

FISCAL DEFICIT AND THE IMPACT OF MACROECONOMIC VARIABLES ON INFLATION RATES IN INDONESIA

MARLINA WIDIYANTI^{1,2)}, MANSOR JUSOH¹⁾, MD ZYADI MD TAHIR¹⁾,
ABDUL GHAFAR ISMAIL¹⁾

- 1) Management Programme, Faculty of Economic and Management, Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, DE.
- 2) Finance Management Programme, Faculty of Economic, Universitas Sriwijaya Jln. Prabumulih KM.32 Indralaya, Ogan Ilir, Sumatera Selatan, Indonesia

ABSTRACT

This study aims to examine the increasing government fiscal deficit as a fiscal expansion by increasing spending will increase aggregate demand. Where excessive aggregate demand will cause inflation. High inflation rates will lead to lower economic growth and to affect the macroeconomic and financial instability (Fisher 1983; Sarel 1996; Khan & Senhaji 2001). Empirical analysis using a ARDL model (Autoregressive Distributed Lag) and the method of Bounds co-integration test supports the Keynesian view that fiscal policy is larger than the effect on output policy for the long term monetary of Indonesia during the period 1970 to 2006. Long-term relationship between fiscal deficits in countries such as debt, external debt and government budget deficits and macroeconomic variables on inflation. The variables studied are variable deficit, domestic debt and external debt in GDP, national income, government expenditure, Exchange Rate and prices outside the country. Elasticity of short and long term is considered to see the effects of changes in a variable on other variables. Finally, some policy implications are provided based on the available studies.

Keywords: budget deficits, national debt, external debt, GDP, national income, government spending, international prices, exchange rates, interest rates, co-integration Bounds Test.

1. INTRODUCTION

The phenomenon of budget deficits with debt financing, either debt or debts in foreign countries, it requires the repayment of which will reduce the range of financial resources of a country. This suggests that the government has the financial resources to finance the budget deficit, funding for the printing of money will have a big risk for the economy of a country. With that understood that fiscal policy has a strong relationship directly with economic growth and changes in price levels (inflation). At the Asean countries around the 1980s and early 1990s in countries like the kind found in Malaysia and Thailand have managed to grow its economy after the economic downturn results robust increase in government spending, particularly in the form of budget deficits (Hill 1996). To overcome the problem of financing government budget deficits, governments often choose sources of national revenue by way of debt. Government debt may include debt in the country's external debt. External debt and bring the government budget deficit will cause the current account deficit and external debt problems lead to increased (Akhtar Hossain & Anis Chowdhury 1996).

According to Keynes (1936), the budget deficit (expenses exceeding revenue) is necessary for economic development and stabilization of a country suffering from economic recession. However, the continued deficits could affect fiscal performance in terms of total debt to be paid in the future either through collection of taxes or printing money. Continuing deficits will increase interest rates and inflation simultaneously, which can negatively affect the stability of the economy in the long run.

Several such studies (Parkin & Bade 1992; Dornbusch & Fischer 1994) says this phenomenon proves that the increase in government fiscal deficit as a fiscal expansion by increasing spending will increase aggregate demand. Therefore, it can be argued that increasing the fiscal deficit may result from the growth of public spending in the next series (Rose & Hakes 1995, Fisher 1997, Swaroop & Rajkumar, 2000; Ahmad & Greene 2000). Excessive aggregate demand will cause inflation. In this case, the government should make fiscal policy contractionary in the form of reduced government spending or increase tax rates. The excess supply situation will lead to unemployment, and in such case the government should make an expansionary fiscal policy by increasing government spending or reducing tax rates. Thus the importance of clear fiscal policy actions such as public expenditure management in handling the economy (Ragayah 1995, Taggart et al. 1999).

In the perspective of economic, fiscal policy has various objectives in a country's economic activities, increasing economic growth, stabilizing prices, equality of income distribution and increased employment opportunities (Dornbusch & Fisher 1994, Taggart et al. 1999). However, other macroeconomic indicators that can be changed according to the fiscal policy is that private investment, private users and the current account. Thus the importance of clear fiscal policy actions such as public expenditure management in handling the economy (Ragayah 1995, Taggart et al. 1999).

2. SUMMARY OF LITERATURE REVIEW

The results of previous studies concluded that different relationships between the effects of fiscal deficits on inflation. Blinder and Solow analysis study was developed by Barth, Bennett and Sines (1980). They find that the expansionary fiscal policy by increasing debt will not only increase the net wealth of society, but also increase consumer spending and demand for money. At the same time, increased debt could increase the repayment amount and its use will decline. Thus, the effect of increased government spending on aggregate demand is vague (ambiguous) and can only be proven through empirical research.

While previous studies of other on the relationship of fiscal deficits and inflation (King & Plosser's 1985, Blanchard & Fischer's 1989; Montiel 1989, Dornbusch et al. 1990; De Haan and Zelhorst 1990, Romer 1993, Lane 1997, Campillo & Miron, 1997; Click 1998; Loungani & Swagel 2001, Fischer et al. 2002) was carried out on fiscal variables, inflation, changes in base money, the exchange rate shock, printing money (seigniorage). King and Plosser (1985) research factors that determine the seigniorage to the U.S. and 12 other countries using OLS regression equation linear and VARs, shows that in general there is no cause between fiscal deficits and inflation with the principles of money. Similarly, the study Montiel (1989) and Dornbusch et al (1990) find that fiscal deficits tend to accommodate to link a combination of rate changes and the weakness of inflation, rather than a cause of inflation. By using nonparametric correlation measures in 17 countries to grow and divide into groups of low and high inflation.

The study done by Zyadi Md Tahir (1995), the variables affecting the increase in public expenditure in Malaysia closely linked with the trend of increased deficit spending. This study is consistent with experience in several other countries, such as the United States, United Kingdom, Sweden, and Japan. The study conducted by Tridimas (1992, 2001) for the same problem with the object in the UK gives results not much different. Sinking of the studied variable is the level the budget deficit, income levels, and population and variable cost per unit of public expenditure. Researchers also use the data in logarithmic form. Analysis found that all statistically significant variables affecting the growth of public expenditure, unless the variable cost per unit of public expenditure. This indicates that the budget deficit to claim an increase in funding from governments to finance projects needed by society. Increase people's income is also a variable that affects the growth of public expenditure. It is easy to understand, because with the increased income the demand for goods and services provided by the government also rose.

Studies on the effects of fiscal policy has been done by some economists, such as Wolfson (1995), Handayani (1997), Adji (1998), Mansoer and Soelistyo (1998), Kuncoro (1999), Jody Sriyana (2001), Hamid et al . (2001), Chang et al. (2002). From the results of the study, it can be made a conclusion that in general the fiscal policies by the government to have a significant impact to determine the macroeconomic targets to be achieved by the government and pengurusan the field needs to be done efficiently.

The study of Jaka Sriyana (2001), the effective increase in government spending on aggregate demand will cause friction *keberimbangan* up the economy that ultimately effective in increasing inflation. Note, however, is that rising inflation as a result of increased public expenditure and fiscal deficit is not necessarily caused by the creation of new money by the government to close the deficit, because of the expectations in the community as a result of increased government spending to pay the payroll, so having the effect double the price of other consumer goods.

The findings Fischer et al (2002), using fixed effects in the assessment of the economy that is 94 and has been developed, concludes that the fiscal deficit is the main cause of high inflation (over 100% per year) and estimated that one percent increase in value (conditions deteriorate) in the fiscal balance to GDP ratio would lead to 4.25 per cent decrease (increase) in inflation, the other constant. However, they also found that changes in the budget balance has no effect on the country's low inflation or low inflation over the country that inflation is high. Similarly, in line with the findings Luis AV Catao & Marco E. Terrones (2005) at intervals of 107 countries in 1960-2001 showed that there was a strong positive relationship between deficits and inflation in high inflation countries and groups of developing countries, but not in the group developed economy with low inflation.

Study Turnovsky (2000), studying the relationship between fiscal policy and output in the USA, apparently the result of fiscal policy has no impact on the balance of long-term economic growth. The slow growth rate given the fact that fiscal policy is only effective in the short term, the transition. Variable increases in the number of fiscal variables were not too greatly affect the output. While Chang (2002) found different results in studies in South Korea, Taiwan and Thailand, which did not find a result that fiscal policy can boost economic growth. Review of Peter Claeys (2005), using indicators of inflation, GDP, the rate of payment, receipts and real exchange rates and debt, fiscal policy and possible interactions monetary determined by the debt.

This model uses the equation moneteri by inserting the fiscal variables and macroeconomic variables to test the theory of Sargent and Wallace (1986), that (i) moneteri policy tightening will lead to higher inflation velocity and, (ii) government budget deficits and government debt can regulated within the long term. This model is expected to reflect the impact can be anticipated and which can not be anticipated from the influence of variables such as fiscal deficit per GDP, national debt per GDP, foreign debt per GDP and added a number of macroeconomic indicators and their impact on inflation in the country of Indonesia.

3. METHODOLOGY

This section discusses the data and the model framework to analyze the relationship that exists between the fiscal deficit and inflation and in turn will affect the economy. The selected variables of the variables in the GDP fiscal deficit (DEF), domestic debt in GDP (Debt), external debt in GDP (Fdebt), national income (Y), government expenditure (G), exchange rate (E), prices abroad (FP) and change prices $\Delta(P)$ taking into account the CPI inflation. The main focus of the classical theory and monetarist theory is that the relationship between fiscal deficits and inflation rates are dynamic.

The next section discusses in greater depth, each test will be conducted.

Unit Root Test

Unit root test conducted to examine the stationarity of each variable, the variable A is said to stall if the mean and its variants are constant through time. It can be either stationary to become in the level (level), or differential (difference). Each variable in the regression equation should be stationary at the same level, and all the variables stationary in levels or all the variables stationary in the form of discrimination, such discrimination

first. These conditions must be met for the estimates was found valid. If not, there will be false regression estimates, is estimates obtained very good results, but the relationship does not actually exist. Granger and Newbold (1974) states that a case can be identified when R^2 is greater than the Durbin-Watson statistics in which to see the existence of autocorrelation problems. In this study, unit root test method of Dickey Fuller (DF) or remuneration (Augmented) Dickey Fuller (ADF) and Philip Perrons be applied.

Co-integration Test

Co-integration tests done to see long-term relationship between variables. Co-integration tests that are commonly used to model a variety of variables, the equation is the Johansen co-integration test (1988). Co-integration approach used in this study is to use the ARDL approach, "Bound test 'in order to determine the existence of the relationship between the variables studied. Co-integration approach is also seen as a test of economic theory and is PART important in the formulation and estimation of a dynamic model (Engle and Granger 1987). This method can also be said to be able to avoid the regression is not uniform (spurious regression) that can lead to regression of the resulting inefficiencies.

The advantages of using ARDL approach to boundary testing (ARDL Bounds test) as the study conducted by Pesaran and Shin (1999), Pesaran and Pesaran (1997), Pesaran and Smith (1998) and Pesaran et al. (2001) developed a technique known as co-integration Autoregressive Distributed Lag (ARDL) tests the boundaries (Bound test). ARDL approach to boundary testing (ARDL Bound test) has several advantages compared to Johansen's co-integration method & Jusellus (1990) and Narayan and Smyth (2005) reveals several advantages ARDL. First, the ARDL co-integration relationship is very easy to determine the sample size without considering the small stationary variable whether it is stationary at the level I (0) or stationary at the level of first differentiation I (1) (Ghatak and Siddiki 2001, Tang 2003; Pesaran 1997). This contrasts with other techniques such as co-integration multi variations Johansen and Juselius (1990) for which the estimated common co-integrating relations, when the ranks of the statu lag model has been determined. Second, estimates of the model is consistent and normally distributed either without heed the relevant variables are I (0) or I (1).

Based on previous studies, the model of inflation which is formed by using the ARDL 'Bound test' is based on the OLS estimation provided UECM to see the existence of a long-term relationships and to explain the estimated coefficient of elasticity for the long term and short term (Shrestha and Chowdhury 2005; Tang 2003). From our ARDL error correction model to a dynamic following a simple linear transformation (Bannerjee et al. 1998).

The equation related to the fiscal deficits and inflation
 $INFLAS_t^f = \Phi(DEF_t, DEBT, FDEBT)$

(1)

The equation related inflation;

$$INFLAS_t^f = \Phi(Y, G, FP, E)$$

(2)

If equations (1) and (2) are combined into the equation containing all variables fiscal policy and variables macroeconomic, as given below:

$$INFLAS_t^f = \Phi(DEF, DEBT, FDEBT, Y, E, G, FP)$$

(3)

To estimate the inflationary model of a linear equation of state of Indonesia using the following ARDL

$$\begin{aligned} \Delta \ln(P)x_t = & \beta_0 + \beta_1 t + \beta_2 \ln(P)_{t-1} + \beta_3 \text{DefGDP}_{t-1} + \beta_4 \text{DebtGDP}_{t-1} + \beta_5 \text{FDefGDP}_{t-1} \\ & + \beta_6 \ln Y_{t-1} + \beta_7 \ln E_{t-1} + \beta_8 \ln(FP)_{t-1} + \beta_9 \ln G_{t-1} + \sum_{i=1}^p \beta_{10} \Delta \ln(P)_{t-1} + \\ & \sum_{i=1}^q \beta_{11} \Delta \text{DefGDP}_{t-1} + \sum_{i=1}^r \beta_{12} \Delta \text{DebtGDP}_{t-1} + \sum_{i=1}^s \beta_{13} \Delta \text{FDebtGDP}_{t-1} + \sum_{i=1}^q \beta_{14} \Delta \ln Y_{t-1} \cdot \\ & \sum_{i=1}^r \beta_{15} \Delta \ln E_{t-1} + \sum_{i=1}^s \beta_{16} \Delta \ln(FP)_{t-1} + \sum_{i=1}^p \beta_{17} \Delta \ln G_{t-1} + \mu_t \end{aligned}$$

Where Δ is the first difference, $\beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \dots, \beta_{12}$ is the coefficient of long-term and $\beta_{13}, \beta_{14}, \beta_{15}, \beta_{16}, \dots, \beta_{21}$, is the coefficient of short-term ARDL and μ_t is the interference error of the white (White Noise) and all variables in logarithmic form naturalists, except interbank interest rates and budget deficits. Equation (4), describes a standard model ARDL (p, q, r, s, t). Dummy variable with a value of zero prior to the time period and the value of a financial crisis after crisis. So that equation (4) by rewriting the form;

$$\begin{aligned} \Delta \ln(P)x_t = & \beta_0 + \beta_1 t + \beta_2 \ln(P)_{t-1} + \beta_3 \text{DefGDP}_{t-1} + \beta_4 \text{DebtGDP}_{t-1} + \beta_5 \text{FDefGDP}_{t-1} + \beta_6 \ln Y_{t-1} + \beta_7 \\ & + \beta_8 \ln(FP)_{t-1} + \beta_9 \ln G_{t-1} + \Delta DUM_t + \sum_{i=1}^p \beta_{10} \Delta \ln(P)_{t-1} + \sum_{i=1}^q \beta_{11} \Delta \text{DefGDP}_{t-1} + \\ & \sum_{i=1}^r \beta_{12} \Delta \text{DebtGDP}_{t-1} + \sum_{i=1}^s \beta_{13} \Delta \text{FDebtGDP}_{t-1} + \sum_{i=1}^q \beta_{14} \Delta \ln Y_{t-1} + \sum_{i=1}^r \beta_{15} \Delta \ln E_{t-1} + \sum_{i=1}^s \beta_{16} \Delta \ln(FP)_{t-1} + \\ & \sum_{i=1}^p \beta_{18} \Delta \ln G_{t-1} + \mu_t \end{aligned}$$

Lag structure is determined using Akaike's Information Criterion (AIC), considering the limited number of observations, the maximum lag pillhan 4 of Vang ARDL model studied. To estimate the lag ARDL equation is in accordance with the following general approach to specific model of Hendry's (1995), namely through the elimination of the lag is not an important variable in the model. Furthermore, to obtain long-term elasticity coefficient of the lag of the independent variables (multiplied by negative sign) divided by Lag structure is determined using Akaike's information criterion (AIC), considering the limited number of observations, the maximum lag in 4 of Vang ARDL model studied. To estimate the lag ARDL equation is in accordance with the following general approach

to specific model of Hendry's (1995), namely through the elimination of the lag is not an important variable in the model. Furthermore, to obtain long-term elasticity coefficient of the lag of the independent variables (multiplied by negative sign) divided by the coefficient of the lag of the dependent variable (Hardsen. 1989). While the effects of short-term flexibility is obtained with the first difference of equation (5).of a lag dependent variable (Hardsen. 1989). While the effects of short-term flexibility is obtained with the first difference of equation (5).

To estimate the inflationary model of the square equation (4) by using the following ARDL:

$$\begin{aligned} Ln(P)_t = & \beta_0 + \beta_1 t + \beta_2 Ln(P)_{t-1} + \beta_3 Ln(P)_{t-2}^2 + \beta_4 DefGDP_{t-1} + \beta_5 DebtGDP_{t-1} + \beta_6 \\ & FDebtGDP_{t-1} + \beta_7 LnY_{t-1} + \beta_8 LnE_{t-1} + \beta_9 Ln(FP)_{t-1} + \beta_{10} LnG_{t-1} + \mu_t \end{aligned} \quad (6)$$

$$\begin{aligned} \Delta Ln(P)x_t = & \beta_0 + \beta_1 t + \beta_2 Ln(P)_{t-1} + \beta_3 Ln(P)_{t-2}^2 + \beta_4 DefGDP_{t-1} + \beta_5 DebtGDP_{t-1} + \\ & \beta_6 FDefGDP_{t-1} + \beta_7 LnY_{t-1} + \beta_8 LnE_{t-1} + \beta_9 Ln(FP)_{t-1} + \beta_{10} LnG_{t-1} + \Delta DUM_t + \sum_{i=1}^p \beta_{11} \Delta Ln(P)_{t-i}^2 \\ & + \sum_{i=1}^q \beta_{12} \Delta Ln(P)_{t-i}^2 + \sum_{i=1}^q \beta_{13} \Delta DefGDP_{t-i} + \sum_{i=1}^r \beta_{14} \Delta DebtGDP_{t-i} + \sum_{i=1}^s \beta_{15} \Delta FDebtGDI_{t-i} \\ & + \sum_{i=1}^r \beta_{17} \Delta LnE_{t-i} + \sum_{i=1}^s \beta_{18} \Delta Ln(FP)_{t-i} + \sum_{i=1}^p \beta_{19} \Delta LnG_{t-i} + \mu_t \end{aligned}$$

equation co-integration vectors produced by the Johansen co-integration test. If the co-integration tests which have been described above proves that there is no co-integration, error correction term is retained will be removed from the equation in the VECM. In addition, since each equation has the same set of variables, a torch, then using OLS estimates of the VECM model will produce efficient estimators (Enders, 1995, 2004).

Vector Error Correction Model (VECM)

Vector error correction model is the behavior of long-term constraints in order to focus on the endogenous variable's co-integration relationships while providing an avenue for short-term dynamic adjustment. In other words, this model is to see how long the shocks that occur can be corrected so as to achieve balance through short-term adjustment. On the basis of the relationship between the causes of inflation (LNPT) the fiscal deficit (deft) by way of debt in the country (Debt) and external debt (FDebt) and macroeconomic variables, it is explained fully in the form of the following functions:

Tests for Granger-causes should be estimated in the version vector error correction model (VECM) as follows:

$$Inflasi_t = F(Def) \quad (8)$$

$$Def_t = F(Inflasi) \quad (9)$$

On the basis of modeling the relationship of inflation (LNPT) and the budget deficit (deft) in equation (8) and (9). Then test the cause should be estimated in a test version of the ARDL boundaries as follows:

$$\Delta \ln(P)_t = \beta_{0j} + \beta_{1j} + \sum_{i=1}^n W_i \Delta \ln Def_{t-1} + \sum_{i=0}^n \gamma_i \Delta \ln(P)_{t-1} + \delta_t \quad (10)$$

$$\Delta \ln Def_t = \beta_{0j} + \beta_{1j} + \sum_{i=0}^n \beta_i \Delta \ln(P)_{t-1} + \sum_{i=0}^n \gamma_i \Delta \ln Def_{t-1} + \delta_t \quad (11)$$

The symbol Δ is the first differential reference, the error correction term is retained, namely the error of the equation co-integration vector. To determine whether there is co-integration between the variables by using the solution of simultaneous equations (UECM). The existence of co-integration is indicated by the F-test statistics (Wald-coefficient test) that will give the F-statistic (Wald-coefficient test) over the Bazaar of the critical value F-statistic ARDL 'Bound test. For example, from equation (10), and (11), the rejection of $H_0: \delta_{12} \delta_{11} = \dots = \delta_{1n} = 0$ means that the inflation tax is a Granger cause of the short-term government budget deficit, while from equation (8) and (9) rejection of $H_0: \delta_{22} = \delta_{21} = \dots = \delta_{2n} = 0$ will mean the budget deficit Granger causes short-term inflation tax. Finally, to show the existence of long-term relationship between all variables in the equation estimated VECM.

Squares equation:

$$\Delta \ln(P)_t = \beta_{0j} + \beta_{1j} + \sum_{i=1}^n W_i \Delta \ln Def_{t-1} + \sum_{i=0}^n \gamma_i \Delta \ln(P)_{t-1} + \alpha_i \Delta \ln P_{t-1}^2 + \delta_t \quad (13)$$

$$\Delta \ln Def_t = \beta_{0j} + \beta_{1j} + \sum_{i=0}^n \beta_i \Delta \ln(P)_{t-1} + \sum_{i=0}^n \gamma_i \Delta \ln Def_{t-1} + \alpha_i \Delta \ln(P)_{t-1}^2 + \delta_t \quad (14)$$

ARDL test the boundaries. Long term effects of variables on the dependent variable illumination can be determined by the error correction term retained. Coefficient ΔDef will measure the effects of long term financing of budget deficit on inflation, the coefficient is to measure the long-term effects of inflationary financing of budget deficits. This long-term effects exist if the test statistic t for the coefficients are significant at a certain level of significance.

4. FINDINGS STUDY

Unit Root Test and Co-integration in this study can be seen in Table 1.

Table 2 shows the relationship ARDL-ECM variable budget deficit on inflation, the balance of a long explanation for a country with a long-term relationships have been conducted and the results show a balance in Indonesia did exist for the country's long-term relationship for both variables are studied. For Indonesia the country have a significant correlation between the fiscal deficit on inflation in the long term. The results of this study, consistent with the findings Luis AV Catao & Marco E. Terrones (2005) at

intervals of 107 countries in 1960-2001 showed that there was a strong positive relationship between fiscal deficits and inflation in high inflation countries and groups of developing countries, but not in the group developed economy with low inflation.

Table 3 show the result of estimate coefficients using ARDL Among Long-Term Fiscal Policy Variables and variable macroeconomic Against Inflation in Indonesia if the price abroad ($\ln(FP)$) rise 1% inflation ($\ln(P)$) in the country increased by 0.28% per year, assuming no other variables unchanged at 5% level of significance. Indonesia has a significant relationship between inflation ($\ln(P)$) and the exchange rate ($\ln(E)$), if the exchange rate rise 1% is assumed unchanged other factors causing inflation in the country will increase by 0.83% per annum and the relationship is significant. In Indonesia, a significant relationship between inflation ($\ln(P)$) and national income ($\ln(Y)$), where revenue rise 1% rate of inflation in the country increased by 0.19% per year, assuming other variables unchanged at 5% level of significance. And Indonesia has a significant relationship between inflation ($\ln(P)$) and government spending ($\ln(G)$), if the rate of spending increased 10%, then inflation in the country increased by 0.16% per year, assuming other variables unchanged at 10% level of significance. if the rate of spending increased 10%, then Inflation in the country increased by 0.16% per year, assuming other variables unchanged at 10% level of significance.

Table 4.a and 4.b show the results of the estimation of the ARDL-ECM model of the relationship of external debt effect on inflation and debt in the country's relations impact on inflation using non-linear equation (squares), as follows: Indonesia every year to do an adjustment speed toward the long-term balance between external debt variables on inflation of 20.12% at intervals 1 and the level of significance of 1% and 1% level of significance. And there is no short-term relationship between the variables tested. Parallel to Indonesia every year also did adjustment speed toward the long-term balance between domestic debt variables on inflation 16:44% at intervals of 1 and 1% level of significance. And there is no short-term relationship between the variables tested.

5. SUMMARY AND IMPLICATIONS

In Indonesia is co-integration between the budget deficit, domestic debt and external debt is really effective with inflation. While the inflation equation of Indonesia found that for the co-integrating relationship was found between the budget deficit, domestic debt and external debt effectively correct for inflation. The findings are most consistent with a study conducted by Montiel (1989) and Dornbusch et al (1990) find that fiscal deficits are likely to accommodate any combination of links and weaknesses of the inflation rate changes, rather than a cause of inflation. This finding is also consistent with the view that the basic Keynesian fiscal policy effects on output is greater than monetary policy.

In fact, it affects the price of goods, while the deficit and national debt is a measure for determining the tax and inflation, so its contribution to GDP to influence prices. This shows that fiscal policy through the financing of the deficit is resilient to economic growth and stability.

The results of this study showed that Indonesia have been there a long term relationship and short variable budget deficit, national debt, external debt on inflation. This existence implies that the fiscal deficit with the debt owed both locally and overseas debt can be used by the government as an alternative revenue to finance government budget deficits.

While fiscal policy has important macroeconomic implications. From the study found that Indonesia is only the government can regulate the impact of inflation on the choice of fiscal policy and monetary policy in the long term.

The findings of this study, it can be said to be in line with the study Peter Claeys (2005), using the inflation indicator, GDP, the rate of payment, receipt and production of real exchange rate and debt, fiscal policy and the possible interaction is determined by the debt moneteri. Means that the fiscal and debt sustainability moneteri determine a country.

REFERENCE

- Abdul Ghafar Ismail 1987. Pertumbuhan Perbelanjaan Awam di Malaysia 1960-1986. Kertas Kerja Persidangan Pembiayaan Awam. Universiti Kebangsaan Malaysia, Bangi, 3-4 Mac.
- Abdul Ghafar Ismail & Md Zyadi Md Tahir 1998. *Makroekonomi Malaysia perspektif dasar*. Bangi: Universiti Kebangsaan Malaysia.
- Abd.Ghafar Ismail & Mansor Jusoh 2001. Do Budget Deficits Produce High Interest Rates?. *Empirika*. 28 : 95-100.
- Adam, C.S. & Bevan, D.L. 2002. Fiscal deficit and growth in developing countries. *Quarterly Journal of economics* **109**:234-258.
- Ahmed, S., & Yoo, B. S. (1995). Fiscal trends and real economic aggregates. *Journal of Money Credit and Banking*, 27, 985–1001.
- Aschauer, D. (1985). Fiscal policy and aggregate demand. *American Economic Review*, 75, 117–127.
- Bohn, H., 1998. The behavior of U.S. public debt and deficits. *Quarterly Journal of Economics* 113, 949–963.
- Bohn, H. 2005. The Sustainability of Fiscal Policy in The United States. *Public Finance* (Working Paper). April. No. 1446.
- Calvo, G., Ve'gh, C., 1999. Inflation stabilization and BOP crises in developing countries. In: John, T., Woodford, M.(Eds.), *Handbook of Macroeconomics*, Vol.C.North-Ho lland, Amsterdam, pp.1531–1614.
- Devarajan, S., Swaroop, V & Zou, H.F. 1996. The composition of public expenditure and economics growth. *Journal of Monetary Economics* **37**: 313-344.
- Dornbusch, R & Fischer, S. 1994. *Macroeconomics*. Mc-Graw Hill. Co.
- Dornbusch, R., Sturzenegger, F., Wolf, H., 1990. Extreme inflation: dynamics and stabilization. *Brookings Papers on Economic Activity* 2, 1–84.
- Fisher, Irving, 1896, Appreciation and interest, *American Economic Review Publications*, 11(August): 331-442.
- Fisher, I. 1930. *The Theory of Interest*. New York: Macmillan.
- Fischer, S. 1991. Growth, macroeconomic and development. NBER working paper. 3702. Cambridge Mass.
- Fisher, R. C. 1997. *State and Local Public Finance*. Washington: Richard D Irwin.
- Granger, C. W. J. (1986). Developments in the study of cointegrated economic variables. *Oxford Bulletin of Economics and Statistics*, August: 213–218.

- Gujarati, D.N. 2003. *Basic Econometrics*. New York: McGraw Hill.
- Hansen, B. E. (1992). Testing for parameter instability in linear models. *Journal of Political Modeling*, 14(4), 517–533.
- Hausman, J.A. 1978. Specification test in econometrics. *Econometrica* vol. **46**.
- Hondroyannis, G. & Papapetrou, E. 2001. An Investigation of The Public Deficit and Government Spending Relationship: Evidence for Greece. *Public Choice* 107: 169 – 182.
- Jaka Sriyana 2005. Model Dinamik Perbelanjaan Awam dan Implikasinya Terhadap Perekonomian Malaysia. Tesis Ph.D. Universiti Kebangsaan Malaysia.
- Johansen, S. (1995a). Likelihood-based inference in cointegrated vector autoregressive models. Oxford: Oxford University Press.
- Johansen, S. (1995b). Identifying restrictions of linear equations with applications to simulations equations and cointegration. *Journal of Econometrics*, 69, 111–132.
- Johansen, S., & Juselius, K. (1991). Testing structural hypotheses in a multivariate cointegration analysis of the PPP and the UIP for UK. *Journal of Econometrics*, 53, 211–244.
- Johansen, S., & Juselius, K. (1994). Identification of the long-run and the short-run structure an application to the ISLM model. *Journal of Econometrics*, 63, 7–36.
- Keynes, J.M. 1936. *General Theory of Employment, Interest and Money*. London & Basingstoke: McMillan.
- Kia, A. (2003). Interest-free and interest-bearing money demand: Policy invariance and stability. ERF Working Paper 0214
(http://www.erf.org.eg/database/paperresult.asp?d_code=200214).
- Kia, A. 2006. Deficit, debt financing, monetary policy and inflation in developing countries: Internal or Eksternal Factors? Evidence from Iran. *Jurnal of Asian Economics*, August 2006.
- Kim, J. 2000. Constructing and estimating a realistic optimizing model of monetary policy. *Journal of Monetary Economics*, 45: 329–359.
- King, R. G., & Plosser, C. I. 1985. Money, deficits, and inflation. *Carnegie-Rochester Conference Series on Public Policy*, 22(Spring): 147–196.
- Mansor Jusoh 1990. Inflasi. Dewan Bahasa dan Pustaka Kementerian Pendidikan Malaysia. Kuala Lumpur.
- Mansoer, F.W. & Soelistyo, A. 1998. Suatu Pendekatan Ekonometrik Terhadap Ekonomi Makro Indonesia 1978 – 1994. *Jurnal Ekonomi & Bisnis Indonesia* 13 (4): 30 – 50

Montiel, P., 1989. An empirical analysis of high-inflation episodes in Argentina, Brazil, and Israel. IMF Staff Papers 36, 527–549. O’Connell, P.G., 1998. The overvaluation of purchasing power parity. Journal of International Economics 44, 1–19.

Nugent, J. B., & Glezakos, C. (1979). A model of inflation and expectations in Latin America. Journal of Development Economics, September: 431–446.

Perron, P. (1997). Further evidence on breaking trend functions in macroeconomic variables. Journal of Econometrics, 80, 355–385.

Pesaran, M., Shin, Y., 1998. An autoregressive distributed lag modelling approach to cointegration analysis. In: Steinar, S. (Ed.), Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium. Cambridge University Press, Cambridge, pp. 371–413.

Pesaran, M.H., Shin, Y., Smith, R., 1999. Pooled estimation of long-run relationships in dynamic heterogeneous panels. Journal of the American Statistical Association 94, 621–634.

Sargent, T. J., & Wallace, Neil (1986). Some unpleasant monetarist arithmetic, Chapter 5. In T. Sargent (Ed.), Rational expectations and inflation, New York: Harper & Row Publisher

Sargent, T., 1982. The ends of four big inflations. In: Robert, H. (Ed.), Inflation, Causes, and Effects. University of Chicago Press, Chicago, pp.41–97.

LIST OF TABLES:

Table 1: Results of Unit Root Test ADF and Philip Perrons of Indonesia For LnY available to test the PP in the field-level help make the column jd Level (PP)

| Countries | Variables | First difference PP | |
|-----------|--------------------|---------------------|------------------------------|
| | | τ_{μ} | τ_t |
| | | τ_{μ} | τ_t |
| Indonesia | Ln(P) | -13.17 | -13.692 |
| | Ln(P) ² | -15.73 | -18.986 |
| | DefGDP | -15.009 | -17.004 |
| | DebtGDP | -18.231 | -19.794 |
| | FDebtGDP | -17.619 | -17.964 |
| | LnY | -9.933 | -30.744 |
| | | | (There are at ujim pp level) |
| | LnE | -10.83 | -10.626 |
| | LnFP | -1.918(3) | -2.810(3) |
| LnG | -12.333 | -12.063 | |

Table 2: Co-integration Test Results of the Fiscal Deficit, Internal Debt, External Debt and Inflation In Non Linear

| Country | Deficit Fiscal | Internal Debt | External debt |
|-----------|----------------|---------------|---------------|
| Indonesia | 5.280 (√) | 4.305 (√) | 5.310 (√) |

Note: ‘√’ indicates testing of the F statistic (5.472) is significant at the significance level 10% Upper Bound means that there is a long term relationship between variables in the ARDL model.

Graphic 1 Relationship between internal debt, external debt and deficit in Indonesia

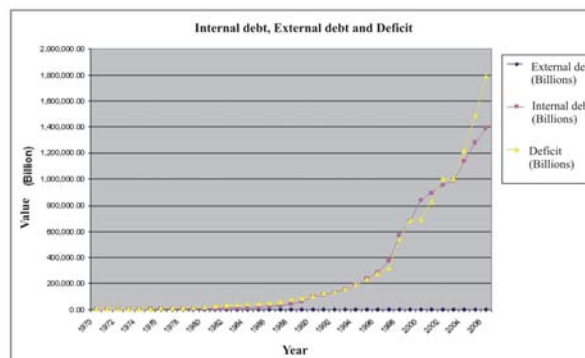


Table 3. Long-Term Budgeting Using ARDL coefficients among variables Fiscal Policy and variable Macroeconomic Against Inflation

| Country | Variable | | | | | | |
|-----------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------|------------------------------|-------|
| | LNFP | LNE | LNy | LNG | INT | INPT | Trend |
| Indonesia | 0.28 ^b (0.13) | 0.44 ^a (0.07) | 0.19 ^b (0.07) | 0.16 ^c (0.08) | -0.05 (0.28) | -7.68 ^a (1.12) | n/a |

Note: the symbols a, b, c is significant at the level of significance 1%, 5% and 10%, n / a shows the model estimated without the trend variable.

Table 4a. ARDL-ECM Relations External Debt Effects on Inflation

| Country | $dLNP_{t_0}$ | $dLNP_{t-1}$ | $dLNP_{t-2}$ | $dFDeb.$ GDP_t | $dFDeb.$ GDP_{t-1} | $dFDeb.$ GDP_{t-2} | Intercep | ECM_{t-1} |
|-----------|----------------------------------|-----------------------------------|--------------|-----------------------------------|-------------------------|-------------------------|---------------------------------|----------------------------------|
| Indonesia | 073269 ^c (.041206) | .15895 ^a (.0063616) | - - | .021504 ^b (.016642) | - - | - - | 37627 ^a (.081310) | -20121 ^a (.047089) |

Note: sign ***, **, * and a, b and c are significant at the level of significance 1%, 5% and 10

Table 4b. Results of Revenue Estimation ARDL-ECM Relations Internal Debt Effects on Inflation Squared

| Country | $dLNP_t$ | $dLNP_{t-1}$ | $dLNP_{t-2}$ | $dDebt.$ GDP_t | $dDebt.$ GDP_{t-1} | $dDebt.$ GDP_{t-2} | Intercep | ECM_{t-1} |
|-----------|----------|--------------|---------------------------------------|---------------------|-------------------------|-------------------------|--------------------------------------|-----------------------------------|
| Indonesia | - - | - - | .16479 ^a (.005545 4) | 1.4157 (1.3939) | - - | - - | .27764 ^a (.044837) | -1.6442 ^a (.037912) |

Note: the symbols a, b, c is significant at the level of significance 1%, 5% and 10%, n / a shows the model estimated without the trend variable.