

# **Analysis of Deposits on Banks Listed in the Indonesian Stock Exchanges**

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**ABSTRACT :** *This research objective is to examine empirical and analyze effects of interest rate on deposit, inflation, gross domestic product, unemployment, and banks branches on amount of deposits collected by 31 banks were examined. This research is a verification research by testing hypothesis through a quantitative approach. Analytical unit uses includes banks listed in the Indonesian Stock Exchange (IDX). This research uses primary data and secondary data and then it is processed by the Random Effect Model (REM) to amount of deposits model. In verification studies show that : interest rate on deposit and unemployment have a negative impact, meanwhile gross domestic product and bank branches have a positive impact on deposits. The findings of this research are interest rates on deposits not indicative of the save the funds in the bank, so banks have more funds and Banks Branches that spread to the countryside as a major factor in raising public funds*

**KEYWORDS:** *Banks Listed in Indonesia Stock Exchange, Deposit*

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## **I. INTRODUCTION**

**Background :** Banking institutions is one of economic institutions with the most enormous role in providing funding for businesses to sustain the national economy. According to the Basic Banking Law No. 10 Year 1998, banks are a business entity that collects funds from the public in the form of savings and distributes the funds to the public in the form of loans or other forms in order to improve the standard of living of the people. Bank is a company which business activities rely on public confidence, so that the health of banks needs to be maintained because they carry out a function as financial intermediaries. The main product of a bank is funding (public savings) in the forms of savings, current accounts and deposits, and another product, that is lending. A common problem faced by state-owned banks in lending is their high dependence on the total assets owned, public savings that have been collected in order to increase the capital of these banks for their respective operation (Hao L., 2003).

The importance of funding for banks is to make the funds collected can be distributed through credits to the public so that these banks can benefit from the credit interest. The funds can be obtained from current accounts, savings, capital, and loans that are the sources of bank financing. Each policy adopted by the government is expected to have targets and measures of success. Some indicators normally used in the economy to assess the monetary policy are: bank interest rates at a reasonable rate and a fairly low and under-control inflation rate (Finger H. and H. Hasse; 2009), as well as increases in the economic growth and a reduced level of unemployment. In addition to the monetary policy, the number of branch offices of a bank that spread across a region also allows the public to save or invest their funds in that bank (Gatev E., T. Schuermann, and P. E. Strahan, 2006).

**Identification of the Problems. :** Based on the foregoing, issues examined in this research are: how do bank interest rates, inflation, gross domestic product, unemployment in Indonesia and the number of branch offices affect the funds of the third party absorbed by commercial banks listed on the Indonesia Stock Exchange?

## **II. CONCEPTUAL FRAMEWORK**

### **Conceptual Framework**

The general theory (the grand theory) used in this research is Financial Intermediaries. Banks as financial intermediary, the intention is banks became financial intermediaries between those with excess funds (surplus units) to those who need funds (deficit units) (Allen F. and E. Carletti, 2008).

A person or community will definitely benefit from the cash that they save. In order that people are willing to save their money in banks, the banks therefore should provide stimulus in the form of rewards that are

given to depositors, because one of the important things why one deposits his/ her money is to accumulate an amount of wealth. Such rewards may have the forms of interest, profit sharing, gifts, services or other types of rewards. The higher the rewards provided the greater the interest of the public in depositing their money. Therefore, banks should provide a variety of stimuli and gain public confidence so that people are interested in investing their funds (Cho D., 2004). Through a mechanism named the demand for money, if the prices of goods increase which result in inflation, public savings will also go down because people tend to keep their money for transactions. Fisher's quantity theory part I states that the general price level will always change following the money supply, in which increases in the amount of the money supply will lead to inflation, and that all the increases in the amount of the money supply will be spent without any second thought about savings (Mankiw N.G., 2007 ).

In a closed economy system with the absence of fiscal measures by the government, it is assumed that the magnitude of public expenditure for consumption depends on the magnitude of the national income. The same also applies to savings. The magnitude of an economy's savings is assumed to depend on the magnitude of the national income. In relation to those statements, it is necessary to further point out that the term income here is defined as the amount of income that members of the public earn for a certain period as remuneration for the factors of production that they have donated and their contribution to comprise the national product. With the fiscal measures by the government, public expenditure for direct consumption is no longer determined by the level of the national income as the income but by the level of income that is ready to be spent, which is commonly referred to as disposable income, thus it is suggested that the amount of public savings is generated after the disposable income minus consumption (Finger H., and H. Hesse, 2009).

When public income rises, savings made will be greater, and this will increase the amount of investment. This is consistent with the allocation of income earned which will be used mostly for consumption and the rest will be saved for future use. In relation to unemployment, people who do not work do not have income, for their consumption spending, they will use their previous savings. If the consumption is greater than the income then it means that dissaving or negative savings occur. It also makes sense that higher income will result in higher savings because the savings itself is the amount of the income that is not used for consumption or deferred consumption (Berlin M., and L. J. Mester, 2011). Addition in the number of branch offices is intended to ease the access for the public to banking services both in terms of public savings products and public investment activities through bank credit (Tan Tatum. B. P., 2012).

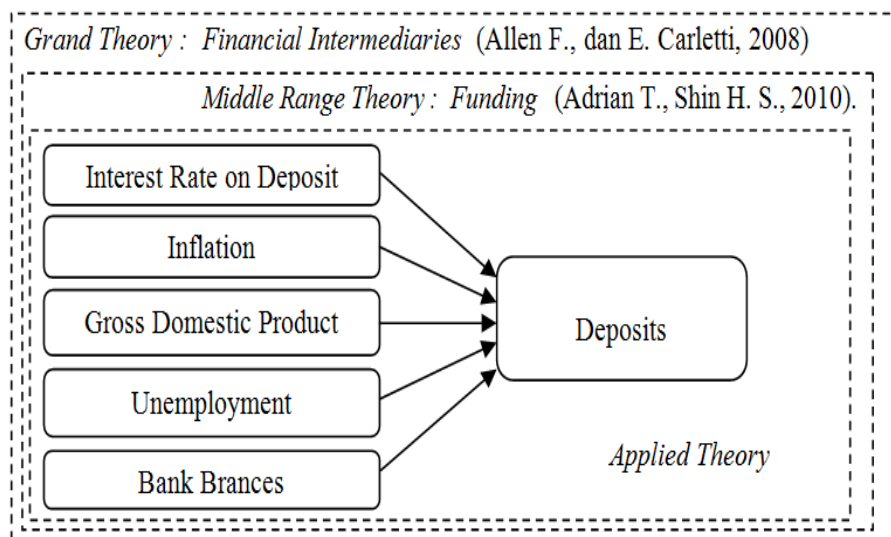


Figure 1. The Conceptual Framework

**Hypothesis :** The research hypothesis was formulated pursuant to the identification of the problems and the objectives of the research, thus the research hypothesis is as follows: Bank interest rates, gross domestic product and the number of branch offices positively affect collection of funds of the third party by banks while inflation and unemployment in Indonesia negatively affect collection of funds of the third party by banks.

### III. RESEARCH METHOD

#### Research Method

In the present study, the researcher used a technique of qualitative and quantitative data analyses with a verivicative descriptive method. The descriptive analysis for understanding the research object began with collecting data and then processed and analyzed the data through the application of theoretical foundations that have been studied, while the vefivicative analysis was carried out by testing the hypothesis that there is a relationship among the variables. The verivicative analysis for understanding the research object began with collecting data and then processed and analyzed the data through the application of theoretical foundations that have been studied.

**Data Sources and Data Collection Techniques :** In this study, the necessary data consist of secondary data and primary data. The secondary data are data that have been processed by certain institutions such as the Central Bureau of Statistics (BadanPusatStatistik), Bank Indonesia, and commercial banks listed on the Indonesia Stock Exchange and also the data from the interviews as the primary data used to support the secondary data. The data were collected quarterly from January 2008 to Desember 2012. The data used were the population of the third-party funds or public funds deposited in commercial banks listed on the Indonesia Stock Exchange in rupiahs, the interest rate of each bank, the rate of the consumer price index in Indonesia, the Indonesian gross domestic product, the unemployment rate in Indonesia, the number of branch offices of commercial banks listed on the Indonesia Stock Exchange each quarter from January 2008 to Desernber 2012.

**Analysis Design and Hypothesis Testing :** The analysis was made in two stages, namely the panel data regression analysis and calculation of data collected through observations, along with the design of the hypothesis testing.

#### 1. Panel Data Regression Analysis

Regression analysis using panel data is called the panel data regression model. This panel data regression model employed the GLS approach (Generalized Least Square) as usual following the assumptions of the OLS method (Ordinary Least Square). In analyzing the collected public funds, the researcher employed the intercept of the processed panel data either with the fixed effect model or the random effect model assuming that the characteristics of effects of each bank under study are different, in which the Hausman test was carried out in advance to select the appropriate method to analyze the data (Agus Widarjono, 2007).

The panel data regression model for the accumulation of funds in banks under study is presented as follows:

$$LDPK_{it} = \alpha_0 + \alpha_1 I_{it} + \alpha_2 LINF_{it} + \alpha_3 LPDB_{it} + \alpha_4 LUN_{it} + \alpha_5 LBO_{it} + e_{it}$$

Where ; *LDPK* : lon Deposit banks listed in the Indonesian Stock Exchange, *I* : interest rate on deposit banks listed in the Indonesian Stock Exchange, *LINF* : lon consumer price index in Indonesia, *LPDB* : lon gross domestic product in Indonesia, *UN* : unemployment in Indonesia, *LBO* : lon banks branches ON amount of deposits collected by bank at Indonesia Stock Exchange,  $\alpha_0$ : constant,  $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5$  : regression coefficient, *e* : *error* term.

#### 2. Calculation of the Observation Data and the Design of the Hypothesis Testing

Since each variable has a different unit then prior to the subsequent analysis, the researcher standardized the data in terms of the standard deviation and the mean for the purpose of equalizing the standard deviation of variables with different units. Standardization can be done by transforming into the natural logarithm (Ln) (Timm N.H., cited from Stenly J. Ferdinandus, 2005). In regression analysis, there are three types of testing criteria, specifically: simultaneous test through the F-test, partial test through the t-test, and the coefficient of determination ( $R^2$  test).

### IV. RESEARCH FINDINGS AND DISCUSSION

**The Preliminary Test :** Hausman test was used as a preliminary test to determine whether it is the fixed effect model or the random effect model that is more appropriate for this research. Consistent with the criteria of this Hausnan test, if the value of the Hausman statistic > the critical value, the right model for this research is therefore the fixed effect model. By contrast, if the value of the Hausman statistic < the critical value, the model appropriate for this research is therefore the random effect model. Furthermore, if the p-value > than 0.05 ( $\alpha = 5\%$ ), the random effect model should therefore be applied (Hsiao C., 2003). The testing results using the Hausman specification test to determine the right model to use can be seen in the following table:

**Table 1. Testing Results for the Use of the Fixed Effect Model and the Random Effect Model**

Models	Chi- sq Statistic	Chi- sq	Probability	explanation
Models of Deposits	0,000000	5	1,0000	Random Effect

Source: Analysis Results

**Panel Data Regression :** The estimation results for the model of public fund accumulation (i.e. *Dana Pihak Ketiga* (DPK) or third-party funds in English) in banks listed on the IDX can be seen in the following table:

**Table 2. The Estimation Results for the Model of Public Fund Accumulation (DPK)**

Model Random Effects - Dependent Variable : LDPK			
Variable	Coefficient	t-statistic	
C	4,011886	0,593940	
I	-0,028591	-3,214699	
LINF	0,006409	0,614754	
LPDB	1,372594	4,906378	
LUN	-0,846542	-3,681228	
LBO	0,102218	5,673672	
R-Squared		0,471789	
Adjusted R-Squared		0,467487	
F-Statistic		109,6827	
Random Effects (Cross)All Banks			
_BANK CAPITAL—C		-2,474510	
_BANK WINDU—C		-1,942144	
_BANK SAUDARA—C		-1,981657	
_BANK SWADESI—C		-2,208602	
_BANK BUMIARTA—C		-1,948184	
_BANK PUNDI—C		-2,168716	
_BANK MAYAPADA—C		-1,028874	
_BANK KESAWAN—C		-1,610816	
_BANK VICTORIA—C		-1,020629	
_BANK SINARMAS—C		-0,689206	
_BANK AGRONIAGA—C		-1,384041	
_BANK PARAHYANGAN—C		-1,155200	
_BANK BUMIPUTERA—C		-0,797945	
_BANK TABUNGAN PENSIUNAN NEGARA—C		-0,191502	
_BANK ARTHAGRAHA—C		-0,043520	
_BANK MUTIARA—C		-0,421365	
_BANK EKONOMI—C		0,280817	
_BANK JABAR—C		0,500653	
_BANK NILAI IINTI SARI PENYIMPAN—C		0,641440	
_BANK TABUNGAN NEGARA—C		0,854636	
_BANK BUKOPIN—C		0,828370	
_BANK PANIN—C		1,110699	
_BANK PERMATA—C		1,094608	
_BANK NIAGA—C		1,780608	
_BANK MEGA—C		0,923923	
_BANK INTERNASIONAL INDONESIA—C		1,217280	
_BANK DANAMON—C		1,459734	
_BANK CENTRAL ASIA—C		2,593604	
_BANK RAKYAT INDONESIA—C		2,422981	
_BANK NEGARA INDONESIA—C		2,430351	
_BANK MANDIRI—C		2,927208	

Source: Analysis Results

**Discussion :** Based on the estimation results presented in Table 2, the structural model for accumulation of public funds (DPK) in the banks listed on the IDX is formed as follows:

$$DPK = 4,011886 - 0,028591 I + 0.006409 INF + 1,372594 PDB - 0,846542 UN + 0,102218 LBO$$

$$(0,593940) (-3,214699) (0,614754) (4,906378) (-3,681228) (5,673672)$$

$$R^2 = 0,471789$$

$$Adj R^2 = 0,467487$$

Simultaneous hypothesis on the accumulation of public funds. The F-test of the regression model was used to examine the significance level of the coefficients of all the independent variables, namely bank interest rates (I), inflation (INF), gross domestic product (GDP), unemployment (UN), and the number of branch offices (BO) over the dependent variable, i.e. accumulation of public funds (DPK). The statistic value of the F test for the public fund accumulation model was 109.6827. Because the F count is higher than the F table (1.33),  $H_0$  is therefore rejected and thus it can be concluded that bank interest rates (I), inflation (INF), gross domestic product (GDP), unemployment (UN), and the number of branch offices (BO) simultaneously affect the accumulation of public funds, where F table =  $F_{\alpha} (df_1, df_2)$  obtained from  $df_{N1} = k$ ,  $df_{N2} = n-k-1$ . Partial hypothesis on the accumulation of public funds. The t-test was used to examine the significance level of the coefficients of all the independent variables, namely bank interest rates (I), inflation (INF), gross domestic product (GDP), unemployment (UN), and the number of branch offices (BO) over the dependent variable, i.e. accumulation of public funds (DPK). If t count is higher than t table,  $H_0$  is then rejected, suggesting the existence of significant effects. In which the t table was obtained from  $\alpha = 5\%$ ,  $df = n-k-1$ .

**Table 3. Comparison Relations Pre and Post Estimation Model Estimation Deposit**

Independent Variable	Relation PreEstimation	Relation Post Estimation	Probability
Interest Rate on Deposit	Positive (+)	Negative (-)	0,0014
Consumer Price Index	Negative (-)	Positive (+)	0,5389
Gross Domestic Product	Positive (+)	Positive (+)	0,0000
Unemployment	Negative (-)	Negative (-)	0,0003
Banks Branches	Positive (+)	Positive (+)	0,0000

Source : Conceptual Framework and Analysis Results

Based on Table 2 and Table 3, the following can be concluded, The variable *bank interest rates* (I) obtained a t value by 3.214699, which is higher than the t table (1.645). The t value of bank interest rates (I) is negative, meaning that bank interest rates (I) negatively affects the accumulation of public funds (DPK) in the course of the research. The results of the DFK model also indicates that if the interest rate falls by 1%, the value of third party funds then increases by 0.028591 billion rupiah. These findings are not consistent with the classical theory which states that the higher the interest rate the higher the desire of people to save. This is to say that the effects of bank interest rates on third-party funds are casuistic where people deposit their money not because of the interest rates offered but because of security aspects or as a precaution, or due to the assumption of collecting wealth through the interest earned. The variable *inflation* (INF) in the course of the research managed to obtain a t value of 0.614754, which is smaller than the t table (1.645). The positive t value of the inflation (INF) suggests that it has a positive relationship but does not affect accumulation of public funds during the research. The variable *gross domestic product* (GDP) in the course of the research managed to obtain a t value of 4.906378, that is higher than the t table (1.645).

The positive t value of the gross domestic product (GDP) suggests that it has a positive effect on accumulation of public funds during the research. The results of the DPK model also indicate that if the GDP increases by 1%, the value of the third party funds will also increase by 1.372594 billion rupiah. This is consistent with the theory that economic improvement will have an impact on improvement in public income. Public savings are generated from public income after consumption. Growth in the economic sector leads to per capita increases of the community rise. Based on the research findings, the researcher can state that, it is supported by the economic sector that experienced growth in each research period. The variable *unemployment* (UN) in the course of the research managed to obtain a t value of 3.681228, which is greater than the t table (1.645). The t value of unemployment (UN) is negative, meaning that bank interest rates (I) negatively affects the accumulation of public funds (DPK) in the course of the research. The results of the DFK model also indicates that if the unemployment falls by 1%, the value of third party funds then increases by 0.846542 billion rupiah. The findings of the research are consistent with the theory that the income earned will be spent mostly for consumption and the rest will be saved for future use. In relation to unemployment, people who do not work do not have income, for their consumption spending, they will use their previous savings. If the consumption is greater than the income then it means that disaving or negative savings occur.

This is supported by Weich S. and G. Lewis (1998) which explain that higher income will result in higher savings because the savings itself is the amount of the income that is not used for consumption or deferred consumption. The variable *the number of branch office* (BO) in the course of the research managed to obtain a t value of 5.673672, which is higher than the t table (1.645). The positive t value of the number of branch office (BO) suggests that it has a positive effect on accumulation of public funds during the research. The results of the DPK model also indicate that if the number of branch office (BO) increases by 1%, the value of the third party funds will also increase by 0.102218 billion rupiah. This is consistent with the theory that an increase in the number of branch offices will lead to increased desire of the society to deposit their money due to very easy and affordable access. Accumulation of funds and lending are very essential for the operations of banks such as conventional banks. Banking institutions is one of economic institutions with the most enormous role in providing funding for businesses to sustain the national economy. Analysis of the coefficient of determination for public fund accumulation. The estimation model of public fund accumulation (DPK) has a coefficient of determination (R-square) generated from panel data regression, with a GLS approach of public fund accumulation (DPK) equation presented in Table 4.6, the coefficient of determination by 0.471789 implies that 47.18% of the changes in public fund accumulation (DPK) can be explained by changes in the bank interest rates (I), inflation (INF), gross domestic product (GDP), unemployment (UN), and the number of branch offices (BO) on the banks listed in IDX.

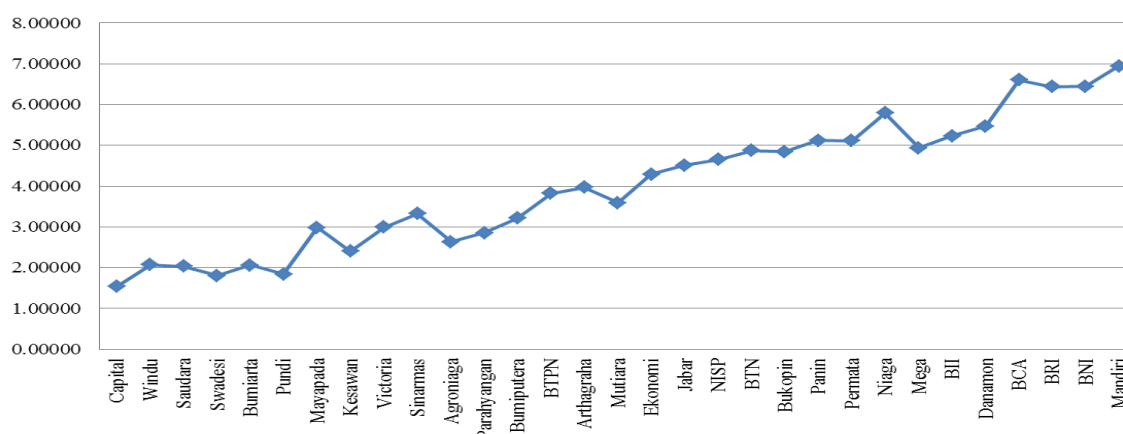


Figure 2. Intercept Random Effect All Banks

The Chart above shows which bank has the largest deposits or third party fund and banks where the smallest third-party funding. It is derived from the value of the intercept plus the bank intercept that generates intercept random effect. Mandiri Bank as a bank that received the largest third party funds during the study period that is equal  $4,011886 + 2,927208 = 6,939094$  and Capital Bank  $4,0118 - 2,474510 = 1,537376$  as the bank at least gain public deposits.

## V. CONCLUSION AND SUGGESTION

### Conclusion

There are several points that can be drawn from this research, namely:

- [1] Bank interest rates and unemployment provide negative effects, while gross domestic product and the number of branch offices provide positive effects on public fund accumulation. The finding that bank interest rates provide negative effects is not consistent with the theory since bank interest rates do not serve as a benchmark for the behavior of the society to deposit their funds in the bank. This is to say that the effects of bank interest rates on third-party funds are casuistic where people deposit their money not because of the interest rates offered but because of security aspects or as a precaution, or due to the assumption of collecting wealth through the interest earned.
- [2] During the research period, Bank Mandiri, Bank Rakyat Indonesia, and Bank Central Asia collected the largest amount of third-party funds, it is supported by the intercept value that is greater than that of the other banks under study.

### Suggestions

There are a number of suggestion that the research can offer based on this research, specifically:

- [1] Third party funds in the bank is the major source of funds used by banks for lending. For this reason, the banks are required to provide an important concern in collecting funds from the public including through establishment of an interest rate that can attract people to save their money in the bank.



- [2] For the government, it is expected that the government boost economic growth and raise employment in order to improve prosperity of the people, which is expected to have an impact on the public funds collected by banks, and banks as financial intermediaries can perform their function optimally.
- [3] This researchs find out a negative relationship between interest rates and the funds collected by banks and this is not consistent with the theory. Thus, it is suggested for further research to focus on customers' decision to deposit their money. Research on purchasing power of the society illustrated from the inflation can be further developed by academics since the present study due does not significantly affect the increase in fund accumulation by banks.

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