# Effect of Financial Ratio on Profitability of Comercial Banks; a Systematic Literature Review

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## Abstract
This research is motivated by the effect of financial ratio on profitability of comercial banks. Some financial ratio factors that affect the performance of the bank are capital adequacy ratio (CAR), non performing loan (NPL), loan to deposit ratio (LDR) to its profitability. The review covers 26 journal articles published from 2000 to 2017 and a few months of 2012. The 26 articles classified "profitability" and "Effect of Financial Ratio" comercial banks in businesses into three distinct categories: the "capital adequacy ratio (ROA)," "capital adequacy ratio (CAR)," Effect of Financial Ratio " non performing loan (NPL)," "loan to deposit ratio (LDR),". The findings reveal that "Profitability" were the most frequently category has been considered in the literature. This review provides a source for discovering business impacts of social network sites and will help to simulate further interest in the area.
**Keyword:** financial ratio, profitability

## Introduction

Since 2009, competition between commercial banks has been increasingly stringent, this has made commercial banks to improve performance in order to attract investors. Investors before investing their funds in a Commercial Bank, of course need information about the Bank's performance. Users of financial statements need information that can be understood, understood, relevant, reliable and comparable in evaluating the financial position and performance of the bank and is useful in decision making. In Indonesia there are around 30 (Thirty) Commercial Banks that act as financial intermediaries between parties that have Funding funds and Lending funds with parties that need funds and as an institution that functions to facilitate the flow of payment traffic. For this reason, every commercial bank must maintain the soundness of its bank so that it is able to compete and give confidence to its customers with the best (Hryckiewicz & Scribner Associates, 2017).

In order to maintain public trust, the bank has to maintain its financial performance. Its performance can be assessed from several indicators; one of the main indicators is the bank's financial statements. A number of financial ratios, included in the financial statement, can be calculated for assessing bank soundness. The financial ratios are the results of calculations between two types of bank financial data, which are used to explain the relationship between the two financial data which are generally expressed numerically, either in percentage or times (Riyadi Selamet, 2004).

Profitability ratio is one of the financial ratios measuring the effectiveness of a company in earning profit, or on other words profitability is a ratio that shows the company's ability to generate profits from its operational activities (S, 2002). Profitability in banking world is calculated by Return on Assets (Mostak Ahamed, 2017) (hereinafter abbreviated as ROA). In this case, Return on Assets (ROA) is the ratio between pre-tax profit to total assets. ROA is pivotal for banks because it measures the effectiveness of a company in generating profits by utilizing its assets. According to Bank Indonesia regulations, the best standard for Return on Assets referred to Indonesian bank standard is at least 1.5%. The greater the ROA of a bank, the greater the level of profit achieved by the bank, and the better position of the bank in terms of asset use (Dendawijaya, 2009). The high and low level of profitability of a bank is very influential on the level of public trust. Banks that have a high level of profitability reflect that the bank has a good performance. People tend to choose to use bank services that have high profitability and good performance. High public trust in a bank can increase the amount of Third Party Funds (TPF) which can later affect the smooth operation of operations. Deposits can be channeled back to the community in the form of loans or credit and can be used for investment purposes. The high number of deposits with the assumption that the bank manages it appropriately influences the increase in profitability and smooth operation of operations.

Financial ratios are studies that look at the comparison between the amounts contained in the financial statements using formulas that are considered representative. Financial ratios (financial ratio) are very important for analyzing financial conditions by comparing the ratio at the present time with the ratio at the time that will come. The use of financial ratio analysis provides an image of the state of the company and can be used as a predictive tool for the company in the future. Some financial ratio factors that affect the performance of the bank are CAR, NPL, LDR, BOPO.

Effect of financial ratio on profitability of commercial banks as well is a brand new topic for researchers due to its relative novelty, but all the attention does not necessarily make it easier to understand which functions are actually useful in business. However, despite its importance in the profitability commercial banks, no comprehensive literature review has been conducted in the field. Nevertheless, there is a need for conducting this kind of research works, because it will serve as a roadmap for both academics and practitioners. It will also indicate the current state and direction of research topics, and should be of interest. So, the purpose of this study is to presents a literature review of and classification scheme for research works in effect of financial ratio on profitability of commercial and with the aim of clarifying the ways profitability of banks on businesses. Hence, this study provides managers and academics with guidance in that area by measuring which social media applications are being applied right now in businesses. The review covers 30 journal articles published from 2000 to 2017 and a few months of 2018. The reason for selecting this time period is that the topic is fairly new and most of the research on profitability of commercial banks began to be conducted only during this period. The paper is organized as follows: first, the research methodology used in the study is described; second, the criteria used for classifying the literature are presented; third, the papers are analyzed and the classification results are reported; and, finally, conclusions are presented and the implications of the study are discussed.

Considering the nature of the research on effect of financial ratio on profitability of commercial banks, it would be difficult to group the literature under any specific disciplines. Further evidence of this can be seen from the fact that published articles are spread across various journals in disciplines such as profitability, Capital adequacy ratio (CAR), Non performing loan (NPL), Loan to deposit ratio (LDR), dan Operating income operating costs (BOPO). Consequently, the following online databases were searched to provide a sample bibliography of the target literature:

- Science Direct
- Emerald Insight
- IEEE Xplore
- Taylor and Francy
- Proquest
- Springer Link Online Librarie
- Wiley Inter Science
- Google Scholar

Because of the influance effect of financial ratio on profitabilitis of commercial banks and its various aspects were not clear for the authors, the literature search was based on the general descriptor, "Profitability", "Effect of Financial Ratio", "Capital adequacy ratio (CAR)", "Non performing loan (NPL)", "Loan to deposit ratio (LDR)", and "Operating income operating costs (BOPO)". The search was conducted in Oktober 2018 and was limited to peer reviewed journal articles published between 2000 to 2017 and a few months of 2018. The full text of each article was reviewed to eliminate those articles that were not actually related to the effect of financial ratio. Many of articles were excluded because they did not meet the selection criteria. Considering the nature of the research field, unrelated papers (e.g., papers not related to effect of financial ratio such as Capital adequacy ratio (CAR), Non performing loan (NPL), Loan to deposit ratio (LDR), dan Operating income operating costs (BOPO), dan Profitabilitas) were excluded. Also conference papers and textbooks were excluded. So the search yielded 15 related articles from 11 journals. Each of the 15 articles was carefully reviewed and classified into one of the six categories:

- Capital adequacy ratio (CAR)
- Non performing loan (NPL)
- Loan to deposit ratio (LDR)
- Operating income operating costs (BOPO), and profitability

Finally, the final criterion is the source title. This study focuses only on fourth and third grade journal articles published in accreditation journals and as international journal supporters. Rationally taking these two values is the journal's reputation. These two values are usually used when the author writes an article. This value characteristic is also high and very selective / low acceptance level. As such, these journals only accept good quality articles.

**Classification Of The Literatur**

As articulated above, reviewed articles are classified into four categories and each of them is discussed as follows.

**Capital Adequacy Ratio (CAR)**

CAR (Capital Adequacy Ratio) reflects bank's quality. Based on SE BI No.15 / 41 / DKMP dated October 1st, 2013, CAR or the Minimum Capital Requirement Ratio, referred to as KPMM, the ratio between capital and risk-weighted assets based on Indonesia Bank provisions concerning minimum capital requirement for commercial banks (Kuncoro dan Suhardjono, 2002) . (Leon Boy dan Ericson Sony, 2007) CAR is the required percentage of minimum capital adequacy according to BIS (bank for internatioal) as it is known that the banking crisis in Indonesia has caused a considerable decline in bank capital, to overcome this, the Indonesian government and banks have carried out various restructuring and recapitalization measures. Banking with the aim that the bank's capital conditions are in line with international standards as well as the conditions before the banking crisis. CAR variables can affect the level of profitability of Islamic banks. The higher the CAR, the better the bank's ability to bear the risk of each productive asset at risk. If the CAR is high then the bank is able to finance operational activities and make a substantial contribution to profitability. The high ratio of capital can protect depositors and increase public trust in banks, and ultimately can increase the acceptance of a bank. According to(Yuliani, 2007), (Azwir Yacub, 2006), (Diana, 2009) CAR has a positive effect on ROA(Mili, Sahut, Trimeche, & Teulon, 2017). As with (Setiawan, 2017), (Mawardi, 2005), (Rotinsulu, Kindangen, & Pandowo, 2015), (Eng, 2013) states that CAR has no significant effect on ROA.

**Non Performing Loan (NPL)**

NPL is the ratio used to measure the bank's ability to cover the risk of failure of credit repayment by the debtor (Darmawan, 2004). Non Performing Loan (NPL) are one measure of the bank's business risk ratio which shows the magnitude of the risk of non-performing loans in a bank (Ali, 2004). Non-Performing Loan (NPL) are the ratio of non-performing loans to total loans. So that the higher this ratio, the worse the quality of bank credit will cause the number of non-performing loans to increase, the greater the likelihood of a bank in troubled conditions. NPL reflects credit risk, the smaller the NPL, the smaller the risk of the credit borne by the bank. In order for the bank's value to this ratio, both Bank Indonesia set the net NPL ratio criteria below 5%. The higher the NPL, the smaller the ROA will be caused by bad interest income. Research on credit risk is carried out by (Mawardi, 2005) which states that the high condition of Non-Performing Loan (NPL) will increase the cost of both earning assets and other costs, thus potentially causing losses to banks, or in other words Non Performing Loans (Bongini, Cucinelli, Battista, & Nieri, 2018). Loan (NPL) decreases bank profitability. Results of (Sudarmawanti, 2015) research from (Muhamad, 2015) which shows that Non Performing Loan (NPL) have no significant effect on Return on Assets (ROA).

**Loan to Deposit Ratio (LDR)**

According to (Kasmir, 2011) Loan to Deposit Ratio (LDR) is a ratio to measure the composition of the amount of credit given compared to the amount of public funds and own capital used. Loan to Deposit Ratio (LDR), one of the financial performance assessment indicators measuring the level of liquidity in a bank, which is also called the ratio of loans to total third party funds or commonly used to measure third party funds channelled in the form of credit. Credit distribution is the bank's main activity. Loan to Deposit Ratio or called Banking Ratio according to (Harjito Agus, 2010) is a ratio to determine the ability of a bank to repay obligations to customers who have invested their funds in loans given to their debtors. (Leon Boy dan Ericson Sony, 2007) Therefore, this activity is the bank's main income. Greater distribution of funds in the form of credit compared to deposits or savings in a bank brings the consequence of the greater risk that must be borne by the bank. LDR shows how much bank funds are released into credit. The higher the Loan to Deposit Ratio (LDR), the bank's profit will increase , with the increase in bank profits, the bank's performance also increases. Research on Loan to Deposit Ratio (LDR) conducted by (Setiawan, 2017) explains that the Loan to Deposit Ratio (LDR) has a positive and significant effect on Return on Assets (ROA). (Diana, 2009) dan (Dedi, 2013) which shows that the Loan to Deposit Ratio (LDR) has a significant positive effect on Return on Assets (ROA). However, the research conducted by (Yuliani, 2007) shows that the Loan to Deposit Ratio (LDR) has no effect on Return on Assets (ROA).

**Operating income operating costs (BOPO)**

(Setiawan, 2017) Operational Income Operating Costs (BOPO) is a comparison between operating costs and operating income. BOPO has an influence on bank profitability since it shows how much banks can do the cost efficiency incurred. This ratio is often referred to the efficiency of ratio that is used to measure the ability of a bank's management to control its operational costs against operating income. BOPO ratio shows the operational risk yielded by the bank. Operational risk occurs due to uncertainty regarding the bank's business activities, including possible losses from operations if there is a decline in profits affected by the structure of the bank's operating costs and the possibility of failure of services and its new products offered. Any increase in operating costs will result in a decrease in profit before tax which in turn will reduce the profit or profitability of the bank. Bank Indonesia determines the best rate for the BOPO ratio is below 90%, because if the BOPO ratio exceeds 90% to close to 100%, the bank can be categorized as inefficient in carrying out its operations. According to

(Frianto, 2012) that BOPO / Operating income operating costs ratios which are often called efficiency ratios are used to measure the ability of a bank's management to control operating costs against operating income. The BOPO ratio describes how much the bank reduce its operating costs on one side, and how much the ability to increase its operating income on the another side. (Budi, 2008), (Setiawan, 2017) shows that there is a significant negative influence between BOPO and ROA. (Yatiningsih, 2015) obtained results that BOPO has a negative and significant effect on ROA.

Table 1 Articles distribution by Year

| No | Publication Years | Number of Articles |
|---|---|---|
| 1 | 2012 | 1 |
| 2 | 2013 | 1 |
| 3 | 2014 | 0 |
| 4 | 2015 | 1 |
| 5 | 2016 | 5 |
| 6 | 2017 | 5 |
| 7 | 2018 | 3 |
| | Total | 16 |

As shown in the figure, the number of review studies has grown rapidly since 2012 and is likely to continue increasing in the next five-year interval. The publication trend of review studies evidences the increasing importance of review type studies in profitability profitability of comercial banks research reflects the maturity of the discipline.

Table 2 Article distribution between 2002-2018

| No | Journal | Scimago Journal Rank | Number of Articles |
|---|---|---|---|
| 1 | Economic Modelling | Q2 | 1 |
| 2 | Finance Research Letters | | 1 |
| 3 | Financial Markets, Institutions & Money | Q1 | 1 |
| 4 | Research in International Business and Finance | Q2 | 2 |
| 5 | J. Finan. Intermediation | Q1 | 1 |
| 6 | Journal of Banking & Finance | Q1 | 2 |
| 7 | Journal of Banking and Finance | | 1 |
| 8 | International Review of Economics and Finance | Q2 | 1 |
| 9 | Journal of International Money and Finance | Q1 | 1 |
| 10 | British Accounting Review | Q2 | 1 |
| 11 | Future Business | | 1 |
| 12 | Economics and Finance | Q3 | 2 |
| 13 | Economic Analysis and Policy | | 1 |
| | Total | | 16 |

Table 3 Articles Accredited

| No | Journal | Tahun |
|---|---|---|
| 1 | Analysis of the Effect of Roa, Ldr, Nim and Npl Ratios on Abnormal Banking Stock Returns in Indonesia During the Subprime Mortgage | 2009 |
| 2 | Effect CAR and LDR on Return On Assets | 2016 |
| 3 | Analysis of The Effect of CAR, NPL, LDR, and BOPO on Profitability (Roe) In Islamic Commercial Banks | 2014 |
| 4 | Effect Of Financial Ratio On Indonesian Islamic Banking Profitability | 2018 |
| 5 | Analysis of The Influence of Interest, Inflation, CAR, BOPO, NPF on The Profitability of Islamic Banks | 2013 |
| 6 | The Effect Of CAR, BOPO, NPL, NIM And LDR to Bank Profitability | 2018 |
| 7 | Analisis Pengaruh Capital Adequacy Ratio (CAR), Loan To Deposit Ratio (LDR), Size, Bopo Terhadap Profitabilitas | 2007 |
| 8 | Effect of Financial Ratios CAR, LDR, NIM, BOPO, NPL on ROA | 2016 |
| 9 | Effect CAR, LDR, NPL, BOPO, on Profitability Banks | 2017 |
| 10 | Analysis on the Effect of CAR, LDR, NPL, BOPO, and SIZE on ROA | 2016 |
| | Total | 10 |

## Conclusions

Based on the results of the review literature that the hypothesis for this paper assumes that the Capital Adequacy Ratio (CAR) affects Bank Profitability. Loan to Deposit Ratio (LDR) affects the Bank's Profitability. Non-Performing Loans (NPLs) affect Bank Profitability. The results of this review are only a conceptual starting point for starting an integrated discipline. It is realized that this literature study has several shortcomings, including the minimum number of publication provider websites that are used as data sources. In addition to the three websites that are used as data sources in this literature review there are actually many more websites that provide scientific publications. However, the website cannot be included because of the limited access that the author has. Thus further studies need to be improved on the wider literature sources to gain an understanding of the implementation of concepts in more diverse case studies.

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