

## Inflation Analysis and Interest Rate in Indonesian

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### Abstract

The purpose of this study was to determine the inflation in Indonesia in 2013 until 2014 and value contributed Interest Rate about Inflation in Indonesia. Data is used secondary data from general Consumer Price Index (CPI) from Indonesia and Interest Rate of BI Rate monthly of January 2013 until December 2014. Model is used model econometric with Autoregressive method. Result of estimation of Autoregressive model concludes that Interest Rate significantly affect to Inflation Rate.

**Keywords:** Inflation; CPI; Autoregressive; Interest rate

### Introduction

Inflation is the rise in general prices of goods continuously. The increase in the price of one or two items alone can not be called inflation unless the increase was widespread and result in higher prices on other items, Nopirin [1]. While Boediono [2] says that inflation is the tendency of rising prices of goods and services in general and continuously. Inflation is called persistent if inflation occurs continuously.

Inflation that exceeds 50 percent per month, or more than 1 percent per day is often defined as hyperinflation. Compounded for months, this inflation rate leads to a massive rise in the price level. The inflation rate of 50 percent per month showed an increase of more than 100-fold in the interest rate for a year, and an increase of more than 2 million times over the past three years, Mankiw [3].

Inflation can be said to occur if the three components have been met by Prathama and Mandala [4], that is:

1. The increase in the price

The price of a commodity is said to rise if it becomes higher than the price of the previous period.

2. As a general

The increase in the price of a commodity can not be said of inflation if it does not cause a rise in the general price rise.

3. Ongoing continuous (persistent)

General price increase also will not bring inflation, if it occurs shortly. Because the inflation calculation is done in a span of at least monthly.

Definition Marques [5] the persistence of inflation as the rate at which the rate of inflation to return to equilibrium after the onset of a shock. Economic development policy is to improve the welfare of the people through sustainable economic growth, inclusive and equitable, and supported by robust economic stability. To that end, the goal of economic growth during the period 2010-2014 was approximately 6.3-6.8% by year, with a gradual increase from 5.5 to 5.6% in 2010 to at least 7% in 2014. Economic stability supported by a gradual decline in the inflation rate to the amount of about 4-6%. The decline in inflation is also expected to affect the decline in interest rates in order to stimulate economic activity in the real sector, both investment and production activities. Total cumulative investment required during this period amounted to USD 11913.2 to 12462.6 trillion; with an estimate of 18% can be met by the government. In general, the realization of the magnitude of macroeconomic developments until the third quarter

of 2012 has been achieved, even the achievements of some specific indicators better than the macroeconomic targets set in the 2010-2014 RPJMN. GDP growth is in the range RPJMN target, inflation can be lowered at a fairly low level, and interest rates tend to decline. In addition, the budget deficit is kept below the threshold set in RPJMN, and foreign exchange reserves continued to increase. Economic growth since 2010 until the first half of 2012 is still within the target range RPJMN. In 2010, economic growth is higher than the target, reaching 6.2%. In 2011, the national economy is growing better with economic growth reached 6.5%, higher than targeted. In 2012, despite depressed quite strong because of the financial crisis in Europe, the national economy in the first half of 2012 was still able to grow by 6.4%. The decline in inflation is expected to stimulate economic activity in the real sector, both investment and production activities (Table 1). High inflation in 2010 (7.0%) can be derived quickly. In 2011 inflation was only 3.8%, far below the target set. In the second half of 2012 inflation was 3.7 on a declining interest rates, even in 2011 and the first semester of 2012 under RPJMN estimates. The amount of the interest rate has declined from 6.6 in 2010, be 5.04% in 2011 and 4.32 in the first half of 2012.

High inflation in 2010 (7.0) can be derived quickly. In 2011 inflation only, far below the target set. In the second half of 2012 inflation was 3.7%. Low inflation decrease the interest rate, even in 2011 and the first semester of 2012 under RPJMN estimates. The amount of interest rates continued to decline from 6.6% in 2011 and 4.32% in the first half of 2012 (Figure 1).

| Indicators      | Unit | Initial Status (2009) | Target 2014 | Achievement |      |                   |
|-----------------|------|-----------------------|-------------|-------------|------|-------------------|
|                 |      |                       |             | 2010        | 2011 | 2012              |
| Economic Growth | %    | 4.6                   | 7.0         | 6.2         | 6.5  | 6.3 <sup>1)</sup> |
| Inflation       | %    | 2.8                   | 3.5-5.5     | 7.0         | 3.8  | 3.5 <sup>2)</sup> |

#### Note:

- 1) Growth until Quarter 2012.
- 2) Inflation until in September 2012, while inflation in 2012 of 4.3.

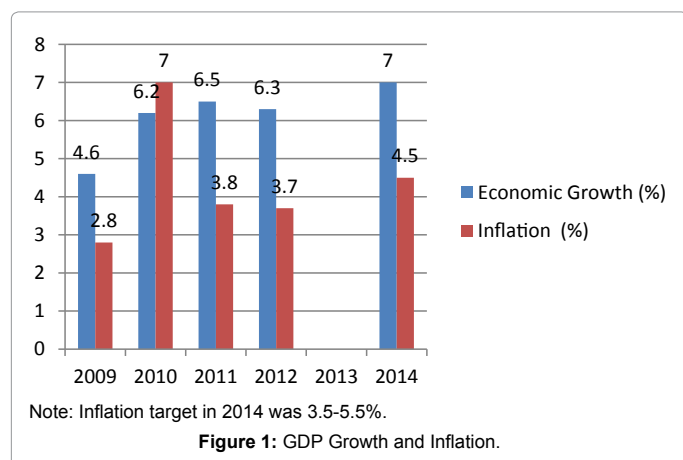
**Table 1:** Outcomes Development Economic Growth and Inflation

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Macroeconomic conditions during 2014 showed a fairly good progress, as shown in the development of macro-economic indicators as follows:

1. The economic growth of 5.1 percent
2. The rate of inflation of 8.36 percent
3. The rupiah against the US dollar on average Rp11.878/US \$
4. The interest rate on 3-month SPN by 5.8 percent
5. Indonesian crude oil price average of US \$ 97/barrel
6. Lifting the average oil 794 thousand barrels/day
7. Lifting the average gas 1,224 thousand barrels of oil equivalent/day.

Achievement of economic growth of 5.1 percent is lower than the targeted economic growth assumptions in the revised budget in 2014 amounted to 5.5 percent. Things that can affect macroeconomic variables, namely the national income, employment, money supply, inflation, investment, economic growth, interest rates and balance of international payments.

Many factors affect the rate of inflation in Indonesia is causing problems in controlling inflation low and stable. Based on the above background, the present study was made that Inflation Analysis and Interest Rate in Indonesia.

## Methodology

A regression model called the regression models are autoregressive if this regression model containing one or more lagged dependent variables as independent variables. Meanwhile, a regression model called a regression model that distributed-lag when the independent variables consist of the values for the running time and the values in the past. Autoregressive regression model is also called dynamic model (dynamic model), Sritua [6]. Marques [7], the "sum of the autoregressive coefficients" as besides being a good measure of inflation persistence it also directly relates to the mean reversion coefficient of the series, which allows us to propose an alternative measure of persistence. Beechey and Osterholm [8], states that the solution to the central bank's optimization problem generates an autoregressive (AR) process for inflation.

The Engle-Granger two-step method proceeds as follows. In the first step, theory and econometric evidence are used to determine whether the data contain unit roots in the individual time series. If so,

the the analyst estimates the long-run relationship,  $\hat{\rho}$  in a first-step static cointegrating regression of  $y$  on  $x$ , where  $x$  may be a vector:

$$y_t = \alpha + \beta x_t + \mu_t$$

If the residuals from the cointegrating regression exhibit short memory, then the time series are said to be cointegrated and we may proceed with the second-step regression. In the second step, changes in  $y$  are regressed on changes in  $x$  and the previous period's equilibrium error (the residuals from the cointegrating regression) to estimate the equilibrium rate,  $\hat{\gamma}$ , and short-run dynamics,  $\hat{\lambda}_2$ , Suzanna [9].

To determine the cause of inflation, used regression analysis using a dynamic model that is Autoregressive Model as follows:

$$\text{Indonesia Inflation}_t = \beta_0 + \beta_1 \text{Interest rate}_t + \mu_t$$

where:

Indonesia Inflation = Rate of Indonesia Inflation in period t

Interest rate = Interest rate (BI Rate) in period t

$\mu_t$  = Error

$\beta_0$  = Coefficient of the intercept

$\beta_1$  = Coefficient of regression

## Result and Discussions

The data used in this study uses secondary data time series and published panel data from Indonesia Central Bank (BI) is Annual inflation (month-to-month) was measured using the Consumer Price Index (CPI) of Indonesia at Constant Price and Interest Rate (BI Rate) use the data from January 2013 to December 2014.

The model used methods Autoregressive (AR) to see the cause of inflation from years 2013 until 2014 is: Indonesia Inflation=206,891–11,296 Interestrate +  $\mu$

The results of the economic interpretation of autoregressive equation above as follows (Tables 2-4): The variable interest rate is significantly influence the inflation rate variable. The contributions that the variable interest rate is negative and significant at 11.296 against inflation. If the interest rate rises 1% as well as the inflation rate will decrease by 11.296%. In this study the variable interest rate effect on inflation caused actual average interest rate of 5.8 percent SPN 3 months under the assumptions in the 2014 revised budget by 6.0 percent. Influenced the high demand for government securities despite the relatively tight global liquidity. Then Indonesia held democratic elections, efforts to manage macroeconomic conditions and fiscal

| Model | R     | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------|----------|-------------------|----------------------------|
| 1     | .568a | .322     | .291              | 12.74455                   |

a. Predictors: (Constant), Interest rate

**Table 2: Model Summary.**

| Model       | Sum of Squares | df | Mean Square | F      | Sig.  |
|-------------|----------------|----|-------------|--------|-------|
| 1Regression | 1698.374       | 1  | 1698.374    | 10.456 | .004a |
| Residual    | 3573.316       | 22 | 162.423     |        |       |
| Total       | 5271.690       | 23 |             |        |       |

a. Predictors: (Constant), Interest rate

b. Dependent Variable: Indonesia Inflation

**Table 3: ANOVA<sup>b</sup>.**

| Model         | Unstandardized |            | Standardized | t      | Sig. |
|---------------|----------------|------------|--------------|--------|------|
|               | B              | Std. Error | Beta         |        |      |
| 1 (Constant)  | 206.891        | 24.627     |              | 8.401  | .000 |
| Interest rate | -11.296        | 3.493      | -.568        | -3.234 | .004 |

a. Dependent Variable: Indonesia Inflation

**Table 4:** Coefficients<sup>a</sup>.

policy measures implemented by the Government consistently, the decline in export performance due to weak global demand, falling commodity prices in the international market, the increase in the price of subsidized fuel oil in November 2014 followed commodity prices in the country, the increase in the price of imported goods due to the weakening of the rupiah caused the inflation rate during the year 2014 reached 8.36 percent, or higher than the inflation target in the 2014 revised budget by 5.3 percent.

## Conclusion

The variable interest rate in this study significantly affect the inflation rate variable, which means if the level of interest rate increases, inflation will decrease, and vice versa.

## Suggestion

Increasing public purchasing to maintain price stability and to create jobs and increase competitiveness by accelerating the availability of infrastructure and strengthening energy security.

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