan yabancı yatırımı etkilediğini göstermektedir. Terör ve terörizmle ilgili olaylar belirsizliği artırmakta ve uzun vadede yabancı yatırımcıların yatırım kararlarını olumsuz etkilemektedir.

Öte yandan, ticarete açıklık hem kısa vadede hem de uzun vadede olumsuz ve anlamlı bir etki göstermekte ve iki değişken arasındaki pozitif ilişkiyi göstermektedir. İşçi dövizleri, olumsuz ve anlamlı bir sonuç gösterir. Bu, işçi dövizleri ile DYY arasında kısa vadeli negatif bir ilişki olduğunu göstermektedir.

Çalışmaya göre, enflasyon, doğrudan yabancı yatırım üzerinde olumlu bir etki göstermektedir ancak anlamlı bir etki göstermemektedir. Geleneksel olarak enflasyon ile yabancı yatırım arasındaki ilişkinin karşılıklı olarak birbirini dışlaması gerekir. Bunun nedeni, yüksek enflasyonun, yatırımcılara hammaddeleri diğer ülkelere kıyasla daha ucuza satın almaları için alan sağlayan para biriminin devalüasyonunu göstermesidir. Askeri harcamalar da, normalde olumlu olması gereken kısa vadede olumsuz ve anlamlı olmayan bir etki göstermektedir. Bu sonuç, hükümetin orduya daha akıllıca harcama yaptıkça, yabancı yatırımcıları o zaman ev sahibi ülkeye gelmeye teşvik etmek için temel teşkil eden ülkenin güvenliğinin de arttığı şeklindeki genel inançla çelişmektedir.