



**The Impact of Industry-Specific Regulation on Income Smoothing Practice:
Evidence from Indonesian Commercial Banks**

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Jel Classification

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Abstract

This Paper aims to examine the impact of the implementation of Loan to Deposit Ratio (LDR) Regulation on income smoothing practice of commercial banks in Indonesia. The LDR Regulation is industry-specific regulation. There are conflicting arguments regarding the ability of industry-specific regulation in reducing income smoothing of banks. The samples used in this research are 28 listed commercial banks in Indonesia for the periods 2008 - 2011. Overall, there are 112 bank-annual observations. The test focuses specifically on panel time series cross-sectional models. A T-test of Fixed effects model of panel data and paired sample t-test are used to test the hypothesis. The result indicates that commercial bank managers smooth their income through the allowance for impairment loss. However, the implementation of the LDR regulation can not reduce the level of income smoothing of publicly commercial banks in Indonesia. The level of income smoothing after the LDR regulation is lower than the level of income smoothing before the implementation of the LDR regulation, but the differences are not significant.

Introduction

The regulation issued by Indonesian central bank (i.e. Bank Indonesia), on November 1st 2010 Number 12/19/PBI/2010¹, regarding the Statutory Reserve Requirement at Bank Indonesia in Rupiahs and Foreign Currencies for Commercial Banks, was the first regulation which rigorously require the range 78%-100% of loan to deposit ratio (hereafter, LDR) for commercial banks. This regulation is one of industry-specific regulations which obligates banks to maintain their LDR in at least 78%. Banks with the LDR in the given range denote that the bank has capital adequate ratio (CAR) of 14%. This condition indicates that the bank is secure and has the adequate capital.

Nevertheless, in 2010-2011, fulfilling the LDR requirement, 78% - 100%, is a major obstacle to some banks, not only to small banks, but also to the big ones. Difficulties in channeling credit to the community are caused by high lending rates, which make people hesitant to take credit. Additionally, collateral requirements, credit terms and high administrative costs can be difficult for society. By 31st March 2011², some large banks in Indonesia still found it difficult to achieve the new LDR rate. Some large banks with LDR percentages lower than 78% are, Bank Mandiri (63.1%), Bank Central Asia (51.3%), and Bank Negara Indonesia (64.5%).

In June 2011, these three banks collectively give approximately 30% of total loans to the public in Indonesia. It is estimated that these three banks will provide an additional loan amounting to Rp145 trillion (U.S. \$ 16.1 billion to meet this requirement which is approximately 9.1% of total loans outstanding in June. Even so, the LDR of the three banks was 75.3%, not 78% yet. However, by July 2011 until today September 2016, most commercial banks had more than 78% LDR. This shows that the new regulation encourages commercial banks with lower LDR to increase the growth of lending to the public. Consequently, the lending rate of banks is growing. The granting of credit increases

¹ Currently, this regulation has been revised with PBI No. 17/11/PBI/2015 regarding the Statutory Reserve Requirement at Bank Indonesia in Rupiahs and Foreign Currencies for Commercial Banks. Based on this regulation, Loan to Deposit Ratio (LDR) will be loan to funding ratio (LFR). The upper limit of LFR is 94 % and boundary bottom is 78 %. The bank can more enlarge their loan although the numbers of their treasure do not increase.

² The sanctions for commercial banks which can not fulfill the minimum LDR of the regulation 12/19/PBI/2010 had been started on March 31, 2011.

each month. On average, annual increase in 2010 and 2011 is 2.1%. However, compared to the number of credits in 2010, the amount of credit granted by commercial banks has increased in 2011. For example, the amount of credit in January 2010 is Rp1, 405.640 billion increased to Rp1, 746.005 billion in January 2011 (an increase of 24.21%). The biggest increase in lending occurred in November 2011, amounting to 26.05%. And the lowest credit enhancement occurred in June 2011 compared to June 2010 amounted to 22.95%.

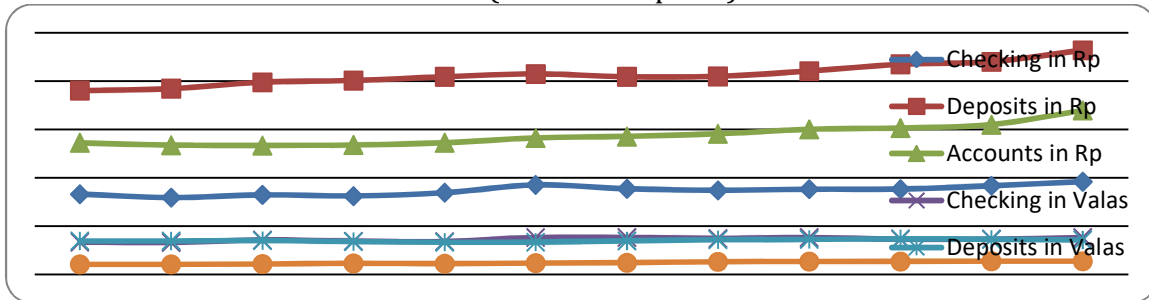
This reality illustrates that commercial banks continue to endeavor to meet LDR requirement. The question is why is the LDR important for a bank? Because the LDR indicates the level of liquidity of a bank, the ratio shows an adequate balance between banks invested funds (assets) and its financial resources (liabilities) ensuring that a bank is at all times able to fund its operations under any conditions and at a reasonable cost. The larger the loan, assuming deposit is increased, the greater the ability of the bank to meet claims presented for immediate payment. A strengthening in the LDR may indicate that a bank has an ability to drive its growth and to protect itself against a sudden recall of its funding, especially a bank that relies on deposits to fund growth (Brewer 1980).

The next question is what is the relation between the obligation to meet the LDR regulation and the behavior of bank managers to manage their reported earnings? The answer to this question will be explained in the following discussion.

Reaching higher LDR forces banks to boost their lending growth. Consequently, banks trim down their loan interest rate and may step up their deposit interest rate. The other implication is that banks will use the other resources with higher cost of fund by issuing bonds or stocks to obtain funds³. As a result, net interest margin is lower. Although banks finance their lending by using cheaper cost of funds like checking and accounts, net interest margins of banks are higher. Checking and accounts, however are liquid, and there is no time limit for these resources. In Indonesian cases, most commercial banks financed their lending by deposit rather than by checking and accounts, which is shown in Figure 1 and 2 below. In both 2010 and 2011 periods, commercial banks in Indonesia use more deposit than accounts and checking either in rupiahs or in foreign currency.

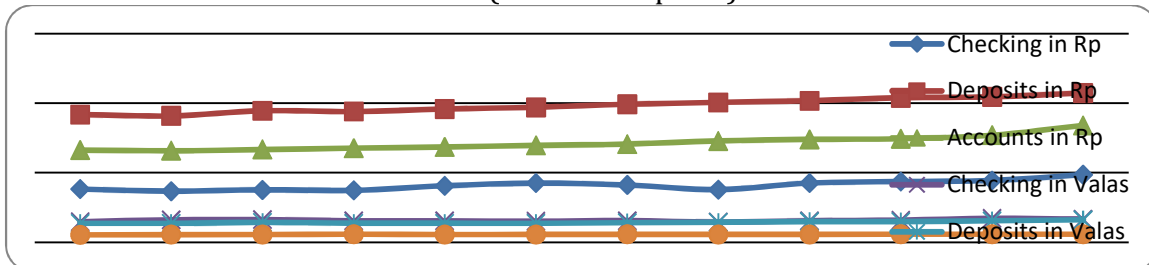
³ Issuing bonds or stocks to obtain funds is not considered in this study.

Figure 1. Checking, Deposit, and Accounts in Rupiahs and Foreign Currency in 2010 (in billion rupiahs)



Sources: Indonesian Banking Statistic by Bank Indonesia, Monthly, 2010 and 2011

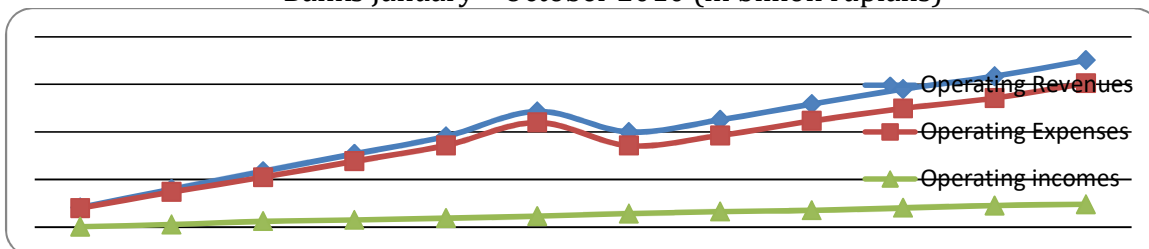
Figure 2. Checking, Deposit, and Accounts in Rupiahs and Foreign Currency in 2011 (in billion rupiahs)



Sources: Indonesian Banking Statistic by Bank Indonesia, Monthly, 2010 and 2011

Consequently, interest revenue and interest expense of banks are getting higher. It means that operating income of the banks should be higher as well because high credit growth will increase interest revenues while operating expenses to increase the credit has also increased. Even though, operating income of commercial banks in Indonesia is getting higher month by month, the enhancement is not substantial because the operating expenses are excessively high. On average 89% of revenue is expense. This condition is shown in Figure 3 and 4 below.

Figure 3. Operating Revenues, Operating Expenses, and Operating Incomes Commercial Banks January – October 2010 (in billion rupiahs)

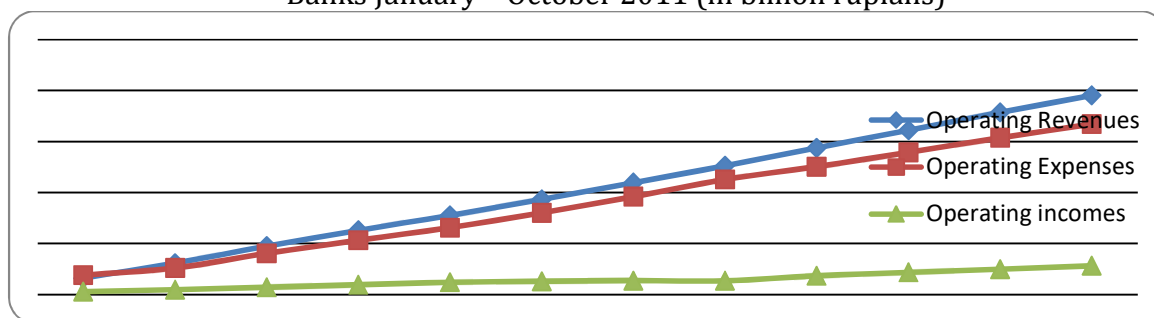


Sources: Indonesian Banking Statistic by Bank Indonesia, Monthly, 2010 and 2011

Figure 3 above shows that revenue, expense and operating income in 2010 continue to increase, however, a very significant improvement has begun to occur from September to December. When compared to January, revenue, expense and operating income are Rp41,333 billion, Rp40,242 billion and Rp1,090 billion respectively, in December, an increase occurs respectively at 749%, 652% with operating income increased by 4330%. Although the regulation of statutory reserves and LDR was effective on 1 November 2010, media sources suggest that commercial banks have started to anticipate the regulation due to the sanctions on banks that do not meet the requirements set by the regulation. Therefore, even before the regulation is the launch of credit by commercial banks continued to increase.

Based on Figure 4 below, revenues, expenses and operating incomes in 2011 began to increase significantly since June 2011. In January, instead operating incomes are minus (loss) amounting Rp 5,660 billion as the operating income is Rp32,288 billion, less than the operating expenses which amounted to Rp37,948 billion. In October 2011, the revenue, expense and operating income of commercial banks in Indonesia amounted to Rp322,288 billion, Rp278,876 billion and Rp43,411 billion respectively.

Figure 4. Operating Revenues, Operating Expenses, and Operating Incomes of Commercial Banks January – October 2011 (in billion rupiahs)



Sources: Indonesian Banking Statistic by Bank Indonesia, Monthly, 2010 and 2011.

Based on these two figures, it can be seen that the operating income increase is relatively stable even though the increase of operating revenue is extremely high. Table 1 below illustrates the percentage among operating income components in 2010 and 2011. Compared to interest revenue, operating income is just 11%, on average. In 2010, the lowest operating income occurred on January, just 3% and the highest occurred on August,

15%. In 2011, the lowest operating income occurred also in January, amounting to -18%, and the highest occurred on February until May at 15%.

Table 1. The Percentage among Operating Income Components in 2010 and 2011.

| | Months | | | | | | | | | | | |
|---------------------|--------|------|------|------|------|------|------|------|------|------|------|------|
| | Jan | Feb | Mrt | Apr | May | Jun | Jul | Agt | Spt | Oct | Nov | Dec |
| Revenue 10 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Expense 10 | 0.97 | 0.93 | 0.89 | 0.90 | 0.90 | 0.90 | 0.86 | 0.85 | 0.86 | 0.86 | 0.86 | 0.86 |
| Operating income 10 | 0.03 | 0.07 | 0.11 | 0.10 | 0.10 | 0.10 | 0.14 | 0.15 | 0.14 | 0.14 | 0.14 | 0.14 |
| Revenue 11 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Expenses 11 | 1.18 | 0.85 | 0.85 | 0.85 | 0.85 | 0.86 | 0.87 | 0.89 | 0.87 | 0.87 | 0.86 | 0.86 |
| Operating income 11 | 0.18 | 0.15 | 0.15 | 0.15 | 0.15 | 0.14 | 0.13 | 0.11 | 0.13 | 0.16 | 0.16 | 0.17 |

Sources: Indonesian Banking Statistic by Bank Indonesia, Monthly, 2010 and 2011

Very low and relatively stable operating incomes, in addition to consistently increasing interest revenues could be caused by consistently high operating expense. On average, operating expenses are 89% in 2010 and 2011. The highest operating expenses in 2010 amounting to 97% occurred in January and the lowest ones at 85% occurred in August. In 2011, the highest operating expenses amounting to 118% occurred in January and the lowest ones at 85% occurred in February until May. The comparison between operating and non operating expenses can be seen in table 2 below. Based on the table, with the exception of January 2010, operating income is higher than non-operating income and fluctuates month by month.

Table 2. Operating Expenses and Non Operating Expenses in 2010 and 2011.

| Account | Months | | | | | | | | | | | |
|--------------------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | Jan | Feb | March | April | May | June | July | Augt | Sept | Oct | Nov | Dec |
| Opt. Exp. 2010 | 40.242 | 74.078 | 105.208 | 138.705 | 171.754 | 220.024 | 171.452 | 192.864 | 223.101 | 249.501 | 271.417 | 302.549 |
| Non opt. Exp.2010 | 82.589 | 5.301 | 10.771 | 31.406 | 28.331 | 42.531 | 42.608 | 46.152 | 57.223 | 58.989 | 65.936 | 73.218 |
| Opt. Exp.2011 | 37.948 | 52.077 | 80.768 | 106.466 | 131.315 | 160,370 | 191.935 | 225,530 | 250,863 | 278,876 | 307,383 | 334,322 |
| Non opt. Exp. 2011 | 8.631 | 19.48 | 28.828 | 47.062 | 55.023 | 50,276 | 63,796 | 62,361 | 68,869 | 82,639 | 80,525 | 89,392 |

Sources: Indonesian Banking Statistic by Bank Indonesia, Monthly, 2010 and 2011

Constantly high operating expenses can be caused by volatile accrual accounts. One of the accrual components of bank income statement is the allowance to anticipate the impairment value of assets, specifically credit value, i.e., loan loss provision or allowance

for impairment losses⁴. There is an indication that banks managers smooth their reported earnings through loan loss provision (Ma 1988; Bhat 1996; Kanagaretnam et al. 2003, and Anandarajana et al. 2007) month by month in the interim report to reduce earnings variability in the annually reported earnings (Kerstein and Rai 2007; Jacob and Jorgensen 2007, Brown and Pinello 2007; Das et al. 2009). This condition raises the question: why should the managers of a bank want to smooth accounting earnings using loan-loss provisions? An answer is suggested by Greenawalt and Sinkey (1998) in their paper: *“when bank income is up, it makes sense to inventory some of it as a provision for loan losses—the notion of saving for a rainy day, conversely, when income is down, the inventory can be drawn down to cover actual loan losses”*.

Based on the above phenomena, this research is aimed to examine the effect of the first time new rates of industry-specific regulation (LDR regulation) and the LDR itself on income smoothing behavior of commercial banks in Indonesia. This objective is tightened by empirical evidence provided by Bhat (1996) which conclude that banks with high loans-to-deposit ratio are likely to smooth their earnings. Unfortunately, Bhat (1996) did not discuss the reason why high loan to deposit ratio encourages the managers to smooth their income.

Theory and Hypothesis Development

Institution Setting

Hasan and Buchari (2017) show that industrial diversification motivates managers to earnings management. Discretionary accruals are higher in relatively more diversified companies. Whereas, discretionary accruals are lower in less diversified companies. Banking industry is one of the most heavily regulated industries in Indonesia. It is not surprising that there are so many industry-specific regulations for banks to normalize commercial banks' capital and activities. The regulations are issued not only by Indonesian central bank and Capital Market Supervisory Agency (Bapepam⁵) but also by Indonesian accounting standard setter. The regulation for loan to deposit ratio is one of several

⁴ There are no differences between loan loss provisions and allowance for impairment losses in term of definition and accounting procedures. The usage of term of loan loss provisions or allowance for impairment losses is depend on the term used in statement of financial accounting standard in certain country. In SFAS of Indonesia, it is called allowance for impairment losses.

⁵ Bapepam has been changed by Financial Services Otorisation (OJK) now.

regulations issued by central bank. According to Regulation No. 12/19/PBI/2010⁶, it is the first time to ascertain the extent and parameter of loan to deposit ratio in the range of 78% - 100%. To meet this range, commercial banks are forced to offer as much credit as they can, with third party deposits at a constant or increase.

The main goals of the regulation are to control inflation pressure and liquidity excess which, if not controlled, may cause a rise in the inflation, and to maintain monetary stability as well as the financial sector's stability by effectively managing the liquidity excess and intermediary functions of a bank (The Preamble of the GWM Regulation). The implicit goal is to boost lending in order to enhance the real sector. Consequently, the implementation of the regulation causes a rapid increase in loan growth.

The Regulation, Allowance for Impairment Loss, and Income Smoothing

Research results regarding the effect of regulation on income smoothing demonstrate conflicting results. Some studies said that the specific regulation can induce managers to smooth their income in order to cover their bad financially performance (Haw et al. 2005; Pinho and Martin 2009). In the other cases, the implementation of industry-specific regulation lower the level of income smoothing (Kwag and Small 2007). Haw et al. (2005) examine whether listed Chinese firms manage earnings to meet regulatory benchmarks. Pinho and Martins (2009) investigate the impact of regulatory environment on a bank's discretionary provisioning (loan loss provisions) practices in Portugal for period 1990 through 2000. Their results show that banks have discretionary behavior in setting up their provisions and find evidence of income smoothing and capital management.

Differ with Haw et al., Pinho and Martins, Kwag and Small (2007) examine the impact of Regulation Fair Disclosure (FD) on earnings management. They find that the level of earnings management lower after the implementation of Regulation Fair Disclosure.

A question that naturally arises is how does loan to deposit ratio affect managers' behavior to smooth income through allowance for impairment loss? In accounting or finance

⁶ regarding Rupiah and Foreign Currency Statutory Reserve Requirements for Commercial Banks, Pasal 10,

This regulation also deals with the penalty for the banks that failure to meet required LDR of 78-100 percent. For every 1 percent shortfall, banks must pay the penalty with additional checking deposit of 0.1 percent of total third party fund in rupiah. On the other hand, for every 1 percent surplus, banks with capital adequacy ratio which fall below 14 percent are required to pay penalty of 0.2 percent of third party fund in rupiah.

literature, there is hardly any discussion about the association between loan to deposit ratio and income smoothing. However, there is considerable evidence that banks with close to minimum capital requirements overstate loan loss provisions (allowance for impairment loss), understate loan write-offs, and recognize abnormal realized gains on securities portfolios (Moyer 1990; Scholes et al. 1990; Beatty et al. 1995; Collins et al. 1995). The evidence also offered strong support that accounting discretion is used to manage industry-specific regulatory constraints (Healy and Wahlen 1999). Hassine and Jilani (2017) reveal that impairment loss is used to manage earnings.

What is the managers' motivation to smooth income when the LDR is high? We could not find the reason from the literature. However, there is empirical evidence that demonstrate that banks with high loans-to-deposit ratio are likely to smooth their earnings (Bhat, 1996). Unfortunately, Bhat (1996) does not discuss the reason why high loan to deposit ratio encourages the managers to smooth their income. But we could find the reason from phenomena perspective. The regulation pushes banks managers to offer more loans in order to raise loan to deposit ratio. Theoretically, high loan growth triggers high interest revenue and operating income. However, in fact, high loan growth generates high interest expense as well as high interest revenue. As a result, operating income is not as high as it should be. There is an indication that bank managers smooth their reported income through loan loss provision as accrual and as one of their operating income components.

H1: The implementation of LDR regulation encourages bank managers to smooth their income.

Research Method

Sample and Data

The sample consists of all Indonesian commercial banks listed in Indonesian Stock Exchange for the periods of 2008 – 2011. The period of 2008 and 2009 represent the period before the implementation of the LDR Regulation and the period of 2010 and 2011 represent the first year implementation of the LDR Regulation. There are thirty commercial banks listed in Indonesian Stock Exchange, but this study uses only 28 commercial banks due to incomplete data of 2 banks. The data used in this research: annual allowance for impairment losses, loan amount, non-performing loan, earnings before taxes and allowance, and loan to deposit ratio. The data is collected from banks' financial reports

which can be found on their websites or from the website of Indonesian Stock Exchange. Commercial banks of Indonesia are required to file annual and quarterly consolidated balance sheet and income statement along with other information either in their own website or in the website of Indonesian Stock Exchange or in both.

Variable Measurement

To examine the impact of the implementation of the Regulation on income smoothing behavior of banks managers, this study uses multiple regressions with allowance for impairment loss (AIL) as the dependent variable. Earnings before tax and allowance (EBTA), the existence of the regulation (REG), and loan to deposit ratio (LDR) are independent variables. Whereas, accounting standard change (STD), loan provided by banks to public (LOAN), non-performing loan (NPL), and banks size (SIZE) are control variables. The measurement of all variables in this study is denoted in Table 3 below. Hassine and Jilani (2017) also use allowance for impairment loss as dependent variable. Their result indicate that French firms use impairment loss to manage earnings.

Table 3. The Measurement of all Variables

| Variables | Measurement | Represented by | Expected Sign of Relationship | Reference |
|--|--|----------------|-------------------------------|--|
| The regulation of loan to deposit ratio. | The existence of the regulation, dummy variable: 1 for availability of the regulation (2010 and 2011) and 0 for otherwise (2008 and 2009). | REG | (-) negative | Kanagaretnam et al. (2003); Anandarajana et al. (2007); Alali and Jaggi (2011). |
| Earnings before tax and allowance | Earnings before tax and allowance. | EBTA | (+) positive | Kilic et al., 2010; Anandarajana et al., 2007; Alali and Jaggi, 2011. |
| Loan to deposit ratio. | LDR = Loan/deposit | LDR | (+) positive | Kanagaretnam et al. (2003); Alali and Jaggi (2011) |
| Accounting standard change | Change of accounting standard regarding SFAS 50 and 55 (revised 2006) It is measured by dummy variable, 0 for the implementation of | STD | (-) negative | Kanagaretnam et al. (2003); Anandarajana et al. (2007); Alali and Jaggi (2011); Hassine and Jilani (2017). |

| | | | | |
|-------------------------------|---|------|--------------------|---|
| | the standards and 1 the otherwise. | | | |
| Loan offered by bank | The amount of total loan offered by bank. | LOAN | (+) positive | Kim and Kross (1998), Kanagaretnam et al. (2003), Kilic et al. (2010), and Alali and Jaggi (2011) |
| Non-performing loan. | Non - performing loan. | NPL | (+) positive | Kim and Kross (1998), Kanagaretnam et al. (2003), Kilic et al. (2010), and Alali and Jaggi (2011) |
| Firm size | Ln of total assets. | SIZE | (-) negative | Alali and Jaggi (2011); Obaidat (2017); Hassine and Jilani (2017). |
| Allowance for impairment loss | Allowance for impairment loss. | AIL | Dependent variable | Hassine and Jilani (2017). |

Research Method to Test the Hypothesis

To examine whether managers use the allowance for impairment loss to smooth income, I analyze the relationship between allowance for impairment loss (AIL) and earnings before taxes and allowance (EBTA). The empirical research methods demonstrate that to smooth income, banks increase the level of allowance for impairment loss when earnings before taxes and allowance is high and reduce the level of allowance for impairment loss when earnings before taxes and allowance is low. Consequently, a positive coefficient on earnings before taxes and allowance reflects smoothing via allowance for impairment loss (Kilic et al., 2010; Anandarajana et al., 2007; Alali and Jaggi, 2011). To control the relationship between allowance for impairment loss and earnings before taxes and allowance, I use control variables non performing loan in current period (NPL), and loan in current period (LOAN). It's demonstrated by the empirical research of Kim and Kross (1998), Kanagaretnam et al. (2003), Kilic et al. (2010), and Alali and Jaggi (2011). Following Alali and Jaggi (2011), Obaidat (2017), and Hassine and Jilani (2017), I include bank size (SIZE) as an additional control variable. Hassine and Jilani (2017) show that bank size (SIZE) is negatively significant affect the impairment loss. However, Obaidat (2017) show that size has no effect on income smoothing.

As control variables, we also use accounting standard change. We considered it because commercial banks in Indonesia have to implement SFAS 50 (IAS 32) and 55 (IAS 36) (revised 2006) starting on January 2010. The existence of LDR regulation and the issuance of new accounting standard statement SFAS 50 and 55 (revised 2006) are measured by dummy variable, 0 for the implemented and 1 for not implemented. Hassine and Jilani (2017) also use IAS 36 to measure allowance for impairment loss which is used as an indication of earnings management.

The estimated equation for that purpose is:

$$AIL_{it} = \beta_0 + \beta_1 REG + \beta_2 LDR_{it} + \beta_3 EBTA_{it} + \beta_4 STD + \beta_5 LOAN_{it} + \beta_6 NPL_{it} + \beta_7 SIZE + \varepsilon_{it} \quad (1)$$

where AIL_{it} is the allowance for impairment loss for the i^{th} firm in the t^{th} period, REG is the existence and implementation of LDR regulation, LDR_{it} is loan to deposit ratio for the i^{th} firm in the t^{th} period, $EBTA_{it}$ is earnings before tax and provision for the i^{th} firm in the t^{th} period, STD is the implementation of Indonesian SFAS 50 and 55 (revised 2006), $LOAN_{it}$ is loan amount for the i^{th} firm in the t^{th} period, NPL_{it} is non performing loan for the i^{th} firm in the t^{th} period, and $SIZE_{it}$ is firm size for the i^{th} firm in the t^{th} period, β_0 is constant, and $\beta_1 - \beta_4$ is the coefficient of independent variables, and ε_{it} is error term.

To test the hypothesis we use the t-test of multiple regression of equation 1. Our research hypothesis focuses on whether the issuance of the regulation of LDR encourages manager to smooth income. To examine whether the implementation of LDR induce bank managers manage their earnings, we use *paired sample t-test*. We compare cross sectional mean of allowance for impairment loss before the implementation of the regulation (2009) and after the implementation of the regulation (2011). If mean difference is significant at level 5%, it indicates that mean of allowance for impairment loss before and after the implementation is difference which indicate that the implementation of LDR regulation induce bank managers to manage their earnings. Otherwise, if mean difference is not significant at level 5%, it indicates that mean of allowance for impairment loss before and after the implementation is not difference which indicate that the implementation of LDR regulation does not encourage bank managers to smooth their income.

Results

Descriptive Statistic

Our empirical analysis is based on 112 bank-annual observations. The sample consists of Indonesian commercial banks for the period 2008 to 2011. The descriptive statistics for our sample banks are presented in Table 4. The sample mean of the allowance for impairment loss is 749, 279 million rupiahs, ranging from 7, 880,536.00 million rupiahs to zero. The mean of loan to deposit ratio (LDR) is 75.11%, ranging from 108.42% to 40.22%. Banks in our sample were profitable during the period examined as indicated by the mean earnings before tax and allowance of 2, 696,456 million rupiahs, ranging from 24,547,538 million rupiahs to losses of 621,408.00 million rupiahs. The sample mean of LOAN, NPL, and SIZE are 45, 178,852.00 million rupiahs, 3.43%, and 77,114,951 million rupiahs, respectively.

Table 4. Descriptive Statistics

| | AIL | LDR | EBTA | LOAN | NPL | SIZE |
|-----------|-----------|--------|------------|-------------|-------|-------------|
| Mean | 749,279 | 75.11 | 2,696,456 | 45,178,852 | 3.43 | 77,114,951 |
| Median | 142,601 | 77.60 | 637,502 | 18,550,557 | 2.45 | 32,521,696 |
| Maximum | 788,536 | 108.42 | 24,547,538 | 311,000,000 | 37.59 | 552,000,000 |
| Minimum | 0.000000 | 40.22 | (621,408) | 677,415 | 0.35 | 1,259,880 |
| Std. Dev. | 1,421,827 | 15.66 | 4,804,769 | 65,975,761 | 5.19 | 116,000,000 |

Notes: AIL is allowance for impairment losses; LDR is loan to deposit ratio; EBTA is earnings before taxes allowance; LOAN is loan offered by bank; NPL is non – performing loan; SIZE is bank size. SIZE is measured by ln of total assets. The data for descriptive statistic here is total assets.

Model Testing

This study uses panel data. To determine an appropriate model, we must perform Chow test and Hausman test. According to both tests, the model is fixed effects. Fixed effects model, therefore, is the appropriate model for this study. To detect serial correlation in least square regression, we use Durbin-Watson Test. The Durbin Watson Statistics is 3.274737. It illustrates that there is no statistically significant autocorrelation. To identify the heteroskedasticity problem, we use Glejser's test. Glejser's test is conducted by regressing independent variables to the absolute value of their residuals (Gujarati, 2004). If

the effect of all independent variables on their residuals is not statistically significant at level 5%, there is no heteroskedasticity problem. The result show that there is no heteroscedasticity problem.

The result of regression can be seen in Table 5 below. Sign of the coefficient of all independent variables (REG, LDR, STD, EBTA, LOAN, NPL, and SIZE) are in line with theory (negative, positive, negative, positive, positive, positive, negative, respectively) (Haw et al., 2005; Anandarajana et al., 2007; Kwag and Small, 2007; Pinho and Martin, 2009; Kilic et al., 2010; Alali and Jaggi, 2011).

$$AIL_{it} = -14.17351 - 0.376834REG_{it} + 0.694025LDR_{it} - 0.158267STD_{it} + 1.597189EBTA_{it} + 4.720249LOAN_{it} + 0.726169NPL_{it} - 3.401407SIZE_{it} + \epsilon_{it}$$

Table 5. The Result of Panel Least Square Method

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|--------------------|-------------|------------|-------------|-------|
| C | -14.17 | 8.69 | -1.63 | 0.11 |
| REG | -0.38 | 0.18 | -2.09 | 0.04 |
| LDR | 0.69 | 1.45 | 0.48 | 0.63 |
| STD | -0.16 | 0.18 | -0.87 | 0.39 |
| EBTA | 1.59 | 0.38 | 4.26 | 0.00 |
| LOAN | 4.72 | 1.58 | 2.98 | 0.00 |
| NPL | 0.73 | 0.36 | 2.0 | 0.04 |
| SIZE | -3.40 | 1.81 | -1.88 | 0.06 |
| R-squared | 0.87 | | | |
| Adjusted R-squared | 0.81 | | | |
| F-statistic | 15.26 | | | |
| Prob(F-statistic) | 0.00 | | | |

Note: Dependent Variable: AIL; method: Panel Least Squares; sample: 2008-2011; periods include: 4; cross section include: 28; total observations: 112. Independent variables: the existence of LDR regulation (REG), loan to deposit ratio (LDR), the existence of Indonesian SFAS 50 and 55 (revised 2006), earnings before tax and allowance (EBTA), loan provided by banks (LOAN), non-performing loan (NPL), and firm size (SIZE).

The result illustrates that the existence of LDR regulation and Indonesian SFAS 50 and 55 (revised 2006) can reduce the level of earnings management. Every increase of 69% loan to deposit ratio, 159% earnings before tax and allowance, 472% loan provided by bank, and 73% non-performing loan will increase by 1% the allowance for impairment loss. However, any decrease of 340% firm size will increase by 1% the allowance for impairment loss. The relationship between LDR regulation, EBTA, LOAN, NPL, SIZE and AIL is statistically

significant at level of 5%. However, the relation between loan to deposit ratio as well as the existence of new standard statement and allowance for impairment loss is not significant.

Hypothesis Test

To test whether managers use the allowance for impairment loss to smooth income, we utilize the relationship between earnings before taxes and allowance (EBTA) and allowance for impairment loss (AIL). The empirical research methods demonstrated that to smooth income, banks increase the level of AIL when EBTA is high and reduce the level of AIL when EBTA is low. Consequently, a positive coefficient on EBTA reflects smoothing via AIL (Anandarajana et al., 2007; Kilic et al., 2010; Alali and Jaggi, 2011).

The results are exposed in Table 5 above. The correlation between allowance for impairment loss (AIL) and earnings before tax and allowance (EBTA) is statistically positive significant ($\beta_3=1.597189$, t-stat. = 4.262465, and prob.= 0.0001). It explains that banks increase the level of the allowance when earnings before tax and allowance is high. In addition, banks decrease the level of the allowance when earnings before tax and allowance are low. This result supports the empirical conclusions that banks managers use loan loss provision to smooth their income (Anandarajana et al., 2007; Kilic et al., 2010; Alali and Jaggi, 2011).

To test whether the regulation of LDR induce bank managers to smooth income, we use the association between the existence of LDR regulation and allowance for impairment loss. Based on table 4 we can see that the impact of LDR on AIL is statistically significant at 5% (t-stat. = -2.096490, prob. = 0.0393). This indicates that there is negatively significant correlation between LDR regulation and income smoothing of commercial banks in Indonesia. It illustrates that the implementation of LDR regulation reduce the level of income smoothing.

To examine whether the implementation of LDR regulation can reduce the level of income smoothing, we use *paired sample t-test*. We compare cross sectional mean of allowance for impairment loss before the implementation of the regulation (2008 and 2009) and after the implementation of the regulation (2010 and 2011). The result can be seen in Table 6 below.

Table 6. Paired Sample Test

| | Mean | Std. Dev. | t-test | Sign. |
|----------------------------------|-----------|-----------|--------|--------|
| AIL 2008 and 2009 | 731036.40 | | | |
| AIL 2010 and 2011 | 572142.30 | | | |
| AIL 2008/2009 – AIL 2010/2011 | 58894.00 | 42234.6 | 1.901 | 0.068* |

Notes: AIL is allowance for impairment losses. * It is significant at level 10%, but not significant at level 5%.

Based on the table can be seen that mean of allowance for impairment loss before the implementation of LDR regulation is difference with mean of allowance for impairment loss after the implementation of LDR regulation. The difference is significant at level of 10%. It indicates that the implementation of LDR regulation does not promote bank managers to manage their reported earnings so the level of income smoothing decline. This result rejects the hypothesis 1. This result is in line with Kwag and Small, (2007). The level of income smoothing is lower after the implementation of LDR regulation.

Conclusion

This Paper aims to examine the impact of the implementation of loan to deposit ratio (LDR) regulation (industry-specific regulation) on income smoothing of commercial banks in Indonesia. The results demonstrate that banks managers manage their reported earnings through the allowance for impairment loss. But the implementation of LDR regulation does not induce banks managers to smooth their income. The level of income smoothing after the LDR regulation is significantly lower than the level of income smoothing before the regulation. The result is not succeeded to support the Hypothesis 1. This result is in line with Kwag and Small, (2007). The level of income smoothing is lower after the implementation of LDR regulation.

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