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HISTORICAL ANALYSIS OF STOCK MARKET PARTICIPATION IN TÜRKIYE

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***Abstract.** Investor participation is an important element for sustainable Stock markets. Sustainable stock market participation can allows sustainable funds for companies, for their investment and national economic development. In some developing countries low investor participation is an important problem. Thus the aim of the paper is to find out main factors affect the investor participation in Turkish Stock Market. Monthly and Quarterly Data covers from 2003 to 2022 has been used for this aim. By the Correlation analysis it has been revealed that the relationship between investor numbers and macroeconomic data. Lee Strazicich LM unit root test show that break point of the time series of the investor numbers. There are main two factors affect investor numbers in Türkiye (Turkey). One of them is 2008 global financial crisis and another one is 2018 new local macroeconomic policy in Türkiye. Findings show that the country has not yet sustainable policies for stable participants in stock market.*

Key words: Investor, BIST, Stock Market, Türkiye (Turkey), Stock Market Participation, Equity market

JEL classification: E22, D24, O16

Introduction

As one of the developing countries, Türkiye (Turkey) strives to meet the need for resources to increase its economic growth. In order to meet this capital need, the Turkish stock exchange was established in 1985. While stock exchanges enable companies to raise funds through public offerings, they also enable investors to earn dividends and trading income. An increase in the number of investors means more resources for the economy. After reaching a certain level in the 2000s, the number of investors in Türkiye has fluctuated within a certain fixed corridor for a long time. However, in the continuation of some macroeconomic policies implemented since 2018 by the government, there has been a significant increase in the number of investors. While the desired results could not be obtained from the policies, aimed raise the investor number, implemented in the stock market in previous years, current policies have had an effect beyond what was desired. In order to ensure sustainable investor participation in the stock market, analysis of the factors that lead investors to make decisions is needed. For this reason, this study aims to observe the reactions of investors to participate in the stock market in line with the macro-economic, political and social events experienced over the years.

Research Problem

Main problem is that there is no sustainable increase in Investor number in Turkish Stock market during 2003 and 2022. Because, stock market participation is one of the important factors for deepening financial markets. Thus we need to understand which factors or events have effect on Investor number.

Purpose

The purpose of the paper is to revealed that the main factors on stock markets participation in Turkish Stock Market – Borsa İstanbul

Method

It is used monthly and quarterly data from 2003:01 to 2022-07 to see the impact of some major factors on the stock market participation in Türkiye. Investor numbers data obtained from Turkish Capital Markets Associations and data include all individual and institutional investors. Customer Price Index (CPI) and Producer Price Index (PPI) data obtained from Central Bank of the Republic of Turkey. 2 years Bond Rates obtained from “investing.com”

Main limitation is that there isn’t investor data before 2003.

Findings

It can be seen the investor numbers in Turkish Stock Market from 2003 to 2022-July (Table 1). According to table 1, investor numbers in 2003Q1 is 1.186.337. Even though past 16 years as of 2019Q3, after 16 years, investor number is under the investor number in 2003Q1. The lowest investor number is in 2008Q3.

Table: 1 Quarterly Investor Number from 2003 to 2022/7

Years	Investor Nr	Years	Investor Nr	Years	Investor Nr	Years	Investor Nr	Years	Investor Nr
2003-3	1.186.337	2007-3	1.004.551	2011-3	1.071.926	2015-3	1.068.585	2019-3	1.170.725
2003-6	1.169.352	2007-6	1.015.166	2011-6	1.092.791	2015-6	1.052.900	2019-6	1.171.776
2003-9	1.134.546	2007-9	1.015.166	2011-9	1.091.919	2015-9	1.044.909	2019-9	1.174.899
2003-12	1.111.848	2007-12	1.060.569	2011-12	1.097.786	2015-12	1.059.313	2019-12	1.203.438
2004-3	1.110.402	2008-3	946.082	2012-3	1.089.532	2016-3	1.056.210	2020-3	1.347.388
2004-6	1.120.768	2008-6	973.105	2012-6	1.093.793	2016-6	1.062.315	2020-6	1.569.290
2004-9	1.107.108	2008-9	973.393	2012-9	1.080.659	2016-9	1.054.532	2020-9	1.761.538
2004-12	1.072.663	2008-12	989.853	2012-12	1.088.566	2016-12	1.040.794	2020-12	1.988.940
2005-3	1.074.924	2009-3	998.689	2013-3	1.095.430	2017-3	1.025.926	2021-3	2.249.648
2005-6	1.074.903	2009-6	994.001	2013-6	1.105.938	2017-6	1.034.226	2021-6	2.445.559
2005-9	1.068.258	2009-9	998.832	2013-9	1.105.785	2017-9	1.046.890	2021-9	2.409.270
2005-12	1.079.207	2009-12	1.000.261	2013-12	1.110.408	2017-12	1.090.903	2021-12	2.355.070
2006-3	1.004.551	2010-3	1.015.427	2014-3	1.102.772	2018-3	1.113.326	2022-3	2.390.852
2006-6	1.004.551	2010-6	1.029.971	2014-6	1.081.909	2018-6	1.165.558	2022-6	2.508.942
2006-7	1.004.551	2010-7	1.028.399	2014-7	1.076.863	2018-7	1.178.147	2022-7	2.525.543
2006-9	1.004.551	2010-9	1.025.175	2014-9	1.079.614	2018-9	1.173.404		
2006-12	1.004.551	2010-12	1.038.778	2014-12	1.075.368	2018-12	1.178.919		

Source: Turkish Capital Markets Association

In Figure 1, fluctuations on investor number by years can be seen more clearly. One can see the important jump of investor number after 2018. This can be caused by the Turkish government’s new economic policy. And there can be seen the impact of global financial crisis in 2008.

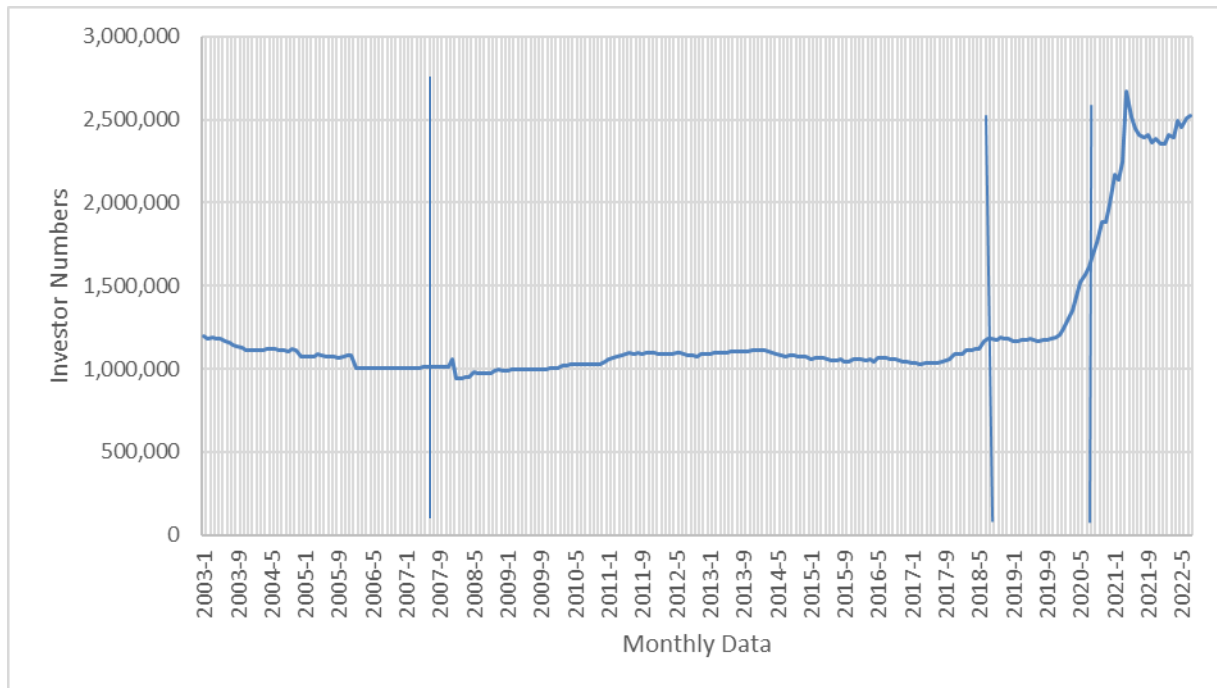


Figure 1: Quarterly Investor Number from 2003 to 2022/7

Source: Turkish Capital Markets Association

To see main Structural Break and Crash in the investor data, Lee Strazicich LM unit root test has been applied. And, it has been used Correlation analysis to show relationship between;

- i - Investor numbers and interest rate.
- ii - Investor numbers and real interest rate based on PPI and CPI.

According to Lagrange Coefficient (LM) Statistics value (Table 2), Model A shows series are not stationary and there are 2 break points 2007-December and 2020-July.

Table 2: Lee Strazicich LM Unit Root Test

Lee Strazicich LM unit root test	
Model: Crash (A)	
Null hypothesis : INV has a unit root with break	
Minimum test statistic (tau)	-2.036060
Break point	2007M12 2020M07
Selected lag	12
Test critical values	
1% level	-4.078227
5% level	-3.568787
10% level	-3.305147

Regression output		
Variable	Coefficient	t statistic
S(t-1)	-0.017865	-2.036060
Constant	-4596.312	-0.761664
B1(t)	-115593.1	-3.120119
B2(t)	31509.05	0.831765

2007-December shows the effect of Global Financial Crises and 2020 July reflect Economics Policy changing point of Turkish Central bank which aims Low Interest Rate, even though other central banks increased Policy Interest Rate.

Model C is Stationary (In trend and Constant) Break points of the serie shows the changing of interest rate policy of the Turkish government (Table 3). 2018/7 is Election time and, 2020/8 is the date government declared its Interest Rate policy repeatedly and therefore there are 2 break points.

Table 3: Lee Strazicich LM Unit Root Test

Lee Strazicich LM unit root test		
Model: Break (C)		
Null hypothesis : INV has a unit root with break		
Minimum test statistic (tau)	-6.133967	
Break point	2018M07 2020M08	
Selected lag	12	
Test critical values	1% level	-6.547840
	5% level	-5.934213
	10% level	-5.618840
Regression output		
Variable	Coefficient	t statistic
S(t-1)	-0.261647	-6.133967
Constant	-33852.24	-5.472560
B1(t)	15035.42	0.413428
B2(t)	-32176.61	-0.845972
D1(t)	16003.74	2.049666
D2(t)	80601.65	4.962592

Figure 2 shows that the fluctuation of investor numbers during 2003 and 2022. We calculated real interest rate by using Consumer Price Index (CPI) and 2 years bond rate as indicator of market interest rate (IR).

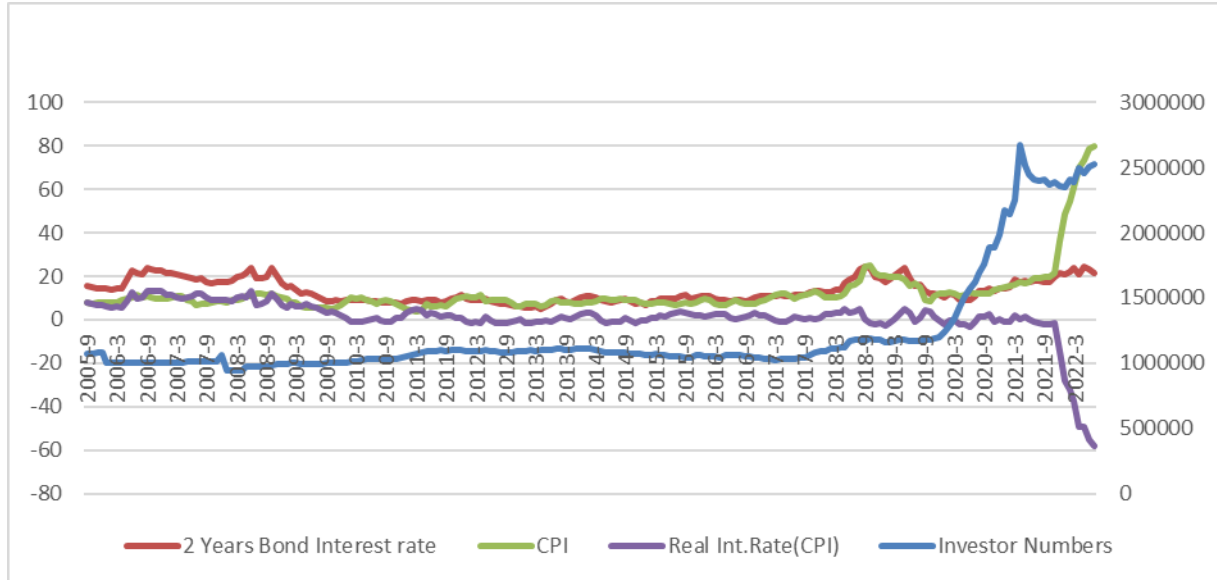


Figure 2: Long term movement of the data

Table 4 shows, There is negative and powerful Correlation between investor number (IN) and real interest rate by CPI (RR-CPI). It hasn't been used Fisher formula to calculate the real interest rate, because the investors interest mostly nominal gap between interest rate and CPI. There is negative correlation between investor number and real interest rate by CPI (-0,638). This means when RR-CPI fall, investor number rise.

Table 4: Correlation Analysis / With CPI

		Correlations			
		IN	IR	CPI	RR-CPI
IN	Pearson Correlation	1	,342**	,706**	-,638**
	Sig. (2-tailed)		,000	,000	,000
	N	203	203	203	203
IR	Pearson Correlation	,342**	1	,512**	-,062
	Sig. (2-tailed)	,000		,000	,381
	N	203	203	203	203
CPI	Pearson Correlation	,706**	,512**	1	-,889**
	Sig. (2-tailed)	,000	,000		,000
	N	203	203	203	203
RR-CPI	Pearson Correlation	-,638**	-,062	-,889**	1
	Sig. (2-tailed)	,000	,381	,000	
	N	203	203	203	203

** . Correlation is significant at the 0.01 level (2-tailed).

Table 5 shows, there is negative and powerful correlation between investor number (IN) and real interest rate by PPI (RR-PPI).

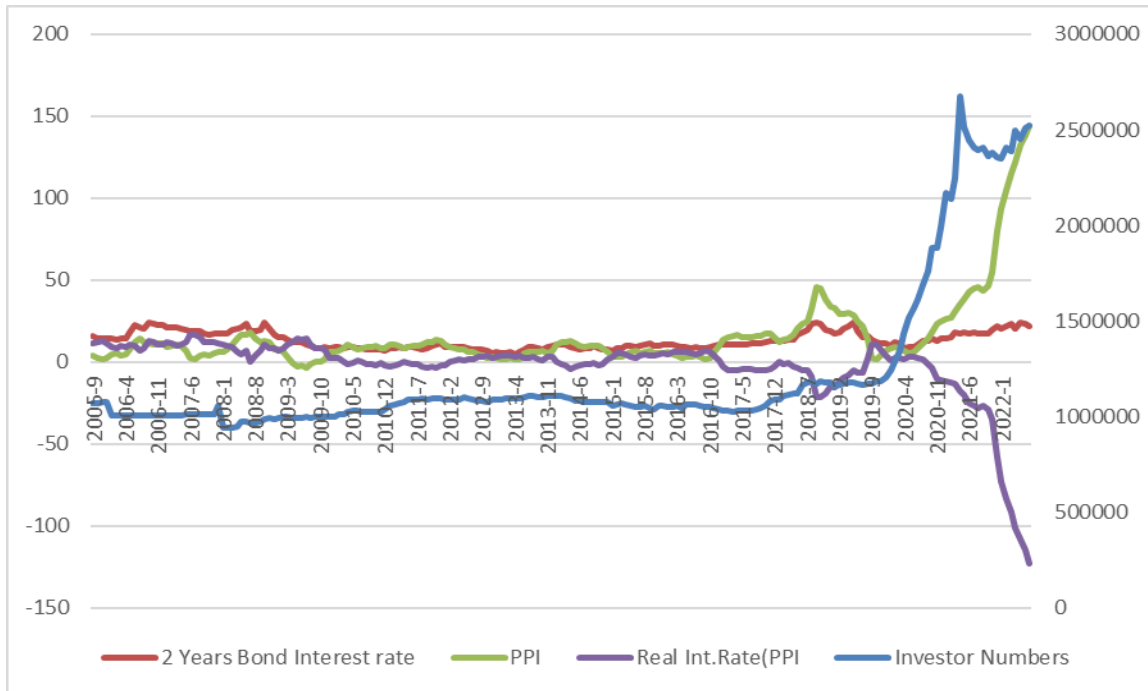


Figure 3: Long term movement of the data.

According to figure 3, the movement of the investor number and PPI more similar than that of investor number and CPI. Correlation analysis in Table 5 support this relationship. Because according to table 5, correlation coefficient of IN and PPI is higher than that of IN and CPI. When PPI fall 1 unit, investor number raise 0,772. This shows investors in Türkiye are more sensitive to PPI.

Table 5: Correlation Analysis / With PPI

		Correlations			
		IN	IR	PPI	RR.PPI
IN	Pearson Correlation	1	,342**	,772**	-,772**
	Sig. (2-tailed)		,000	,000	,000
	N	203	203	203	203
IR	Pearson Correlation	,342**	1	,536**	-,347**
	Sig. (2-tailed)	,000		,000	,000
	N	203	203	203	203
PPI	Pearson Correlation	,772**	,536**	1	-,978**
	Sig. (2-tailed)	,000	,000		,000
	N	203	203	203	203
RR.PPI	Pearson Correlation	-,772**	-,347**	-,978**	1
	Sig. (2-tailed)	,000	,000	,000	
	N	203	203	203	203

**. Correlation is significant at the 0.01 level (2-tailed).

Conclusion

Findings shows there are two main factors affecting the investor participation onto Stock Market. These are Global crises and Interest Policy of the Central Bank of Turkish republic.

While global financial crisis has negative effect on market participation, negative interest policy of Central bank of TR has Positive effect.

But the negative interest policy has some devastating effect some economic indicators (This is out of the paper’s aim). Thus, Turkish government should apply more sustainable policy to raise the stock market participation.

The data of the study were obtained from Turkish financial institutions. The findings of the study show that investors tend to invest in stocks besides housing, automobiles, gold and foreign currency to protect their wealth, especially in periods when negative real interest rates are applied. However, it does not seem possible that the negative real interest rate policy will ensure sustainable investor participation in the stock market as a single method. Therefore, there is a need for policies that will attract investors to this market continuously.

Limitation and further studies

There may be many factor which can affect the investor number such as Currency rate and Stock market return. And these factors can be added to the analysis to explain the changing on the Investor number.

Besides; regression and causality tests can show the relationship more clearly. Study period can be divide as 2 parts before 2018 and later to see the effect of negative interest rate policy.

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