COINTEGRATION RELATIONSHIP BETWEEN PORTFOLIO INVESTMENTS AND INVESTMENT INSTRUMENTS IN TÜRKİYE

Türkiye'de Portföy Yatırımları ile Yatırım Araçları Arasındaki Eşbütünleşme İlişkisi

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Abstract

As a result of globalization, the removal of barriers to international capital has created a source for countries in need of capital. These capital sources referred to as short-term capital movements or simply portfolio investments, provide significant benefits to the economy when they first enter the country. Investment instruments are instruments used by those who have excess capital in their hands in order to make a profit. The aim of this study is to reveal the cointegration relationships between portfolio investments and investment instruments in Türkiye. The motivation for this study is that there are few studies in the literature that examine cointegration relationships between all investment instruments and portfolio investments. The study comprises quarterly data covering the period from 2009Q1 to 2023Q2. The data has been obtained from the CBRT EVDS system. According to the results of ARDL cointegration analysis; there is a cointegration relationship between the variables both in the short and long run. According to these results, in Türkiye, investment instruments do not significantly affect portfolio investments, but portfolio investments significantly affect investment instruments.

Öz

Küreselleşmenin bir sonucu olarak uluslararası sermayenin önündeki engellerin kalkması sermaye ihtiyacı çeken ülkeler için bir kaynak yaratmıştır. Kısa vadeli sermaye hareketleri ya da kısaca portföy yatırımları olarak ifade edilen bu sermaye kaynakları ülkeye ilk girişlerinde ekonomiye ciddi faydalar sağlamaktadır. Yatırım araçları ellerinde sermaye fazlası olanların kar elde etmek amacıyla kullandığı araçlardır. Bu çalışmanın amacı, Türkiye'de portföy yatırımları ile yatırım araçları arasındaki eşbütünleşme ilişkilerini ortaya koyabilmektir. Literatürde tüm yatırım araçları ile portföy yatırımları arasındaki eşbütünleşme ilişkilerini inceleyen çalışma sayısının az olması çalışmanın motivasyonunu oluşturmaktadır. Çalışma, 2009Q1-2023Q2 dönemini kapsayan çeyreklik verilerden oluşmaktadır. Veriler TCMB EVDS sisteminden elde edilmiştir. ARDL eşbütünleşme analizi sonuçlarına göre; değişkenler arasında hem kısa hem de uzun dönemde bir eşbütünleşme ilişkisi mevcuttur. Bu sonuçlara göre Türkiye'de yatırım araçları portföy yatırımlarını değil portföy yatırımları yatırım araçlarını önemli ölçüde etkilemektedir.

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1. Introduction

Attracting investment is an important issue for all world economies. Foreign investments are analyzed in two different categories direct and indirect investments. While direct investments represent a long-term physical investment, indirect investments, or in other words portfolio investments, are a type of investment with a shorter term and aiming to benefit from the existing high-profit opportunity.

The literature has so many detailed definitions regarding portfolio investments. According to Güneş (2007), in order to have a high income in parallel with the risks it is necessary to draw investments such as from other countries into the country. Bildirici (2008) on the other hand states that the portfolio investments shortly named investments on bonds (placements) are actually the purchasing action of state's treasury notes or private companies' bonds and shares. Moreno (2000) has defined portfolio investments as the minimum risk carrying but high-income obtainable bonds. International portfolio investments are in fact the investments of other foreigners who have surplus funds on other countries' capital market tools to obtain high income by taking the risks of currency fluctuation, and political and country risks (Şit et al., 2020).

It is possible to separate the effects of portfolio investments on the country's economy whether negative or positive. At the top of the positive effects is the elimination of foreign currency inequality. If the country's export figures are not sufficient then the currency needed could be compensated via portfolio investments. The second positive effect is based on having depth in the markets. Both security sales and trading values significantly increase when foreign capital enters a country. This situation increases the interest in the security market thus more companies offer to the public thus enabling the security exchange market to gain depth. The first negative impact is the increment in loan costs. Financing the public gaps with internal loans pushes the interest rates and increases the financial stress. Raising numbers of foreign capital entering the country enables the national money's valuing up. Opening the margin between interest rate and currency invites and supports more speculative investment into the country thus increasing the sensitivity of economic realizations. The central bank which should buy more currency to be able to sterilize the rising currencies is forced to keep more reserves. The national money used for buying more currency is normally supplied from the market via open market transactions. Increments over the treasury's security exchange are subjected to increments over the interest rates. Thus, it is an additional burden on the budget's debts (Bildirici, 2008). This cycle, feeding itself within the time, turns out to be a dilemma.

In order for portfolio investments to come to a country, there should not be any obstacle to the inflow of foreign capital to the country. The McKinnon-Shaw (Shaw, 1973) hypothesis in the literature is the view that economic growth can be achieved by ensuring financial liberalization. According to this hypothesis, governments should allow foreign capital to enter the country by liberalizing interest rates. With the arrival of foreign capital, financial markets will deepen and the capital needed for economic growth will be provided (Korkmaz et al., 2010).

As a developing country, Türkiye is in need of foreign capital. Following an interventionist economic policy that was closed to foreign investors until the 1980s, Türkiye completely liberalized its foreign exchange regime with Decree No. 32 issued in 1989, and removed all obstacles to foreign capital (Arslan and Çiçek, 2017). The main factor behind this

decision was the need for capital. The second factor is that the government, that came to power and had a different economic policy approach from the previous governments, followed neoliberal policies. However, like all countries, especially Latin America, which implemented neoliberal policies, Türkiye also faced the most severe economic crises in its history as a result of these policies.

The main objective of the study is to determine the relationships between portfolio investments in Türkiye and investment instruments. The aim is to contribute to the literature on the role of the investment instruments with short and long-run cointegration relationships between them in attracting portfolio investments to Türkiye. When it comes to investment instruments, gold, interest rates, stock exchange, and foreign currencies come to mind as classical instruments. Although cryptocurrencies, which have been developing rapidly in recent years, have gradually increased their importance, the fact that they have not yet reached sufficient weight in the markets, are decentralized, and are not backed by any central bank or government raises doubts about the reliability of these instruments, so cryptocurrencies, especially Bitcoin, are not included in the study. Studies in the literature have generally analyzed the effects of investment instruments on portfolio investments. However, this study approaches the subject from a different perspective and focuses on the effects of portfolio investments on investment instruments. Thus, it is aimed to contribute to the literature by approaching the subject from a different perspective.

The ARDL Analysis reveals the short and long-term cointegration relationships between variables, demonstrating the effects of independent variables on the dependent variable and the direction of these effects. From the perspective of variables, the data set used in this study is more comprehensive than the data sets used in studies found in the literature. Thus, the effects of portfolio investments on all investment instruments are analyzed. The results obtained from the study will also serve as a guide for policymakers. The results of the study will show which investment instrument policymakers can primarily use in encouraging or discouraging portfolio investments in Türkiye. In this context, it is aimed to contribute not only to the literature but also to economic policymakers.

2. Literature Review

In the literature, it is observed that one or more variables included in the model of the study are used in the analyses. For this reason, grouping was made in terms of variables in the literature review. Among the studies examining the relationship between portfolio investments and stock market index or returns, Allen and Gale (1991) found that portfolio investments increase the value of stocks because of the reduction in liquidity risk. Warther (1995) found a similar result for the US securities markets and concluded that portfolio flows reduce the risk premium. He stated that the positive effect of portfolio investments on stock prices is temporary. Clark and Berko (1996) examined the relationship between foreign portfolio investments and stock market returns in Mexico and concluded that portfolio investments positively affect stock market returns. Egly et al. (2010) find a positive relationship between foreign investments and stock market performance in the US securities market for the period 1997-2007. Pal (2011) finds that portfolio investments have a positive and significant impact on both the stock market and the real economy in the Indian economy. Anayochukwu (2012) found a positive and significant relationship between foreign portfolio investments and stock market

returns in Nigeria. In their 2013 study, Gümüş et al. (2013) examined portfolio investments, the Istanbul Stock Exchange (ISE) Price Index, and exchange rates together. They concluded that portfolio investments affect both the ISE index and exchange rates. Haider et al. (2017) examined the impact of foreign portfolio investments on the stock market in China. According to their findings, foreign investments have positive effects on the stock market and enhance its performance in China. Topaloğlu et al. (2019) examined the relationships between foreign portfolio investments and stock index returns in the E7 countries, namely Brazil, China, Indonesia, India, Mexico, Russia, and Türkiye. They found a significant and positive relationship between foreign portfolio investments and index returns. Şit et al. (2020) found a long-term cointegration relationship between foreign portfolio investments and the BIST 100 Index. Aydın and Aksoy (2023) identified a long-term cointegration relationship between the BIST 100 and direct foreign capital investments at a 0.05 significance level.

Among the studies analyzing the relationship between portfolio investments and exchange rates, Craine (1989) finds a negative relationship between foreign capital investments and exchange rates. A similar result was obtained in Serven's (2002) analysis of 61 countries. Odongo and Kalu (2012) examine the relationship between the exchange rate and net portfolio inflows in Egypt, Morocco, Nigeria, and South Africa and found that capital inflows do not have any permanent or non-permanent effect on the real exchange rate in the short run. Gümüş (2013) analyzed portfolio investments together with the ISE Price Index and exchange rates and concluded that portfolio investments have a negative impact on the US dollar and a positive impact on the euro in the long run. Arslan and Çiçek (2017) examined the relationships between exchange rate and portfolio investments using VAR Analysis. Portfolio investments were found to be the variable that most affect the exchange rate. In the study, portfolio investments have a negative impact on the US dollar exchange rate and a highly positive impact on the euro exchange rate. Güngör (2021), according to the long-run coefficients of ARDL analysis, there is a statistically significant cointegration relationship between exchange rate and portfolio investments.

Barışık and Açıkgöz (2007), one of the studies examining the relationships between portfolio investments and interest rates, found that capital movements in the form of portfolio investments reduce the government domestic borrowing interest in Türkiye. Pazarlıoğlu and Gülay (2007) found a positive relationship between real interest rates and portfolio investments in the short and long term. Sezal and Kendirli (2024), found no cointegration relationship between portfolio investments and Turkish Lira, USD, and euro interest rates in the short run, but a cointegration relationship in the long run.

3. Empirical Analysis

In this section of the study, firstly, the data set used and the sources from which it is obtained are explained, and then the theoretical explanations of the methods used are given under the second subheading.

3.1. Data

In this study, the cointegration relationship between portfolio investments and investment instruments is analyzed using the Autoregressive Distributed Lag Bound Test (ARDL)

cointegration test. The purpose of the study which covered the period of 2009Q1 and 2023Q2 based on a total of 58 observations; was to be able to set forth how much portfolio investments were impacted due to changes in investment instruments. The logarithm of the variables with level values has been taken and marked with ln at the beginning of the line. Eviews 10.0 package programmer was used in the analysis.

Table 1. The Details of the Variables

Variable Name	Description	Source
lnportfolio	Log of portfolio investments to Türkiye (million USD).	CBRT EDDS
lngold	Ounce gold sales price in logarithm Turkish Lira	CBRT EDDS
bond	Türkiye 2-year benchmark bond interest rate	CBRT EDDS Archive
lnbist	Borsa Istanbul 100 Index (based on closing prices)	CBRT EDDS
lnusd	The logarithm of the US Dollar selling price	CBRT EDDS
lneuro	The logarithm of the euro selling price	CBRT EDDS

3.2. Methodology

Stationarity plays an important role in econometrical studies where the time series are used. No variables with unstable stationarity could be placed in the model. Stationarity verification could be shown as in the equation number 1.

$$Y_t = \rho Y_{t-1} + \varepsilon_t \tag{1}$$

In case Y_{t-1}'s coefficiency which took place in the equation is equal to 1 then the series unit contains the root. With the *t-test* application help, it is verified whether this coefficient is equal to 1.

In the ADF test, the following hypothesis is used:

$H_0 = \rho = 1$ series is not stationarity, it contains a root.
$H_0 = \rho < 1$ series is stationarity, it has no unit root problem.

The model used in the study is shown in equation number 2.

$$lnportfolio = \beta 0_t + \beta 1_t lngold_t + \beta 2_t bond + \beta 3_t bist_t + \beta 4_t usd_t + \beta 5_t euro_t + \mu_t \tag{2}$$

Augmented Dickey-Fuller (ADF) and Philips-Perron (PP) Unit Root Tests were conducted to determine whether the series contained unit roots (Dickey and Fuller, 1981; Philips and Perron, 1988). Dickey and Fuller (1981) developed a method for estimating a random and non-stationary series and the parameter value δ in this series in order to detect the presence of a unit root. However, since the δ parameter estimate is not normally distributed, they constructed t critical values instead of t statistics (Enders, 2009). The Phillips-Perron Test treats the error term as non-autocorrelated. Based on the assumptions about errors, the ADF has been made more comprehensive. It is argued that the variance of the error term varies over time and the continuous change in variance values indicates heteroskedasticity.

In order to construct the VAR model in ARDL analysis, the appropriate lag length must first be determined. For this purpose; LR, FPE, AIC, SC, and HQ criteria are used. The lag length with the smallest critical values is accepted as the appropriate lag length. After determining the appropriate lag length, the ARDL model is established. In order to determine

the reliability of this model, some structural tests are performed. Among these tests, the LM test shows whether the errors in the model are interdependent among themselves. The absence of any error indicates that there is no autocorrelation problem due to the absence of serial correlation. The Jarque-Bera test used in the normality test shows whether the error terms of the series are normally distributed. The white test is a structural test used to detect the problem of varying variance in the series. The equation is estimated in which the error prediction squares of the equation are dependent and the explanatory variables themselves, their squares and products are explanatory variables (Gemicioğlu, 2019). Ramsey Reset Test is also performed to determine whether there is any error in model building.

3.3. Empirical Findings

In this section of the study, the results and evaluations of the tests used in the analysis are presented. Firstly, ADF and PP Unit Root Tests were performed in order to determine the existence of a stationarity problem, then the appropriate lag length was determined in order to construct the VAR model and the ARDL model was constructed using this lag length. Structural tests were performed to test the reliability of the ARDL model and then the existence of short and long-term cointegration relationship between the series was determined.

According to the results in Table 2, only the bond variable is stationary at I(0) level at 0.05 significance level in the model with constant and trend in ADF and PP test. The other variables are stationary at the I(1) level at a 0.01 significance level. The fact that one of the series was stationary at level did not allow the Maki Cointegration Test to be performed in the study. For this reason, the ARDL Test, which analyses the cointegration relationship between the series even if they are stationary at different levels, was performed.

Table 2. ADF and PP Test Results

Variables	Level		Prob.	First Difference	Prob.
ADF Unit Root Test					
lnportfolio	-2.8752	(-4.1408)	0.1786	-12.3550*(-4.1408)	0.0000
lngold	0.0107	(-4.1273)	0.9955	-6.7055*(-4.1305)	0.0000
bond	-3.8130**	(-3.4921)	0.0230		
lnbist	-0.6025	(-4.1273)	0.9750	-7.7538*(-4.1305)	0.0000
lnusd	-1.1328	(-4.1273)	0.9141	-6.7562*(-4.1305)	0.0000
lneuro	-0.5281	(-4.1273)	0.9793	-6.7673*(-4.1305)	0.0000
PP Unit Root Test					
lnportfolio	-1.9417	(-4.1372)	0.6190		0.0000
lngold	0.0087	(-4.1273)	0.9955	-6.7562*(-4.1305)	0.0000
bond	-3.4007***	(-3.1739)	0.0614		0.0000
lnbist	-0.9606	(-4.1273)	0.9411	-7.7751*(-4.1305)	0.0000
lnusd	-1.1741	(-4.1273)	0.9062	-6.9857*(-4.1305)	0.0000
lneuro	-0.2467	(-4.1273)	0.9904	-6.9810*(-3.4921)	0.0000

Note: *, **, and *** represent the 0.01, 0.05, and 0.10 significance levels respectively. Values in parentheses are the test critical values.

The lag length that minimizes the critical values is accepted as the appropriate lag length. In theory, AIC, SC, and HQ critical values are generally taken into account. According to Lütkepohl and Reimers (1992), SIC performs well in selecting the appropriate lag length. In this

regard, the study by Sukamulja and Sikora (2018) in the literature also relied on the work of Lütkepohl and Reimers (1992) to use the SIC criterion for determining the appropriate lag length. Based on this, the SIC criterion was preferred for determining the lag length in the study. As seen in Table 3, the lag length of 3, which minimizes the SIC criterion, was accepted as the appropriate lag length.

Table 3. Appropriate Lag Length

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-2608.822	NA	2.87e+35	98.6725	98.8955	98.7583
1	-2347.064	454.3730	5.78e+31	90.1533	91.7147	90.7537
2	-2301.383	68.9520	4.23e+31	89.7880	92.6877	90.9031
3	-2153.257	190.0481	7.06e+29	85.5568	**89.7948***	87.1866
4	-2092.115	64.6030*	3.64e+29	84.6081	90.1844	86.7524
5	-2037.437	45.3929	3.07e+29*	83.9032*	90.8179	86.5623*

The results of the tests conducted to determine the reliability of the established model are presented in Table 4. Since the probability values obtained as a result of the test are greater than 0.01, 0.05 and 0.10 significance levels, there is no serial correlation, changing variance, or setup error in the model. At the same time, the residuals of the series are normally distributed.

Table 4. Structural Tests

Tests	Result	Prob.
Breusch-Godfrey Serial Correlation LM Test	1.9936	0.1329
Breusch-Pagan-Godfrey Heteroskedasticity Test	0.5239	0.9174
Jarque-Bera Normality Test	1.8145	0.4030
Ramsey RESET Test	1.5871	0.2156

According to Table 5, which shows the long-term estimation results, the probability values of the ARDL (2, 3, 3, 0, 1, 2) model were examined. The probability values for the variables lnportfolio, lngold, bond, and lneuro are less than the 0.01 significance level. The lnusd variable is significant at the 0.10 significance level. However, since the probability value of the lnbist variable is greater than all three significance levels, it is statistically insignificant. It can be said that the model is significant when the lnbist variable is excluded.

Table 5. ARDL (2, 3, 3, 0, 1, 2) Model Long Run Estimation Results

Variables	Coefficient	t- Statistic	Prob.
lnportfolio(-1)	-0.2523	-2.9098	0.0060
lngold(-1)	-0.4849	-3.1099	0.0035
bond(-1)	-29726.56	-3.2929	0.0021
lnbist	-0.2924	-1.4829	0.1463
lnusd(-1)	-571560.7	-1.8958	0.0656
lneuro(-1)	1647158.	3.9371	0.0003

When examining the long-term coefficients (Table 6), it is observed that all variables except for lneuro negatively affect portfolio investments. Among these effects, all variables except for lnbist are statistically significant. Accordingly, a 1-unit change in the lngold variable

results in a 1.92 unit decrease in portfolio investments, a 1-unit change in the bond variable results in a 1.17 unit decrease in portfolio investments, a 1-unit change in the lnbist variable results in a 1.15 unit decrease in portfolio investments, and a change in the lnusd variable results in a 2.26 unit decrease in portfolio investments. Among these negative relationships, the change in the lnusd variable is the strongest, as shown in Table 6. The lneuro variable is the only variable that positively affects portfolio investments, with a significant effect of 6.52 units.

Table 6. ARDL (2, 3, 3, 0, 1, 2) Model Long Run Coefficients

Variables	Coefficient	t- Statistic	Prob.
lngold	-1.9217	-2.3777	0.0226
bond	-1.1779	-2.2371	0.0312
lnbist	-1.1590	-1.3476	0.1857
lnusd	-2.2649	-1.8129	0.0778
lneuro	6.5272	2.8354	0.0073

The f-bound test presented in Table 7 indicates the existence of a long-term cointegration relationship among the series. The null hypothesis, which states that there is no long-term relationship, was tested against the H_0 alternative hypothesis. The obtained f-bound statistic of 4.3371 is greater than the upper bound of I(1) at the 0.05 significance levels, leading to the rejection of the null hypothesis and demonstrating the presence of a cointegration relationship among the series.

Table 7. f Bound Test

f Statistic	Critic Value	I(0)	I(1)
4.3371	0.05	2.848	4.16

After estimating the long-term of the series, the short-term estimation results presented in Table 8 are used to determine the existence of a short-term cointegration relationship among the series. According to the obtained results, all variables in the model are statistically significant. The error correction coefficient is negative and statistically significant, indicating the presence of a short-term cointegration relationship among the series. Accordingly, any 1-unit deviation will return to the long-term equilibrium after 3.96 (1/0.2523) periods. Since the study is based on quarterly data, this time frame can be considered as 4 quarters.

Table 8. ARDL (2, 3, 3, 0, 1, 2) Model Short Run Estimation Results

| Variable	Coefficient	t-Statistic	Prob.
C	6692037	0.0000	0.0000
D(LNPORTFOY(-1))	-0.1896	-1.6625	0.1046
D(LNGOLD)	-0.0341	-1.9081	0.0640
D(LNGOLD(-1))	0.4575	5.1275	0.0000
D(LNGOLD(-2))	0.4532	5.1491	0.0000
D(TAHVIL)	-3556.409	-5.3125	0.0000
D(TAHVIL(-1))	22577.25	5.4602	0.0000
D(TAHVIL(-2))	18714.92	5.4434	0.0000
D(LNUSD)	-1492382	-2.5688	0.0143
D(LNEURO)	1621364	2.6822	0.0108
D(LNEURO(-1))	-1639998	-4.0995	0.0002
CointEq(-1)*	-0.2523	-5.4264	0.0000

To confirm the short-term cointegration relationship among the series, the t-bound test results are presented in Table 9. Since the t-statistic result of -5.426474 is greater than I(1), which is the upper limit of 0.05 significance level in absolute value, the existence of a cointegration relationship in the short run is confirmed. Therefore, the existence of a short-term cointegration relationship is confirmed.

Table 9. t Bound Test

t-Statistic	Critic Value	I(0)	I(1)
-5.4264	0.05	-2.86	-4.19

Graphs 1 and 2 show the CUSUM and CUSUMQ tests. In both graphs, it is seen that the parameter estimates of the series are within the limits of 5% significance level. Since the parameter estimates are within the red dashed lines indicating 95% confidence limits, the parameter estimates satisfy the stability condition.
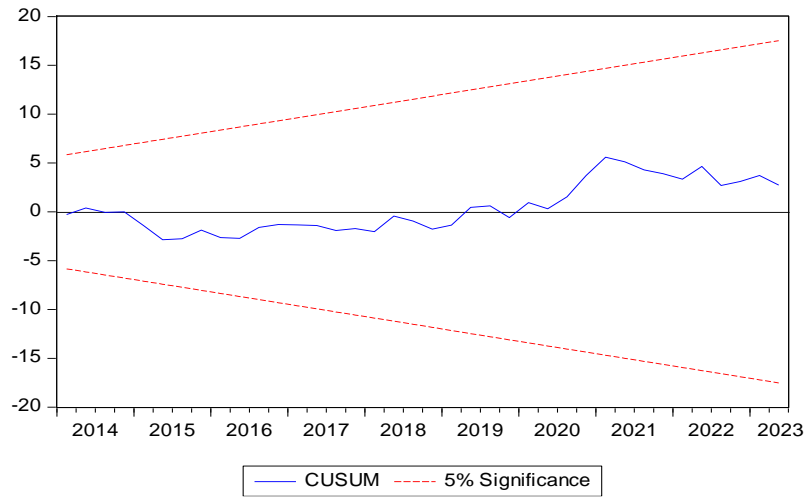
Graph 1. CUSUM Test
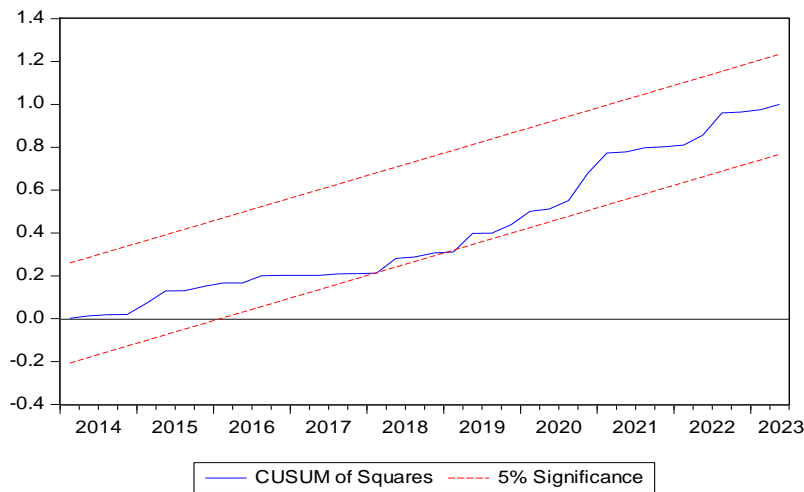
Graph 2. CUSUM Q Test

The results obtained from cointegration analysis are consistent with the results of the studies in the literature. Studies analyzing the relationship between portfolio investments and the stock market have found that portfolio investments have positive effects on the stock market index and returns (Allen and Gale, 1991; Warther, 1995; Clark and Berko, 1996; Egly et al., 2010; Pal, 2011; Anayochukwu, 2012). Although the study concluded that portfolio investments negatively affected the BIST 100 Index, this effect is statistically insignificant. The conclusion from the study by Gümüş et al. (2013) that portfolio investments negatively affect the ISE in the long term aligns with the result obtained from the study, where the long-term cointegration coefficient is negative.

The negative relationship between foreign capital and exchange rates found in studies examining the relationships between portfolio investments and exchange rates, such as those by Craine (1989) and Serven (2002), was also found in the study with the variable of the US Dollar exchange rate. The conclusion that portfolio investments negatively affect the US Dollar exchange rate and positively affect the euro exchange rate, as found in the studies by Gümüş et al. (2013) and Arslan and Çiçek (2017), is identical to the result of the study. Additionally, Arslan and Çiçek (2017) identified portfolio investments as the most influential variable on the exchange rate. When considering the long-term cointegration coefficients of the study, the same conclusion is reached. According to Güngör (2021), there is a statistically significant cointegration relationship between the exchange rate and portfolio investments based on the long-term coefficients of the ARDL analysis. The conclusion from the study by Barışık and Açıkgöz (2007) that portfolio investments reduce the interest rates of government domestic borrowing securities is consistent with the study's finding of a negative long-term cointegration coefficient.

4. Conclusion and Recommendations

As a developing country, Türkiye requires capital. The lack of savings in the country makes it compulsory to obtain the needed capital from foreign sources. Although direct capital investments from foreign capital sources are the healthiest source for national economies, it is quite difficult to attract such investments to the country. At this stage, short-term capital resources, also known as portfolio investments, have become an important source from which countries can meet their capital needs. While portfolio investments have serious positive effects when they first arrive in the country, they may cause economic crises when they leave the country. Today, thanks to the developing communication technologies, it has become quite easy for capital to arrive and leave the country.

According to the results obtained from the econometric analysis, there is a cointegration relationship between portfolio investments and investment instruments in Türkiye both in the short and long run. When the relationship is analyzed, changes in all variables except the lneuro variable lead to a decrease in portfolio investments in the country. The lnusd variable was found to have the strongest negative relationship. It is an expected result that an increase in exchange rates, for example, will lead to a decrease in portfolio investments due to increased risk. In this relationship, the lneuro variable diverges positively. It is a theoretically expected result that the realization of a positive capital inflow to the country from abroad causes interest rates to fall. The increase in capital inflow to the country leads to a decrease in interest rates, which is expressed as the cost of capital. At the same time, since the presence of portfolio investments

indicates the confidence of foreign investors in the country's economies, an increase in confidence leads to an easing in interest rates, which are affected by risk and uncertainty. Another conclusion about interest rates is that interest rates are not effective in attracting portfolio investments to Türkiye as a result of the negative direction of the relationship; on the contrary, portfolio investments affect interest rates. The same conclusion is also valid for the BIST 100 Index. The fact that the long-run coefficient is negative and significant indicates that Borsa Istanbul is not effective in attracting portfolio investments to Türkiye, but portfolio investments have a negative and significant effect on the BIST 100 Index. The fact that the value of gold is sensitive to both the changes in ounce prices and the changes in the US dollar price is the reason why the lngold variable is found to be the second variable that affects portfolio investments the most after the lnusd variable. The fact that all variables except the lneuro variable move together will deprive foreign investors who want to minimize their risks by diversifying their portfolios of this opportunity and cause them to be indifferent among investment instruments.

Another expected result of the study is for policymakers. Policymakers who want to attract portfolio investments to the country should pursue policies in favor of the euro exchange rate, which has a positive relationship with portfolio investments. On the contrary, if they want to pursue a policy against portfolio investments, they may pursue policies that encourage other variables due to the negative relationship between them.

In today's world of increasing communication technology and globalization, it is no longer possible to place barriers in front of capital. It is important for developing countries like Türkiye to obtain the capital they need from foreign sources in order to ensure economic growth. For this reason, measures should be taken to ensure that foreign capital coming to the country in the form of portfolio investments does not cause a crisis in the country's economy, especially when leaving the country. It is necessary to increase the depth of capital markets, ensure the spread of capital, take measures to prevent volatility in exchange rates, take temporary measures to prevent fluctuations in the markets in case of a sudden stop, and most importantly, reduce dependence on foreign capital by increasing national savings.

Declaration of Research and Publication Ethics
This study which does not require ethics committee approval and/or legal/specific permission complies with the research and publication ethics.

Researcher's Contribution Rate Statement
I am a single author of this paper. My contribution is 100%.

Declaration of Researcher's Conflict of Interest
There is no potential conflicts of interest in this study.

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