THE EFFECTS OF FINANCIAL PRESSURE POLICIES ON ECONOMIC GROWTH: THE CASE OF OECD COUNTRIES

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Abstract. In this study, the effects on economic growth of financial pressure policies applied in OECD countries are examined. For this purpose, the "financial pressure index (FPI)" was calculated by using 10-year data for 2010–2020 from 37 OECD countries and "growth rates" were obtained. The FPI was calculated using (i) loans extended to the private sector, (ii) loans extended to the central government, (iii) interest payments and (iv) inflation rate data. In calculating FPI, first of all, the data was standardized. Following the standardization process, the data was weighted using Principal Component Analysis (PCA) to calculate the FPI. After weighting the data, each standardized value was aggregated by multiplying it by its own weighted value, and the final FPI was ultimately calculated. Economic growth rates were calculated as a percentage of GDP. Finally, the analysis was carried out by comparing the calculated FPI with the economic growth rates. According to the results of the analysis, the coefficient of FPI was statistically significant ($p < 0.05$). In this context, every 1-point increase in FPI reduced GDP by 0.178 points.

1. Introduction

In this study, the effects of the concept of financial pressure on economic growth are examined. The importance of the study stems from questioning whether the concept of financial pressure, which was recalled with the 2008 global financial crisis, is an effective tool to achieve economic growth by reducing public debt. Discussions in the field range from those who say that financial pressure has an impact on economic growth and those who argue that financial liberalization is necessary for economic growth. Both views have their merits. However, the general view is that "financial liberalization" increases credibility of the economy by reducing the risk perception in financial markets (Kendall, 2012). Reduction of operational and public liabilities of similar financial institutions (such as private pension funds, insurance companies, savings funds), especially banks, abolition of strict control procedures that impede capital mobility, easing bans on global acquisitions and mergers, facilitating access to markets, and financial liberalization practices, such as reducing tax liabilities, allow investments to increase by directing financial funds to more productive areas (Levine, 2021; Ligeti, 1989). The net ef-

fect in areas where financial deepening or access to markets is facilitated is quite affirmative and positive compared to government interventions or restrictions in the market (Pagano, 1993). But while financial liberalization has positive effects on international capital flows and long-term growth prospects, it was criticized for causing external shocks, banking crises and economic instability, and is even said to be a justification for repressive government policies.

After the Second World War, many developed countries turned to repressive policies by applying low-interest rates. Thus, while public debts are reduced, growth is also partially financed by the fiscal pressure tool (fiscal pressure tax). This process continued until 1971 when the Bretton Woods system collapsed and financial liberalization gained importance. After this date, the controls on financial markets around the world disappeared, and the concept of financial pressure lost importance. However, after the global financial crisis in 2008, repressive policies came to the agenda again. In fact, the low-interest rates applied by developed countries from the beginning of the global crisis until 2020 are seen as a remedy to save economies from recession and reduce public debt. Often, "low-interest rates and positive inflation rates" are central to the implemented fiscal pressure policies. In developed and developing countries, as well as in China the world's second-largest economy, fiscal repression policies are effectively utilized to reduce government debt (International Monetary Fund, 2022; Reinhart & Sbrancia, 2011).

Empirical studies in this field are usually specific to a particular country. Analyses of country comparisons are few. Our study fills this gap and analyses the issue across OECD countries. For this purpose, the financial pressure index was calculated and an attempts was made to achieve usable, feasible, and quantifiable results. In addition, as in other studies, a more comprehensive study was carried out by taking into account not only basic changes such as inflation and interest rates but also loans extended to the government and loans extended to the private sector. Limitations of the study include the fact that the variables used in the study have different natures, the data are specific, and some of the data being accessible since the 1980s and some from 2010 onwards. Evaluations of Turkey, on the other hand, offer results in the form of lessons.

In the study, first of all, the financial pressure index was calculated and the data were standardized for this purpose. Then, the weighting of the data was carried out by means of Principal Component Analysis and finally, the final FPI was calculated. The standardization of the data was carried out with MS Excel, the analysis of the basic components was carried out using SPSS for Windows v26.0 package program, and the econometric analysis was carried out with E-Views 10 package program. According to the results of the analysis, it is concluded that the financial pressure policies implemented by governments in OECD countries adversely affect economic growth.

2. Development of financial pressure

Government interventions in the financial system were a fairly common practice in the 1960s and 1970s, especially in developing countries (Arestis & Demetriades, 1999). In those years, many economists supported repressive policies toward financial markets and made suggestions accordingly. The first proposal was for governments to intervene in free setting of

interest rates in the market and to legislate for this. Secondly, with strict controls and regulations on the banking system, monetary authorities may be able to control the money supply more easily. Third, governments are much better than markets and private banks in making and implementing decisions about the allocation of savings to productive areas. Fourth, by setting interest rates below market rates, the borrowing costs of states and public debt decrease (Roubini & Sala-i-Martin,1995). However, it did not take long for views opposing these policies to emerge, and the policies were first criticized by Goldsmith in 1969. Subsequently, McKinnon (1973) and Shaw (1973) argued that markets under state intervention are responsible for lower savings, credit rationing, and lower investment and growth rates, which they called "financial repression" (also known as the financial repression hypothesis). From this point of view, they proposed the thesis of financial liberalization, which aims to free markets from state intervention (Arestis & Demetriades, 1999).

Roubini and Sala-i-Martin (1992, 1995) provide both theoretical and empirical evidence that financial repression policies reduce economic growth. The correlation between inflation rates, bank reserve ratios, and growth rates supports the financial repression theory. Moreover, some of the weak growth experiences in Latin American countries are related to repressive policies pursued by governments in this region. The net effect of fiscal repression is that savers have lower rates of return, the productivity of capital declines, intermediation costs rise, the amount of investment decreases, economic growth is suppressed, tax evasion becomes widespread and economies face higher inflation. Kaminsky and Schmukler (2003) proved that the balance sheets of the financial sector (banks) tend to be quite fragile and weak in economies under fiscal pressure. This study also supports the theoretical link between financial repression and economic growth. However, most financial markets in developing countries face government interference and are kept small, especially by suppression. As a result of this suppression, interest rates that should be set by the market remain at a low level. The interest rates that domestic banks give to savers are also extremely low or negative. In particular, although governments want to promote development, the lack of necessary financial tools due to political and administrative constraints leads to fiscal pressure policies (Agénor & Montiel, 2015; Beck et al., 2004). Imperatives such as the size of external debt and the need for restructuring of public/private debts bring financial suppression policies to the agenda as a kind of payment tool.

Financial repression is defined as reserve requirements, interest rate ceilings, rules about the composition of bank balance sheets, foreign exchange regulations, and heavy tax burdens imposed on the financial sector, particularly the banking sector. It describes a situation where banks provide cheap loans to governments and corporations, reducing their repayment burden, while savers receive interest income below inflation rates (Hayes et al., 2024; Rutherford, 2012). In other words, "financial repression, a policy conducted by many governments to generate growth and revenue through artificially low-interest rates and inflationary monetary policies". Thus, governments can access private sector funds at no cost or at a fraction of the cost and finance public expenditures at low cost (Eschenbach, 2004).

Fiscal repression occurs either alone or in combination with any of the following:

(i) Explicit or implicit reductions in interest rates on government debt and interest rates on deposits, inflationary monetary policies,

(ii) Taking domestic banks and financial institutions into state ownership (e.g., in China or India), comprehensive supervision (e.g., in Japan), or limiting the market entry of similar institutions,

(iii) High reserve requirement ratios (RCRRs),

(iv) Forcing banks to keep significant holdings of government securities, thus creating a captive domestic market for governments,

(v) Restricting the transfer of assets abroad through the imposition of capital controls.

The precautions listed above enable governments to borrow at lower interest rates. A low nominal interest rate can reduce debt servicing costs, while negative real interest rates erode the real value of government debt. For this reason, financial repression is most successful in liquidating debts when accompanied by inflation and can be evaluated as a form of taxation (Reinhart & Rogoff, 2009; Reinhart & Sbrancia, 2011). In this way, public debt can be liquidated and the budget deficit can be closed. Besides, opinion held that fiscal repression may be more effective in liquidating government debts denominated in domestic currency (Beim & Calomiris, 2001). In this process, those affected by low-interest rates are primarily depositors who have savings in banks. The other group of losers are banks, their shareholders, and other investment institutions forced to hold government bonds. These inflation-related losses allow the transfer of economic value from creditors (savers and bondholders) to debtors (governments) in the form of a hidden fiscal repression tax (Hileman, 2020; Simon, 2015).

3. Literature review

Since the 2008 global crisis, the pressures on financial markets have been continuously expanding. While the crisis affected global markets, it became a systemic crisis in the form of the European debt crisis in 2010. Tensions in economies trigger new developments over time and the need for real-time information to solve problems increases. Numerous financial repression indices have emerged as a result of this need. Financial repression indices are considered to be an important indicator to measure market fluctuations, especially since the 80s. Pressure indices can be used to assess the impact of financial markets at the global-regional or country level. One of these indices is the "Composite Indicator of Systemic Stress-CISS" index. The index measures pressures, frictions, stresses, and strains (or the absence thereof) in the financial system. The "Financial Stress Indices-FSI" monitor markets in real-time and help to better understand economic indicators. It reveals the stages of the crisis and measures the impact of the policies implemented. The "Global Index of Financial Turbulence-GIFT" index are market-based indicators. Capturing stress in fixed income, it is used to measure the level of pressure in equity and foreign exchange markets. The "St. Louis Fed's Financial Stress Index-STLFSI" evaluates financial conditions through weekly financial market indicators. However, there is no general financial stress index and analysis differs according to the variety of parameters used (Holló et al., 2012; Nar, 2022).

In a model study, it was concluded that countries that cannot apply effective income tax use fiscal pressure as an option to increase public revenues. Accordingly, since the tax on the household will be replaced by a heavier implied tax (fiscal pressure tax), the concept of growth will also become problematic (immiserizing growth) (Bai et al., 1999). According to

another study conducted by the World Bank, one of the important reasons why developing countries and transition economies such as Russia have low growth rates is that they face a situation called "financial repression" (Caprio & Honohan, 2001). This is because there are practices that prevent the financial system from working efficiently, such as credit restrictions, weakness of the legal system, debt litigation lasting at least 5 years, and nationalization of banks, in these countries. Moreover, due to practices that allow governments to direct the flow of credit to certain sectors, productive investments are replaced by less productive investments. The direct effect of this is low growth rates.

All these reasons are clear evidence of why many countries remain poor and others prosper (Benhabib & Spiegel, 2000; Mishkin, 2007). The financial pressure index developed in Switzerland is calculated using annual data for the period 1987–2002. The financial pressure index explains both the banking crisis in the 1990s and the stock market crash in 2001–2002, based on financial stress. This result reveals the direct link between the real economy and the financial sector. It also explains that the banking sector is more prone to encountering crises in economies where macroeconomic imbalances prevail (Hanschel & Monnin, 2005).

Another study was published in 2009 when the US public debt to GDP ratio was the highest since 1955. According to the simulation result, public debt can be reduced by applying fiscal pressure through high inflation, just like at the end of the Second World War. In the U.S., especially, the short-term nature of public debt and the fact that foreign creditors account for 48 percent of public debt make fiscal repression imperative (Aizenman & Marion, 2009). In another study using the FSI index, financial repression in advanced economies had a particularly negative impact on the banking sector. The impact of deterioration in the banking sector on the real economy is much greater than the impact of deterioration in the securities or foreign exchange markets on the real economy. This situation causes much more permanent and systematic regression in economies (Cardarelli et al., 2011). Again, an analysis using the CISS index showed that the financial pressure in the Eurozone tends to strongly suppress the real economy. If financial instability spreads to other markets at the same time, deterioration may adversely affect all economies, making it a systemic risk. The quality and sustainability of economic growth will also deteriorate (Hollo et al., 2012; Van Riet, 2018).

In a financial impact study of China, with regulated interest rates, directed loans, and a suppressed economy model, investment and production can be subsidized and economic growth can be achieved. However, the side effects of the implemented policies are a decrease in economic efficiency, a slowdown in economic activities, the economic structure may deteriorate in the long term and the Chinese economy may be seriously endangered (Xu & Gui, 2013). Another study examining the relationship between financial pressure and economic growth in terms of the Nigerian economy used the "McKinnon and Shaw model". According to the results of the analysis, lowering interest rates negatively affects controlled investments and delays economic growth by discouraging savings. If the desire is to increase economic growth, monetary authorities should liberalize interest rates and alleviate fiscal pressure (Oluleye, 2017). Again, to measure the economic instability caused by the Arab Spring, the financial data of eight countries were analyzed with Financial Stress Indices (FSIs). Accordingly, the spillover effect of financial stress was high in North African economies. This situation may cause deepening of crises, prevention of access to information in the markets and many

negative effects (Elsayed &Yarovaya, 2019). In a study using the Threshold Structural Vector Auto Regression (ThSVAR) model, financial pressure was directly linked to interbank transactions and the bond market and played a central role in stress transmission (Yao et al., 2020). Again, an updated index of interest rate control covering 90 countries over 45 years assessed the impact of financial pressure on growth. The results revealed that financial pressure can create a significant barrier to growth in the range of 0.4 to 0.7 percent. According to another result of the study, interest rate ceilings, which were introduced in the aftermath of the 2008 financial crisis in order to reduce public debt, distort the market structure, lead to unfair incentives, economic inefficiency, and losses arising from rent-seeking (Jafarov et al., 2019).

Another study that attempted to measure the dynamic relationship between financial pressure and the financial asset market measured the relationship between Bitcoin and gold markets and financial pressure. According to the results of the analysis, fiscal pressure increases the volatility spread in the markets in the short term and increases it sharply in uncertain periods, leading to financial stress and fragility in economies. "Bitcoin market" is largely influenced by the U.S. foreign exchange market and the Chinese stock market, while "gold" is more affected by financial pressure in the U.S. foreign exchange market (Zhang & Wang, 2021). In another study conducted by establishing a regression model, the relationship between variables in the health sector and financial pressure in China and the USA was tested. According to the results of the empirical analysis, financial pressure triggers volatility in both the Chinese and US health markets; however, the Chinese health market is more sensitive to financial pressure than the US health stock market (Weng et al., 2022).

4. Methodology

4.1. Purpose of the research

The aim of this study was to determine whether there is a relationship between financial pressure and economic growth. The importance of the study stems from questioning whether the concept of financial pressure, which was recalled with the 2008 global financial crisis, is an effective tool to achieve economic growth by reducing public debt.

4.2. Dataset and method

In the study, data from 37 OECD countries for the period 2010–2020 are used to determine the effect of financial pressure on economic growth. Analysis is carried out with data obtained from International Monetary Fund [IMF], OECD and World Bank databases. The financial pressure index (FPI) is calculated on the basis of (i) loans extended to the private sector, (ii) loans extended to the central government, (iii) interest payments and (iv) inflation rates. Economic growth rates are measured in terms of percentage change in GDP. With the help of these variables, the effects of monetary policy tools on economic growth are analyzed.

Domestic credits to the private sector (% of GDP): comprise the sum of loans/funds extended to the private sector (natural – legal person) by financial corporations, primarily banks, and retail loans. Loans extended to the central government /or claims on central government (% GDP): include loans to central government institutions net of deposits (International

Monetary Fund, 2021; World Bank, n.d.). Interest payments (% of revenue): include interest payments on government debt – including long-term bonds, long-term loans, and other debt instruments – to domestic and foreign residents (Trading Economics, n.d.). Inflation rate (annual %): inflation measured by the consumer price index (CPI) is defined as the change in the prices of a basket of goods and services that are typically purchased by specific groups of households (Organization for Economic Cooperation and Development, n.d.).

Problems such as determining the appropriate number of variables to be used in practice, indecision about the selection of econometric data, the presence of many analyzable variables, and difficulty in accessing data restrict the econometric analysis and affect the result. This problem can be solved by creating an analytical and composite index of financial pressure (Abu Bakr, 2017). For this purpose, the FPI was created in the study and then the data were standardized and weighted. The financial pressure index was calculated using the weight coefficients. Afterwards, panel data analysis was performed to examine the relationship between standardized growth data and cointegration. Checks were made as to whether the variables contained unit roots (whether they were stationary or not) and unit root tests were used. As a result of cointegration tests, the existence of a long-term cointegrated relationship between FPI and GDP was proven (Banerjee et al., 1993; Enders, 2014).

Table 1 shows the variables used in the study, and Table 2 shows the variables used in the calculation of FPI.

Table 1. Variables used in the study

Basic Variables	Explanation
FPI	Financial Pressure Index
GDP	Economic Growth Rate

Table 2. Variables used in the calculation of FPI

Variables Used	Explanation
DCPS	(Domestic Credit to Private Sector)
COCG	(Claims on Central Government)
INT	(Interest Payments)
INF	(Inflation)

In the study, first of all, the data were standardized for the calculation of FPI. In the standardization process, firstly, the data for each variable was subtracted from the average of the series, and the value obtained was then divided by the standard deviation of the same series.

$$\text{Standardized Data} = (Di - \text{Doverage}) / SD, \tag{1}$$

where Di – Current data; $Daverage$ – Average of the series; SD – Standard Deviation of the Series.

Following the standardization process, the data were weighted by means of Principal Component Analysis to calculate FPI. The weights obtained as a result of PCA are shown in Table 3.

Table 3. PCA analysis findings

Variables	Weights
DCPS	0.753
COCG	0.712
INT	0.795
INF	0.675

After weighting the data with PCA, each standardized value was multiplied and summed by its own weight value, and the final FPI was calculated.

$$FPI = a\,DCPS + b\,COCG + c\,INT + d\,INF. \tag{2}$$

The standardization of the data was carried out with MS Excel, basic components analysis was carried out using SPSS for Windows v26.0 package program, and the econometric analysis was carried out with E-Views 10 package program.

4.3. Findings

In order to determine whether the variables used in the study contain unit roots, first of all, LLC and Im, Pasaran and Shin tests were performed from the panel unit root tests. Then, least squares regression was used.

The stationarity of the series is an important factor for achieving accurate results in econometric analysis. Stasis is examined by unit root tests of series. If a time series is stationary, mean and variance remain constant over time. However, if the unit root tests determine that the series is not stationary, their averages cannot be maintained in the long term and variance values increase to infinity. Also, the autocorrelation values increase with the number of delays, R2 values are high and t statistical values are significant. Therefore, misleading results can be obtained if the series is not made stationary. The same is true in panel data analysis and stasis analysis should be performed first. LLC (Levin, Lin, and Chu) and IPS (Im, Pasaran, and Shin) unit root tests are methods used to test for stationarity in panel data analyses. In most cases, taking the differences of the series is sufficient to make them stationary.

Table 4 shows the findings regarding the unit root tests for the variables used in the study. Accordingly, FPI and GDP series become stationary when the first difference (I(1)) is taken according to LLC and IPS tests.

Table 4. Panel unit root tests

		Levin, Lin & Chu t	Im, Pesaran & Shin W
FPI	I(0	−5.26772*	−0.74216
	I(1)	15.2189*	−8.63370*
GDP	I(0)	7.16176	1.90308
	I(1)	−4.39852*	−2.42028*

Note: * $p < 0.05$.

As a result of panel unit root tests, the variables used in the study were not stationary at the level (I(O)), but were stationary when the first difference is taken (I(1)). For this reason, Pedroni Panel Cointegration Test and Kao Panel Cointegration Test were performed to examine the existence of a cointegration relationship in the long run.

Kao (1999) and Pedroni (1999) panel cointegration tests are common causality analyses to test for the presence of cointegration in panel data. The Pedroni test allows the dynamic and constant effects to be different between sections of the panel, while also allowing the cointegration vector to be different under the alternative hypothesis. Seven different cointegration tests were presented to cover the in-section and inter-sectional effects on the panel, and these tests were divided into two different categories.

Table 5 shows the results of the Pedroni and Kao cointegration tests. According to the Pedroni test, there was a cointegration relationship between the series. Therefore, there is a significant relationship between FPI and GDP in the long run.

Table 5. Panel cointegration

Pedroni	Stationarity & Non-trend		Weighted	
	t	p	t	p
Panel v-Statistic	2.499302	0.0062	−1.814436	0.9652
Panel rho-Statistic	−0.659712	0.2547	0.627963	0.7350
Panel PP-Statistic	−3.339165	0.0004	−1.400114	0.0807
Panel ADF-Statistic	−3.561654	0.0002	−3.840984	0.0001
Group rho-Statistic	3.601426	0.9998	*Kao (ADF)*	
Group PP-Statistic	0.795255	0.7868	t	p
Group ADF-Statistic	−2.681398	0.0037	−1.56460	0.0588

After determining the long-term cointegration relationship between the variables, the estimation was started with the Fully Modified Ordinary Least Squares (FMOLS) method to determine the direction and degree of the long-term relationship. The pooled least squares method was used in the FMOLS estimator. The FMOLS method is used to correct the resulting deviations (such as autocorrelation and varying variance) in standard fixed-effect estimates. In addition, the FMOLS method allows significant heterogeneity between individual sections (Gülmez, 2015). The findings of the FMOLS estimate are shown in Table 6. As seen in Table 6, the coefficient of the FPI variable was statistically significant ($p < 0.05$). In this context, every 1-point increase in FPI reduces GDP by 0.178 points.

Table 6. FMOLS

Variable	Coefficient	Standard Error	t	p
D(FPI)	−0.178162	0.085706	−2.078748	0.0385
R-squared	−0.276986	Mean dependent var		−0.300279
Adjusted R-squared	−0.437150	S.D. dependent var		1.085704
S.E. of regression	1.301555	Sum squared resid		499.7431
Long-run variance	0.989463			

After examining the presence of panel cointegration between the variables, the causality relationship was also examined with the Dumitrescu-Hurlin causality test. The Panel Granger causality test was developed by Dumitrescu and Hurlin (2012). The test gives effective results even for panels formed by a small number of units. The advantages of this method are that it can take into account the cross-sectional dependence and heterogeneity between countries that make up the panel and it can also be used when the time dimension (T) is greater or smaller than the horizontal cross-sectional size (N). It can also give effective results in unbalanced panel data sets.

In the Dumitrescu-Hurlin panel Granger causality test, the alternative hypothesis of the existence of a relationship in at least one horizontal section was tested. As can be seen in Table 7, the H0 hypothesis stating that there is no causality from FPI to GDP direction is rejected. Therefore, causality was determined from FPI to GDP.

Table 7. Dumitrescu-Hurlin panel granger causality test

Dimitrescu-Hurlin	W	Zbar	p
FPI ↛ GDP	1.63569	0.51202	0.6086
GDP↛ FPI	5.02202	7.86852	4E-15

5. General evaluation

The causality relationship from FPI to GDP can also be seen in Table 8 and Figure 1. Accordingly, across OECD countries, GDP decreases while FPI increases, and GDP increases while FPI is decreases.

When Figure 1 is examined, the periods of the most intense financial pressure were 2010–2012 and 2020. The period of 2010–2012 was a period of economic contraction in the Eurozone, negativities arising from the banking sector, social security deficits and financial problems arising from high public debts. The year 2020 marks the COVID period in which

Table 8. Average FPI and GDP values

	FPI	GDP
2010	−0.8587	0.3872
2011	−0.0211	0.3211
2012	1.6347	−0.1081
2013	−1.2867	−0.1086
2014	−0.7976	0.2491
2015	−1.1358	0.3873
2016	−0.7092	0.2832
2017	−0.7062	0.5452
2018	−0.8530	0.4137
2019	−1.2338	0.1329
2020	−0.4969	−2.3814

economic activities were suspended in almost every field from production to investment and from tourism to trade. In the COVID period, while production decreased, prices increased, and the phenomenon of stagflation was more severe. Therefore, while fiscal pressure (FPI) increased in these years, GDP decreased (Nar, 2020; Ramskogler, 2014). The peak periods of sharp declines in FPI were 2013 and 2015. In 2013, economic activities in the USA and the Eurozone began to return to normal, and in 2015, global growth gradually strengthened, the decline in oil prices continued, and the European Central Bank started monetary expansion. Therefore, while fiscal pressure (FPI) decreased in these years, GDP increased.

The breaking points in the study were 2014 and 2019. In 2014, FPI and GDP values moved upward together. While high public debts caused sudden increases in FPI in the relevant period, contrarily the commodity prices (commodity price) reached the lowest level of the last 5 years in this year, allowing FPI and GDP values to move upwards together (International Monetary Fund, 2014). In 2019, FPI and GDP values moved downwards together. The main reason for the break in FPI can be clearly traced to the practices of central banks. "Central banks have been easing decisively and timely, partly offsetting the negative impacts of trade tensions and helping to prevent a further rapid worsening of the economic outlook. Thereby, they have also paved the way for structural reforms and public investment to raise long-term growth, such as spending on infrastructure to support digitalization and climate change" (Organization for Economic Cooperation and Development, 2019). However, in the final analysis, central bank measures to alleviate fiscal pressure did not yield the desired results. While FPI decreased, so did GDP.

The study compared "the difference between the largest FPI value and the smallest FPI value" and "the difference between the largest GDP value and the smallest GDP value" to get a clearer picture of the change in FPI across OECD countries. Thus, it can be observed which economies remain stable and which countries experience lower FPI and GDP volatility, i.e. are less affected by FPI.

As seen in Table 9, countries that are less affected by financial pressure are also countries that achieved greater economic growth. In countries highlighted in GDP > FPI, from Australia
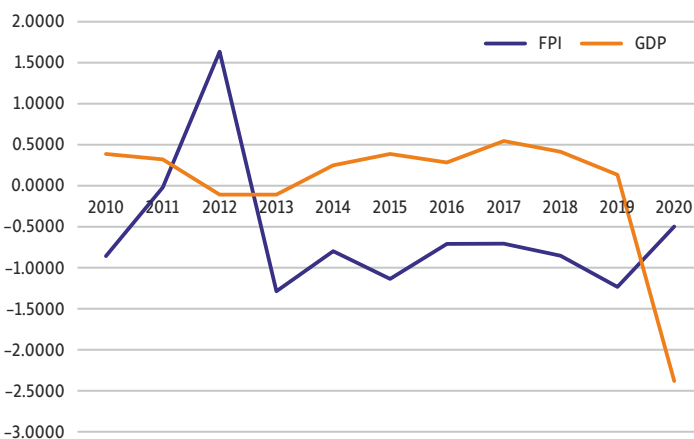

Figure 1. Relationship between average FPI and GDP

to Slovenia, credit growth is much stronger than in other countries. In countries where credit volume increases, economic growth increases, and financial pressure is felt less. Therefore (Sönmez & Kandemir-Kocaaslan, 2022), loan interest rates can be used as a stand-alone indicator in predicting the financial pressure period. If the desire is to maintain financial stability and ensure economic growth, it is extremely important that the use of commercial loans is not deterred for any reason.

Table 9. OECD country comparisons (Max-Min FPI and GDP)

	Max – Min FPI	Max – Min GDP	Situation
Australia	3.98	4.17	Difference GDP > Difference FPI
Colombia	3.56	4.08	Difference GDP > Difference FPI
Korea, Rep.	2.20	4.57	Difference GDP > Difference FPI
Lithuania	3.77	3.86	Difference GDP > Difference FPI
Luxembourg	3.30	3.94	Difference GDP > Difference FPI
Norway	3.30	3.62	Difference GDP > Difference FPI
Poland	2.61	3.61	Difference GDP > Difference FPI
Slovak Republic	3.22	4.08	Difference GDP > Difference FPI
Slovenia	2.83	3.26	Difference GDP > Difference FPI
Austria	4.51	3.84	Difference FPI > Difference GDP
Belgium	4.26	3.90	Difference FPI > Difference GDP
Canada	4.55	3.64	Difference FPI > Difference GDP
Chile	8.55	4.10	Difference FPI > Difference GDP
Czechia	4.05	3.76	Difference FPI > Difference GDP
Denmark	4.09	3.88	Difference FPI > Difference GDP
Estonia	6.10	3.93	Difference FPI > Difference GDP
Finland	3.18	2.95	Difference FPI > Difference GDP
France	4.00	3.70	Difference FPI > Difference GDP
Germany	4.28	3.88	Difference FPI > Difference GDP
Greece	7.94	2.84	Difference FPI > Difference GDP
Hungary	3.89	3.53	Difference FPI > Difference GDP
Iceland	7.11	3.60	Difference FPI > Difference GDP
Ireland	6.70	3.69	Difference FPI > Difference GDP
Israel	6.93	3.82	Difference FPI > Difference GDP
Italy	5.03	3.57	Difference FPI > Difference GDP
Japan	5.72	4.30	Difference FPI > Difference GDP
Latvia	4.46	4.04	Difference FPI > Difference GDP
Mexico	6.68	3.93	Difference FPI > Difference GDP
Netherlands	3.85	3.63	Difference FPI > Difference GDP
New Zealand	38.27	3.58	Difference FPI > Difference GDP
Portugal	4.67	3.47	Difference FPI > Difference GDP
Spain	13.83	3.71	Difference FPI > Difference GDP
Sweden	4.23	3.86	Difference FPI > Difference GDP
Switzerland	28.43	4.03	Difference FPI > Difference GDP
Turkey	5.59	3.44	Difference FPI > Difference GDP
United States	6.52	3.80	Difference FPI > Difference GDP
United Kingdom	5.69	3.75	Difference FPI > Difference GDP

Looking at Figure 2, OECD countries where financial pressure is most intense were New Zealand, Switzerland, Spain, Chile, Greece, and Iceland, respectively. According to the results of the analysis, financial pressure in New Zealand is clearly traceable to falling interest rates (2008–2020). In addition, restrictions on a number of loan types, especially housing loans, privileged government loans transferred to the manufacturing industry and livestock sector, and cash supports for certain segments are other financial pressure applications. This situation involves financial stress. According to OECD data, GDP per capita rates in New Zealand are 25% lower than the OECD's top-performing countries. Efficiency is 35% lower. Productivity and efficiency remain weak. The reason is low trade, shallow markets, and the existence of a small domestic market where new technologies are insufficient. While a significant part of the incentives given by the government should be given to export-oriented sectors and foreign investors operating in the field of information technologies, they are transferred to inefficient areas and subsidiary companies (Organization for Economic Cooperation and Development, 2021, 2023; Vaona & Patuelli, 2008). Since the country's resources cannot be allocated to effective areas, growth is also limited (Oh, 2011).

In Switzerland, on the other hand, fiscal pressure can be observed in Central Bank practices and falling interest rates (Figure 2). In Switzerland, the yields of treasury bills have been negative since 2011, and the yields of government bonds since 2015. The ever-decreasing interest rates, including in 2020, also deeply affect the banking sector. For this reason, the main reason for the fragility of the Swiss economy is closely related to instability in the banking sector. The decrease in the ratio of loans extended to the private sector and investment rates to GDP explains a significant part of the pressure on the banking sector. According to the OECD, increasing expenditures on health, education, social protection, and old-age pension payments in Switzerland constantly increase the public deficits. This leads to fiscal pressure policies (Organization for Economic Cooperation and Development, 2021, 2023). In Spain, on the other hand, low-interest policies applied to reduce public debt stand out as
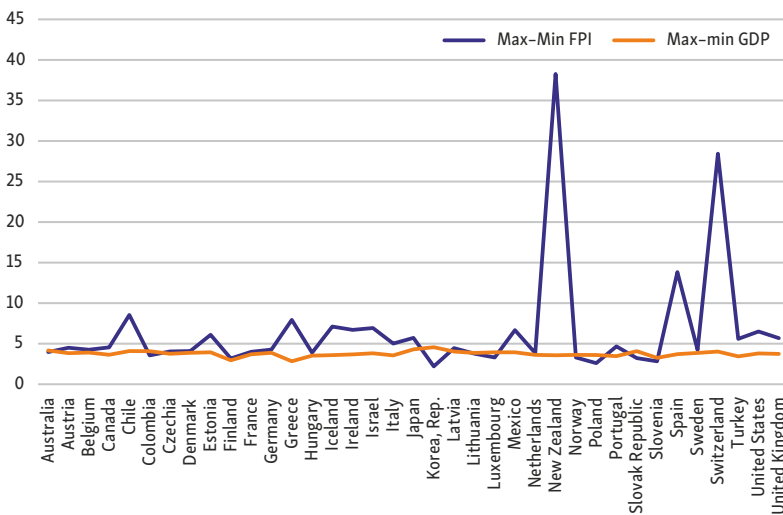

Figure 2. OECD country comparisons

a means of financial pressure. In addition, banks are not willing to give loans to companies and investors, causing the monetary policy to lose its effectiveness. The economic contraction caused by the decrease in demand in the real sector leads to a decrease in GDP (Organization for Economic Cooperation and Development, 2023).

Finally, the example of Turkey gives lesson-like results about financial pressure.

In the period between 2008 and 2020, industrialized countries introduced fiscal pressure policies by applying "low interest-positive inflation" rates. The aim was to reduce high public debt and provide cheap capital. In this period, Turkey followed similar policies to developed countries and the financial pressure index is close to the OECD average (Figure 2). However, the global pandemic and the inflationary environment that emerged as its continuation forced OECD countries to take new measures. Therefore, central banks attempted to tighten macroprudential policies to achieve their financial stability goals. As of 2021, fiscal pressure policies were shelved, and "high interest-low inflation" policies came to the agenda instead. However, the government in Turkey acted in direct contrast to OECD countries, lowering interest rates, creating a high inflationary environment, and implementing heavy fiscal pressure policies.

As can be seen in Figure 3, the gap between interest and inflation rates is widening as much as possible. The Central Bank has cut its policy rate to 8.5%, while the inflation rate reached 70% according to official figures.

In this period of fiscal suppression, when low-interest, high inflation rates were applied to the fullest, the "ten-year government bond yield" fell to 21% in November 2021 and 11% in November 2022. Banks were forced to buy these bonds so that the public sector financed itself at low interest rates. Besides, due to falling interest rates, depositors who with savings in banks lost income. The central bank also employed a shrewd method to prevent depositors from turning to foreign currency as an alternative investment tool. It sent instructions to banks and exchange offices that sell foreign currency. It ordered the application of a low price for the purchase of foreign currency and a high price for the sale of foreign currency. The gap between the purchase and sale opened as much as possible. Private individuals and institutions were denied access to credit. Economic growth remained limited, and virtual growth that does not create jobs emerged.

At this point in time, the central bank lowered the policy rate to 8.5 percent; this did not make any sense for banks, markets, or foreign investors. The fact that domestic banks increased the interest they charge on deposits to 22% in November 2021, 30% in November 2022 and around 40–50% in June 2023 is proof of this. Foreign investors also do not take into account the CBRT's interest rate cut. The fact that Turkey ranks first among European countries for interest rate on foreign borrowing in Eurobonds is proof of this situation. Looking at Figure 4, Turkey has already exceeded the fulcrum point in borrowing interest.

The most striking point of the study is the following. Countries aim to reduce debt stock through fiscal repression policies. However, the opposite happens in Turkey. The gross external debt stock hit all-time record highs of $433 billion in 2020, $443 billion in 2021, $450 billion in 2022 and $459 billion in 2023.

To summarize, when the interest rate is set at the wrong level, a lot of things must be implemented to save the situation: selling foreign currency to keep the exchange rate stable,
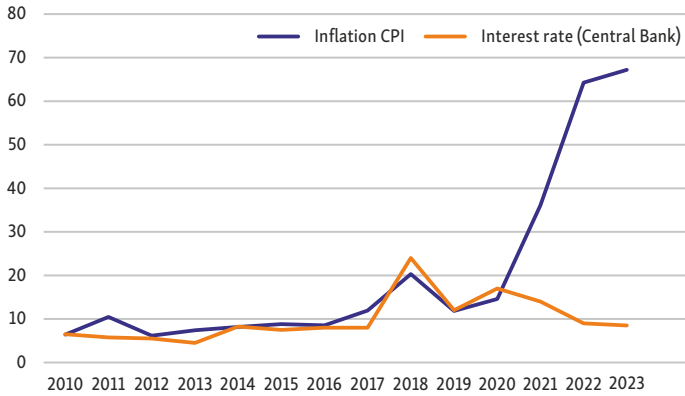
Figure 3. Central bank interest rate and actual inflation in Turkey
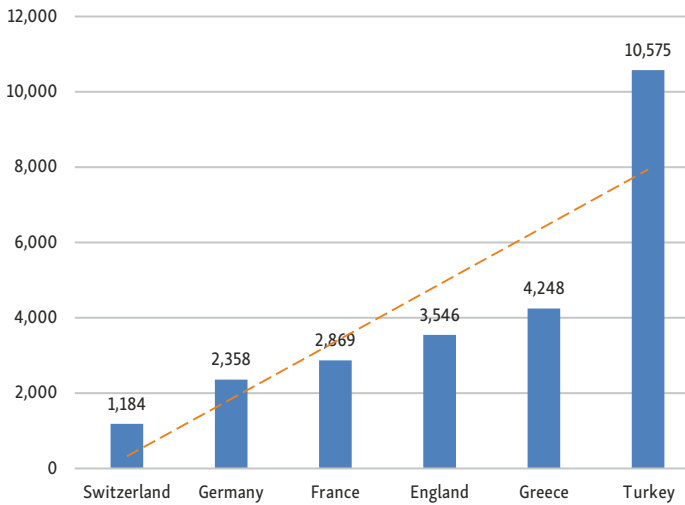(source: Türkiye Cumhuriyet Merkez Bankasi, 2023)

Figure 4. 10-year Eurobond interest rate
(source: Türkiye Cumhuriyet Merkez Bankasi, 2023)

finding swaps to do so, imposing penalties on banks holding foreign currency accounts, and engaging in unnecessary and costly transactions such as currency-protected deposits. However, if interest rates are set correctly and the main risks that derail the economy are reduced, there would be no need to create additional costs in the economy (Eğilmez, 2022; Nar, 2022; Organization for Economic Cooperation and Development, 2023).

6. Conclusions

Governments aim to reduce public debt with financial pressure tools such as low-interest rates, positive inflation, capital controls, and reserve requirement ratios. The most commonly used method is "low interest, positive inflation". While low nominal interest liquidates public debt, the budget deficit can be closed. At high inflation rates, the real value of government

debt decreases as the real interest rate decreases. For this reason, it is preferable to apply fiscal pressure policies together with inflation. On the other hand, as banks, whose income decreases due to falling interest rates, will lend less, investment and economic growth will decline and resource allocation may become problematic. Faced with this dilemma, financial pressure indices play an important role in calculating the resulting financial stress.

Financial pressure indices provide extremely valuable data in terms of reflecting the performance of financial institutions in countries and the market conditions in general. They provide governments and interested parties with quantifiable data about problems that have occurred or may occur in financial markets. They guide governments by measuring financial stress in economies. Our study investigated the effects of financial pressure policies applied across OECD countries on economic growth. For this purpose, the financial pressure index (FPI) was calculated. As a result of the analysis, every 1-point increase in FPI reduced GDP by 0.178 points. In fact, FPI data are valuable to the extent that they can explain the contraction-expansion-breakdown periods in the economy. The financial stress index is also capable of explaining the 2010–2012 Eurozone crisis and the global collapse in 2020 on the basis of financial stress. In economies under fiscal pressure, the argument that low-cost funds transferred to the government will finance economic growth by subsidizing investment is not always valid. as in the case of New Zealand and Spain, most of the cheap funds transferred to the government are transferred to inefficient areas and growth is limited. According to another result, loan interest rates can be used as a stand-alone indicator for predicting entry into financial pressure periods. Besides, if the desire is to preserve financial stability and ensure economic growth, it is important not to restrict the use of commercial credit. As can be seen in Table 9, countries that are less affected by financial pressure also achieve greater economic growth. In countries ranging from Australia to Slovenia, credit growth is much stronger than in other countries. In countries where the volume of loans increases, economic growth increases, and financial pressure is felt less.

The conclusion that emerges from the studies of the Eurozone is that fiscal pressure will cause the existing problems to be experienced even more severely in times of economic contraction and financial stress. Studies about Russia by the World Bank prove that one of the main reasons for low growth is fiscal repression policies and that the gradual repression policies implemented by the government in this context have led to this result. The impact of the deterioration in the banking sector on the real economy due to financial repression may be much greater than the impact of the deterioration in the securities or foreign exchange markets on the real economy. In addition, developing countries may be much more sensitive to the stress caused by fiscal pressure than developed countries. Interest rate ceilings caused by financial pressure disrupt the market structure in a real sense, causing unfair incentives, economic inefficiency, and rent-seeking. While the spread of volatility in financial markets tends to increase in the short run due to fiscal pressure, financial stress and vulnerability increase much more during periods of uncertainty. In addition, the gains from fiscal pressure may vary depending on the development understanding of the countries. For example, the study conducted by Eun Young in South Korea showed that fiscal pressure policies implemented through interest rates and required reserves are important in ensuring high economic growth. The findings prove that such a result was achieved by transferring the funds provided

by the fiscal pressure tax to selected industries. This study proves how valuable pressure policies that provide "credit allocation efficiency" can be.

Again, as in the case of Turkey (2020–2023), if the fiscal pressure policies are to work, it is imperative that interest rates be determined correctly. Otherwise, the expected gains from policies cannot be obtained. The debt stock increases rather than decreases. In high inflationary environments, interest rate cuts carried out without reducing inflation will return as higher inflation with a boomerang effect. Exchange rates also rise as savers turn to solid-yielding foreign currency instead of low-yielding interest income. In countries and regions such as Turkey, where imports of intermediate goods, investment goods, food and energy are important, this situation causes imports to become more expensive and inflation to reach much higher rates. In such environments where the perception of risk is high, consumption-oriented expenditures increase, while savings decrease. Simultaneously, low interest rates on deposits lead savers to buy gold, jewelry, goods, real estate, and stocks, and there are significant increases in asset prices. In fact, savers may turn to investments based on speculation instead of saving. Prolonged periods of low interest rates encourage investors to take excessive risks, while problems arise in terms of economic and financial stability.

While fiscal pressure policies are being shelved today, countries are implementing macroprudential measures to combat high inflation. This tends toward monetary tightening by increasing interest rates. It is also a fact that if similar conditions arise in the future (high public debt-low growth), there is no guarantee that repressive policies will not come to the fore again. However analytical studies to be conducted in this field may help to ensure necessary measures are taken in advance, to better understand the repressive approaches, to improve the econometric analysis accumulation of countries, and to provide inferential and guiding approaches. Financial pressure indices, which are established using one or more variables, such as interest rate, inflation, required reserves, and liquidity requirements of banks, can help make other macroeconomic problems visible in the future. The success of the policy depends on the ability of central banks and other macroprudential authorities to monitor frictions and tensions in the financial system in real-time, as well as the performance of the government, banks, and other financial institutions.

Finally, the 2008 financial crisis showed that excessive liberalization of financial markets could do more harm than good. This study, by contrast, proves that poorly calibrated repressive policies can do more harm than good. The fine line between liberalization and repression is ultimately in the hands of policymakers. But the main determinant is the difference between politicians who see politics as a means of enrichment and honest politicians who do politics primarily for the public good.

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I am hereby confirming that there is no conflict of interest in this research.

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