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Relationship Between Financial Indicators and Portfolio Investments: A Study on Developing Countries

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Abstract

This study deals with portfolio investment from the perspective of Developing Countries (DC) because their financial systems are inadequate and their macroeconomic order is far from stable and is more influenced by short-term capital movements. In this context, the study used panel data analysis to analyze the relationship between Portfolio Investments (PI) entries and financial indicators in developing countries (Brazil, Turkey, South Africa, Mexico, India and Indonesia) with similar macroeconomic indicators. The study uses annual data from 2008 to 2019, credit default swap (CDS), real effective exchange rate and stock return were included as financial indicators in the model. Driscoll-Kraay estimator was

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used in regression estimation using one-way fixed effects model, one of the methods of panel data analysis. According to the results, there is an inverse and significant relationship between portfolio investment and CDS, real exchange rates have a potential and positive relationship with stock return variable.

Key Words: *Portfolio Investment, Financial Indicators, Panel Data Analysis*

Introduction

The increasing share of portfolio investment in international capital flows since the 1990s has changed the functioning process of the world economy, in particular the fundamental dynamics of economic crises. For many countries in the world, gaining a share from foreign capital investment is an important goal. Policymakers are eager to encourage companies to invest in their countries in order to create jobs, increase income, enable technology transfer and increase competition. On the other hand, companies invest in countries that multiply their returns, reduce the risk of their investments, and provide economic and political benefits (Touchton, 2016: 217). Portfolio investments, also known as short-term capital movements, allow developing countries to provide the funds they need without borrowing.

In the global economy, the international movement of capital, goods and services has come to the forefront, especially since the 1990s with the rapid liberalization process of national capital markets. The process of deregulation of financial markets, which began in the 1970s in the United States and England, has then been accelerated by the stabilization and structural adjustment programs in many developing countries. A striking feature of this process has been the increase in international private capital flows. Commercial bank credit, which accounted for the largest share of

global capital markets in the 1970s, gave way to portfolio investment in bonds and equities in the 1990s.

The growth of portfolio investment in international capital markets has made developing countries increasingly dependent on external resources and has also transformed economic crises in the global economy. The financial content of the crisis experience in dependence on capital flows in Mexico, Turkey, Brazil and East Asian countries in the 1990s led to discussions about the impact of international capital flows in general and portfolio investment in particular.

Portfolio investments are investments that are extremely sensitive to speculative attacks and have high fluctuations in returns that evolve according to the momentary behavior of investors (Ünal and Açıkalın, 2008: 7). Profit expectation and risk perception have been found to be the source of these instantaneous behaviors. The presence of immediate behaviors shows that these investments are also dependent on psychological and behavioral factors.

In the literature, the determinants of portfolio investment for developing countries are considered as internal and external factors. Fernaindez-Arias (1996), Calvo, Leiderman and Reinhart (1996), Taylor and Sarno (1997), Kim (2000), Byrne and Fiess (2011) concluded that the main reason for portfolio investment in developing countries is economic stagnation in developed countries and low interest rates. On the other hand, Bohn and Tesar (1996), Mody, Taylor and Kim (2001), Felices and Orskaug (2008) emphasize that local factors such as stock market return, country risk premium and local reserve adequacy are effective.

In this study, the first section discusses the theories explaining international portfolio investment, then the macroeconomic impact of portfolio investment on developing countries. The third section presents the relationship between portfolio investment and financial indicators through panel data analysis.

1. Theories on Explain Portfolio Investment

International capital includes direct investment, which is physical investment that increases the productive capacity of a foreign country when it comes to that country. Also, portfolio investments, which are investments in securities such as bonds and stocks to make a limited contribution to the productive capacity of the country to which they flow. Portfolio investment differs from foreign direct investment in terms of investment form by the type of investor. Generally, foreign direct investment is made by multinational corporations and portfolio investment is made by financial institutions and individuals.

Portfolio investments, which are also called indirect investments and hot money, are investments that are extremely sensitive to speculative attacks and have high returns that develop according to the momentary behavior of investors (Uenal and Açıkalın, 2008: 7). Profit expectation and risk perception have been shown to be the source of these instantaneous behaviors. The presence of instantaneous behaviors shows that these investments are also dependent on psychological and behavioral factors.

Portfolio investments are transferable. These characteristics allow portfolio investments to change hands easily as long as it is an asset, and enable investors to sell and diversify their investments whenever they want (Akisoglu, 2013: 11). Due to the fast and efficient transfer, portfolio investments can be easily sold and leave the country. This situation increases macroeconomic fragility in developing countries and can lead to economic crises.

The central motivation of the portfolio investor is to earn interest, dividends or speculative gains. For this reason, portfolio flows tend to move from countries with low interest returns to countries with high interest returns (Karluk, 2009: 405).

As can be seen, the factors that determine portfolio investment have a more complex structure than direct investment. The

below discussion is on the theories that explain portfolio investment;

1.1. Modern Portfolio Theory

Markowitz, in his 1952 article on portfolio selection, explains that it occurs in two stages. In the first stage, based on past observations and experience, priority is given to assets that are believed to yield high returns in the future. In the second stage, a portfolio is created using the prior assumptions formed in the first stage. Markowitz focuses on the optimal portfolio selection necessary to maximize the investor's return. He shows through the Mean-Variance Model, that risk in theory cannot be adjusted by portfolio diversification alone and that the direction and severity of the relationship between securities in the portfolio are also effective in reducing risk.

The basic concepts of the model are presented below (Markowitz, 1952: 77-91):

R: Expected Portfolio Return

wi: the proportion of security i in the portfolio.

$(0 \leq wi \leq 1)$ (i=1.....N)

μi: expected return of security i

N: number of securities

ğij: covariance of securities i and j i = 1... ..N, j = 1... ..N

ğ2: portfolio variance

$$R = i=1NWi*\mu i \quad (1.1)$$

$$ğ2 = i=1NWi*Wj*ğij \quad (1.2)$$

Equation 1.2 shows the portfolio variance focusing on the relationship between the assets that make up the portfolio. The variance of portfolios that are negatively correlated or uncorrelated

with each other is lower than when the assets are considered alone. This shows that diversification is beneficial. The investor realizes the highest return at a risk level total combinations of securities in the risk-return space or a certain return level with the lowest risk (Karan, 2001: 92).

1.2. Capital Asset Pricing Model (CAPM)

The CAPM model, developed by Sharpe, Lintner and Mossin in the 1960s, is an improved version of the Markowitz Model. This model attempts to answer how portfolio selection will occur when risk-free assets, which are excluded from analysis in modern portfolio theory, can be invested and whether the security being invested will provide an appropriate return for the risk it has (Blume and Friend, 1973:19-31).

Assumptions of the CAPM model: (Samuels, Wilkes and Brayshaw, 1995: 495).

- Investors seek to maximize expected return by avoiding risk.
- The investment opportunity is the same for all market participants.
- All investors behave according to Markowitz's mean-variance criterion.
- All investors have similar expectations about the returns of assets in the market and the standard deviation and variance of those returns.
- There are risk-free assets in the market.
- All taxes are neutral.

The CAPM model can be expressed equationally as:

E (ri): Expected Return of the asset rb: Risk-free asset (government bond).

βi: beta

[E(rm) - ri]: risk premium

$$E(ri) = rb + \beta i\,[E(rm) - ri] \quad (1.3)$$

In the linear equation of the above CAPM model, the risky asset to be invested has three basic parameters. These; the return of risk-free assets such as time deposits and stocks, the second is the market risk premium, and the third is the beta coefficient, which is the systematic risk criterion of the asset. The beta coefficient is the most critical element of the CAPM. If the coefficient is less than one, it means that the systematic risk of the asset is low and so is the return. Also when it is greater than one, the risk is high and the return is high.

The CAPM model shows that the return to be earned is positively and linearly related to the risk taken.

1.3. Arbitrage Pricing Model

Arbitrage is defined as the process of making a risk-free profit (by swapping securities) by buying a security, foreign currency or commodity in one market and selling it in another (CBRT, 2013). However, nowadays, thanks to the integration of financial markets and technological developments, investors can easily access financial markets around the world at low cost. This situation gradually reduces the security arbitrage opportunities between financial markets and causes the equilibrium between markets and thus the validity of the single price law.

The Arbitrage Pricing Model (APM) was developed by Stephen Ross in 1976 to address criticism of the CAPM model. The APM was developed by taking into account the macroeconomic factors that affect the return in the portfolio such as non-repayment risk, interest rate risk, market risk, purchasing power risk and management risk which were neglected in the CAPM, as well as the

internal factors of the firm. The APM has similar and different characteristics to the CAPM. Similar characteristics are as follows (Demirtaş and Güngör, 2004: 9):

- Perfect competitive conditions prevail in capital and financial markets.
- Investors prefer high return assets with the same level of risk.
- There is a linear relationship between return and risk.
- Both models assume systematic risk.

The different features of the two models are as follows (Fabozzi et al., 1998: 26):

- The CAPM considers market risk, while the APM considers several systematic risk factors.
- While the CAPM requires the return on the risk-free asset, the APM does not.

According to the model, the validity of the law of one price makes it impossible for investors to acquire an infinite amount of assets through arbitrage. For this reason, investors are influenced by macroeconomic factors and firm-specific factors when forming their portfolios. As a condition for the validity of the model, assets should be influenced by more than one of the above factors in determining their returns (Reilly and Brown, 1999: 18). As it is understood, while only market risk is considered in CAPM, many risk factors are considered in APM.

The equation representation of the model is as follows (Roll and Ross, 1980: 1073-1103):

RI = return on asset i

$\alpha 0$ = risk-free interest rate (expected return of asset i).

αk = risk premium of the kth common risk factor (j = 1,2,3... ..n).

The sensitivity of the ratio bik= i to the k factor (k= 1,2,3,....n)

ei = unsystematic risk

$$RI = \alpha 0 + \alpha 1bi1 + \alpha 2bi2 + \alpha 3bi3 + \ldots\ldots .. + ei \quad (1) \qquad (2.4)$$

When equation 1 is established,

$$R\dot{I} = \alpha 0 + i{=}1nbij\ Iij + ei \qquad (2.5)$$

While the pricing of the financial asset is done through market risk in CAPM, there are many variables in APM as seen in equations numbered 2.4 and 2.5. In APM, the pricing function consists of variables that the investor will consider, and as a result, the subjective price of the asset for each investor is formed.

2. Macroeconomic Effects of Portfolio Investment

The benefits of international capital flows, which have increased with financial liberalization, have been increasingly mentioned since the 1990s, such as closing the national savings deficit of developing countries, contributing to the balance of payments through the financial account, and positively affecting domestic resource allocation. In this direction, it is observed that many developing countries use the regulations they have made on their national financial markets to attract foreign capital into the country and close the national savings deficits.

The debt crises that developing countries experienced in the 1990s played a significant role in the rapid increases in portfolio investment. As a result of their crisis experiences, these countries liberalized their financial markets and found it easy to meet their external resource needs. Portfolio inflows are interpreted as an indicator of international investors' confidence and support for implemented policies. Moreover, developing countries have the opportunity to cover their domestic savings deficit with portfolio flows, as opposed to direct investment, commercial loans and capital flows, etc.

A rapid increase in portfolio flows poses many problems. It is debated whether these flows contribute to macroeconomic stability and growth, and what problems are created by portfolio flows in the context of their impact on national economic policy.

It is debatable whether the increased portfolio flows as a result of financial liberalization contribute to macroeconomic stability and growth by increasing national saving and improving resource allocation. Particularly in developing countries, it has been observed that financial sector growth without the necessary infrastructure leads to consequences that disrupt resource allocation in the markets left to it, resulting in current account deficits, low growth and more unequal income distribution.

Table 1: Macroeconomic Indicators in Fragile Five Countries (2019)

Indicators/Countries	Brazil	Indonesia	Turkey	Mexico	S.Africa	India	Argentina
Inflation (%)	3,73	3,39	15,2	-4,9	4,1	7, 66	41,7
Growth (%)	1	5,05	-1,5	-0,05	0,9	5	-2,6
Budget Deficit (%GDP)	-0,77	-3	-3,5	-2,07	-3,6	-2,3	-0,9
Current Account (%GDP)	-7,1	-1,76	-2	-4,32	-4,4	-3,42	-5,52
Unemployment Rate	11,8	5,01	13,9	6,2	29,1	6	9,8
CDS	133	88	373	125	187	75	1030
S&P	BB-	BBB	B+	BBB	BB	BBB-	CCC-
Moody's	Ba2	Baa2	B1	Baa1	BBa3	Baa2	Ca
Fitch	BB-	BBB	BB-	BBB-	BB+	BBB-	CCC

Source: https://data.imf.org/?sk=388DFA60-1D26-4ADE-B505-A05A558D9A42&sId=1479329132316

In economies where high inflation and budget deficits prevail, national interest rates must be at least at a level that exceeds expectations of foreign real interest rates + risk premium and de-

valuation for capital to come from outside. In this case, the high real interest rates and the overvaluation of the national currency negatively affect the relative price structure of goods subject to foreign trade, and the external balance deteriorates. Under these conditions, interest and exchange rate policy loses its traditional function and becomes the subject of capital movements.

Since high interest rates and low exchange rates weaken the competitiveness of the economy, the only way to regain it is to lower wages. In a situation where high interest rates discourage investment, the economy cannot be dragged into crisis just by keeping wages under pressure; this leads to a worsening of national income distribution to the disadvantage of those who live off their labor in a country where incomes are already unequally distributed (Yeldan, 2003: 6).

Since the national interest rate and the exchange rate capitulate to capital movements, it is not possible to use national economic policy for economic and social purposes. While entering the process of current account deficit growth with an overvalued national monetary policy, the cost of closing the public deficit increases due to high interest rates, which reduces investment and production and leads to the economy moving from a real production economy to a structure dominated by financial transactions. In this state, national economic policy is at the mercy of the high interest rate-low interest rate dilemma.

Apart from the debates on whether the uncontrolled liberalization of national financial markets brings macroeconomic stability and growth, in this framework, it prevents national economic policy from adopting practices that increase the country's productive and employment capacity and are welfare oriented by only disguising capital flows.

3. Data Set

This section provides preliminary information on the source, time period and data frequency of the financial variables examined in the research, and also reports descriptive statistics of the variables.

In this study, the series used were taken annually from the IMF, World Bank and FRED databases for the period 2008-2019.

In this study, the regression model was focused on examining the effect of financial indicators on portfolio investment for Turkey, South Africa, Mexico, India and Indonesia. The closed form of this model is shown as follows:

$$PY = f\,(REDK, BORSA, CDS) \tag{3.1}$$

The explicit form of the model is as follows:

$$PYit = \alpha 0 + \beta 1 REDKit + \beta 2 BORSAit + \beta 3 CDSit + uit \tag{3.2}$$

The second model of the study examines the relationship of portfolio investment with real effective exchange rate, stock market return and country risk premium (CDS).

Table 2: Descriptive Statistics of Variables

Descriptive Statistics					
Variables	Observation(TxN)	Average	St. Deviation	Minimum Value	Maximum Value
PY	72 *(12x6)*	273346	156945.2	45347.9	646495.1
REDK	72 *(12x6)*	89.44161	10.93542	61.529	109.957
BORSA	72 *(12x6)*	5.240339	39.27307	-64.137	130.0667
CDS	72 *(12x6)*	175.1417	77.21373	47.5	380

Table 2 presents descriptive statistics for the variables in the model. It can be seen that the panel dataset has the characteristic of a balanced (no missing observations) and long panel (T> N; 12> 6). This is particularly important because the relative position of N

and T guides method selection in panel data analysis. The study analyzed annual frequency data of portfolio investment, real effective exchange rate, stock return and country risk premium of each country (Turkey, South Africa, India, Brazil, Mexico and Indonesia, respectively) over the period 2008-2019.

3.1. Testing Inter-Unit Correlation in Variables

In this stage, the correlation analyzes between the variables under study were conducted using Breusch and Pagan's (1980) LM -unit correlation test and the variance corrected LM -unit correlation tests.

Table 3: Breusch-Pagan LM Units Correlation Test

Breusch-Pagan (1980) LM Test (for variables)		
Variables	LM Test Statistics	Possibility
PY	90.39749	0.0000*
REDK	60.64298	0.0000*
BORSA	131.4321	0.0000*
CDS	43.59737	0.0001*

*Note: *, ** and *** denote the significance levels of 0.01, 0.05 and 0.10, respectively.*

Table 3 shows the results of the Breusch-Pagan LM inter-unit correlation test with respect to the macroeconomic and financial variables of the study. The basic hypothesis of this test is that there is no correlation problem between the units in the relevant variable. It is understood that the basic hypothesis is rejected for all variables (since the probe is <alpha) and there is a correlation between units.

Table 4: LM Units Correlation Test with Deviation Corrected for Variables

Deviation Corrected LM Test (for variables)		
Variables	LM Test Statistics	Possibility
		0.000*
PY	13.76564	
REDK	9.063527	0.000*
BORSA	21.25749	0.000*
CDS	5.221142	0.000*

*Note: *, ** and *** denote the significance levels of 0.01, 0.05 and 0.10, respectively.*

It is understood that the null hypothesis is rejected for all variables (since the prob is <alpha) and there is a correlation between units. The variables of the study were also subjected to a corrected LM inter-unit correlation test and the results are shared in Table 4. For all four variables, the null hypothesis stating that there is no correlation between units was rejected (prob <alpha significance level). Therefore, it was understood that this problem existed in the examined variables.

When the results obtained from Table 3 and Table 4 are evaluated together, there is a correlation problem between units in portfolio investments, real effective exchange rate, stock market and country risk premium variables according to both Breusch-Pagan LM test and LM test with corrected deviation. Therefore, for the unit root and stationarity analysis of the variables in question, it is necessary to continue the analysis with the second generation tests that can work in the presence of this problem.

3.2. Unit Root and Stationarity Analysis

Hadri and Kurozumi (2012) test, which is among the second generation panel unit root and stationarity tests, is included in this section, which includes the stationarity analyzes of portfolio investments, real effective exchange rate, stock market and country risk

premium variables, which are found to have inter-unit correlation problems.

Table 5: Hadri and Kurozumi Panel Unit Root Test

Hadri & Kurozumi (2012) Panel Unit Root Test		
Variables	**Fixed Term (SPC)**	**Fixed Term and Trended (SPC)**
PY	-0.298	-0.138
REDK	-1.593	-0.109
BORSA	-0.897	-1.860
CDS	-0.512	-1.524

*Note: i. *, ** and *** denote 0.01, 0.05 and 0.10 significance levels, respectively.*

ii. The critical value at a significance level of 0.05 is 1.645.

Table 5 shows the results of Hadri and Kurozumi's (2012) panel stationarity test for the portfolio investment, real effective exchange rate, stock market and country risk premium variables. Unlike many unit root and stationarity tests, the basic hypothesis of Hadri and Kurozumi's panel stationarity test tests stationarity, that is, the stationarity of the variable is expressed in the null hypothesis. When the calculated statistical values are examined, it is seen that the null hypothesis cannot be rejected for any variable at the 5% significance level. Therefore, according to Hadri and Kurozumi test, all variables are stationary at the level.

3.3.Testing Slope Homogeneity

This step examines whether the regression has homogeneous or heterogeneous slopes.

Table 6: Pesaran and Yamagata (2008) Slope Homogeneity Test

Δ Statistics	**Possibility (Δ)**
0.204	0.838

Table 6 shows the results of the delta test of Pesaran and Yamagata (2008) applied to test whether the parameters have ho-

mogeneous slopes. The basic hypothesis of this test states that the slopes are homogeneous. Since the calculated probability value is not less than the significance level, the basic hypothesis cannot be rejected. In this case, it is assumed that the slopes can be expressed with a single coefficient in the model.

In accordance with the results obtained from the slope homogeneity test, it is understood that it is possible to use the estimators that work with the slope homogeneity assumption. Among the estimators that can be preferred at this stage, there are also estimators such as pooled least squares, fixed effects and random effects.

3.4. Testing Unit /Time-Effects

It is extremely important to examine the existence of unit/time effects or both unit and time effects in the panel regression model. In the absence of unit/time effects in an estimated panel regression model, it is assumed that the classical model is valid. If the classical model is valid, it can proceed directly to the estimation stage with the pooling process. However, if unit/time effects are present, pooling is not the appropriate method. Therefore, the presence of unobservable effects must be investigated. In this stage, the presence of unit/time effects in the model was investigated through F and LR tests and the score test, Lagrange Multiplier (LM) and extended Lagrange Multiplier (ALM) tests that examine unit effects based on the random effects model.

Table 7: Unit and Time Effects F-Test

Effect	*F* Statistics	*F* Possibility
Unit Effects	60.29	0.0000*
Time Effects	0.76	0.6787

*Note: *, ** and *** denote the significance levels of 0.01, 0.05 and 0.10, respectively.*

The classical model without unit and time effects (the regression model estimated with pooled EKK) is tested separately against the model with unit effects and against the model with time effects

using the F-test. In the first test, the presence of unit effects is expressed as the null hypothesis, and in the second test, the presence of time effects is expressed. When the F probability values are examined, it is seen that only the basic hypothesis stating that there are no unit effects is rejected, while the basic hypothesis stating that there are no time effects cannot be rejected. Then, according to the F-test, there is only the existence of unit effects in the model in question and this model is the "one-sided unit effects" model.

Table 8: Unit and Time Effects LR Test

Effect	*LR* Statistics	*LR* Possibility
Unit and Time Effects	146.51	0.000*
Unit Effects	95.63	0.000*
Time Effects	2.4e-13	1.0000

*Note: *, ** and *** denote the significance levels of 0.01, 0.05 and 0.10, respectively.*

Table 8 shows the results of the LR test, which tests for unit effects, time effects, and the coexistence of both unit and time effects. In fact, in this test, just like in the F-test, the models in which these effects exist are tested against the classical model (no unit and time effects). In the LR test, three different statistics are computed and three different hypotheses are tested. First, the classical model is tested against the panel data model, which has both unit and time effects, and it is found that there are no unit and time effects in the basic hypothesis. Based on the calculated probability value, the basic hypothesis is rejected. In this case, at least one of the unit and time effects or both unit and time effects are present in the model. In the second stage, the classical model is tested against the one-way model in which unit effects are present, and the main hypothesis is that unit effects are not present in the model (the classical model is valid). According to the calculated probability value, the null hypothesis is rejected and it is assumed that there are unit effects in the model. In the final stage, the classical model is tested against the panel data model with time effects. The basic hypothesis states that the classical model is adequate (no time effects) and

the hypothesis cannot be rejected according to the calculated probability value.

Considering the tests performed using all three LR statistics, it is assumed that the panel data model is a model with one-way unit effects (time effects are not included).

According to the F and LR tests, the results of which are given in Table 7 and Table 8, the model studied in the research shows the characteristics of the "one-way unit effects model".

Table 9: Presence of Unit Effect in Random Effects Model: Score, Lagrange Multiplier and Expanded Lagrange Multiplier Tests

Score X^2 Statistics	X^2 Possibility	LM Statistics	X^2 Possibility	ALM Statistics	X^2 Possibility
12111.87	0.0000*	987.40	0.0000*	708.50	0.0000*

*Note: *, ** and *** denote the significance levels of 0.01, 0.05 and 0.10, respectively.*

Table 9 shows the results of the score test, LM and ALM test for testing the presence of unit effects in the random effects model. It is found that there are no unit effects in the basic hypothesis of all three tests. When the calculated possibility values are examined, the null ypotheses for all three tests are rejected. Therefore, it is assumed that the unobservable effects in the one-way random effects model are unit effects.

Table 10: Hausman Test

Hausman Testi Sonucu	
X^2 Statistics	0.13
Possibility (prob.)	0.9881

Table 10 contains the results of the Hausman test. The basic hypothesis of the Hausman test is that the unit effect and the explanatory variables are not correlated. It can be seen that the basic hypothesis cannot be rejected according to the calculated probabil-

ity value. Therefore, there is no correlation between explanatory variables and unit effects in the model, and in this case, the random effects estimator is among the alternatives.

3.5. Estimation of the Panel Regression Model

In this section, the regression model is estimated. In the first stage, the base model and the findings obtained from the diagnostic tests are included. In the last stage, the final model is estimated by choosing the estimator that produces resistant standard errors according to the deviations from the assumptions.

Table 11: One-Way (Unit) Random Effects Model Estimation

Independent variables	Coeffi-cient	Std. Err.	Z Statistics	Possibility
CDS	-0.9429	0.107544	-8.77	0.000*
REDK	-1.1046	0.282257	-3.91	0.000*
BORSA	0.001893	0.000706	2.68	0.007*
Constant Term	22.0792	1.607321	13.74	0.000*
Model Bilgileri				
Wald (X^2) Sta.	*32.66*			
Possibility (X^2)	*0.0000**			

*Note: *, ** and *** denote the significance levels of 0.01, 0.05 and 0.10, respectively.*

Table 11 shows the estimation results of the one-way (unit) model with random effects. Although the Wald statistic indicates that the model is statistically significant overall, it was not considered appropriate to interpret it because this model has not yet been tested for diagnosticity.

If no autocorrelation, differing variance, and correlation problems between units are found in the regression model, the model shown in Table 11 is interpretable because it has the appropriate model properties. However, if any or all of these problems are found in the model, estimators that produce resistant standard errors should be chosen.

Table 12: Random Effects Model -Testing Deviations from Assumptions

Heteroskedasite Test	*Statistical*	Possibility
Levene, Brown and Forsythe Test		
W_0	4.6252	0.0011*
W_{50}	3.4443	0.0079*
W_{10}	4.3881	0.0016*
Correlation Test Between Units		
Friedman Test	30.462	0.0000*
Frees Test	0.6500*	-
Breusch-Pagan LM Test	7.782	0.0000*
Autocorrelation Test		
Mod. Bhargava vd. Test	0.6102	-
Baltagi-Wu Test	0.9665	-

*Note: i. *, ** and *** denote 0.01, 0.05 and 0.10 significance levels, respectively.*

ii. Critical values of the correlation test between Frees units are alpha 0.10; 0.2136 at 0.05 and 0.01 significance level, respectively; It is 0.2838 and 0.4252.

Table 12 shows the results of the various variance, inter-unit correlation and autocorrelation tests applied to determine whether there is any deviation from the assumptions in the estimated random effects model:

- Levene's, Brown's, and Forsythe's tests were followed by a study to determine if there was a differing variance problem in the model. As specified, the null hypothesis states that there is no differential variance in the model. Therefore, the hypothesis is rejected after all three statistics (a total of three statistics are calculated as W0, W50 and W10). So, it was found that there is a problem of differing variance in the model,
- Friedman test, Frees test and Breusch-Pagan inter-unit correlation tests used to determine the validity of the inter-unit correlation problem in the estimated model. The null hypothesis of all three tests is that there is no correlation between the units in the model. While the null hypothesis is rejected according to the probability values calculated in Friedman and Breusch-Pagan LM test, it is seen that the null hypothesis is rejected according to the statistical

value and critical values calculated in Frees test. In this case, it is assumed that there is a correlation problem between the units in the model.

- The modifiedBhargava vd. Test and the Baltagi-Wu test were used to detect the autocorrelation problem. Since the result of both tests was not close to 0, it was concluded that the problem in question exists in the model.
- When all the results were evaluated together, it was found that all three problems were present in the regression model. Therefore, the regression model was re-estimated using the Driscoll and Kraay estimator, which can produce resistant standard errors when these problems are present.

Table 13: Final Model- Driscoll-Kraay Estimator- One-Way Random Effects Model

Estimation Results of Driscoll and Kraay Random Effects Model				
Dependent Variable: PY				
Independent variables	Coefficient	Std. Err.	Z Statistics	Possibility
CDS	-0.9429	0.238422	-3.95	0.002*
REDK	-1.1046	0.217866	-5.07	0.000*
BORSA	0.001893	0.001024	1.85	0.092***
Constant Term	22.0792	1.4069	15.69	0.000*
Model Bilgileri				
Teta	*0.9111*			
Wald (X^2)İst.	*28.22*			
Possibility *(X^2)*	*0.0000**			
R	*0.1473*			

*Note: *, ** and *** denote the significance levels of 0.01, 0.05 and 0.10, respectively.*

Table 13 shows the estimation results of the one-way random effects model (unity) estimated with the Driscoll-Kraay - estimator. This model (the Driscoll-Kraay estimator) also produces standard errors that are resistant to autocorrelation, differing variance, and inter-unit correlation problems. It also shows that the theta parameter is "0.9111" which is close to one, indicating that

the random effects model produces results that are very close to the fixed effects model.

If the Wald statistics show that the overall model is significant. The country risk premium, real effective exchange rate, and stock market variables have a statistically significant effect on portfolio investment, which are dependent variables. In this context, a 1 percent increase in the country risk premium causes a 0.94% percent decrease in portfolio investment. A 1% increase in the real effective exchange rate causes portfolio investment to decline by approximately 1.10%. A one-unit increase in the stock market variable results in an average 0.002% increase in portfolio investment. Thus, while increases in the country risk premium and the real effective exchange rate have a decreasing effect on portfolio investment, the stock market acts in a way that increases portfolio investment.

Table 14: Estimation of One-Way (Unit) Fixed Effects Model

Dependent Variable: PY				
Independent Variables	**Coefficient**	**Std. Err.**	**Z Statistics**	**Possibility**
CDS	-0.94966	0.109989	-8.63	0.000*
REDK	-1.10008	0.287326	-3.83	0.000*
BORSA	0.001899	0.000719	2.64	0.010**
Constant Term	22.09312	1.607041	13.75	0.000*
Model Information				
F st. 25.83				
*Possibility (F)0.0000**				

Note: *, ** and *** denote 0.01, 0.05 and 0.10 significance levels, respectively.

Table 14 shows the estimation results of the one-way fixed effects model (unit). The F-statistic indicates that the overall model is statistically significant. However, it has not yet been tested whether there are deviations from the assumptions in this model. Therefore, diagnostic tests should be applied to the model.

Table 15: Test of Deviation from Assumptions in One-Way Fixed Effects Model

Heteroskedasite Test	***Statistical***	**Possibility**
Modified Wald Test	39.60	0.0000*
Correlation Test Between Units		
Friedman Test	30.718	0.0000*
Breusch-Pagan LM Test	44.660	0.0001*
Frees Test	0.665	%10: 0.2136 ; %5: 0.2838 ;%1:0.4252
Autocorrelation Test		
Mod. Bhargava vd. Test	0.6110	-
Baltagi-Wu Test	0.9669	-

*Note: i. *, ** and *** denote 0.01, 0.05 and 0.10 significance levels, respectively.*

ii. Critical values of the correlation test between Frees units are alpha 0.10; 0.2136 at 0.05 and 0.01 significance level, respectively; It is 0.2838 and 0.4252.

Table 15 shows the results of the diagnostic tests applied to the one-way fixed effects model:

- The Modified Wald test was applied to determine if there are different variance problems in the model. As seen in the null hypothesis, there are no variance differences in the model, which was rejected. In this case, it is assumed that there is a different variance problem in the model,
- Friedman test, Frees test, Breusch-Pagan correlation tests were applied to determine the correlation problem between the units in the estimated regression model. In the null hypothesis of all three tests, ıt is stated that there is no correlation between the variables in the model. The null hypothesis is rejected according to the probability values calculated in the Friedman and Breusch-Pagan LM tests. In Frees test, it can be seen that the null hypothesis is rejected according to the calculated statistical value and critical values. In this case, it is assumed that there is a correlation problem between the units in the model,
- Modified Bhargava vd. Test and Baltagi-Wu tests are used to detect the autocorrelation problem. Since the result of both tests

was not close to 0, the conclusion is that the problem in question exists in the model.

• When the results are evaluated together, the regression model is re-estimated using the Driscoll and Kraay estimator, which can produce resistant standard errors in the presence of relevant econometric problems.

Table 16: Final MODEL- Driscoll-Kraay Estimator- One Way (Unit) Fixed Effects Model

Driscoll and Kraay Fixed Effects Model Estimation Results				
Dependent Variable: PY				
Independent Variables	Independent Variables	Independent Variables	Independent Variables	Independent Variables
CDS	-0.94966	0.229887	-4.13	0.002*
REDK	-1.10008	0.26947	-4.08	0.002*
BORSA	0.001899	0.000998	1.9	0.084***
Constant Term	22.09312	2.15263	10.26	0.000*
Model Information				
F Ist.	*7.05*			
Possibility *(F)*	*0.0065**			
R	*0.5516*			

*Note: *, ** and *** denote the significance levels of 0.01, 0.05 and 0.10, respectively.*

Table 16 presents the estimation results of the one-way unit effect model estimated with the Driscoll-Kraay -estimator. The F-statistic indicates that the model is generally significant.

4. Conclusion

The study analyzes the relationship between portfolio investment in developing countries (Turkey, India, Mexico, South Africa, Brazil, Indonesia) and financial indicators after 2008 Global Crisis. As observed, the variables of country risk premium, real effective exchange rate and stock market index explain the dependent variable portfolio investment. In this context, a 1 percent increase in the country risk premium results in a decrease in portfolio investment of about 0.95 percent. A one percent increase in the

real effective exchange rate, decreases portfolio investment by about 1.10 percent and a one unit increase in the stock market return increases portfolio investment by about 0.001 percent. It is concluded that the country risk premium and the real effective exchange rate have a decreasing effect on portfolio investment, while the stock market index has an increasing effect on portfolio investment.

Looking at the magnitude of the coefficients, the sensitivity to the real exchange rate comes first. Since the expectation of depreciation of the local currency is perceived as a risk factor by investors, it has a negative effect on short-term capital flows. There is sensitivity to the coefficient of the CDS premium, which is another indicator of risk. The CDS premium is a risk-return added on to interest rates. The higher the CDS, the higher the interest income received by portfolio investors. But it is also an indicator of risk. In times of high financial volatility and increased volatility in credit markets, the rise in risk perception and the increase in CDS premiums lead to sales-driven movements, especially for portfolio investments with a high proportion of foreign investors.

As sovereign risk rises, confidence in the economy remains unstable. This situation is causing individuals and organizations holding investments in equities to withdraw their investments on the assumption that current economic conditions and future expectations of institutions traded on the stock market will deteriorate. It is observed that risk perception is more effective than return perception in the flows of portfolio investment in developing countries.

References

Acikalin, S., Aktas, R., & Unal, S. (2008). Relationships Between Stock Markets And Macroeconomic Variables: An Empirical Analysis Of The Istanbul Stock Exchange. *Investment Management and Financial Innovations*, *5*(1), 8-16.

Akışoğlu, B. (2013). *Portföy Yatırım İstatistiklerinin Derlenmesi ve Türkiye Uygulaması.* Uzmanlık Yeterlilik Tezi, Ankara: Türkiye Cumhuriyeti Merkez Bankası İstatistik Genel Müdürlüğü.

Blume, M. E., & Friend, I. (1973). A New Look at the Capital Asset Pricing Model, *The Journal of Finance.* 28(1): 19-33

Breusch, T. S. and Pagan, A. R. (1980), "The Lagrange Multiplier Test and its Applications to Model Specification in Econometrics", Review of Economic Studies, 47, 239-253.

Calvo, G. A., Leiderman, L., & Reinhart, C. M. (1996). Inflows of Capital to Developing Countries in the 1990s. *Journal of Economic Perspectives*, *10*(2), 123-139.

CBRT. (2013). Monetary and exchange rate policy for 2013, December.

Demirtaş, Ö., & Güngör, Z. (2004). Portföy Yönetimi Ve Portföy Seçimine Yönelik Uygulama. *Havacılık ve Uzay Teknolojileri Dergisi*, *1*(4), 103-109.

Fabozzi F,J. Modigliani F, Ferri M,G. (1998). *Foundations of Financial Markets and Institutions* Second Edition, New Jersey: Prentice Hall.

Felices, G., & Orskaug, B. (2008). Estimating The Determinants Of Capital Flows To Emerging Market Economies: A Maximum Likelihood Disequilibrium Approach.

Fernandez-Arias, E. (1996). The New Wave Of Private Capital İnflows: Push Or Pull?. *Journal Of Development Economics*, *48*(2), 389-418.

Hadri, K., & Kurozumi, E. (2012). A Simple Panel Stationarity Test İn The Presence Of Serial Correlation And A Common Factor. *Economics Letters*, *115*(1), 31-34.

IMF, (2003). *Annual Report: Making the Global Economy Work for All*. *IMF Board Paper.*

IMF, (2019). *Annual Report: Making the Global Economy Work for All*. *IMF Board Paper.*

Karan, M. B. (2001). *Yatırım Analizi ve Portföy Yönetimi*. Ankara: Gazi Kitabevi.

Karluk, R. (2009). *Uluslar Arası Ekonomi, Teori-Politika*. İstanbul: Beta Basım Yayım Dağıtım A.Ş.

Markowitz, H. (1952). Portfolio Selection. *Journal of Finance*, 7(1): 77-91

Pesaran, H. (2007). A Simple Panel Unit Root Test in The Prescence Of Cross Section Dependence. *Journal Of Applied Econometrics.* 22: 265-312.

Pesaran, M. H. (2004), General Diagnostic Tests for Cross Section Dependence in Panels. (No. 1240), *Institute for the Study of Labor* (IZA).

Pesaran, M. H. , Ullah, A. ve Yamagata, T. (2008). A Bias□Adjusted LM Test of Error Cross□Section Independence. *The Econometrics Journal*. 11(1): 105-127.

Pesaran, M. H., ve Yamagata, T. (2008). Testing Slope Homogeneity in Large Panels. *Journal of Econometrics*. 142(1): 50-93.

Reilly F. K. ve Brown, K . C. (1999) . *Investment Analysis And Portfolio Management (6th ed.)*. Houston: South Western Educational Publishing.

Roll, R. ve Ross, S. A. (1980) . An Empirical Investigation of the Arbitrage Pricing Theory . *The Journal of Finance.* 35(5): 1073.-1103.

Samuels, J.M., Wilkes F.M. and Brayshaw, R.E. (2009). *Management of Company Finance', Chapman Hall*. London, 1995, p.495. Aktaran: Nurgül CHAMBERS, 'Firma Değerlemesi', 2. Baskı, İstanbul: Beta Yayınları.

Taylor, M. P., & Sarno, L. (1997). Capital flows to developing countries: long-and short-term determinants. *The World Bank Economic Review*, *11*(3), 451-470.

Touchton, M. (2016). The Benefits Of Balance: Credibility, The Rule Of Law, And İnvestment İn Latin America. *Latin American Research Review*, 195-216.

Yeldan, Erinç, "Neoliberal Küreselleşme İdeolojisinin Kalkınma Söylemi Üzerine Değerlendirmeleri", Praksis Dergisi, 2003, ss.1-14.