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State Budget Deficit Analysis in Indonesia Year 2002-2020

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Abstract— *This study aims to examine the effect of inflation, interest rates, and exchange rates to the State Budget Deficit in Indonesia, through Growth Economics as for the research period from 2002 to 2020. In this study using secondary data in the form of time series from 2002 to 2020. In this study using the method Structural equation regression analysis using AMOS software. The data source is obtained from the Central Statistics Agency, Ministry of Finance Finance of the Republic of Indonesia. The findings of this study directly indicate interest rates has an effect on the budget deficit and does not affect directly through economic growth. Live exchange rates has an effect on the budget deficit and does not affect directly through economic growth. Inflation has no significant effect directly to the budget deficit and has no indirect effect directly through economic growth. Economic growth in has no direct effect on the budget deficit.*

Keywords— *Budget Deficit, Economic Growth, Inflation, Interest Rates, and Exchange rate.*

I. INTRODUCTION

Deficits usually occur when an organization has more expenses much more than income. In government this term is known as budget deficit. The Budget Deficit is the government's policy to make expenditure is greater than state income to make changes on the economy. The Budget Deficit is part of fiscal policy. Policy fiscal management is the management of the government budget in order to achieve development goals (Sriyana, 2012).

The instrument of fiscal policy is the Revenue and Expenditure Budget State Budget (APBN) to regulate state expenditures and revenues in to finance the implementation of government and development activities, achieve economic growth, increase national income, achieve economic stability, and determine the direction and priorities development in general. Macroeconomic indicators used as the basis in the preparation of the State Budget, among others, economic growth, inflation, exchange rates, SBI interest rates, international oil prices, and production Indonesian oil. The existence of a budget deficit is still a major problem continuity of the state budget.

The current budget deficit is still a concern in developed countries as well as developing countries. Especially in Indonesia, the government Indonesia is still facing the problem of limited capital for financing development. Emerging shortages in funding in many countries is a classic. The state borrows from merchants and moneylenders in times of need, especially to finance war, royal ceremonies and festivals, and tackling disasters (Satrianto,2016).

As developing countries, fiscal policies implemented Indonesia is an expansionary fiscal policy with budget instruments deficit. Basically meant to provide more leeway of funds into the community to stimulate the economy. However, fiscal policy often becomes less effective if it is not supported by the right situation or condition and other consistent policies, even it is not impossible that the fiscal stimulus policy can actually hinder the pace of economy. For example, a fiscal stimulus that should increase aggregate demand, but if it is not matched by a monetary policy that accommodative, it can lead to counter-productive results.

It should also be explained that the occurrence of a budget deficit is caused by: some important factors sometimes it happens because the budget is indeed less, and sometimes the method or method of financing that resulting in a deficit. According to Suharno (2008), the occurrence of a budget deficit can be caused by expenditure due to crisis, expenditure due to inflation, weakening of the exchange rate, the realization that deviates from the plan, accelerate economic growth and income distribution Public. In addition to spending due to the crisis, spending due to inflation, weakening of the exchange rate, income distribution and accelerated economic growth, Satrianto (2015) also said that there are that can cause a budget deficit in a country, These include interest rates and exchange rates.

The development of the budget deficit in Indonesia and the factors that are thought to influence it. It can be seen that Indonesia's budget deficit experienced the highest development occurred in 2017 which amounted to Rp. 330.168 trillion. This situation actually means that the state finances are not good. Beside Meanwhile, the budget deficit experienced the lowest development in 2005 amounting to RP 24,944 trillion. Salama period of 18 years Budget deposit tends to increase, the figure has reached 200 trillion more. The problem is how to maintain the budget deficit at a safe level so that the deficit can still be found the financing. (Kuncoro, 2011).

Economic growth as a factor affecting the deficit budget According to Peacock and Wiseman (Basri, 2005:40), if the product an increase in gross domestic product will have an impact on increasing the main economic activities are the real sector and the business world in general. Increased economic activity will increase government revenues is expected to result in Indonesia's budget being a surplus or In other words, if the budget runs a deficit in previously, then with an increase in tax revenue will resulting in the budget deficit can decrease in the year-to-year period the next, it is even expected to result in a budget surplus.

Over the last 16 years the growth the economy fluctuated which showed a positive trend, although had decreased by

4.63% in 2009 due to the impact of the crisis global events that occurred in 2008. But thanks to the experience of the crisis in 1998, the Government has taken four steps policies, namely: recovery of private demand, restoration of confidence public sector, reforming an efficient banking system and debt resolution corporate. The result is that until 2008, there has been a lot of progress that achieved. These situations include, among others, Indonesia's economic growth in path above 6%.

During 2010, the performance of the domestic economy continued to improve even though it was in the midst of an imbalance in economic recovery global. This is indicated by the increasing GDP growth rate and a large balance of payments surplus. Growth economy reached 6.22%, higher than 2009 growth only reached 4.63%. The increase was supported by sources more balanced growth as in the increase in the role of investment and improved export performance. But since 2011

Indonesia's economic growth has declined again continuously until 2015 up to 4.88%. It is known that inflation in 2005 reached 17.11% is the highest number in the last 16 years. Inflation is a condition in which the amount of money circulating in society is greater than the number of goods and services in Public. When inflation occurs, prices increase. This price increase will affect the cost of developing the program increasing, with budget conditions remaining the same. So that the state budget needs to be revised again so that there is an increase in quantity and program quality. As a result, the state will spend funds in order to increase the standard price (Anwar, 2014).

The highest interest rate occurred in 2002 at 13.00% and in the following year tends to decrease and fluctuate. The interest rate can affect the budget deficit when the government carries out domestic debt financing through letters State Valuables (SBN), both in the form of SUN and SBSN. When it happens increase in interest rates, loan interest payments on SBN published will also increase, this can cause a burden the state budget increases (Satrianto 2015). Exchange Rate as one of the related macroeconomic indicators with the amount of the state budget. The assumption of the rupiah exchange rate is related to the number of transactions in foreign currencies, such as receiving loans and foreign debt payments, oil receipts and grants fuel subsidy. Thus, the basic assumptions of macroeconomic variables This determines the amount of state revenues and expenditures.

The loan value is calculated in foreign currency, while the installment payments principal is calculated in rupiah. If the rupiah exchange rate depreciates against the US dollar, the debt to be paid swell and will burden the budget (Kuncoro, 2011). Over the last 16 years, the rupiah has depreciated against the US dollar. the highest exchange rate occurred in 2015 rupiah exchange depreciation of Rp. 13,795.

The determinants and role of the budget deficit are always debated, but yields various conclusions. Among those who contributed to the role of the budget deficit, among others, Hobbes (1651), who praised government as a provider of services to life more worthy. This is further supported by Keynes (1936) who argues that without government, the economy will fail. Kustepeli (2005) supports the work of Hobbes (1651) and Keynes (1936) by showing that the role of the government is to improve economic performance. Economist Another is Musgrave (1959) who argues that the government always using a fiscal policy framework to improve welfare social. Economists ranging from classics to those who have public choice view, opposes the use of budget deficits to improve economic performance. In particular Smith (1776), Ricardo (1817) and Pigou (1912) suggested that instability in the economy caused by government intervention. (Murwirapchena, et al 2013).

Several previous studies of economic growth variables shows a negative relationship to the budget deficit, among others, by Oladipo and Akinbobola (2011), Jayid (2011), Satrianto (2015), Maltritz and Wusthe (2015), Epaphra (2017), Yunus (2022) But other research showing a positive influence, among others, Murwirapachena, et al (2013), Mushtaq (2013), Arif and Hussain (2018). Next variable Inflation a positive effect on the budget deficit by Salman A.S . research (2003), Eric R.O (2011), Lwangan and Mawejje (2014), Satrianto (2015), Suryani (2017) and Arif and Hussain (2018). While showing negative influences, among others, by Jayid, et.al (2011), Oladipo and Akinbobola (2011), Mushtaq and Khalid (2013), and Yunus (2022).

The interest rate variable has a significant and positive effect on the deficit among others, Satrianto (2015) while the results show the effect of significantly negative on the budget deficit, among others, Riyadi (2010) and Ratna (2015). Then the exchange rate variable has a negative effect on the deficit budgets include Rosit (2010), Satrianto (2015), Epaphra M (2017) and Yunus (2022), but several studies have shown positive results among others by Oladipo and Akinbobola (2011), Mushtaq A and Zaman K (2013).

II. Literature Review

a. Budget Deficit

According to Basri (2005:45), the budget is a list or a detailed statement of state revenues and expenditures expected in a certain period of time, which is usually one year. Rahardja and Manurung (2004) a budget deficit is a budget that it was planned for a deficit, because government spending planned to be greater than government revenue (G>T). budget that This deficit is usually taken when the government wants to stimulate growth economy. This is generally done when the economy is in a recession. Hyman (2005), defines the government budget deficit as the excess of government spending from government revenues in the form of taxes, fees, and levies obtained by the government.

The size of the deficit determined as a percentage of GDP in the current fiscal year concerned. Based on PP RI Number 23 of 2003, the budget deficit government is the less difference between state revenue and spending countries in the same fiscal year. Government budget can be in deficit does not exceed 3% of GDP. According to Suharno (2008), the occurrence of a budget deficit can be caused by: by expenditure due to crisis, expenditure due to inflation, weakening of the value of exchange, the realization of which deviates from the plan, accelerates growth economy and equitable distribution of community income. There is a deficit the budget can be closed by making debt loans in country and foreign debt. with a debt loan from within country and abroad is expected to spur growth economy in accordance with the previously planned targets. But debt This can cause problems too, because both domestic debt as well as foreign debt requires a return that will certainly can reduce various sources of state finances (Rahman & Gemilang,2017).

There are several definitions of deficit. Conventionally, the deficit calculated based on the difference between total expenditure and total income including grants. The second definition is that the monetary deficit is the difference between between total government spending (excluding payment of principal debt) and total income (excluding debt receipts). The third definition is deficit operational, namely the monetary deficit measured in real value and not nominal. The last definition is primary deficit. The primary deficit is the difference between spending (excluding payments of principal and interest on debt) and total income. In addition, there are still several definitions of deficit and depends on the criteria used and the purpose of the analysis. Usually the choice of the right deficit concept depends on several factors, including the type of imbalance that occurs, government coverage (central government, government consolidation, and public sector), methods accounting (cash and accrual basis), and status of contingent liabilities (Simanjuntak in Endah, 2010).

In general, the budget deficit is an expansionary fiscal policy government to make expenditures greater than state revenues to provide a stimulus to the economy and is very well used if the economy is in a recessive state. In addition, the definition of a budget deficit is also can be interpreted as the first is the Conventional Deficit, namely the which is calculated based on the difference between the total expenditure and the total income including grants. The second is the Monetary Deficit, which is the difference between total government spending (excluding principal payments) with total income (excluding debt receipts).

Third definition is the Operational Deficit. It is a monetary deficit measured in real value and not face value. While the fourth meaning is Primary Deficit, Represents the difference between spending (excluding principal payments) and interest on debt) with total income. In addition, the budget deficit grouped into two components, namely the primary deficit component and component of debt interest payments. The primary deficit is defined as the difference between government spending (excluding interest payments debt) with all government revenues (excluding new debt and debt repayments). Budget deficit component grouping it is intended to see the role of debt burden in the budget government. If the government debt burden, loan interest rates, and exchange rates

The higher the currency, the higher the interest payments on debt high, then the budget deficit tends to be higher. Government forced to run a higher budget deficit due to debt interest payments. (Dornbusch, 1990). Various fiscal policies have various channels, which is, all of these fiscal policies can be implemented through government budget policy channels (if Indonesia is known as the APBN). State budget (APBN) is defined as a detailed list or statement of expected state revenues and expenditures within a certain period of time one year (Suparmoko, 2000).

The APBN can be used as a benchmark for performance from implementation government budget policy. If there is a deficit in the budget, This shows the smaller role and independence of the government in development financing. During the 1969/1970 fiscal year until 1999/2000, the state budget uses a balanced budget system with T-account format. In a balanced budget system, the amount expenditure must be equal to the amount of revenue earned by the country. In reality, the amount of expenses is always greater compared to state revenue, because spending oriented towards ever-increasing development. Meanwhile,acceptance is always faced with sources of acceptance that limited. As a result, there must be other sources to balance between expenditures and receipts. In this case, the government takes the policy to use the foreign debt component as a budget balancer, so the concept of balance in the system a balanced budget becomes false. Balanced budget concept introduced to prevent recurrence of hyperinflationary trauma in the future Old Order. In comparison, during the Old Order, the state budget deficit closed by printing money, so that the money supply becomes uncontrollable. As a result, in 1965 there was a hyperinflation of 650 percent.

The effect of a budget deficit on a country's economy is a controversial issue. First point of view believes that the budget deficit financed by government debt can cause impacts such as unemployment, inflation, high interest rates and the deteriorating exchange rate of a country. While the second point of view believes that the budget deficit has no impact on economy. (Solikin, 2003). The budget deficit can be covered through taxes or debt. However In theory, there are several considerations in choosing the right method the best way to cover the deficit, among them as the recipient principle benefits (Benefits-received principle). According to this normative principle, a person who benefit from government spending programs should pay. So if the program brings benefits to generations, In the future, it is not wrong if the burden is also transferred to the next generation future through debt financing. Intergenerational equity If the consequences technological developments it can be predicted that future generations will more prosperous than the current generation, it is logical to transfer income from future generations to current generations by owe. Meanwhile, if due to the scarcity of resources, renewables it can be expected that future generations will be more poorer than the current generation, it is better to increase taxes.

Efficiency considerations It should be noted that any increase in government spending will be financed by taxes. Choice between financing with taxes or debts it is only a matter of time to pay, because even the debt must be covered with future tax increases, however payment in installments. In terms of efficiency, considerations between financing with taxes or debt can be done by seeing which one provide more excess burden. According to Elmendorf and Mankiw (in Rosen, 2002), if deficit financing is done by increasing income tax, then will affect labor supply behavior, by causing overload that is proportional to the square of the value of tax rate. This means that if the tax rate is doubled, then overload will increase fourfold. Thus, more efficient when increasing debt, which means paying taxes in installments in a smaller amount, rather than increasing taxes. But on the side on the other hand, increasing debt means reducing the capital stock, so that add overload. That is, from the supply side of labor, more efficient when in debt, but in terms of capital allocation, it is more efficient when increase taxes.

Macroeconomic considerations in the Keynesian macroeconomic model, consideration between deficit financing with taxes or debt depends on the unemployment rate. When the unemployment rate is low,
an increase in government spending will increase inflation. So needed to reduce the spending capacity of the private sector by increase taxes. But if the unemployment rate is high, it's better when the government owes in order to stimulate public demand. Use of taxes or debt to maintain this level of aggregate demand also often called functional finance. Moral and political considerations, morals contain elements of self-control, while debt occurs due to lack of control self, so it can be said that debt is immoral. The normative assumption that debt is immoral has always been Interesting political discussion. Even though this normative view relies on a positive hypothesis that has yet to be proven, i.e that the burden of debt is transferred to future generations. Even more, this normative view is not superior to, for example, the benefits-received principle which states that debt is something that morally appropriate to do. (Simbolon, 2012)

Equitable Community Income Extra spending too needed in order to support equity in all regions, so that the government spends a lot of money for equal distribution of income the. For example, spending on transportation subsidies to poor areas and remote areas, so that people in those areas can enjoy the results development that is not much different from the more developed regions. Weakening of the Exchange Rate when a country borrows from abroad country, then the country will experience problems if there is a fluctuation in the value of exchange every year. This problem is caused because the loan value is calculated in foreign currency, while payment of principal and interest installments The loan is calculated in the currency of the borrowing country. For example If the rupiah exchange rate depreciates against the US dollar, then payment of principal installments and loan interest to be paid as well swell. So that the payment of principal and interest on the loan taken from the state budget increases, more than what was originally budgeted.

Spending Due to the Economic Crisis will cause an increase in unemployment, while tax revenues will decrease due to the decline in economic sectors as a result of the crisis, even though the must be responsible for increasing the purchasing power of the people who classified as poor. In this case, the state is forced to spend extra funds for poverty programs and community empowerment especially in the poor rural areas. Realization that deviates from the plan If realization state revenue misses what was planned, or in other words the state revenue plan cannot achieve the target as planned, it means some project activities or program must be cut. Cutting the project was not so easy.

However, to achieve development performance, a project does not can stand alone, but has to do with other projects. If this occurs, the state must cover the shortfall, so that development performance can be achieved according to the original plan. Expenditure due to inflation in the initial preparation of the state budget years, based on a predetermined price standard. Price the standard itself in the course of the budget year, can not be guaranteed the accuracy. In other words, during the course of the fiscal year the standard price can increase but rarely decreases. When it happens inflation, with an increase in prices it means the cost of development the program will also increase, while the budget will remain the same. Everything This will result in a decrease in the quantity and quality of the program, so the state budget needs to be revised. As a result, the state was forced to spend funds in order to increase the standard price.

b. Economic growth

The theory of economic growth can be defined as an explanation on what factors determine the increase in output per capita in the long run and an explanation of how the factors so that the growth process occurs (Boediono in Saerofi, 2005). Sirojuzilam & Mahalli (2010), explained that growth Economics is a picture of the impact of policy government, especially in the economic field. Economic growth is the rate of growth that is formed from various kinds of economic sectors which indirectly describe the the rate of economic growth. A country can be said to have an economic condition that is either through the calculation of a high rate of economic growth or simply measured by the increase in the number of production of goods and services in an economy known as Domestic Product terminology Gross (GDP) and to measure the rate of economic growth is used GDP at constant prices (Real GDP) to eliminate the effect price changes during the measurement time period. GDP is defined as the market value of all final goods and services produced by a country in a certain period (Mankiw, 2006).

Economic growth as a process of increasing the production of goods and services in a state of society, an economy is said to be experiencing growth if the economic level achieved in a given year is higher than last year previously (Kusumo, 2007). Economic growth means the development of activities in economy causes the goods and services produced in society increases. The problem of economic growth can be seen as a macroeconomic problem in the long run. From one period to other periods, the ability of a country to produce goods and services will increase. This increased ability is due to factors Production will always increase in quantity and quality. Investment will increase the amount of capital goods. Technology used develop. In addition, the workforce increases as a result population development, work experience, education and skills (Sukirno, 2006).

The process of economic growth is also influenced by two kinds of factors namely economic factors and non-economic factors. Economic growth of a country depends on its natural resources, human resources, capital and technology called economic factors. But economic growth is not may occur as long as social institutions, political circumstances and moral values in a nation does not support the so-called non-economic factors (Jhingan, 2001).

According to Schumpeter and Hicks in Jhingan (2003), there are differences in terms of economic development and economic growth. Economic development is spontaneous and discontinuous change in a stationary state that is constantly changing and changing situations the previous balance, while economic growth is a slow and steady long-term change that occurs through increases in saving and population. According to Kuznet in Jhingan (2003), economic growth is long-term increase in a country's ability to provide economic goods to the population. This ability grows in accordance with technological advances, and institutional adjustments and necessary ideological

Harrod Domar's theory explains that national income will increases and economic growth will only be created if the capacity production increases and people's expenditures increase compared to the previous period. There are some distinctions that used, i.e. At the startup stage the economy has reached the level of full employment opportunities and capital tools available in society fully used. The economy consists of two sectors, namely the households and the corporate sector, meaning government and trade overseas is not included. The amount of public saving is proportional to national income and this situation means the function of Savings are assessed from zero. The propensity to save is fixed and as well as the comparison between models with the usual production quantities is called the capital production ratio (Capital Output Ratio) and the ratio between the increase in capital and the total increase in production commonly called the ratio of the increase in production capital (Incremental Capital Output). ratios). (Nurhakim, 2019)

The Two Gap Model Theoretically, economic policy in developing countries arises because of the assumption that markets failed to carry out its function (market failure) so it is needed government intervention. However, according to Weiss (1995), if the policy the government is not directed properly then it will lead to government failure. Framework The Two Gap Model theory shows that the investment financing deficit private sector occurs because saving is smaller than investment (I-S = resource gap), and the trade deficit is caused by exports being smaller than imports (X-M = trade gap). Besides, there is still a deficit in the budget government because government revenue from taxes is less than government spending (T-G = fiscal gap).

c. Inflation

Inflation is a condition in which the general price level (price level) tends to increase. The cause of inflation is an increase in demand exceed supply or above production capacity which causes prices rise (demand pull inflation), inflation can also occur or comes from the supply side, namely the increase in production costs so that prices increase (cost push inflation). (Sukanto, 2015). In addition, inflation can also occur because the price of goods increases while the level of public wages permanent. (Sari & Natha, 2016). In the inflation theory, it is explained that inflation occurs because of the amount of money in circulation is not balanced with available goods (quantitative theory of money) and society wants to be beyond the limits of its economic capacity (theory) Keynes). (Sukirno, 2015).

Inflation is the tendency of prices to rising in general and continuously. Indirectly, through economic growth, rising prices of goods and services will result in decrease in people's purchasing power and consumption. This makes a request decreased and production decreased as well. Real output becomes low which eventually will have an impact on the decline in the real GDP of a country and economic growth will be affected so that it becomes low. Furthermore, state revenues will decrease and bring consequences the increase in the budget deficit due to the declining income of the state must continue to provide for the public needs of its people. Broadly speaking, theories that discuss inflation can be divided into: in three groups with each highlighting a particular aspect of the inflation process. The three theories of inflation according to Boediono (2005) explained as follows. First, Quantity Theory, this theory was introduced by Irving Fisher, according to this theory inflation occurs because of the influence of the amount of money in circulation and people's expectations regarding price increases. The two Keynesian theories. In Keynes's theory, inflation occurs because there are some people who live outside the boundaries economy, so that people's demand for an item will exceeds the available amount. Usually people in this group will try to obtain additional funds beyond the limit economic capacity so that all forms of desire can be fulfilled. Third Structuralist Theory, this theory emphasizes rigidity of the economic structure of developing countries, due to inflation associated with the structural factors of the economy (which according to the definitions of these factors can only change gradually and over the long term long term) then this theory can be called the "long-run" inflation theory.

According to this theory, there are 2 main kinks in the economy of medium-sized countries developments that can lead to inflation, including inelasticity export receipts and inelasticity of supply or production of materials domestic food.

d. Interest Rate

Keynes's theory argues that interest rates are not the only factor that affect investment, besides that there is still a situation of sluggish activity an economy that creates expectations of less business profits encouraging, causing low investment even though interest rates low interest. (Todaro M. 1998) After discussing the meaning of the interest rate, it will definitely not regardless of credit interest. The credit interest rate itself is the cost issued to obtain a loan of money, or an additional amount that must be paid for the privilege of using borrowed money in the form of credit for both short and long term by banking and other financial institutions.

As for how to determine the calculation of the credit interest namely the Sliding Rate, namely the charging of interest on the principal value of the loan will decrease from month to month or from period to period the next period in accordance with the decrease in the principal of the loan as due to the payment of loan principal installments, the Flat Rate is a way of calculation of interest with the formula for the difference between interest and principal the loan will remain from one period to another even though the principal Loans decreased as a result of principal installment payments loans, Floating Rate is a method of calculating interest by means of interest floating, meaning that the determination of the amount of interest is not set for a certain period of time but thresholded according to development of interest rates in the money market (money market rate).

The interest rate can be determined by means of domestic money market and international money market rates. Interest rate relationship with a direct budget deficit, it can be seen through financing debt through the issuance of Government Securities (SBN), either through Government Debt (SUN) and State Sharia Securities (SBSN), where the payment of interest and principal is guaranteed by the state according to the period enactment. If interest rates rise, the burden of interest payments and basically the issued SBN will increase. It is will directly increase the budget burden so that it can create a deficit budget increases (Lestari, 2011:51).

e. Exchange rate

There are three factors that affect the demand for foreign exchange, namely: First, the Import Payment factor The higher the import of goods and services the greater the demand for foreign exchange so that the exchange rate currency will tend to weaken. On the other hand, if imports decline, then the demand for foreign exchange decreases, thus encouraging the strengthening of the value of swap. The two factors of capital outflow are getting bigger capital out, the greater the demand for foreign exchange and in the end will weaken the exchange rate. Capital outflow includes debt repayment Indonesian residents (both private and government) to parties and placement of funds for Indonesian residents abroad. The three activities speculation, more and more foreign exchange speculative activities are being carried out by speculators, the greater the demand for foreign exchange thereby weakening the exchange rate of the local currency against foreign currencies.

Currency exchange rates against foreign currencies can be determined through the mechanism, namely the First Fixed Exchange Rate System Currency prices are determined without regard to market attractiveness. That matter make domestic Central Banks must be ready to accept all risks to maintain the agreed exchange rate. When depression occurs, The Central Bank must drain its foreign exchange reserves through currency sales foreign currency to maintain the value of the domestic currency. So that led to the emergence of a black market. The black market make currency traded not at its true value so that it will benefit other countries. Both Floating Exchange Rate Systems (Floating Exchange Rate) currency values are allowed to float, so that the currency value reflected is the actual currency value. This matter is the result of the attraction of supply and demand. Indonesia as one of the countries that make foreign loans, experiencing a problem if there is a fluctuation in the exchange rate every year.

This problem This is because the loan value is calculated in foreign currency, while principal and interest installment payments are calculated in rupiah. If the rupiah exchange rate decreases (depreciates) against the dollar US, then what will be paid will also swell and this will burden the budget due to payment of principal installments and loan interest taken from the budget increases, more than what is budgeted or in other words foreign debt payments will increase (Kuncoro, 2011:66). Thus, soaring external debt payments country will increase the state budget deficit. The real exchange rate shows the competitiveness of a product in terms of international trade because the real exchange rate is obtained from the calculation of the value of nominal exchange rates and price levels in the two countries. If the real exchange rate high, the price of foreign goods is relatively cheap and goods domestically is relatively expensive. Vice versa, if the real exchange rate is low then foreign goods are relatively expensive and domestic goods country is relatively cheap (Mankiw, 2000).

If the economic condition of a country changes, then will be followed by a substantial change in the exchange rate, so that will cause transaction problems with other countries, respectively countries use different currencies (Saputra & harmadisaksa,2016)

A. Relationship Between Variables

1. The Linkage of Inflation, Economic Growth, and the Budget Deficit

Aghevli and Khan (1978), Ahking and Miller (1985), Barnhart and Darrat (1988), Hondroyiannis and Papapetrou (1997) found a two-way causal relationship between deficit and inflation. Most empirical studies adapt the ad hoc approach to using econometric techniques. It seems that the "budget deficit-inflation" relationship actually shows two-way interaction, i.e. not only the budget deficit through its impact on money and expectations create inflationary pressures, but inflation that high also then has a feedback effect that boosts the deficit budget. Basically, this process works through the delay that significant in tax collection. The problem lies in the fact that during tax collection and when the payment that should be made does not coincide with the payments are usually made at a later date. In view In this case, high inflation during a time lag like this will reduce real tax burden.

Because of that it is possible to experience the phenomenon of self-strengthening as follows: the protracted budget deficit leads to inflation soaring, which in turn lowers real tax revenues; then a decrease in real tax revenue necessitates an increase in further on the budget deficit and so on. In this economic literature commonly referred to as the Olivera-Tanzi effect. As Sachs points out and Larain (1993), evidence from developing countries in The 1980s confirmed the conclusion that this self-reinforcing process also can disrupt economic stability and cause very high inflation tall. Some researchers also propose that deficit financing budget by using the accumulation of domestic debt turns out to be only defer inflation tax. If the government covers its budget deficit by printing money now, then in the future the burden handling the pre-existing stock of government debt would be more easy. Interest payments that increase government spending in the next period will not put additional pressure on the authorities fiscal deficits and deficits will not increase over time. Such that asserted by Sachs and Larrain (1993), "borrowing today can delay" inflation, but at the risk of even higher inflation in the future future". Sargent and Wallace (1981) observed that if the fiscal authority set a separate budget, the monetary authority can only control the timeliness of inflation.

Recently appeared a theory with directions which can also be viewed as an extension of the inflation hypothesis suspended. According to the new fiscal theory of the price level (see Komulainen & Pirttila, 2000 and Carzoneri, Cumby & Diba, 1998) there are two rules for setting prices. The first is called the "dominant" regime monetary policy", where monetary policy determines the price level, and fiscal policy will react to monetary policy. Government balancing the intertemporal constraint by accepting inflation as it happened. In contrast, in a "fiscal dominant" regime, the price level determined by the interim budgetary constraints. If future surplus is not sufficient to cover the deficit, the price level must be adjusted to higher, which lowers the real value of government debt. Monetary policy will react to a "fiscal dominant" regime: the money supply reacts to changes in the price level to bring about the demand equation money to the point of balance (Carlston & Fuerst, 1999).

In addition to having a negative effect, inflation can also have an effect on positive economic growth Mild inflation can actually encourage economic growth. For business people, price increases can provide maximum benefit. This is because the number higher income compared to the increase in production costs so as to increase national income. However, when the speed price increase of more than thirty percent and almost one hundred percent, then the state of the business economy can become increasingly chaotic. A healthy inflation rate is considered a positive thing, because it produces increase in wages and company profitability. So make capital flows in a growing economy. As long as everything move relatively positive, then inflation is not detrimental.

2. *The Relationship between Interest Rates, Economic Growth, and Deficits Budget*

Economic growth rate with influential interest rates This is in line with Siwi Nur Indriyani's research with the title "Analysis of the Effect of Inflation and Interest Rates on Economic Growth in Indonesia" from the results of the regression analysis, it is known that the interest rate variable (BIRATE) has no significant effect on Indonesia's budget deficit. This is in line with the research of Ratnah S. (2015) with the title "Analysis" Factors Affecting Indonesia's State Budget Deficit". Research result shows that interest rates have no effect on the budget deficit. The size of the Bank Indonesia interest rate does not affect the deficit budget can be caused if the government's assumptions in determining the budget for the interest rate is correct. Until the increase interest rates can be anticipated from the beginning resulting in the budget that has been set with the right assumptions target. The results of research conducted by Slamet Riyadi (2010) also shows that the interest rate does not have a significant effect to the budget deficit, so that if interest rates increase then the budget deficit will remain unchanged.

According to the perspective of Neoclassical theory, budget deficits can cause crowding out or interest rates will rise. When the deficit the budget is financed by the issuance of state bonds, the request for credit has increased. Issuance of large amounts of government bonds in in capital markets and underdeveloped money markets will puts strong pressure on the budget and pushes it out (crowd out) financial markets (Waluyo, 2006). But what happened was in the short term, although the budget deficit from year to year is increasing increases in line with the increase in the number of securities issued, but this has no impact on the BI rate. Thing This occurs because the outstanding value of bonds is higher smaller than the stock capitalization. Outstanding government securities in Indonesia does increase from year to year but is still outnumbered compared to the stock capitalization value. This is also because people prefer to invest in stocks when compared with the purchase of securities. Because of the small outstanding value therefore the movement in influencing the BI rate is good directly or indirectly still cannot be seen real.

3. *Participation The Linkage of Exchange Rates, Economic Growth, and Deficits Budget*

Exchange rate plays a very important role in translating prices from different countries into the same language (Krugman, 2005). Furthermore, the exchange rate is one of the most important economic factors affect the increase or decrease in export activity (Mankiw, 2006). Uncontrollably fluctuating exchange rates will cause difficulties in setting policies, especially for business actors who will bring in raw materials from abroad or for actors who sell goods to the export market, therefore the policy on currency values money to remain in a stable position is one of the most important monetary factors support the macro economy (Pohan, 2008). The rupiah exchange rate is a related macroeconomic indicator with the amount of the state budget. The assumption of the rupiah exchange rate is related to the number of transactions in the state budget related to foreign currencies, such as loan receipts and foreign debt payments, receipts oil and fuel subsidies. Thus, the basic assumption variable Macroeconomics will determine the amount of revenue and state expenditures, including balancing funds, as well as the amount of budget financing.

Indonesia as one of the countries that make foreign loans country, experiencing problems when there is an exchange rate fluctuation every year. This problem is caused because the loan value is calculated in foreign currency, while the payment of principal and interest on the loan is calculated by rupiah. If the rupiah exchange rate decreases (depreciates) against other currencies, US dollars, then what will be paid will also swell and this will burden the state budget due to payment of principal and interest on loans taken from the state budget increases, more than what was originally budgeted or in other words, foreign debt payments will increase (Kuncoro, 2011).

III. METHODS

This research model uses the equation data analysis technique structure using AMOS Software to assess the relationship between variables that have been previously determined based on the theory. First, the data is processed to be presented as a description and general description for research and simultaneous equation regression analysis.

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Second, Regression analysis Simultaneous equations estimated according to the Reduced Form coefficient. Third, the estimation results of the Reduced Form coefficient of the simultaneous equation are analyzed both in the form of direct and indirect relationships with (Level significant = 0.05) a number of implications and recommendations as a result of the findings this research.

The equation model of this research can be seen from the following equation:

Y1 =f(X1,X2,X3)……………………………………(3.1)
Y2 =f(Y1,Y2,Y3)……………………………………(3.2)

Where:
X1: Inflation
X2: Interest rate (BI Rate)
X3: Exchange rate
Y1: Economic growth
Y2: Budget Deficit

Based on the form of the function in the system Simultaneous equations (3.1-3.2) The above can be expressed in the form of the following function:

Y_1: $\alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \mu_1$……………..(3.1.1)
Y_2: $\beta_0 + \alpha\beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 Y_1 + \mu_2$…(3.1.1)

Substitution Equation (3.1.1) Equation (3.1.2)

$$Y_2 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4(\alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \mu_1) + \mu_2$$

$$= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \alpha_0\beta_4 + \alpha_1\beta_4 X_1 + \alpha_2\beta_4 X_2 + \alpha_3\beta_4 X_3 + \beta_4\mu_1 + \mu_2$$

$$= \beta_0 + \alpha_0\beta_4 + (\beta_1 + \alpha_1\beta_4)X_1 + (\beta_2 + \alpha_2\beta_4)X_2 + (\beta_3 + \alpha_3\beta_4)X_3 + (\beta_4\mu_1 + \mu_2)$$

(3.1.3)

Where:

Direct influence:

$\alpha_1 = X_1 \to Y_1$
$\alpha_2 = X_2 \to Y_1$
$\alpha_3 = X_3 \to Y_1$
$\beta_1 = X_1 \to Y_2$
$\beta_2 = X_2 \to Y_2$
$\beta_3 = X_3 \to Y_2$
$\beta_4 = Y_1 \to Y_2$

Indirect influence

$\alpha_1\ \beta_4 = X_1 \to Y_2$ through Y_1
$\alpha_2\beta_4 = X_2 \to Y_2$through$Y_1$
$\alpha_3\beta_4 = X_3 \to Y_2$through Y_1

where

α_0, β_0, dan $\beta_0 + \alpha_0\beta_4$ = intercept
μ_1, μ_2 dan $\beta_4\mu_1 + \mu_2$ = error term

IV. Analysis and Discussion of Result

To analyze the government budget deficit in Indonesia, then Simultaneous linear regression analysis was carried out which estimated the magnitude of direct or indirect influence. It is intended to describe stages in analyzing data with certain methods to be used to answer the formulation of the problem followed by testing the research hypothesis. The data analysis method in this study is time series regression analysis using Amos software by generating an estimation model. Result analysis estimation used in this study with the aim of finding out whether there are whether or not the influence between variables. There are two ways to look at this: If Prob. > (5%), then H0 is accepted; On the other hand, if Prob < 5% then H0 is rejected

Notes:
H0 = independent variable does not affect the dependent variable.
H1 = independent variable affects the dependent variable.

Description of the results of the study of the variable relationship between the influence of inflation, interest rates and exchange rates, respectively against the budget deficit through economic growth in 2002-2020 can be shown in like following

TABLE 1. Results of Analysis of Relationships Between Variables

Variable Relationship	**Coefficient**	**Prob**	**Standard Error**	**T-Statistic**	**Information**
$X_1 \to Y_1$	0.543*	0.005	0.192	2.826	Significant
$X_2 \to Y_1$	-1.247*	0.000	0.373	-3.340	Significant
$X_3 \to Y_1$	-1.096	0.061	0.586	-1.871	Not significant
$X_1 \to Y_2$	-0.269	0.173	0.198	-1.362	Not significant
$X_2 \to Y_2$	-1.013*	0.016	0.407	-2.491	Significant
$X_3 \to Y_2$	2.592*	0.000	0.548	4.732	Significant
$Y_1 \to Y_2$	0.222	0.272	0.202	1.099	Not significant

Source: SPSS AMOS, Processed
Information:
* Significant at = 5%;

Based on value of R square Y1 (R2 Y1) which can be seen is 0.557. It concludes that 55.7 percent of the variation of changes in economic growth variables can be explained simultaneously by variations in changes in the variables of inflation, interest rates, and exchange rates. The remaining 44.3 percent is determined by other variables outside the model. In observing the estimation results of economic growth, the variable that shows no significant effect is the exchange rate variable. Meanwhile, inflation and interest rate variables have a significant effect with a significance level of 5 percent.

Based on the value of R square Y2 (R2 Y2) which can be seen is 0.691. It concludes that 69.1 percent of the variation of changes in the budget deficit variable can be explained simultaneously by variations in changes in the variables of economic growth, inflation, interest rates, and exchange rates. The remaining 30.9 percent is determined by other variables outside the model. In observing the results of the estimation of the budget deficit, the variables that show no significant effect are the variables of inflation and economic growth. While the interest rate and exchange rate variables have a significant effect with a significance level of 5 percent.

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TABLE 2. Result of Direct and Indirect Influence Coefficient Estimation Between Variables

No.	Direction of Influence Between Research Variables	Estimated Coefficient Number for Variable Effect	
		Direct	Indirect
1.	a. $X_1 \rightarrow Y_2$	- 0.269	
	b. $X_1 \rightarrow Y_1 \rightarrow Y_2$		0.120
2.	a. $X_2 \rightarrow Y_2$	-1.013*	
	b. $X_2 \rightarrow Y_1 \rightarrow Y_2$		-0.276
3	$X_3 \rightarrow Y_2$	2.592*	
	$X_3 \rightarrow Y_1 \rightarrow Y_2$		-0.243

Information:
** Significant at = 5%*

A detailed explanation of the form and magnitude of the direct effect, and the indirect effect of inflation, interest rates, and the exchange rate on the budget deficit through economic growth are contained in Table accompanied by the results of the analysis in accordance with the order of the hypothesis. which has been stated previously.

The direct effect of inflation on the budget deficit shows an insignificant effect with a coefficient value of -0.269 with a probability value of 0.173>0.050 percent. While the indirect effect of inflation on the budget deficit through economic growth shows an insignificant effect with a coefficient value of 0.120 with a probability value of 0.173> 0.050 percent. This shows that the inflation variable has no effect on the budget deficit, either directly or indirectly through economic growth during the research period 2002-2020.

The direct effect of interest rates on the budget deficit has a negative and significant effect with a coefficient value of -1.013* with a probability value of 0.016 <0.050 percent. This means that a 1 percent increase in interest rates will cause a decrease in the budget deficit by -1.013* percent and a decrease in interest rates by 1 percent will cause an increase in the budget deficit by -1.013* percent. While the indirect effect shows that the interest rate variable has no effect on the budget deficit through economic growth during the research period 2002-2020.

The direct effect of the exchange rate on the budget deficit has a positive and significant relationship with a coefficient value of 2,592* with a probability value of 0.000 <0.050 percent. This means that a 1 percent increase in the exchange rate will cause an increase in the budget deficit by 2,592* percent and conversely a 1 percent decrease in the exchange rate will cause a decrease in the budget deficit by 2,592* percent. While the indirect effect shows that the exchange rate variable has no effect on the budget deficit through economic growth during the research period 2002-2020.

a) The Effect of Inflation on the Budget Deficit

The inflation variable in this study, either directly or indirectly, through economic growth, based on the results of data processing shows that there is no significant relationship between inflation and the budget deficit. In the relationship between variables, the author directly relates inflation as one of the benchmarks for a country's economy and one of the instruments in the preparation of the APBN. Specific factors that affect the budget deficit in a country are economic growth, exchange rates, world oil prices, inflation and interest rates, (Brixi & Schick, 2002).

However, due to the fact that the inflation rate during 2002-2020 was mostly still within the target range set by Bank Indonesia. This statement is supported by data on the inflation target and annual actual inflation for 2014-2018. In 2016-2018 inflation can be controlled from the specified inflation target. According to the 2018 LKPP, the government's policy in controlling the rate of inflation is to regulate and maintain price components, especially domestic energy prices, fuel and electricity tariffs. Meanwhile, inflation of core components (core inflation) and prices regulated by the Government (administered prices) were relatively well maintained, with inflation during the research period in 2002-2020 still below 10 percent or an average of 6.97 percent.

This inflation is categorized as moderate inflation, namely inflation below double digits below 10 percent per year, which does not cause too much distortion in relative prices. The increase in income in the long run will be accompanied by an increase in the tax burden (Barro, 1989) for an increase in deficit financing with an increase in revenue from the tax sector. This will be anticipated by the community in the long term, namely the increase in current income is used for the future. So that the increase in income in the future will no longer be used for consumption. So that the demand for consumption goods is relatively stable or the level of income increase will not affect the increase in goods. This research is in accordance with the research of Godwin C. Nwake (2016), where the budget deficit, regardless of the source of financing, has no significant effect on inflation. This shows that every rise and fall of the inflation rate has no effect.

b) Effect of Interest Rates on the Budget Deficit

The regression results show that the value of interest rates has a significant direct effect on the budget deficit in Indonesia. The existence of a significant influence between interest rates and the budget deficit indicates that the budget deficit is influenced by interest rates. The point is that when interest rates increase, the cost of holding money for investment activities increases because interest rates are the cost of holding money. investors will tend to save their money in the bank rather than use it to invest. This increase will result in a decrease in investment because the return from investment activities will decrease. This decrease in investment will eventually have an impact on the decline in the production of goods and services so that it will reduce output. Decreased output will reduce state revenues so that this situation will increase the budget deficit.

Research conducted by Sanusi (2021) also states that interest rates affect the budget deficit. Interest rates cause an increase in the fiscal deficit. And any increase in interest rates will tend to lead to an increase in the budget deficit through an increase in borrowing costs in the context of implementing government responsibilities.

c) The Effect of the Exchange Rate on the Budget Deficit

The regression results show that the rupiah exchange rate, either directly or indirectly, has a significant effect on the budget deficit in Indonesia. The existence of a significant influence between the exchange rate and the budget deficit means that the budget deficit is really influenced by the exchange rate. In other words, if the exchange rate depreciates, the selling price of Indonesian products abroad becomes more competitive because the prices of Indonesian products abroad become cheaper so that this condition encourages an increase in exports. On the other hand, the depreciating exchange rate causes the prices of foreign goods in the country (imported goods) to be higher or more expensive so that the demand for these imported goods decreases. This increase in exports with declining imports will have an impact on increasing the trade surplus. The trade surplus will encourage an increase in the country's foreign exchange reserves and this will increase income which in turn will reduce the budget deficit.

This is in line with the research by Alpon Satrianto (2015) with the title "Analysis of the Determinants of the Budget Deficit and Foreign Debt in Indonesia". The results showed that the exchange rate had a negative and significant effect on the budget deficit.

d) The Effect of Economic Growth on the Budget Deficit

Economic growth has no effect on the budget deficit in Indonesia in the 2002-2020 study year. With the meaning of the word economic growth does not cause the budget deficit to decrease. This the author connects if the gross domestic product increases it will have an impact on increasing economic activity, especially the real sector and the business world in general. Peacock and Wiseman (Basri, 2005). However, because the increase in GDP is not always followed by an increase in tax payments. Because of the community's efforts to avoid paying taxes. For example, the tax amnesty is proof that people avoid paying taxes. This is because an increase in Gross Domestic Product (GDP) income can increase foreign debt. With the increase in Gross Domestic Product (GDP), the government is increasingly carrying out development and other policies for the welfare of the community. The increase in Gross Domestic Product (GDP) is also followed by an increase in foreign debt, an increase in foreign debt can increase the budget deficit. Therefore, when the Gross Domestic Product (GDP) increases, the budget deficit will also increase.

This study is in accordance with research conducted by Afandi (2018) which states that Gross Domestic Product (GDP) has no effect on the budget deficit. This is because Gross Domestic Product (GDP) only describes the potential increase in output and the effect of aggregate demand and supply as an illustration of economic growth.

V. RECOMMENDATIONS

To implement Indonesia's budget deficit policy, there are several things that the government should consider, including:

1) It is hoped that the government can provide more targeted policies to overcome the budget deficit which increases every year, so that the economy remains healthy.
2) Budget allocations should be maximized with the right targets that can encourage the emergence of new economic activities and increase existing economic activities so that state finances can be surplus.
3) In further research, it is necessary to add other economic variables that may affect the budget deficit in Indonesia so that the estimation model is able to explain the factors that affect Indonesia's budget deficit.

V. CONCLUSION

Based on the results of research and analysis that has been done, it can be concluded as follows:

a. Based on the value of R square Y2 (R2 Y2) which can be seen is 0.691. It concludes that 69.1 percent of the variation of changes in the budget deficit variable can be explained simultaneously by variations in changes in the variables of economic growth, inflation, interest rates, and exchange rates. The remaining 30.9 percent is determined by other variables outside the model.
b. Inflation and economic growth have no direct or indirect effect on the budget deficit based on the year under study. because an increase in GDP is not always followed by an increase in tax payments. Because of the community's efforts to avoid paying taxes. Inflation rate during 2002-2020 is still mostly within the target range set by Bank Indonesia
c. Interest rates directly have a positive effect on the budget deficit in Indonesia. But indirectly it does not affect the budget deficit. investors will tend to save their money in the bank rather than use it to invest. This increase will result in a decrease in investment because the return from investment activities will decrease. This decrease in investment will eventually have an impact on the decline in the production of goods and services so that it will reduce output. Decreased output will reduce state revenues so that this situation will increase the budget deficit.
d. The exchange rate has a direct effect on the budget deficit but indirectly does not affect economic growth. If the exchange rate depreciates, the selling price of Indonesian products abroad will become more competitive because the prices of Indonesian products abroad will become cheaper so that this condition encourages an increase in exports. This increase in exports with declining imports will have an impact on increasing the trade surplus. The trade surplus will encourage an increase in the country's foreign exchange reserves and this will increase income which in turn will reduce the budget deficit.

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