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INCOME DIVERSIFICATION AND BANK PERFORMANCE: EVIDENCE FROM INDONESIAN COMMERCIAL BANKS

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ABSTRACT

In the last few years it has been possible to observe decreasing interest margins for Indonesian banks. Banks are now moving towards diversification of their revenues to reduce risk of their portofolios and to increase profitability. Non-interest incomes have become an increasingly important of Indonesian banks' operating income as one of the stable sources of bank revenues. Non-interest income now accounts 25 percent of operating income in the Indonesian banks. This study considers the income diversification in the Indonesian banking sector by analyzing the relationship between non-interest income and profitability by using data from 26 public banks listed in Indonesia Data Exchange (IDX) in the period of 2008 to 2015. The result of this research was shown that income diversification negatively affected profitability and risk adjusted return on total assets. On the other hand, the existence of bank characteristics also contributes on determining bank's level of performance.

INTRODUCTION

In the business activities, the bank has various strategies (De Young and Rice 2004c). Some banks apply the strategies of traditional activities and strategy of non-traditional activities. Traditional banking activity is banks as an intermediary institution where the core activity is to collect funds from the public in the form of deposits and funnel back to the community (intermediary) in the form of loans and gain profits from the difference between deposit interest loans (William and Prather 2010). In addition, the strategy of other banking operations that provide services to the banks providing services to facilitate banking services categorized as non-traditional bank activity (Siamat 2005). The role of the bank as a financial intermediary function had changed significantly over the last two decades (William and Prather, 2010). Deregulation and new technologies have reduced the comparative advantage of the bank as well as make it easier for non-bank competitors to enter the market (DeYoung and Roland 2001). In the case in the United States, traditionally the bank function as an intermediary institution has decreased (Allen and Santomero, 2001). In 1984 the proportion of non-interest income of commercial banks in the United States was around 25% and in 2001 increased to approximately 43% of the operating income of the bank (Stiroh 2004a). Not only in the United States, a shift in bank intermediation function also occurs in Europe, Australia and Asia are experiencing the same phenomenon.

In Europe, proportionately non-interest income increased from 26% in 1989 to 41% in 1998 (Lepetit *et al.*, 2008). Since the mid-1990s until 2005, the proportion of non-interest income of banks in Australia have increased (William and Prather, 2010). In Asia, particularly in Taiwan, the ratio of non-interest income to operating income of banks increased from 16% in 1993 to 27% in 2007 (Huang and Chen 2006). De Young and Rice (2004a) suggested that non-interest income growth that occurred in the world's banking industry shows that intermediation activities become less important part of the strategy of the banking business. The phenomenon of a shift in bank intermediation function becomes not only happen abroad, but there also occurred in Indonesia.

Non-interest operating income increased compared with the proportion of income derived from lending activities (Sianipar 2014). Based on data from banks in the Indonesian Banking Statistics (SPI) from 2006 to 2015, there has been an increase in the proportion of non-interest income to operating income and a decrease in the proportion of interest income to operating income although interest income is still the operating income of the primary to the banking industry in Indonesia. This indicates that the main activity of banks in Indonesia as an intermediary began to shift toward broader area. The trend in operating income of commercial banks in Indonesia can be found in Figure 1.
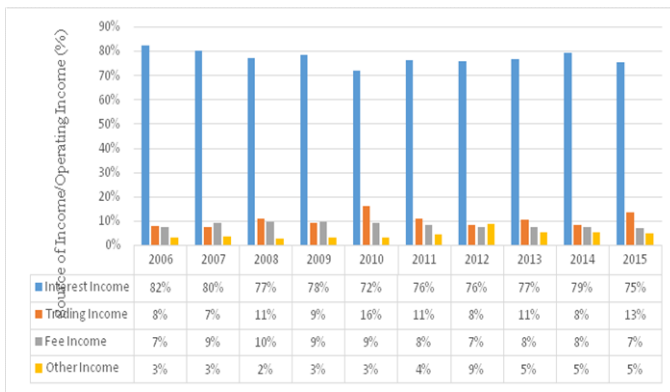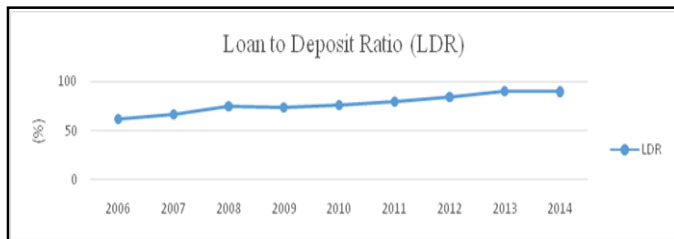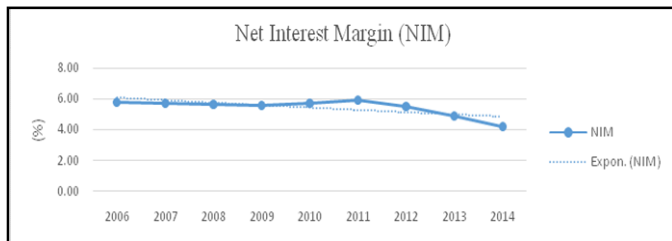
Figure 1. The proportion of interest income and non-interest income to operating income for commercial banks in Indonesia period 2006-2015

At the same time, can be seen in Figure 2 lending commercial banks in Indonesia continues to experience growth of 61% in 2006 to 89% in 2014. However, the increase in the loan portfolio is not directly proportional to the ratio of net interest income were relatively stagnant even a downward trend since 2006 (Figure 3). This led to its revenue outside interest income is becoming increasingly important.

Source: Financial Services Authority 2006-2014

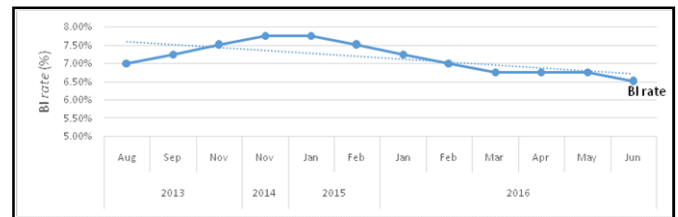**Figure 2. The trend loan to deposit ratio (LDR) of commercial banks in Indonesia**

Source: Financial Services Authority 2006-2014

Figure 3. The trend of net interest margin (NIM) of commercial banks in Indonesia

Other phenomena, Figure 4 shows the downward trend of the benchmark rate (BI rate) since the end of 2013 to mid 2016. Bank Indonesia as the monetary institutions continue to lower its benchmark interest rate (BI rate) in anticipation of an economic slowdown experienced by Indonesia. Interest rate cuts triggered the banking industry to slash lending rates to borrowers slowly in order to compete. Accordingly, the net interest or net interest margin (NIM) is now gradually falling. In facing the bank's revenue continues to decline due to decreasing loan interest income, the bank should strive to create opportunities in order to generate revenue by leveraging existing resources and to reduce the level of dependence on credit interest (Nuryadin 2001). Thus, pursuing a strategy of income diversification from traditional activities, namely lending to the non-traditional activities that generate non-interest income, such as fee income, trading income, commission income and other non-interest income can be an alternative strategy for the banking industry. The banking industry has confronted a dilemma to choose to use the strategy to focus on its traditional activities, namely credit or conduct diversified activities. In the theory of corporate finance, Jensen (1986)

Berger and Ofek (1996), and Denis *et al.* (1997), suggests that companies should focus on their main activities that can benefit the largest possible on the expertise of the management company to reduce the problems of agency and do not allow investors to diversify their own activities. While Hayden *et al.* (2007) suggested that the bank is a financial institution which has a high degree of leverage must be diversified to reduce the possibility of financial difficulties.

Source: Bank of Indonesia (BI) 2013-2015

Figure 4. The movement of the benchmark interest rate (BI rate)

Many studies of the effect of income diversification on the performance of the bank gave contradictory results (Sianipar 2014). In many studies conducted previously suggested that the bank's performance is not only measured using accounting data, but also to use stock market data. Most bankers believe that the diversification of revenue will improve the bank's performance. This is supported by studies that conducted by Huang and Chen (2006), Baele *et al.* (2007), Hayden *et al.* (2007), Chiorazzo *et al.* (2008), Busch and Kick (2009), Dwitamia (2009), Elsas *et al.* (2010), Demirguc-Kunt *et al.* (2010), Sanya and Wolfe (2011); Sufian *et al.* 2010, Amidu and Wolfe (2013), Gurbuz *et al.* (2013), Sawada (2013), Apergis (2014), Sianipar (2014), Muharsito (2015), Senyo *et al.* (2015), and Ismail *et al.* (2015). Their opinions are emerging due to the assumption that the non-interest income or fee based income is more stable in operating income compared with the bank's interest income from lending activity for non-interest income less sensitive to movements in interest rates and the economic downturn. This view was also evidenced by a study conducted by Baele *et al.* (2007), Chiorazzo *et al.* (2008), William and Prather (2010), Sanya and Wolfe (2011), and Gurbuz *et al.* (2013) argue that the activities of banks that generate non-interest income can stabilize operating income and could further enhance the bank's profits for deemed non-interest income was negatively correlated or not perfectly correlated to activities that generate interest income. But the contrary view expressed by some researchers who argued that the diversification of the bank's revenue has an impact on the performance degradation bank (Stiroh 2003; DeYoung and Rice 2004; Stiroh and Rumble 2006; Laeven and Levine, 2007; Williams and Prather, 2010; Berger *et al.* 2010a; and Santika 2014). This is because the non-interest income does not necessarily have a relatively stabilizing effect on net interest income even non-interest income may increase the volatility of bank revenue. Meanwhile, Vallascas *et al.* (2011) found no direct benefit from the diversification of the income of the bank's profitability because it showed no significant results. Carbo research results and Rodriguez (2007) explained that the non-interest income can have positive or negative effect on the performance of banks depends on the basis of calculation used and the type of control variables used in the model.

The size of the bank is also the basis in determining the strategy of income diversification. According to DeYoung *et al.* (2004a) and DeYoung *et al.* (2004b), deregulation and technological change has transformed the banking industry in the United States into two groups by size, namely big-sized and small-sized banks. There is a positive relationship between income diversification and stability of income for the bank if it is linked to the size of the banks and there is a stronger connection between the risk-adjusted return to the level of non-interest income on bank size (Rogers and Sinkey 1999; De Young and Rice 2004; DeYoung and Rice 2004b; Chiorazzo *et al.*, 2008; and Busch and Kick 2009). The opposite Mercieca *et al.* (2007) suggested smaller banks in Europe do not have the benefit of diversification. A more interesting issue is whether the bank's ownership structure affect performance? Different ownership structure can have an impact also on the financial performance of

different (Muharsito 2015). There is a significant influence of the ownership structure of the bank's performance. The majority state-owned bank had no significant relationship to the bank's performance compared with other types of banks (Hart *et al*. 1997; Dewenter and Maltesta 2001). Furthermore, according to Cornett *et al*. (2010) concluded that the government-owned banks resulted in lower profits, not well capitalized, and riskier lending than private banks. The opposite, according Santika (2014), that the government for commercial banks tend to have high levels of non-interest income and higher performance (RAROE) better than the other banks. In this regard, this study is intended to adopt the previous studies that have been done in some developed countries like the United States and Europe to do in Indonesia, which examines not only the effect of income diversification on the performance of the bank, but also variable bank characteristics that can affect performance bank. Additionally, in this study not only uses a variable return on assets (ROA) and return on equity (ROE) as a performance measure bank but using a measure of volatility of both variables to adjust to risk (risk adjusted return). This study using individual bank data of Indonesian commercial bank from 2008 to 2015. The results of this study are expected to be taken into consideration for the banking industry in defining strategies related to banking for understanding the diversification of bank revenue can create added value for decision-makers in the Indonesian banking sector.

LITERATURE REVIEW

Diversification Income: Diversification in financial institutions has emerged as a global phenomenon with the growing convergence among the different segments of the financial sector, namely banking, insurance and investment. The term diversification in the banking sector came from the concept of universal banking, which shows the entry of the company or new business units into the bank's activities, either through the process of developing internal business or acquisitions, which require changes in administrative structures, systems and other management processes (Ramanujam and Varadarajan 1989). According to DeYoung and Rice (2004c) diversification of income is a combination of net interest income and non-interest income and the diversification of activities will provide many benefits to the profitability of banks. The same view expressed by Mercieca *et al*. (2007) suggested that the bank's revenue diversification activities can be done by conducting the shifting of a combination of interest income and non-interest income, either individual or jointly. Further, Stiroh (2004a) suggested that one way to look at the level of income diversification in the business of banks is by looking at the proportion of net interest income generated by traditional activities of banks and see the level of non-interest income generated from non-traditional banks in the structure of the report bank's income statement. While Huang and Chen (2006) suggested that non-interest income is considered as a source of bank revenue diversification. Meanwhile, according to Gurbuz *et al*. (2013), income diversification in the banking industry may be indicated by an increase in fees, an increase in trading revenue, and other non-interest income in net income of the bank's operations. Diversification of products and banking services, the bank's revenue is divided into interest income and non-interest income. The higher the income earned from net interest, shows that the concentration of a bank on credit activity does. However, the opposite if the higher revenue generated from non-interest income, shows that the more diversified banks.

Review of the Literature on Bank Performance and Diversification: Diversification in the banking sector has a different dimension. In some of the literature related to diversification in the banking industry shows that there are several types of diversification, which are diversified by geography, diversification of income sources, diversification of products or services, and diversify the economic sector (Pennathur *et al*. 2012). There are various studies that analyze the diversification in the loan portfolio and the diversification of income sources of more specific about interest income and non-interest income, which has attracted attention in academic research.

Given the importance of the source of income for the banking industry, the relationship between income and the diversification of the bank's financial performance has been used by previous researchers in many countries, including Indonesia, but found the results were contradictory. DeYoung and Roland (2001) conducted a study on the product mix and earnings volatility in the commercial banks using data from 472 United States' commercial banks during the period of 1988-1995. This study uses the approach developed by Mandelker and Rhee (M & R). The results showed that the average bank product diversification towards activities that generate fee-based income and reduce the traditional activities of banks that lending has increased the volatility of bank earnings, improving the operating and financial leverage, and an increase in revenue. Moreover, the study figured out that a well-managed bank is slowly shifting income-generating activities toward their traditional activities that generate non-interest income. Smith *et al*. (2003) conducted research related to variability in interest income and non-interest income, and their correlation to the banking system in 15 countries in Europe, namely Austria, Belgium, Denmark, Findlandia, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom. This study uses data time-series and cross-section in 1994-1998 with a total bank of the fifteen countries in 2655 amounted bank. The analytical method used is regression. Research results show that empirically that the European banks are able to realize the benefit of diversification of revenues by combining interest income and non-interest income. The study also found that non-interest income is more stable than interest income.

Stiroh (2003) in research related to a shift in revenue and financial performance of the parent banks in the United States in the period from the first quarter of 1997 to the fourth quarter of 2002. This study uses multiple regression analysis and robust regression. The results of this study indicate that income diversification (*DIV*) is measured using the Herfindahl-Hirschman Index (*HHI*) positive significant effect on the risk-adjusted performance (*RARROE, RARROA, Z-score*). Non-interest income (SHNON) significant negative effect on risk-adjusted performance (*RARROE, RARROA, Z-score*). These results indicate that a shift towards non-interest income in the parent banks in the United States can not be attributed to an increase in its financial performance. While there is evidence of diversification benefits against the banks, the parent who derive most of their income from net interest income, gains are usually offset by an increase in non-interest income is not stable. For parent banks have activities that generate non-interest income is large, the average benefit advantages of diversification and cause performance degradation bank. Stiroh (2004a) conducted a study on the potential benefits of diversification of revenue from traditional business activity, namely the shift lending towards non-traditional activities that generate fee income, trading income, and other non-interest income. This study used cross section data of more than 14,000 banks in the United States during the period 1984-2001. Results of the study were processed using simple regression methods concluded that banks in the United States have the benefit of diversification in the form of a stable income and reduce risk through income-generating activities shift from interest income towards non-interest income. However, the greater the non-interest income, especially trading revenue associated with higher risk of banks and increasingly lower risk-adjusted return.

DeYoung and Rice (2004a) conducted a study on the relationship between non-interest income, business strategies, market conditions, technological change, and the financial performance of commercial banks in the United States. This study uses data years 1989-2001 with a total number of 4712 bank banks. Results of the study were treated using panel data regression techniques generalized least squares (GLS) indicates that there is an empirical relationship between the bank's non-interest income, business strategies, market conditions, changes in technology, and financial performance in the United States. They also found that the marginal impact on non-interest income could increase bank profits, but these gains are more volatile, and the resulting decline in risk-adjusted return. Acharya *et al*. (2006) conducted a study related to the interrelationship between activities focus (lending) and diversified use data that may explain loan

exposure to the industry and different sectors in 105 banks in Italy. This study uses data from 1993 to 1999 year. The results of the research study were processed using descriptive statistical method and panel data regression showed that the diversification of the industry and the credit sector had a positive impact on the financial performance of banks. Furthermore, the study concluded that the banks are in a less competitive environment proved to be inefficient in obtaining the benefits of diversification. Mercieca *et al.* (2007) examined the effect of shifting revenue associated bank from lending activities towards activities that generate non-interest income and the performance of small banks in 15 countries in Europe. This study uses data years 1997-2003 with a total number of 755 bank bank. This research uses analytical methods ordinary least square (OLS). The results of this study indicate that the diversification of income measured using the Herfindahl-Hirschman Index (*HHIREV*) a significant negative effect on profitability (ROA and *ROE*). This indicates a shift in revenue from interest income to non-interest income toward the acquisition impact on the average profitability is low. So it can be interpreted that the smaller banks in Europe do not benefit by doing activities income diversification outside traditional lines of business activities. Non-interest income adversely affects risk-adjusted performance. Bank size (size) positive effect on the profitability of banks.

Chiorazzo *et al.* (2008) conducted a study on income diversification and performance of the bank in 85 banks in the country of Italy. This study uses data from 1993 to 2003 year. The analytical method used is the method tobit regression and panel data regression. The results showed that the diversification of income has a positive influence on risk adjusted return and non-interest income has a positive significant effect on the risk adjusted return. They further stated that the diversification of income significantly increases risk adjusted return for large-scale bank. Diversification of revenue may increase the risk adjusted return for large-scale bank but the benefits of non-interest income will decrease as the size of the banks becomes larger. Busch and Kick (2009) in research related to the determinants of non-interest income and the impact on financial performance and the risk profile of the bank by using more than 35,428 of data observation banks in Germany which is divided into 3 parts sector is agriculture cooperative bank sector savings banks, and the for commercial banks sector over the period 1995-2007. The method used is the method of fixed effect panel data regression and Tobit regression. Research results indicate that the fee-based income in each of the savings banks, cooperative banks and for commercial banks sinifikan positive effect on risk-adjusted return on equity (*RAROE*) and risk-adjsued return on assets (*RAROA*). The concentration in the bank's portfolio (*HHI*) positive effect on return (*ROA, ROE, RAROA, RAROE*). Dwitamia (2009) conducted a study on the relationship diversify revenue sources of the bank's performance in the 119 banks in Indonesia. This study uses cross-section data in 2002-2008. The results of research using panel data regression and ordinary least squares (OLS) indicates that the size of the bank (*LNA*), the level of diversification of income sources (*HHIREV*), and the level of diversification of income sources of non-interest income (*HHINON*) significantly positive to the unadjusted return (*ROE*). While the equity ratio (*EA*) and the ratio of loans to total assets (*LA*) significant negative effect on unadjusted return (*ROE*).

Meanwhile, the level of diversification of income sources (*HHIREV*) and the size of the bank (*LNA*) significantly restricted unadjusted positive return (*ROA*). Furthermore, recent research resulted that the size of the bank (*LNA*), the proportion of income on foreign exchange transactions (*PRPTRAD*), the proportion of the increase in securities (*PRPSBHG*), and the proportion of other income (*PRPOTOP*) significantly positive and the proportion of non-interest income to the net income (*PRPNON*) significant negative effect on risk adjusted return (*RAROE*). Then the size of the bank (*LNA*), the proportion of foreign exchange earnings (*PRPTRAD*), and the proportion of other income (*PRPOTOP*) significantly positive and the proportion of non-interest income to the net income (*PRPNON*) significant negative effect on risk adjusted return (*RAROA*). Special study the effect of bank income diversification on the performance of banks conducted

by Gurbuz *et al.* (2013) on the Turkish state. This study uses data years 2005-2011 using data samples representing 41 banks total deposits. Results from the study were processed using panel data method of dynamic (System-GMM/generalized method of moments) developed by Arellano and Bond concluded that the diversification of income have positive significant effect on the risk-adjusted financial performance of banks deposits in Turkey which indicates increased non-interest income would increase risk-adjusted profit on assets (*RAROA*) and equity (*RAROE*). This study also suggests that there is a relationship in control variables used to risk-adjusted performance of the bank. Santika (2014) conducted a study related to the effect of income diversification on the performance of 10 banks in Indonesia in the period 2001-2013. This study uses panel data fixed effect model that concluded that the diversification of income (*DIV*), the growth of bank assets (*GROWTH*), negative and net interest margin (*NIM*), the bank owned by the government (*GOV*), loan to deposit ratio (*LDR*) and periods of economic crisis (*CRISIS*) significant negative effect on RAROE. While the size of the bank (*ASSETS*) and the ratio of equity to assets (*EQUITY*) positive effect on *RAROE*. Further growth of the bank's assets (*GROWTH*), the ratio of non-performing loans (*NPL*), the equity ratio of equity to assets (*EQUITY*), and *GOV* significant negative effect negatively on variable net interest margin (*NIM*) and the loan to deposit ratio (*LDR*) to RAROA, While the economic crisis period (*CRISIS*) positive and significant positive effect on the variable income diversification (*DIV*) to *RAROA*. Then the net interest margin (*NIM*) significant negative effect on net interest income share (*NIIs*).

Ismail *et al.* (2015) conducted a study on diversification pBendapatan and the bank's financial performance using data from 14 banks in Pakistan during the period 2006-2013. Results of the study were processed using the method of ordinary least squares (OLS) indicates that the variable income diversification (*DIVI*) has a positive significant effect on the financial performance of the bank (*ROA*). The study also examined the impact of bank size (*SIZE*), the growth rate of total assets (*GROWTH*), the ratio of credit (total loans / total assets), and the equity ratio (equity/total assets) of the bank's performance. Among all control variables; growth rate (growth) does not represent a significant under-utilization of assets due to risk aversion of banks that are not efficient. Bank size (SIZE), the ratio of credit (total loans/total assets) and the equity ratio (equity/total assets) had a positive effect on the bank's performance.

RESEARCH METHODOLOGY

The data used are secondary data from the annual financial statements of banks listed on the Indonesia Indonesia Stock Exchange (BEI) from 2008 to 2015 were obtained from the Indonesia Indonesia Stock Exchange (IDX). The sampling technique in this study using purposive sampling, the criteria are as follows: banks examined are conventional commercial banks remain listed on the Indonesia Stock Exchange (IDX) during the period from 2008 to 2015, banks were taken as a sample bank that issued the report detailed financial publications so as to establish dependent variable and the variable is not attached; fiscal year financial statements ended on December 31; and does not include Islamic banks in the sample because there are differences in the format of the financial statements. In this study, researchers used a measure of diversification, the Herfindahl-Hirschman Index (*HHI*) (Gurbuz *et al.* 2013). Based Stiroh (2004b), Stiroh and Rumble (2006), and Chiorazzo *et al.* (2008) that DIV represent the influence of the bank's income diversification between interest income and non-interest income. To be able to diversify income level bank, previously had calculated in advance each proportion of net interest income (*NET$_S$*) and non-interest income of banks (*NIIs*). Calculation of net interest income (*NET$_S$*) and non-interest income (NIIs) can be formulated as follows:

$$NETs = \frac{NET}{(NET + NII)} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

$$NIIs = \frac{NII}{(NET + NII)} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

where *NET* is measure of net interest income variable which calculated as total interest income minus total interest expenses, while *NII* is measure of non-interest income variable which calculated as the sum of the net commission fees, net trading profit/loss and other non-interest income. The respective shares in net operating income is sum of *NET* and *NII* variables of a bank. Following Chiorazzo *et al.* (2008), this research calculates widely used Herfindahl-Hirchman Index (*HHI*) to measure income diversification. This research defines measure of income diversification as:

$$DIV_{i,t} = 1 - (NET_{i,t}{}^2 + NII_{i,t}{}^2) \qquad \text{……....................... (3)}$$

Value of DIV varies between 0.0 to and 0.5. Value of zero indicates that all revenues comes from single source (complete concentration), and equal to 0.5 when there is complete diversification. This research considers return on assets (*ROA*) and equity (*ROE*) as profitability measure, defined as net income before tax devided by total asset and net income after tax devided by equity, respectively. Standard deviation (σ) of *ROA* and *ROE* is used to measure the total volatility of profit. Following Busch and Kick (2009), these variables define risk-adjusted return on assets (*RARROA*), and on equity (*RARROE*), as:

$$RARROA_{i,t} = \frac{ROA_{i,t}}{\sigma ROA_i} \qquad \text{...(4)}$$

$$RARROE_{i,t} = \frac{ROE_{i,t}}{\sigma ROE_i} \qquad \text{.. (5)}$$

Where $RARROA_{i,t}$ and $RARROE_{i,t}$ indicate risk-adjusted returns measures in term of *ROE* and *ROA* respectively, for the bank *i* in the year *t*. σ *ROA*, and σ *ROE*, indicate standard deviations of *ROA* and *ROE* for the bank *i*. Based on the previous studies, this research included some control variables in the model. Control variables in the models to ensure that there is no excluded independen variable, which could affect the relationship between income diversification and bank performance (Gurbuz *et al.* 2013). These can be defined as banks' characteristic:

1. *SIZE* is the natural logarithm of banks' total assets in million Rupiah. This variable captures the bank size. Large-scale banks experienced slower growth in non-interest income gains while large-scale banks have better risk management and greater opportunities to diversify revenue compared with small-scale banks. Meanwhile, small-scale banks more flexibility in its operations (DeYoung and Rice 2004; Chiorazzo *et al.*, 2008)
2. *ASSETS* is the ratio of total loans to total assets. According to DeYoung and Rice (2004a), loan to asset ratio (L / A) is used to measure how the effect of the asset portfolio of banks on the financial performance of banks. Meanwhile, the ratio of loans to assets (L / A) is used as a proxy for the effects of the strategy of borrowing (lending strategy) on the financial performance of the bank (DeYoung and Rice 2004; Stiroh 2004b; Stiroh and Rumble 2006; Chiorazzo *et al.*, 2008; Busch and Kick 2009; Dwitamia 2009; Kiweu 2012; Gurbuz *et al.*, 2013; Karakaya and Er, 2013; Fadillah and Prijadi (2014); and Ismail *et al.* 2015). Signs of the relationship between the strategy of borrowing (lending strategy) to the positive financial performance shows that lending (loans) is more favorable compared with income from assets of other banks.
3. *EQUITY* is the ratio of equity to total assets. The equity ratio shows the level of financial leverage of the bank. The higher this ratio shows the risk-aversion and risk protection congenital bank (bank default risk) (Stiroh 2004a, Stiroh and Rumble 2006; Chiorazzo *et al.*, 2008; Busch and Kick 2009; Gurbuz *et al.*, 2013; and Ismail *et al.* 2015). A high value in this ratio indicates that the management of the bank to the risk aversion is high (Stiroh 2004b).
4. *NPLN* is the ratio of net non-performing loans to total assets. This ratio indicates the risk on the credit quality of banks (Busch and Kick 2009). The higher this ratio indicates the worse the performance of the bank (Muhammad 2005).

5. *GROWTH* rate of total assets; it is measured through percentage change in total assets (Gurbuz *et al.* 2015). On the one hand this variable represents the bank's business growth opportunities (Busch and Kick 2009). But on the other hand, this variable describes the proxy preferences bank management in taking the risk, the higher this variable, the management of a bank is considered to have more courage to risk (Stiroh 2004a, Chiorazzo *et al.*, 2008; Busch and Kick 2009; and Gurbuz *et al.* (2013).
6. *PUBLIC* is a dummy variable fot the state-owned banks. It is equal 1 for the state-owned banks and 0 for others bank.

The model of this research is a panel data regression which refers to research carried out by Chiorazzo *et al.* (2008), Bush dan Kick (2009), and Santika (2014), as follows:

$$Y_{i,t} = k + \beta_1 DIV_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 ASSETS_{i,t} + \beta_4 EQUITY_{i,t} + \beta_5 NPLN_{i,t} + \beta_6 GROWTH_{i,t} + \qquad \text{..................... (6)}$$

$i = 1, …, 26; t = 2008, …, 2015$

Where $Y_{i,t}$ stand for *ROA, ROE, RARROA, RARROE* respectively; β is a coefficient; and, *k* is a constant. This study uses estimates Pooled Ordinary Least Square on models with independent variables *ROA, ROE,* and *RARROA*. As for the independent variable *RARROE* using the estimation method Random Effect Model.

RESULTS AND DISCUSSION

Descriptive statistics

The sample: The number of conventional commercial bank listed its shares commerce on the Indonesia Indonesia Stock Exchange (BEI) for 2015 amounted to 43 banks (IDX 2015). This research was conducted using the balanced the data from the period 2008 to 2015 so that the number of banks amounted to 26 bank filtered. The composition of banks surveyed in each property based on the grouping of Bank Indonesia listed in the Indonesia Indonesia Stock Exchange (BEI) can be seen in Table 5. Table 5 shows that the highest composition of a number of conventional banks surveyed are from the National Private Commercial Bank Foreign Exchange (BUSND), that is equal to 73.08%, followed by State Bank of 15:38%, Private Banks non Foreign Exchange (BUSN) and Mixed Bank respectively by 7.69%. As for the Bank of Local Government and the Office of Foreign Bank Branches are not on the observation of this study.

Table 2. Composition of the number of banks surveyed in each property listed on the Indonesia Stock Exchange 2008-2015 period

Ownership Type	Number of Observations	Compotition (%)
1. Limited Bank	3	15.38
2. Foreign Exchange National Private Banks	19	73.08
3. Private and Non Foreign Exchange Banks	2	7.69
4. Local Governments Banks	0	00.00
5. Joint Ventur Banks	2	7.69
6. Foreign Banks Branch Offices	0	00.00
Total	26	100.00

Sources: Indonesian Banking Directory (DPI) 2015, prepared

The variables: Tabel 3 indicates the summary statistics of all variable used in this study. Mean value of *DIV* variable in this sample (*0.30*) indicates that Indonesian commercial banks are diversified enough on the sources of income over the sample period. Meanwhile, the proportion of non-interest income on average is 20% of the total income of the bank. This indicates that the interest income from lending remains a source of income for commercial banks listed on the Indonesia Stock Exchange. *ASSETS* variable has the mean of higher than 50 percent (*0.65*) which may indicate moderate risk

attitude of Indonesian commercial bank managers. The mean value of *EQUITY* variable is relatively low (*0.11*) indicating the low level of financial leverage of banks on the Indonesia Stock Exchange. The mean value of *GROWTH* variable in Indonesian commercial bank over the period 2008-2015 is relatively high (*19%*) despite the 2008 economic crisis in Indonesia. This high of assets growth rate in banking sector indicatates of high growth in Indonesia economy in the periode of 2010-2013.

REGRESSION RESULTS

This table reports estimates of following model: $Y_{i,t} = k + \beta_1 DIV_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 ASSETS_{i,t} + \beta_4 EQUITY_{i,t} + \beta_5 NPLN_{i,t} + \beta_6 GROWTH_{i,t} + \beta_7 PUBLIC_{i,t} + \varepsilon_{i,t}$ $i = 1, \ldots, 26$; $t = 2008, \ldots, 2015$. Dependent variables are ROA, ROE, RARROA, and RARROE. *DIV* is the measure of income diversification in Indonesian commercial banks. *SIZE* is the natural logarithm of total assets. *ASSETS* is the ratio of loans to total assets. *EQUITY* is the ratio of equity to total assets. *NPLN* is the net non-performing loan devided by total assets. *GROWTH* is the annual growth rate of total assets. *PUBLIC* is a dummy variable for state-owned bank. *DIV variable* is a proxy variable of income diversification as measured using the Herfindahl-Hirschman Index (*HHI*).

(2009), Dwitamia (2009), Elsas *et al*. (2010), Sanya and Wolfe (2011), Kiweu (2012), Gurbuz *et al*. (2013), Fadillah and Prijadi (2014), Sianipar (2014), Ismail *et al*. (2015 and Senyo *et al*. (2015).

Bank characteristic

Bank size (SIZE) is a measure of the amount of a bank as measured by the natural logarithm of the total assets of the bank. Variable *SIZE* positive significant effect on the level of profitability (*ROA* and *ROE*) and risk adjusted return (*RARROA* and *RARROE*) which shows that the larger the size of a bank, then the level of profitability (ROA and ROE) and risk adjusted return (*RARROA* and *RARROE*) will be big. The findings of empirical research is consistent with the hypothesis that assumes that the size of the bank's positive effect on the level of profitability and risk adjusted return of commercial banks in Indonesia. Large banks in general have better risk management, information and communication technology more sophisticated, more human resources, and lower cost of funds so that they can earn a higher income. Furthermore, according to Ismail *et al*. (2015), the positive relationship between the size of the bank's financial performance shows that the bank has good financial performance have more opportunities to diversify their income. The results of this study are consistent with previous studies conducted by Stiroh (2003), Stiroh (2004a, 2004b), De Young and Rice (2004a, 2004b, 2004c),

Table 3. Summary statistics and definitions of variables (2008-2015)

Variable	Definition	Mean	Median	Maximum	Minimum	Standard Deviation
ROA	Profits (losses) before tax devided by total assets	1.47	1.69	5.30	-52.09	4.03
ROE	Profits (losses) before tax devided by equity	9.47	12.21	402.86	-981.63	75.89
RARROA	Ratio of ROA to standard deviation of ROA over the period 2008-2015	4.24	3.17	19.50	-2.82	3.94
RARROE	Ratio of ROE to standard deviation of ROE over the period 2008-2015	3.27	2.89	8.87	-2.49	2.45
DIV	One minus the sum of the square of the share of net interest income and the share of non-interest income	0.30	0.32	0.50	0.18	0.11
SIZE	Natural logarithm of bank total asset	17.29	17.39	20.63	14.12	1.75
ASSETS	The ratio of total loans to total assets	0.65	0.67	1.32	0.34	0.11
EQUITY	The ratio of equity to total assets	0.11	0.11	0.26	-0.27	0.04
NPLN	Net non-performing loan devided by total assets	1.50	1.12	10.42	0.00	1.43
GROWTH	Annual growth of rate of bank total assets	0.19	0.17	1.64	-0.61	0.21
PUBLIC	Dummy variable for state-owned banks	0.11	2.00	1.00	0.00	0.32

Source: Author's computation

Table 4. Regression return and risk-adjusted return

Variables	ROA		ROE		RARROA		RARROE	
	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.
DIV	-2.570498**	0.0002	-25.65993**	0.0002	-6.798441**	0.0003	-1.225268	0.2239
SIZE	0.366053**	0.0000	3.569044**	0.0000	1.505003**	0.0000	0.312886**	0.0173
ASSETS	-0.920993**	0.0491	-13.52670**	0.0183	-8.894876**	0.0003	-0.617789*	0.5183
EQUITY	12.15043**	0.0000	-4.700050	0.8257	-1.497425	0.6798	-5.819131**	0.0073
NPLN	-0.529925**	0.0000	-3.597073**	0.0000	-0.626881**	0.0000	-0.355153**	0.0000
GROWTH	0.921462*	0.0556	10.94981**	0.0047	-0.619769	0.3643	0.551063	0.1862
PUBLIC (*dummy*)	0.684391**	0.0000	3.751936**	0.0197	-1.721213**	0.0001	2.545131**	0.0095
Constant	-4.148872**	0.0002	-29.94605**	0.0018	-12.42026**	0.0000	-0.681911	0.7475
R-Sqr.	0.648909		0.481848		0.469358		0.224061	
Adj. R-Sqr.	0.636108		0.462957		0.450011		0.195771	
F-Statistics	50.69515		25.50683		24.26082		7.920298	
Prob. F-Statistics	0.000000		0.000000		0.000000		0.000000	

Notes: **, * refers to 5% and 10% statistical significance level respectively; Source: Result output with software Eviews 9, prepared

DIV variable significant negative effect on independent variables *ROA*, *ROE*, and *RARROA* which means that the bigger the bank's diversified income, the level of profitability (*ROA* and *ROE*) and risk adjusted return (*RARROA*) will decrease. On the other hand, variable *DIV* negative effect but not significant to *RORROE* independent variables. This empirical finding contradicts the hypothesis that assumes that the diversification of the bank's revenue had a positive influence on the level of profitability and risk adjusted return of commercial banks in Indonesia. The results of this study are supported by previous studies conducted by DeYoung and Rice (2004a), Stiroh (2004b), Stiroh and Rumble (2006), and Mercieca *et al*. (2007). However, the result is contrary to studies conducted by Smith *et al*. (2003), Acharya *et al*. (2006), Craigwell and Maxwell (2006), Baele *et al*. (2007), Chiorazo *et al*. (2008), Busch and Kick

Stiroh and Rumble (2006), Craigwell and Maxwell (2006), Mercieca *et al*. (2007), Chiorazzo *et al*. (2008), Bush and Kick (2009), Kiweu (2012), Amidu and Wolfe (2013), Gurbuz *et al*. (2013), Karaya and Er (2013), Lee *et al*. (2014), Fadhillah and Prijadi 2014, and Ismail *et al*. (2015).

Loan to Asset Ratio (*ASSETS*) is a variable used as a proxy for the effects of the strategy of borrowing (lending strategy) on the financial performance of the bank (DeYoung and Rice 2004; Stiroh 2004b; Stiroh and Rumble 2006; Chiorazzo *et al*., 2008; Busch and Kick 2009; Dwitamia 2009; Kiweu 2012; Gurbuz *et al*., 2013; Karakaya and Er, 2013; Fadillah and Prijadi (2014); and Ismail *et al*. 2015). Variable *ASSETS* significant negative effect on the level of profitability (*ROA* and *ROE*) and risk adjusted return (*RARROA* and

RARROE) which shows that the larger the ratio of loans to assets of a bank, then the level of profitability (*ROA* and *ROE*) and risk adjusted return (*RARROA* and *RARROE*) will decrease. Signs indicate that a negative relationship lending (lending strategy) is a risky activity. The findings of this empirical research contradict the hypothesis that assumes that the ratio of loans to total assets (*ASSETS*) had a positive impact on the level of profitability and risk adjusted return of commercial banks in Indonesia. The results of this study are supported by research-previous study conducted by DeYoung and Rice (2004a) and Bush and Kick (2009). On the other hand, the variable *ASSETS* no significant effect on risk adjusted return (*RARROA* and *RARROE*).

Equity to Assets (*EQUITY*) variable indicates the level of financial leverage of the bank. *EQUITY* variable positive significant effect on the level of bank profitability (*ROA*) and a significant negative risk adjusted return (*RARROE*) which indicates that the greater portion of the equity of a bank, it will increase the bank's profitability (*ROA*) and will decrease the risk adjusted return (*RARROE*) of the bank. This is caused by the banks with capital levels that will either tend to have the cost of debt that is not covered by insurance, the cost of the possibility of bankruptcy, and the cost of funding a lower (Naceur and Kandil 2009), so the level of equity a positive influence on the level of profitability (*ROA*), These results are supported by previous studies that research conducted by Mercieca *et al.* (2007), Berger *et al.* (2010a), and Ismail *et al.* (2015). While the negative influence of the ratio of equity (*EQUITY*) against the risk adjusted return (*RARROE*) due to equity ratio *RARROE* relationships inversely correlated (Chiorazzo *et al.*, 2008). So this finding contradicts the hypothesis that produce negative influence equity ratio (*EQUITY*) against the risk adjusted return (*RARROE*). These results are supported by Mercieca *et al.* (2007), Bush and Kick (2009), Berger *et al.* (2010a), and Fadhillah and Prijadi (2014).

Non-Performing Loan (*NPLN*) is a credit risk index derived from the proportions of nonperforming loans to total assets (DeYoung and Rice 2004b). Variable *NPLN* significant negative effect on the level of profitability (*ROA* and *ROE*) and risk adjusted return (*RARROA* and *RARROE*) which shows that the larger the ratio *NPLN* a bank, then the level of profitability (*ROA* and *ROE*) and risk adjusted return (*RARROA* and *RARROE*) will decreases. This empirical finding is in line with the hypothesis in this study assumes that *NPLN* have a negative influence on the level of profitability (*ROA* and *ROE*) and risk adjusted return (*RARROA* and *RARROE*) of commercial banks in Indonesia. Banks that have a high net NPLs, the banks need to pay allowance for credit to the quality of non-performing, quality of Substandard, Doubtful, and Loss (Widiarti 2015). Furthermore, according to him, in addition to the cost of the allowance or reserve (PPAP), banks also require the costs associated with the management of non-performing loans, the cost of human resources for the collection, costs konsultasn law for cases of troubled borrowers in the litigation process, the cost of pegambilalihan collateral maintenance costs of collateral taken over, and restructuring costs of credit that eventually these costs will reduce bank profits and therefore contributes to reduced levels of bank profitability (*ROA* and *ROE*) and risk adjusted return (*RARROA* and *RARROE*). The results of this study are supported by previous studies conducted by Chiorazzo *et al.* (2008), Busch & Kick (2009), Kiweu (2012), Fadillah and Prijadi (2014), and Santika (2014).

Growth in bank assets (GROWTH) is the growth rate of real assets of the bank. This variable describes the proxy preferences bank management in taking the risk, the higher this variable, the management of a bank is considered to have more courage to risk (Stiroh (2004a), Chiorazzo *et al.* (2008), Busch & Kick (2009), Dwitamia (2009), Gurbuz *et al.* (2013), Lee *et al.* (2014), Santika (2014), Ismail (2015). In fact, the bank managers who like risk often prefer to the growth of the bank's assets quickly in order to stabilize the profit level (Stiroh 2004b). variable *GROWTH* positive significant effect on the level of profitability (*ROA* and *ROE*), which indicates that the greater the variable GROWTH a bank, then the level of profitability (*ROA* and *ROE*) will increase. This empirical finding is

in line with the hypothesis in this study that assumes that *GROWTH* has a positive effect on the level of profitability (*ROA* and *ROE*). the results of this study are supported by research-previous study conducted by Stiroh (2004a), Mercieca *et al.* (2007), and Busch and Kick (2009).

Dummy variable (PUBLIC) is variables that are used to show the effect of the ownership of the bank to profitability (DeYoung and Rice 2004; Stiroh 2004a; Gurbuz *et al.*, 2013; Fadillah and Prijadi, 2014; and Santika 2014). Dummy variable in this study, namely PUBLIC which is a dummy variable that is used to distinguish between state-owned banks and other banks. PUBLIC dummy variable positive significant effect on the level of profitability (ROA and ROE) and risk adjusted return (RARROA and RARROE) which indicates that the government banks have better performance compared to other banks. The results of this study are supported by research-previous research conducted by Gurbuz *et al.* (2013), Fadillah and Prijadi (2014), and Santika (2014).

CONCLUSIONS

Based on the results of research which refers to the formulation of the problem and research objectives, we can conclude the following matters:

1. Diversification of income provides a significant negative effect on the level of profitability. The more diversified revenue for commercial banks in Indonesia, the level of profitability will decrease. Meanwhile, when a source of income for commercial banks in Indonesia is increasingly concentrated, then the level of profitability will increase.
2. Diversification income gives a negative influence on risk adjusted return on for commercial banks in Indonesia. However, a significant negative effect only occurs on risk adjusted return by assets. The more diversified revenue for commercial banks in Indonesia, the risk adjusted return by assets will increasingly menurn. Meanwhile, when a source of income for commercial banks in Indonesia is increasingly concentrated, then the risk adjusted return by assets will increase.
3. Bank variables characteristics that give positive significant effect on the level of profitability based on assets (*ROA*) is the size of the bank, the loan to asset ratio, the ratio of equity to assets, and the growth of bank assets. While that has a significant influence negatively the level of profitability based assets are non-performing loans. Variables bank characteristics that positive significant effect on the level of profitability based capital (*ROE*) is a measure of a bank, loan to asset ratio, and growth of the bank's assets. While that has a significant influence negatively the level of profitability based capital is a non-performing loan. Bank characteristic variables that affect a significant positive risk adjusted return by assets (*RARROA*) is the size of the bank. While that has a significant influence negatively the level of profitability by assets is the ratio of loans to assets and non-performing loans. Bank characteristic variables that affect a significant positive risk adjusted return based capital (*RARROE*) is the loan to asset ratio. While that has a significant influence negatively the level of profitability based capital is the loan to asset ratio, the ratio of equity to assets, and non-performing loans.

Manajerial Implications: Based on these results as a whole gained some key findings and managerial implications including the following:

1. Diversification of income showed a negative influence on the financial performance of commercial banks listed on the Indonesia Stock Exchange. This indicates that banks are turning management strategy towards diversifying income is still in the learning stage in doing this diversification strategy, or they do not have the expertise, standard size, or technology that can support the diversification strategy can be run successfully (Stiroh 2004b). Despite the diversification of

income can cause a negative influence on the performance of commercial banks in Indonesia, the bank's management can make decisions about the opportunities of a strategy of diversification of revenue is currently experiencing growth to continue to contribute in improving the financial performance of the bank as an example, the bank may increase the types products varied services, supported with reliable human resources, and the bank is supported by advanced information technology capabilities to support the needs and development of products and services required by its customers.

2. Management of banks should continue to use strategies focused on lending activities (lending strategy) compared with revenue diversification activities in order to maximize the performance of the bank. However, the bank's management should be more cautious in giving credit because it can lead to the risk of non-performing loans (NPL) as shown in this study that increased net NPL can degrade bank financial performance. High NPL require banks to establish reserves for possible losses and collection costs are getting bigger and it can reduce bank profits so that the financial performance of banks decreased (Widiarti 2015). Accordingly, bank management must pay attention to effectiveness and efficiency in the loan portfolio.

Limitations and Future Research Directions: Further research can use unbalanced panel data so that it can analyze more in depth related to the diversification of revenues. Subsequent studies can also use components of non-interest income to see its effect on the financial performance of commercial banks in Indonesia. In addition, further research can use the data for commercial banks that have not gone public in Indonesia so that it can reflect the condition of commercial banks in Indonesia as a whole. Islamic banks use the object in subsequent studies.

REFERENCES

Acharya V, Hansan I, Saunders A. 2006. Shoud banks be diversified? evidence from individual bank loan portofolios. *Journal of Business*. 79(3):1355-1412.

Allen F, Santomero A. 2001. What do the intermediaries do? *Journal of Banking and Finance*. 25:271-294.

Amidu M, Wolfe S. 2013. Does bank competition and diversification lead to greater stability? Evidence from emerging markets. *Review of Development Finance*. 3:152-166.

Baele L, De Jonghe O, Vennet RV. 2007. Does the stock market value bank diversification? *Journal Banking and Finance* [Internet]. [diunduh 2016 Agu 19]; 31:1999-2023. Tersedia pada: http://epge.fgv.br/we/MFEE/ GerenciamentodeRisco/2012?action=Attach File&do=get&target=Artigo11.pdf.

Berger P, Ofek E. 1996. Bustup takeovers of value-destroying diversified firms. *Journal of Finance Services*. 51:1175-1200.

Berger AN, Hasan I, Zhou M. 2010a. The effect of focus versus diversification on bank performance: evidence from Chinese banks. *Journal of Banking and Finance* [Internet]. [diunduh 2016 Jul 25]; 34:1417-1435. Tersedia pada http://www.suomenpankki.fi/pdf/166390.pdf.

_____ 2010b. Does diversification increase or decrease bank risk and performance? evidence on diversification and risk-return trade off banking. *Institute for Economies Transition* [Internet]. *Discussion Paper*. [Tempat pertemuan tidak diketahui]. Helsinki (HI): Bank of Finland. Hlm 1-34; [diunduh 2016 Jul 25]. Tersedia pada: http://www.suomenpankki.fi/pdf/166886.pdf.

[BI] Bank Indonesia. 2013. *Kajian Stabilitas Keuangan* [Internet]. [diunduh 2016 Jul 25]; No. 21, Februari 2013. Tersedia pada: http://www.bi.go.id/id/publikasi/perbankan-dan-stabilitas /kajian/Default .aspx.

Busch R, Kick T. 2009. Income diversification in the German banking industry. *Deutsche Bundesbank Eurosystem* [Internet]. [diunduh 2016 Apr 9]; 2:1-33. Tersedia pada: http://www.bundesbank.de/Redaktion/EN/Downloads/Publication s/Discussion_ Paper_2/2009/2009_08_07_dkp_09.pdf?__blob=publicationFile.

Carbo S, Rodriguez F. 2007. The determinants of bank margins in European banking. *Journal of Banking and Finance*. 31(1):1999-2023.

Chiorazzo V, Milani C, Salvini F. 2008. Income diversification and bank permormance: evidence from Italian banks. *Journal of Financial Services*. 33(3):181-203.

Craigwell R. Maxwell C. 2006. Non-interest income and financial performance at commercial banks in Barbados. *Savings and Development*. 30(3):309-328.

Cornett, Millon M, Guo L, Khaksari S, Tehranian H. 2010. The impact of state ownership on performance differences in privately-owned versus state-owned banks: an international comparison. *Journal of Financial Intermediation*. 19(1):74-94.

Baele L, De Jonghe O, Vennet RV. 2007. Does the stock market value bank diversification? *Journal Banking and Finance* [Internet]. [diunduh 2016 Agu 19]; 31:1999-2023. Tersedia pada: http://epge.fgv.br/we/MFEE/ GerenciamentodeRisco/2012?action=Attach File&do=get&target=Artigo11.pdf.

Denis DJ, Denis DK, Sarin A. 1997. Agency problems, equity ownership, and corporate diversification. *The Journal of Finance*. 52(1):135-160.

DeYoung R, Rice T. 2004a. Noninterest income and financial performance at U.S. commercial banks. *The Finance Review*. 39(1):101-127.

_____ 2004b. How do banks make money? the fallacies of fee income. *Federal Reserve Bank of Chicago*. 28(4):34-51.

_____ 2004c. How do banks make money? a variety of business strategy. *Federal Reserve Bank of* Chicago. 28(4):52-67.

DeYoung R, Roland KP. 2001. Product mix and earnings volatility at commercial banks: evidence from a degree of leverage model. *The Journal of Financial Intermediation*. 10(1):54-84.

De Young R, Torna G. 2013. Nontraditional banking activities and bank failures during the financial crisis. *Journal of Financial Intermediation*. 22(3):397-421.

Dwitamia RR. 2009. Hubungan diversifikasi sumber pendapatan bank terhadap kinerja bank di Indonesia [tesis]. Depok (ID): Universitas Indonesia.

Elsas E, Hacketchal A, Holzhauser M. 2010. The anatomy of banking diversification. *Journal of Banking and Finance*. 34(6):1274-1287.

Fadillah Z, Prijadi R. 2014. Pengaruh diversifikasi pendapatan dan *bank-specific factors* terhadap profitabilitas dan *risk-adjusted return* bank di Indonesia periode 2008-2012 [internet]. *Jurnal Internal Fakultas Ekonomi dan Bisnis.* [diunduh 2016 Jul 25]; Tersedia pada: http://www.lib. ui.ac.id/naskahringkas/2016-06/S54961-Zulfah%20Fadhillah.

Firdaus M. 2011. *Aplikasi Ekonometrika untuk Data Panel dan Time Series*. Bogor (ID): IPB Press.

Gurbuz AO, Yanik S, Ayturk Y. 2013. Income diversification and bank performance: evidence from Turkish banking sector. *Journal of BRSA Banking and Financial Markets*. 7(1):9-29.

Hayden E, Porath D, Westernhagen NW. 2007. Does diversification improve the performance of German banks? evidence from individual bank loan portofolio. *Journal of Financial Services and Research*. 32:123-140.

Huang LW, Chen YK. 2006. Does bank performance benefit from non-traditional activities? a case of non-interest income in Taiwan commercial banks. *Asian Journal of Management and Humanity Science*. 1(3):359-378.

Ismail A, Hanif R, Choudhary S, Ahmad N. 2015. Income diversification in banking sector of Pakistan: a blessing or curse? *The Journal of Commerce*. 7(1):11-22.

[IDX] Indonesia Data Exchange. 2015. *Fact Book 2015* [Internet]. [diunduh 2015 Nov 24]. Tersedia pada: http://www.idx.co.id/id-id/beranda/publikasi/factbook.aspx.

Karakaya A, Er B. 2013. Non-interest (non profit) income and financial performance at Turkish commercial and participation banks. *International Business Research*. 6(1):106-117.

Kiweu JM. 2012. Income diversification in the banking sector and earnings volatility: evidence from Kenyan commercial bank. *Centre for Research on Financial Markets and Policy* [Internet]. [Tempat pertemuan tidak diketahui]. Kenya (KE): Kenya Banker Association. Hlm 1-29; [diunduh 2016 Jul 25]. Tersedia pada: http://www.kba.co. ke/img/pdf/Working_ Paper_WPS_02_12[3]. pdf.

Kusuma DR. 2012. Diversifikasi pendapatan dan Resiko Perbankan di Indonesia [tesis]. Yogyakarta (ID): Universitas Gadjah Mada.

Lepetit L, Nys E, Rous P, Tarazi. 2008. The expansion of services in European banking: implication for loan pricing and interest margins. *Journal of Banking & Finance*. 32:2325-2335.

Mercieca, Schaeck SK, Wolfe S. 2007. Small European banks: benefit from diversification? *Journal of Banking and Finance* [Internet]. [diunduh 2016 Jul 25]; 31:1975-1998. Tersedia pada: http://web.efzg.hr/dok/fin/astojanovic/Small%20 banks %20in%20EU.pdf.

Muhammad. 2005. *Manajemen Dana Bank Syariah*. Yogyakarta (ID): UPP AMP YKPN.

Muharsito. 2015. The effect of the ownership and the global crisis on the income diversification of Indonesian banks. *Buletin Ekonomi Moneter dan Perbankan*. 7(3):339-356.

Nuryadin E. 2001. Upaya meningkatkan pendapatan bank melalui optimalisasi cross selling terhadap pelanggan. *Journal the Winners*. 2(1):47-54.

Naceur S, Kandil M. 2009. The impact of capital requirements on banks' cost of intermediation and performance: the case of Egypt. *Journal of Economics and Business* [Internet]. [diunduh 2016 Jul 25]; 61:70-89. Tersedia pada: http://dx.doi.org/10.1016/ j.jeconbus.2007.12.001.

[OJK] Otoritas Jasa Keuangan. 2015. *Statistik Perbankan Indonesia* [Internet]. [diunduh 2016 Jul 25]. Tersedia pada: http://www.ojk. go.id/id/kanal/perbankan/data-dan-statistik/statistik-perbankan indonesia/Default. aspx.

Pennathur AK. Subrahmanyam V, Vishwasrao S. 2012. Income diversification and risk: does ownership matter? an empirical examination of Indian banks. *Journal of Banking and Finance*. 36(8):2203-2215.

Ramanujam V, Varadarajan P. 1989. Reseach on corporate diversification: a synthesis. *Strategic Management of Journal*. 10(6):523-551.

Rogers K, Sinkey J. 1999. An analysis of non tradisional activities at US commercial banks. *Review of Financial* Economics. 8(1):25-39.

Sanya S, Wolfe S. 2011. Can banks in emerging economies benefit from revenue diversification? *Journal of Financial Services Research*. 40(1):79-101.

Santika YA. 2014. Analisa pengaruh diversifikasi pendapatan terhadap kinerja bank di Indonesia [tesis]. Depok (ID): Universitas Indonesia.

Sawada M. 2013. How do es the stock market value bank diversification? Empirical evidence from Japanese bank. *Pacific-Basin Finance Journal* [Internet]. [diunduh 2016 Jul 25]; 25:40-61. Tersedia pada: https://mpra.ub.uni-muenchen.de/ 45852/1/ MPRA_paper_45852 .pdf.

Senyo DB, Olivia AT, Musah A. 2015. Income diversification and financial stability of banks in Ghana. *International Journal of Business and Social Science*. 6(6):177-184.

Siamat D. 2005. *Manajemen Lembaga Keuangan Kebijakan Moneter dan Perbankan*. Jakarta (ID): Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia.

Sianipar AS. 2014. Pengaruh diversifikasi pendapatan terhadap resiko dan kinerja bank [tesis]. Yogyakarta (ID): Universitas Gadjah Mada.

Smith R. Staikouras C, Wood G. 2003. Non-interest income and total income stability. *Working Paper* [Internet]. [Tempat pertemuan tidak diketahui]. United Kingdom (UK): Bank of England. Hlm 1-43; [diunduh 2016 Jul 25]. Tersedia pada: http://www. bankofengland.co.uk/archive/Documents/historic pubs/workingpapers/2003/wp198.pdf.

Stiroh KJ. 2003. Revenue shifts and performance of U.S. bank holding companies. *The Evolving Financial System and Public Policy, proceeding of a Conference Held by Bank of Canada* [Internet]. [diunduh 2016 Agu 20]. Tersedia pada: http://www .banqueducanada.ca/wp-content/uploads/2010/09/revenue. pdf.

Stiroh KJ. 2004a. Diversification in banking is noninterest income the answer? *Journal of Money, Credit and Banking*. 36(5):853-882.

_____ 2004b. Do community banks benefit from diversification? *Journal of Financial Services and Research*. 25(2):135-160.

Stiroh KJ, Rumble A. 2006. The dark side of diversification: the case of U.S. financial holding companies. *Journal of Banking and Finance*. 30(8):2131-2161.

Sufian F, Habibullah MS. 2010. Assessing the impact of financial crisis on bank performance: empirical evidence from Indonesia. *Asian Economic Bulletin*. 27(3):245-262.

Turkmen SY, Tigit I. 2012. Diversification in banking and its effect on bank's performance: evidence from Turkey. *American International Journal of Contemporary Research*. 2(12):111-119.

[UU] Undang-Undang. 1998. Undang-Undang Repulik Indonesia No. 10 Tahun 1998. Tentang Perbankan. Jakarta (ID): UU.

Vallascas F, Crespi F, Hagendorf J. 2012. Income diversification and bank performance during the financial crisis [Internet]. [diunduh 2016 Agu 20]. Tersedia pada: http://dx.doiorg/10.2139/ ssrn.179232.

Wang D. 2007. Three essays on bank technology, cost structure, and performance [disertasi]. New York (US): State University of New York.

Widiarti AW. 2015. The determinant bank's efficiency in Indonesia [tesis]. Bogor (ID): Institut Pertanian Bogor.

William B, Prather L. 2010. Bank risk and return: the impact of bank non-interest income. *International Journal of Managerial Finance*. 6(3):220-244.

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