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DISCUSSIONS ON THE GROWTH EFFICIENCY OF MONETARY POLICY IN PERIODS OF SHRINKING: WIDE SET OF COUNTRY ANALYSIS

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Abstract: Although monetary policy shifts from traditional policies to non-traditional policies, the policy effect is basically created through interest and monetary expansion channels. There is a wide area of discussion in the literature, in which inflation is also taken into account, on the effect on growth through interest and monetary expansion. In this study, while discussing the expansionary monetary policies and growth efficiency applied in the periods when the economies are shrinking, the reflection of the policies on the growth will be examined with an analysis consisting of a wide set of countries. To measure the growth effectiveness of monetary policy in contracting periods, the 2007-2016 period was examined with the data set of 110 countries. With the System GMM method, 4 basic growth variables and 4 monetary policy variables were taken into account. To measure the policies of the contraction period, the period 2007-2009, which is common for all countries, was examined. As a result of the analysis, it was revealed that the inflation-growth trade-off was less in all countries, and interest and investment policies supported growth. It is observed that monetary aggregates do not have a significant effect.

Keywords: Expansionary Monetary Policy, Growth. (Jel Codes: E5, E52, O4).

INTRODUCTION

In this study, it is aimed to analyze the effect of expansionary monetary policies applied in periods when economies are shrinking on growth. For this reason, in the data set consisting of 110 countries, the main growth dynamics, money supply and interest policy, which determine monetary expansion policy tools, and also inflation are included. Within the scope of the analysis, the period of 2007-2016 was taken and while the basic growth dynamics reflect the whole of this period, the period of 2007-2009, which is common to all countries, was determined for interest and money supply in order to see the effectiveness of the policies of the shrinking period.

Although there is a wide area of discussion in the literature on the issue of growth and the effectiveness of expansionary policies, it is observed that approaches that consider monetary policy effective put forward certain conditions, while approaches that attribute limited impact take into account the inflation-growth trade-off. For this reason, the debates differ in terms of not being pro-growth since the inflationary effect is higher than expansionary policies in the long run and could be effective in certain conditions. In this study, different perspectives were examined by giving place to the discussions on the relationship between monetary expansion and growth in the literature. In this context, different perspectives on money supply-growth, interest policy-growth and inflation-growth trade-off, which are the main policy instruments, are included.

The analysis section shows the effectiveness of the expansionary monetary policy implemented in 110 countries together with the basic growth dynamics. The results also synthesize the perspectives in the literature and reflect policy effectiveness in the aggregated country set.

LITERATURE REVİEW

Discussions on the Growth Efficiency of Expansionary Monetary Policies

In addition to the views advocating the effectiveness of expansionary monetary policy on growth, there are also approaches suggesting that it has a limited effect. Almost the majority of the views supporting that growth will be achieved through monetary policies argue that efficiency will increase if certain conditions are met. On the other hand, it is seen that the approaches with limited effect stand on the growth trade-off that the resulting inflation will cause in the long run. When it is considered in terms of policies, it is thought that examining the subject in terms of interest policy-growth, monetary expansion-growth and inflation-growth will shed light on the discussions in terms of policy effectiveness.

Views on the Relationship between Interest and Growth

While it is possible to see debates in interest and growth in the Keynesian, Post-Keynesian, Neo-Keynesian and Neo-

Consensus literature, which argues that expansionary interest policies are pro-growth; it is seen that the approaches that ascribe a limited effect on growth are predominant in classical and monetarists.

In the Keynesian perspective, it is argued that interest rates will decrease with the result of monetary expansion. Interest rate cuts, on the other hand, not only increase effective demand but also support investments. However, while it is emphasized that the savings will not go to investments entirely, it is argued that if the marginal efficiency of capital falls less than the interest rates, it will support investments, employment and therefore growth. For this reason, the expectation of profit becomes as important as the interest rate cut. On the other hand, according to the liquidity preference theory, excessively falling interest rates are also inflationary, as they will cause an increase in the money held for prudence and transaction purposes. (Keynes, 2010; 177-262) In other words, in the Keynesian view, the minimum interest rate required for growth that can bring borrowers and lenders together is needed. (Keynes, 2010: 263) It is also emphasized that the effect of the interest rate cut will differ according to the level of development of the country. The high propensity to consume in underdeveloped countries increases the effectiveness of the policy, while in developed countries, the interest level should be lower, which will enable the savings to go to consumption. (Keynes, 2010:37)

It is seen that the Post-Keynesians also focus on short and long-term interest rate cuts that support investment and effective demand. (Kalecki, 1946:82; Kalecki,1937:714) They also emphasized that the high investment return expectation, especially in the long term, increases the effect of interest rates. (Figura, 2005: 23; Shackle, 1961: 247) However, Post-Keynesians differ in that they also take into account structural issues. Because, in economies where there are problems such as developing productive methods, ensuring that products are preferred by consumers, or improving the trade channel, the effect of interest can take much longer. (Shackle, 1961: 251) They also accept that interest rates will increase again when the cycle changes, as the demand for money for transaction purposes increases as the economies enter the expansion process and banks cannot meet this demand. In this case, the expectation of return on investment becomes important in the growth trade-off. (Figura, 2005:23)

New Keynesians, on the other hand, have stated the conditions of policy effectiveness by arguing the conditions of price rigidities and incomplete or complete information. When the view that wages and prices are rigid comes to the fore, the effect of the expansionary policy weakens. For this reason, the rigidity of the prices narrows the effect of the shock, while their flexibility causes the downside effect to be much higher with the shock. (Stiglitz and Greenwald, 1993: 23-26) On the other hand, the variation of rigidity in prices according to the state of complete information or incomplete information is also a determining factor in efficiency. (Gertler, 1982)

When the New Consensus approach is examined, while rejecting the monetary policy on monetary aggregates, it accepts the short-term interest policy as the main tool and advocates the determination of interest rates by looking at the average of inflation and its deviations from the average. (Goodfriend and King, 1997: 231-234; Woodford, 2006; Gerlach, 2003). It has been emphasized that in environments where confidence is established by using the future targets in the decrease in inflation and unemployment, price and wage rigidities can be overcome and more monetary expansion will be possible. It has been argued that in this way, growth will be supported with less trade-offs. (Campell, Evans, Woodford et al, 2012)

In the classical approach, while Ricardo was positive about the expansionary effect of the low interest policy on growth, Mill was critical. According to Ricardo, the fact that the interest rate used by central banks to fund the market is below the loan interest rate supports trade and so investments. (Ricardo, 2008: 393.394) Mill, on the other hand, argued that the increase in credit to the consumer is both inflationary and inefficient. It stands out that low interest rates increase inflation even more because they shape not only the money held, but also the expectation of possible money to be obtained in the future. (Mill, 2009: 381-382, 393) Mill argued that the increase in welfare in shrinking periods will be shaped according to the preferences of the lenders, personal behaviors and the return on production. (Mill, 2009: 399)

When we look at the opinion of Friedman, one of the pioneers of monetarism, the net effect of the interest rate policy can be seen together with monetary expansion. He explained that high interest does not always mean tight monetary policy and low interest does not mean wide monetary policy, with the direction and speed of monetary expansion. For this reason, he said that the measurement of the effectiveness of the expansionary interest policy on growth can only be between 6 and 9 months. (Friedman, 1969: 6).

Views on the Relationship between Monetary Expansion and Growth

While it is possible to see debates in monetary expansion and growth in the Keynesian, Post-Keynesian and Neo-Keynesian literature, which argues that expansionary monetary policies are pro-growth; it is seen that the approaches that ascribe a limited effect on growth are predominant in Classical, Monetarists and Neo-Classics.

From the Keynesian point of view, it is argued that monetary expansion above the national income both reduces interest rates and increases effective demand, thereby supporting growth. On the other hand, the positive effect of expectations on the reduction of interest rates by monetary expansion is considered important. However, policy effectiveness occurs when economies are below the full employment level. (Keynes, 2010:316-317)

While Post Keynesians argue that monetary expansion will be pro-growth, they focus on the distribution and control of credit expansion. They argue that growth will be supported if credit is distributed among sectors that are important for balanced growth and if speculation and price differences caused by excessive credit expansion are prevented. They accept the inflationary effect in case of high credit and liquidity preference increases. (Kalecki, 1955: 19-22) While the banking composition of countries (private-public, large-small) has become important in order for loans to cover growth, loans not only to companies in a certain segment but also to all segments of the country have been considered important for sustainable growth. (Minsky, 1990)

In the New Keynesian perspective, the effectiveness of monetary expansion changes depending on whether the prices are

rigid or flexible, as well as the state of complete or incomplete information. (Gertler, 1982) For example, there are studies showing that an unexpected money supply change completes its effect on output in three years, and the effect on prices continues for up to five years whether prices are rigid or not. (Greenwald, Stiglitz, Hall et al, 1988: 217-218) It is also among the findings that the increasing effect of a positive monetary shock on GDP is lower than the contractionary effect of a negative shock. (Mankiw, Romer, Summers et al, 1988: 446) The long-term perspective is important in the new Keynesians' view of expansionary policies. For this reason, they focus on targeting the average, not the variance, of growth in the long run. They argue that this can only be achieved through expansion and sustainable production. (Mankiw, Romer, Summers et al., 1988) However, while they oppose contractionary policies during recessions, they think that expansionary policies contribute to economic balance and growth in the long run. (Mankiw, Ball, Nordhaus, 1999: 190-192)

From the classical point of view, growth occurs in a limited state through monetary expansion. For example, according to Smith, the money that should be in circulation in an economy is certain. If money is put into circulation above this amount, the domestic value of this money will decrease, the general level of prices will increase and some of it will go abroad. While transferring the money that goes abroad to trade is found to be pro-growth, spending it on consumption is seen to be detrimental to the society. (Smith, 2015a; 314-351)

The pioneers of monetarism emphasized that growth can only be achieved with controlled monetary expansion and they developed different ideas in this area. Friedman argued that the most effective way for monetary policy to support growth is only a constant annual monetary growth rate. Here, a stable monetary policy is seen as a tool that indirectly supports growth by creating a suitable environment for enterprises and investments. (Friedman, 1968) A monetary expansion above the output in any case results in an inflationary effect. (Friedman, 1969: 2.4)

According to the New Classical approach, as long as monetary expansion does not change the possible distribution of money in the future, it has no effect other than increasing product prices. To the extent that monetary expansion affects expectations about income, monetary growth and the future situation, it contributes to growth. (Lucas and Stokey, 1987: 500-502, 512) While the expected monetary expansion causes the effect of inflation tax, it increases the inflation premium in nominal interest rates and does not reflect on growth. Here, foreseeing the inflationary effect that will be caused by monetary expansion results in the demand for an increase in workers' wages and the acceptance of this demand by the employer (the expectation that there will also be an increase in product prices). Unexpected monetary expansion supports production and growth. However, since the expectations will be shaped in the long term, it is expected that prices and wages will increase. Since this situation will shape rational expectations, information sharing for price control has also been considered. (Muth, 1961; Lucas, 1996; Sargent and Wallas, 1975: 249) For this reason, they think that growth is independent from monetary expansion. (Sargent, Fand and Goldfeld, 1973: 439-463).

Views on the Relationship between Inflation and Growth

Almost all approaches accept that in case of monetary expansion, the inflationary effect will emerge and cause growth trade-offs. However, some opinions are that this effect will be limited if certain conditions are met. For this reason, different perspectives are included in this section.

In the Keynesian perspective, the expansion of money supply increases investments and output through consumption, while it also increases wages and the general level of prices. However, they emphasize that where the full employment level is and the balances in the economy will determine how much prices will change. (Keynes,1914:147,149) In case of reaching the full employment level, the general level of prices increases as well as the expansion of money supply, otherwise the increase is partial. It is also emphasized that inflation is chronic and permanent in case of especially when the monetary expansion and the increase in demand do not affect the output. (Keynes, 2010: 251-259) The fact that the increase in effective demand also supports the demand for change on the produced products and puts a pressure on the production costs. For this reason, Keynes argues that cost pressure through wages and other costs will increase output only if the increase in marginal return is greater. In such an environment, it is possible to reach full employment. However, it is also emphasized that the increase in effective demand has a real inflationary effect when production is not at the desired level while only an increase in cost is observed. (Keynes, 2010: 152-153, 254-260)

The Post-Keynesian point of view was also cautious about the expansionary policies causing an increase in the general level of prices. It is accepted that there will be an inflationary effect through the consumed products. This effect can come from the producer channel as well as the consumer. For example, in case of overexpansion, the producer can use the money idle by shifting to direct consumption. In such a case, since employment will not be supported, it is suggested that monetary expansion should be balanced. (Kalecki, 1946:82)

New-Keynesians, on the other hand, examined policies on growth through unemployment, inflation and wages. They emphasized that demand-increasing expansionary policies will have a growth effect in the short run and only an inflationary effect in the long run. Trying to eliminate the post-enlargement inflation with tightening policies takes time due to price rigidities. (Akerlof, Dickens, Mankiw et al., 1996; Mankiw, 2001) While looking at policy effectiveness, New-Keynesians also considered the current level of inflation. They argued that the effect of expansionary policies increasing aggregate demand on growth depends on the average inflation levels of countries. Especially in the studies on output-inflation trade-off, they emphasized that the effect depends on the average inflation. In countries with low inflation, fluctuation in aggregate demand affects output more; In countries with high inflation, the change in aggregate demand reflects on prices faster and reduces the effect of nominal demand. For this reason, the New Keynesian point of view, while attributing the differences in the trade-off between inflation and output between countries to the average inflation, differs from the new classics that justify demand differences and incomplete information.

The New Consensus approach argued that balanced growth could only be achieved by taking into account the inflation-growth trade-off. For this reason, controlling price fluctuations is a

priority. On the other hand, they argue that the increase in inflation due to fiscal indebtedness and subsequent tax increases should be prevented by monetary policy by ensuring coordination with fiscal policy. (Woodword, Benigno, 2003; Walsh, Woodword, 2003) Although it is accepted that expansionist policies increase aggregate demand and are pro-growth, the view is that growth will be permanent if long-term inflation is stabilized. This situation also positively affects inflation expectations and prevents the formation of the mark-up that companies reflect on prices in the face of shocks. (Goodfriend, 2004) For this reason, instead of an expansionary policy in an economy where inflation is not close to zero, they find it necessary to reduce the aggregate demand through monetary or fiscal policy, targeting the expenditures not to be more than the value of the products, and prioritizing the fight against inflation for growth. (Goodfriend and King, 1997) For this reason, the New-consensus approach recommends the implementation of an interest rate policy that will prevent the increase of firm mark-ups above the profit for growth, and the elimination of fluctuations in employment and growth that may come through prices. (Goodfriend, 2004)

When the classical approach is examined, it is seen that monetary expansion is criticized because it causes depreciation of money, affects social welfare and causes inflationary effects. For example, according to Smith, monetary expansion results in an increase in prices and depreciation of money at home, and if it goes abroad, it contributes to growth only if it is used for trade purposes. According to Mill, the increase in money in circulation results in an increase in prices. As long as money is used to buy products, it causes prices to increase. In cases where money is used for the purpose of buying securities or speculating, monetary expansion does not have a product price effect, but is reflected in the prices of the assets purchased. (Mill, 2009: 348-351, 391) It is also emphasized that the expectation that the abundance of money will increase social welfare is in vain due to the depreciation of money. For example, Mill highlights that this abundance of money; which depreciates in value and causes an inflationary effect on prices, has consequences such as the increment of government expenditures, the exponential increase in national debt, greater preference for other metals such as gold for speculation and the increase in debt, which also causes dishonest behavior, has consequences such as damaging access to credit and reputation, reducing welfare rather than increasing it. (Mill, 2009: 418)

According to monetarists, while monetary aggregates are the main determinant in policies, the transmission mechanism resulting from monetary expansion has no real effect on growth due to changes in wages and prices. For this reason, the effect of monetary policy on growth is short-term and temporary. It was concluded that increases in monetary stocks (deposit and cash money) did not contribute to growth, except for the effects on asset prices and composition. Net change is only in the form of monetary expansion or contraction. (Brunner, 1983: 26-29; Friedman and Schwartz, 1987) Meltzer also argued that controlling inflation and exchange rate fluctuations only with monetary policy would support the economy. For this reason, he argued that the increase in monetary base should be equal to the difference between the moving average of past real growth and the past monetary base rate. According to Meltzer's point of view, since the priority is price and exchange rate stability, monetary expansion should not be excessive as output will also contract in shrinking periods. The fact that the output is calculated on the basis of its moving average slightly alleviates the effect of the last year's contraction, but does not allow for high monetary expansions. (Meltzer, 1987)

The New Classics also argued that the inflationary effect caused by monetary expansion would not have a real effect on growth and other variables in the long run. The follow-up of excessive expansion with contractionary policies through credit channels in order to limit the inflationary effect in the later periods, neutralizes growth in the long run. (Sargent and Hall, 2018) However, they differentiated the effect of monetary expansion on growth according to expected and unexpected monetary expansion in the short term. Since an expected monetary expansion will bring wage and price increases along with expectations, it has an inflation tax effect; just to opposite an unexpected monetary expansion will support growth in the short term. However, since the long-term trend will shape the expectations, there will be an inflationary effect. (Lucas, 1996).

RESEARCH METHOD

In order to measure the effect of monetary policies implemented during periods of shrinking economies on growth, data from 110 countries covering the period of 2007-2016 were collected. In addition to the GDP growth within the scope of the analysis; 4 main growth variables and 4 monetary policy variables are used. In order to find the effect of the policy applied in the periods when the economies shrank, a general impact analysis was tried to be made by taking into account the policies of the 2007-2009 period, which are common to all countries.

Within the scope of the analysis, the dynamic panel method was used to see both the effects of the variables in the previous year and the effects of the past and present variables with each other. In order to provide a better analysis of independent variables that are not completely exogenous, analyzes were made with the system GMM (generalized method of moments) estimator developed by Arellano and Bond. There are many reasons why the Arellano and Bond dynamic panel estimator is preferred. In studies that are likely to have an effect on the lags of the dependent variable in the panel data, putting these data as explanatory variables create an endogeneity problem since it will cause the correlation of these variables with the error terms. For this reason, using OLS-ordinary least square estimators causes inconsistent results. In this case, the Arellano Bond estimator is recommended as a solution for panels with high N variables and short time dimension. On the other hand, for long panels, mean group estimator, pool mean group estimator and common correlated effects mean group estimator which also includes panel unit root and cointegration tests estimators are suggested. For this reason, the Arellano Bond estimator, which is used as a dynamic panel method, is suitable for models where the time dimension t does not exceed 10 periods and the number of n observations is at least 55. On the other hand, the relationship of dynamic variables with past realizations can be examined. It takes into account that the independent variables may also be related to the error terms of their past and present realizations, that is, they can also observe the case of not being completely exogenous. In addition, in case of heterogeneity in the data, the GMM method is an ideal method. It provides the most efficient estimation by using orthogonality conditions in case of heterogeneity, that is, changing variance. In addition to the heterogeneity problem, it is a preferred method

because it provides a solution to the autocorrelation situation. (Roodman, 2009) It is recommended to add dummy variables including time variables to the model in order to provide the assumption that there is no autocorrelation between cross-sections in the coefficients of the standard errors of the autocorrelation test and the robust estimators. For this reason, time dummy variables were added to the analysis for each year.

It is recommended that Sargan and Hansen tests be performed together to check the model and estimator accuracy of GMM model. These tests are used in case the established model excludes explanatory variables or to test how valid the model is. Sargan tests the validity of the variables used in the model and evaluates the model as a whole. The Ho hypothesis of the Sargan test accepts that all variables in the model are valid. If the probability value in the model result is greater than 0.05, the Ho hypothesis is accepted and the variables used in the model are valid. In the opposite case, it is thought that there is over-identification in the model and the variables are not valid. The fact that the probability value is very close to 1 in the Sargan test causes the rejection of the Ho hypothesis, since it shows that asymptotic features are revealed. The Ho hypothesis of the Hansen test accepts that all variables are valid. It is recommended that the optimum probability value is between 0.1 and 0.25. It is stated that it will not be considered very valid between 0.4 and 0.9, and if it is above 0.9, the model should be completely rejected. (Roodman, 2009)

Another point to check in GMM estimators is that there is no autocorrelation in the error terms. As a result of the test, it is possible to measure whether there is AR (1) and AR (2) type autocorrelation. If the probability values are greater than 0.05, the validity of the Ho hypothesis, which accepts that there is no autocorrelation, is confirmed. The possibility of AR (1) type autocorrelation is predictable in the models, and the absence of AR (2) type autocorrelation is required for validity. (Roodman, 2009; Roodman, 2014; Labra and Torrecillas, 2018)

Another advantage of Arrellano-Bond GMM estimators is that they allow variables to be defined as endogenous, exogenous, fully exogenous, or predetermined. If the past period realizations of the data have an effect at t time, the data are considered endogenous. In this study, previous period growth data, basic growth variables (investment, savings, capital stock, human capital) and inflation are taken as endogenous variables. If the realizations at time t are thought to be effective only in the next period, the data are taken as predetermined. All policy variables with a dummy variable assigned in the model are defined in this way. On the other hand, time dummy variables were defined as completely exogenous.

It is possible to summarize the general structure of 3 different models defined according to each group and collective country data with model-1. Here, $\mathbf{Y_{it}}$ is the GDP growth at time t for country i, $\sum_1^n \mathbf{Y_{i(t-n)}}$ is the sum of different periods of growth up to t-n time for each country, $\mathbf{x_{it}}$ is the vector of different lags of each explanatory variable $\beta(L)$, $\boldsymbol{\gamma_t}$ denotes the time effect for all countries, $\boldsymbol{\varepsilon_{it}}$ the error term for each country and time dimension.

$$\mathbf{Y_{it}} = \alpha_1 \sum_1^n \mathbf{Y_{i(t-n)}} + \beta(L)\mathbf{x_{it}} + \boldsymbol{\gamma_t} + \boldsymbol{\varepsilon_{it}} \qquad (1)$$

In this context, each model is designed to see the effects of the variables, either together or separately, in the policy sets. In some models, the effects were tried to be observed by adding the variables gradually. All models were subjected to both Sargan and Hansen tests and both were significant. The models also passed autocorrelation tests.

Within the scope of the research, 12 different variables were used. Of these, 4 are basic growth variables, 4 are monetary realization data, and 3 are fiscal policy variables. Table 1 shows the variables.

Table 1: Data Set and Definitions

Dependent Variable	**Definition**
Growth	Growth is calculated using real GDP data defined at constant national prices.
Independent Variables	**Definition**
Growth	Previous period realizations of growth
Capitalstock/GDP	Share of capital stock in GDP
Investment/GDP	The ratio of investments to GDP is expressed as a ratio of total investment in current local currency and GDP in current local currency. Investment or gross capital formation is measured as the total value of the gross fixed capital formation for a unit or industry and changes in inventories and acquisitions less the disposal of valuable assets.
Human Capital	Human capital index based on duration of education and return to education
Saving/GDP	Gross national saving, gross disposable income, minus final consumption expenditures, after taking into account an adjustment for pension funds, as a ratio of GDP
Interest	Central banks main policy interest rates
M1/GDP	Total money in circulation and demand deposits
M3/GDP	M1+time deposits, funds from repo, money market funds, securities issued
Inflation	Change of consumer price index compared to the previous year (2010)

RESULTS

While examining the effect of increasing money supply and expansionary interest policy in the model, it is desired to see the basic growth dynamics (previous growth, investment, capital stock, human capital, savings) and the main determinants of growth. On the other hand, it was aimed to see the net effect by adding the inflation variable to the model.

In the model, although the previous growth, investment, capital stock, inflation and interest-based effects emerged in the short term; it has been revealed that growth is supported positively by investment and interest policies in the long run, while the inflationary effect continues in the long run. (Table 2,3) It is observed that the net monetary policy effect is pro-growth, while the expansionary monetary policy supports growth through the interest rate channel, the inflation-induced growth trade-off remains relatively low. In all countries, growth was supported in the long term by expansionary interest policy and investments. On the other hand, the increase in money supply has not been found to be directly related to growth in both the short and long run.

Looking at the general outlook, it has been revealed that the growth supported by investment increases as well as the expansionary interest rate policy in times of economic recession reduces the long-term effect of inflation. In the short-term outlook, the capital stock is considered to support investments. The fact that the growth of the countries is also determinant in the previous period shows that the structural and stable growth is also important for the following periods. For this reason, the importance of past growth in the long-term effectiveness of growth has also emerged.

Table 2: Short- and Long-Term Model Results

Variables	Total Growth	L.Growth	L2.Growth	Investment	L.Investment	L2.Investment	Human Capital	L.Human Capital	L2.Human Capital	Saving	L.Saving	L2.Saving
Short Term	0.8 (0.04) **	0.157 (0.07)	0.142 (0.30)	0.61*** (0.001)	-0.41** (0.00)	-0.091 (0.26)	-171.0 (0.39)	333.2 (0.40)	-159.6 (0.43)	-0.085 (0.51)	0.094 (0.29)	-0.004 (0.92)
Long Term		0.22 (0.17)		0.28 (0.03)			-0.27 (0.251)			-0.42 (0.149)		
Variables	Capital Stock	L.Capital Stock	L2.Capital Stock	Inflation	L.Inflation	L2.Inflation	Interest	L.Interest	L2.Interest	M3	L.M3	L2.M3
Short Term	-0.03*** (0.001)	0.04** (0.002)	0.005 (0.99)	0.0783 (0.061)	-0.23** (0.003	-0.013 (0.79)	0.418*** (0.00)	0.269 (0.11)	-0.157 (0.248)	-0.001 (0.72)	0.007 4 (0.77)	-0.006 (0.81)
Long Term	0.01 (0.25)			-0.22 (0.01)			0.59 (0.04)			0.02 (0.21)		
Variables	Dum2009	Dum2010	Dum2011	Dum2012	Dum2013	Dum2014	Dum2015	Dum2016	-cons	Sargan	0.061 (51.10)	
										Hansen	0.167 (45.21)	
										N.of Ins	69	
										N	880	
Result	-5.880 (0.065)	-1.262 (0.592)	-2.244 (0.693)	-2.751 (0.264)	-2.446 (0.332)	-2.601 (0.286)	-3.109 (0.196)	-3.265 (0.203)	-8.979 (0.366)	AR (1)	0.0	
										AR (2)	0.055	

Values in brackets are p values. *p<0.05, **p<0.01, ***p<0.001

Table 3: Summary of Model Result

		Main Growth Determinants						Monetary Policy	
Time Frame	Total Growth	Previous Growth	Interest	Saving	Capital Stock	Human Capital	Inflation	Interest	M3
Short Term	√ (+)	√ (+)	√ (+)	-	√ (+)	-	√ (-)	√ (+)	-
Long Term	√ (+)	√ (+)	√ (+)	-	-	-	√ (-)	√ (+)	-

CONCLUSION

Within the scope of this study, the effect of the expansionary monetary policy applied in the periods when the economies contracted was tried to be seen with the data set covering 110 countries, and the growth dynamics were also analyzed by including the main determinants of growth. In this context, in addition to the literature examining the relationship between interest and money supply and growth used in monetary expansion, the issue of inflation and growth trade-off, which causes the main distinction in the discussion of the effectiveness of these policies, has been examined.

The issue of whether the expansionary monetary policies applied in the shrinking periods in the economies will contribute to growth has brought different discussions in the literature. The biggest problem in monetary policy is inflation, which has taken its place in almost all approaches, and the inflation-growth trade-off has been examined. For this reason, the inflationary effect of demand or supply-side increase from monetary policy is used to explain the policy's ineffectiveness in growth. It has emerged that the net effect will not be pro-growth, on the grounds that eliminating the resulting inflation with contractionary monetary policies will reverse the growth cycle in the long run. For this reason, while the classical approach emphasized this cyclicity, monetarists tried to prevent fluctuations, while neo-keynesians made evaluations by targeting the growth average, the neo-consensus approach aimed to minimize the deviations. All these discussions have evolved to the point that the effectiveness of the policies implemented will change according to the stage of the growth cycle of the country's economies, by bringing a new perspective in the post-keynesians. On the other hand, in almost all approaches, the issue of how to eliminate the inflationary effect against growth has come to the fore. For this reason, the classical and post-keynesians prioritized the transfer of resources to priority investments, the monetarists the controlling of the increase in monetary aggregates, the keynesian approach the condition of being below the full employment level, the neo-keynesians on price rigidities, and the neo-consensus approach on inflation and the stability of inflation expectations.

The results of the analysis revealed that the expansionary interest rate policies applied in the periods when the economies contracted were pro-growth in all countries. However, no direct relationship was found between money supply increases and growth. On the other hand, it shows that the inflation-growth trade-off lags behind the positive effect of interest in the growth model supported by investment in the long term. The results show that the previous period's growth is also effective in the long-term growth of countries. This situation explains that long-term and sustainable growth also supports structural soundness and is reflected in the long-term.

In summary, the aggregated country analysis shows that countries can support their growth through interest rate cuts and investments, provided that their growth dynamics are also sound during periods of shrinkage. While the stable growth structure of the countries in the previous period reflects positively on the growth in the future period, it has been revealed that growth is less affected by inflation changes as long as the initial inflation level is not very high. For this reason, expansionary interest policy supported by long-term and sustainable growth and investments has emerged as an effective policy tool.

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