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Research Article

EFFICIENCY OF BANKING PROFITS IN INDONESIA

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ABSTRACT

The profitability of commercial banks during 2010-2016 tends to increase. The increase came from credit interest income of credit (Financial Stability Review-FSR, March 2017). But the increase in profit is not matched by banking efficiency based on the ratio of Operational Costs to Operating Income. Based on the results of the quadrant analysis concluded that: a.) Commercial banks in the same core capital group have different profit efficiency. b.) Banks that have the same bank size have different profit efficiency values. c.) Banks that have a high profit level are not necessarily high profit efficiency values and vice versa.

INTRODUCTION

Based on the Financial Stability Review (FSR-2018) the condition of the financial system in Indonesia is reflected in the performance of the banking industry which dominates the Indonesian financial system by 70%. This shows that the financial system in Indonesia is strongly influenced by the stability of a healthy and efficient banking industry. Strengthening capital levels, improving the banking intermediary function despite its still limited and adequate banking liquidity are factors that strengthen the foundation of the financial system until the end of 2017.

During 2010-2016 the profitability of commercial banks tended to increase. But efficiency based on the ratio of Operational Costs to Operating Income tends to be inefficient. So this study aims to further analyze the conditions of profit efficiency of commercial banks based on the core capital group, bank size and profit of commercial banks.

Empirical research on bank efficiency has been carried out with a variety of research results. Among them by Berger, et.all (1997), Muliamanet.all (2003), Putri and Niki (2008), Wijayanto and Sutarno (2010), Ivan and Siti (2011), Kamau (2011), Sharma, et.all (2012), Georgios, et. all (2012), Barth, *et al* (2013), Rina (2013), Faza and Hosen (2013) and Anwar (2016). Previous research shows differences in results regarding bank efficiency. Based on these differences, it is necessary to review the efficiency of commercial banks in 2010-2016. This study will further analyze profit efficiency by mapping profit efficiency based on core capital, bank size and profit.

Literature Review

Efficiency

Porcelli (2009) revealed that efficiency is one part of the overall assessment of company performance. Efficiency is one of the characteristics in the production process in addition to capacity, effectiveness and flexibility. Efficiency is a measure that shows how well economic resources are used in the production process to produce output (Gaspersz, 2011: 221-224).

Bank Profit Efficiency

Every company has a goal to achieve economic profit as much as possible, so the company makes the largest possible difference between total revenue and total economic costs. So that profit maximization is assumed to be a driver of the basic goals of decisions made by the company (Nicholson and Snyder, 2007: 271-273).

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The following equation of economic profit (economic profit function) describes the company in maximizing profit based on price (Nicholson and Snyder, 2008: 369).

$$\pi = Pq - C = Pf(k,l) - vk - wl \quad (1)$$

Where variables k and l are inputs which are functions of output [(q = f (k, l)]. Variable P is the value of output. Variables k and l are inputs used to maximize profit where P is the price of output, v and w is the cost of each input k and 1. So the profit function in maximizing profit is as follows:

$$\pi(P,v,w)\max_{k,l} \pi(k,l) = \max_{k,l}[Pf(k,l) - vk - wl] \quad (2)$$

So the profit function is a function of the output value (p) and the input costs v and w.

$$\pi^* = f(p,v,w) \quad (3)$$

Berger and Mester (1997) suggested that in measuring profit efficiency (profit efficiency) a financial institution uses two concepts of efficiency, namely : Standard Efficiency and Alternative Profit Efficiency. Both of these concepts are measured based on the concept of inefficiency derived from the profit function, so-called profit efficiency. Generally expressed as actual profits compared to the maximum profits that should be achieved by a bank. The efficiency value is between 0 and 1, so that the smaller of 1 (one) means the more inefficient (Coelli *et al*, 2005: 244).

This study uses the concept of Alternative Profit Efficiency. This concept is often associated with an imperfect market competition, where banks are assumed to have market power in determining output prices but not at input prices. According to Astiyah and Jardine (2011), because of the different types of markets, the most prominent difference between these two models is the exogenous variables in achieving maximum profit, namely the level of output and the bank can determine the output price.

The Alternative Profit Efficiency approach, the bank will maximize profits by choosing the output price, p, and the number of inputs, x, for a number of outputs, y, and the input price, r, which has been set. The indirect profit function is also called the indirect profit alternative function which is the solution to the optimization problem with the equation, namely:

$$\text{Max } \pi_{p,x}, = P'Q = (p,w)(y,-x)' \quad (4)$$

$$\text{s.t } g(p,y,w,z) = 0h\,(y,x) = 0$$

According to Astiyah and Jardine (2006) and Ascaryaet. al (2012) that to measure the efficiency of banking in Indonesia using the concept of Alternative Profit Efficiency. The choice of the concept of profit efficiency measurement because the type of banking market in Indonesia is more likely to market imperfect competition (imperfect market competition). One characteristic is the existence of a bank's market power in determining the level of prices and services provided at a certain level of output, so that the level of output is an exogenous variable in achieving maximum profit.

Berger and Mester (1997) explained that the concept of Alternative Profit Efficiency is more suitable to be used because it can provide useful information if one or more conditions occur below, namely: 1.) If there are many differences in the quality of banking services that are not measurable. 2.) If the output is not fully variable, the bank cannot reach every scale of output and product mix. 3.) If the competition market is not perfect, so the bank has some market power over the price set. 4.) If the output price is not measured correctly so the frontier efficiency standard will give bad results.

Determination of input and output used in measuring bank efficiency using The Intermediation Approach. This approach views financial institutions as intermediation, changing and transferring financial assets from surplus units to deficit units.Variable inputs include labor costs, capital and interest payments on deposits. Output is measured in the form of loans and financial investments (Matthew and Thompson, 2005: 142).

Berger and Humphrey (1992) in their research suggested that the intermediation approach is more appropriate for evaluating all banks compared to the production approach. Sealey and Lindley (1977) in Matthews (2010) recognize that the main function of banks is financial intermediaries that collect deposits and convert them into loans and other productive assets. Maghyereh and Awartani (2014) suggest that with an intermediation approach it can evaluate the importance of efficiency frontier to probability by minimizing total costs (not just production costs) needed to maximize profit.

RESEARCH METHODOLOGY

There were 25 conventional commercial banks that were the sample of this study. Consists of 21 National Private Commercial Banks and 4 Persero Commercial Banks.

This study uses a parametric approach to measure profit efficiency. The measurement uses the Stochastic Frontier Approach (SFA). The parametric approach takes measurements using stochastic econometrics and attempts to eliminate interference from the effects of inefficiency. Previous research conducted by Muliaman, *et al*l (2003), Izah and Sudin (2008), Sharma *et al*l (2012) measures efficiency by using the Stochastic Frontier Approach (SFA).

This study uses a panel data model developed by Battese and Coelli (1995) in the form of a translog of production functions. The advantage of this model is that it can estimate the level of inefficiency of the company and identify the factors that influence efficiency in one stage of data processing. This equation model is used by Kong *et al* (1999). The equation model is as follows:

$$\ln y_{it} = \beta_0 + \sum_j^m \beta_j \ln x_{jit} + \beta_T t + \beta_{TT} t^2 + \sum_j \beta_{Tj} t \ln x_{jit} + \sum_j^m \sum_{k\geq j}^m \beta_{jk} \ln x_{jit} \ln x_{kit} + (v_{it} - u_{it}) \quad (5)$$

Where is the time trend; x is input; j and k are input indices (j, k = 1.2 represent such as labor cost, capital funds, interest costs); V_it is a random variable that is assumed to be iid. $N(0,\sigma_v^2)$ is a technical inefficiency error, U_it is assumed to be distributed independently of V_it so that U_it is the intersection of the distribution $N(m_{it},\sigma_v^2)$.

According to Battese and Coelli (1995), it is assumed that the distribution parameter inefficiency (m_{it}) is a function of variables that explain the level of technical inefficiency with the equation:

$$m_{it} = \delta_0 + \sum_{k=1}^{m'} \delta_k z_{kit} \quad (6)$$

Where z_{it} it is a company-specific factor that affects technical inefficiency. $\delta_k$is an unknown parameter that will be estimated. The model developed by Battese and Coelli (1995) can estimate the level of company inefficiency and identify factors that influence efficiency in one stage. Unlike the case with a two-stage estimation procedure. The disadvantage is that it is not consistent with assumptions independently and the effect of technical inefficiencies is separately distributed (Kong *et al*. 1999).

The measurement of profit efficiency uses the translog model of Alternative Profit Efficiency (Berger and Mester, 1997). To measure and analyze Indonesia's banking efficiency performance, using the Stochastic Frontier Approach (Aigner *et al*, 1976) developed by Berger and Mester (1997). The Alternative Profit Efficiency approach uses the amount of output as data, not the output price. In the calculation using the form of the profit function translog (profit function).

$$\pi = f(w, y, z) \quad (7)$$

The total profit referred to is the total profit before tax. To avoid negative log values, change the variable profit to:

$$\ln(\pi + \theta + 1) \quad (8)$$

where π is profit, θ is the absolute value of the minimum profit (π) of all sample banks. Thus, for banks with the lowest annual profit, the dependent variable of the earnings function will be equal to ln (1) = 0.

So that the form of the Stochastic Alternative Profit Efficiency equation is :

$$\ln(\pi_n + \theta_n) = f(w_{jn}, y_{kn}, z_{ln}) + v_i - u_i \quad (9)$$

Where: π_n is the total bank profit n. w_{jn}, the cost of input j to the bank n. y_{kn}, the amount of output k in the bank n. z_{ln}, input or output factors that affect profit efficiency. u_i, an error factor that can be controlled. v_i, random error factors cannot be controlled. It is assumed that v is normally distributed N $(0,\sigma_i^2)$ and u is distributed half-normal, $|N(0,\sigma_i^2)|$where u_{it}= $(u_i \exp(-h(t-T))^3)$ and h are the parameters to be estimated. θ_n, the minimum absolute value of bank profit n. Constants $\theta_n = |(\pi_n)^{min}| + 1$ added to each individual bank that has a minimum profit amount. So a bank that experiences a loss will be worth ln (1) = 0.

Input variables, consisting of labor costs (salary / total asset costs), physical capital costs ((operational costs-salary costs) / total fixed assets)) and interest costs (interest costs / total third party funds). Output variable, consisting of the amount of credit.

The quation is as follows

$$\begin{aligned}\ln[(\pi) + |(\pi^{min}) + 1|] &= \beta_0 + \beta_{w1}\ln(w_{1i}) + \beta_{w2}\ln(w_{2i}) \\ &+ \beta_{w3}\ln(w_{3i}) + \beta_k \ln(y_i) + \frac{1}{2}\beta_{w11}\ln(w_{1i})^2 \\ &+ \frac{1}{2}\beta_{w22}\ln(w_{2i})^2 + \frac{1}{2}\beta_{w33}\ln(w_{3i})^2 \\ &+ \beta_{w1y}\ln(w_{1i})\ln(y_i) + \beta_{w2y}\ln(w_{2i})\ln(y_i) \\ &+ \beta_{w3y}\ln(w_{3i})\ln y_i + \mu_k \text{Trend} \\ &+ \frac{1}{2}\mu_{kk}(\text{Trend})^2 + \mu_{w1k}(\text{Trend})\ln(w_{1i}) \\ &+ \mu_{w2k}(\text{Trend})\ln(w_{2i}) \\ &+ \mu_{w3k}(\text{Trend})\ln(w_{3i}) \\ &+ \mu_{yk}(\text{Trend})\ln(y_i) + v_{a\pi} - u_{a\pi}\end{aligned} \quad (10)$$

Empirical Result

The results of the calculation of profit efficiency are 0.408. This means that commercial banks during 2010-2016 tend to be less efficient. Based on the average overall profit efficiency with the Bank Intermediation Approach (Figure 1) from 2010 to 2011, it increased from 0.458 to 0.494. In 2012, the average profit efficiency decreased until 2016.

Mapping in the form of a quadrant compares profit efficiency based on core capital, bank size, profit and input costs consisting of labor costs, capital costs and interest costs.

Based on Core Capital

Kelompokbank umum berdasarkan kelompok usaha disusun berdasarkan Peraturan Bank Indonesia nomor 14/26/PBI/2012 tentang Kegiatan Usaha dan Jaringan Kantor Berdasarkan Commercial bank groups based on business groups are prepared based on Bank Indonesia Regulation number 14/26 / PBI / 2012 concerning Business Activities and Office Networks Based on Bank Core Capital. Banks are commercial banks as referred to in UU No. 7 of 1992 concerning Banking as amended by UU No. 10 of 1998. Core capital referred to in the provisions of Bank Indonesia which regulates the Minimum Capital Requirement.Core Capital based on Bank Indonesia Regulation Number 15/12 / PBI / 2013 concerning Commercial Bank Minimum Capital Requirement consisting of: 1). Common equity tier 1 includes: paid up capital and disclosed reserves. 2). Additional core capital (additional tier 1). Core capital in the form of a disclosed reserve, one of the sources, comes from previous years' profit and current year profit (retained earnings).

Berger and Mester (1997) suggested that the level of bank capital directly affects the cost of the bank by providing an alternative source of funds used to channel credit. So that the bank in increasing profit efficiency is able to combine inputs and outputs in optimal proportions based on prevailing prices. Table 1 shows that in the same group of core capital the input combinations used by each commercial bank differ.

Commercial banks that have core capital of between 1-5 Trillion Rupiah have various combinations of input costs used. Based on the combination of input costs used to generate profits with different efficiency values. Like bank B11, B14 and bank B21 have a combination of low input costs but have

different profit efficiency values. B21 Bank is more efficient than bank B11. Bank B11 is more efficient than bank B14. The combination of high input costs results in a low profit efficiency value (B12 and B13 banks).

Commercial banks that have core capital (5 trillion - 30 trillion IDR). Bank B7 has a combination of high category input costs, but the value of profit efficiency is higher compared to bank B10 which has a combination of input labor costs and low capital costs and high interest costs. Likewise with commercial banks that have core capital of more than Rp. 30 Trillion. By having the same input cost combination, we get different profit efficiency values.

Based on Bank Size

Bank size is used to distinguish bank performance by comparing the same size (Rose and Hudgins, 2010: 191). The number of assets owned by each bank becomes the bank size determinant. Assets owned by banks come from their own capital, loans from other institutions and the largest amount is the amount of Third Party Funds. The amount of deposits by banks is used for cash assets, total loans and total securities (Miller and Vanhoose, 2007: 192-193).

The mapping results in Table 2 show that in one quadrant with the same bank size the bank has a different profit efficiency value. Small banks in Q2 and Q3 have different profit efficiency values. Likewise with banks that are large in the Q1 and Q4 quadrants, have different profit efficiency values.

Ritter and Silher (1993: 87) suggest that small banks do not have the power to change economic conditions. Large banks tend to get capital at a lower cost because they come from business diversification carried out by banks (Rose and Hudgins, 2010: 190-191). Based on the results of mapping (Q1), Q1 shows that the size of a large bank (bank size) is relatively cheap, so the combination of input costs is relatively low, especially the cost of interest. Low input costs will affect the level of profit obtained by the bank. So that the greater the size of the bank (bank size) the more efficient.

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But it does not apply to all large bank sizes. The Q4 quadrant shows that banks with large input costs are relatively high, although some banks charge low interest rates but labor costs or capital costs are high. Q2 and Q3 quadrants are small in size but have different profit efficiency values. Inefficient due to inefficient use of deposits compared to capital and labor in the intermediation process (Kamau, 2011).

Based on the Average Profit of Commercial Banks

The mapping results based on quadrants in Table 3 show that commercial banks (Q1) that obtain high profits have different profit efficiency values in the same quadrant. This is caused by a combination of input costs used by the bank. Bank B7, the third combination of high input costs, but has the highest profit efficiency value compared to bank B22 and other commercial banks in the Q1 quadrant.

Quadrant 2 (Q2) commercial banks that have low profit rates but have a high level of profit efficiency. Quadrant 3 (Q3) bank group with low profit level, low profit efficiency level. Based on Table 3 the difference in profit efficiency values because each commercial bank has a different combination of input costs. Commercial banks that have a combination of high input costs generate low profit and low efficiency, namely banks B12 and B13.

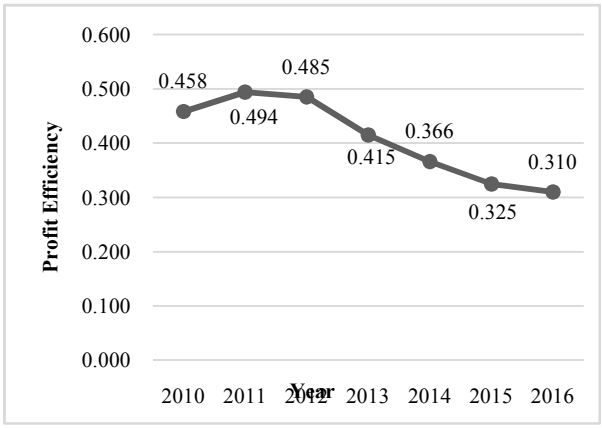

Figure1 Average of Commercial Bank Profit In 2010 – 2016
Data source: Data processed.

Table 1 Profit efficiency mapping results based on core capital and input costs

Bank Code	Core Capital	Labor Cost	Capital Cost	Interest Cost	Average Profit Efficiency
B1	(1 - 5 TriliunRp)	L	L	H	0,244
B2		L	L	H	0,306
B3		H	L	R	0,315
B4		L	L	H	0,386
B9		L	H	H	0,202
B11		L	L	L	0,615
B12		H	H	H	0,038
B13		H	H	H	0,337
B14		L	L	L	0,380
B15		L	L	H	0,654
B17		L	H	L	0,234
B18		L	H	R	0,364
B19		H	H	R	0,105
B20		L	L	H	0,300
B21		L	L	L	0,670
B7	(5 - 30 TriliunRp)	H	H	H	0,636
B8		L	H	L	0,331
B10		L	L	H	0,550
B25		L	L	H	0,386
B5	(≥ 30 Triliun)	L	H	L	0,458
B6		L	L	L	0,269
B16		L	L	H	0,623
B22		L	L	L	0,480
B23		L	L	L	0,459
B24		L	H	L	0,844

Source : data, processed.H :HighL: Low

Table 2 Profit efficiency mapping based on bank size

QUADRANT	Bank Code	Labor Cost	Capital Cost	Interest Cost	Average Profit Efficiency
Q1 (Bank Size Big-Efficiency High)	B20	L	L	H	0,300
	B21	L	L	L	0,670
	B22	L	L	L	0,480
	B23	L	L	L	0,459
	B24	L	H	L	0,844
Q2 (Bank Size Small-Efficiency High)	B2	L	L	H	0,306
	B3	H	L	L	0,315
	B5	L	H	L	0,458
	B10	L	L	H	0,550
	B11	L	L	L	0,615
Q3 (Bank Size Small - Efficiency Law)	B1	L	L	H	0,244
	B4	L	L	H	0,386
	B6	L	L	L	0,269
	B7	H	H	H	0,636
	B8	L	H	L	0,331
	B9	L	H	H	0,202
	B12	H	H	H	0,038
	B13	H	H	H	0,337
	B14	L	L	L	0,380
Q4 (Bank Size Big - Efficiency Law)	B15	L	L	H	0,654
	B16	L	L	H	0,623
	B17	L	H	L	0,234
	B18	L	H	L	0,364
	B19	H	H	L	0,105
	B25	L	L	H	0,386

Source : data, processed. H : High L: Low

Table 3 Profit efficiency mapping based on profit average and input cost

QUADRANT	Bank Code	Labor Cost	Capital Cost	Interest Cost	Average Profit Efficiency
Q1 (Profit High-Efficiency High)	B5	L	H	L	0,458
	B7	H	H	H	0,636
	B22	L	L	L	0,480
	B23	L	L	L	0,459
	B24	L	H	L	0,844
Q2 (Profit Low-Efficiency High)	B10	L	L	H	0,550
	B11	L	L	L	0,615
	B15	L	L	H	0,654
	B16	L	L	H	0,623
	B21	L	L	L	0,670
Q3 (Profit Low-Efficiency Law)	B1	L	L	H	0,244
	B2	L	L	H	0,306
	B3	H	L	L	0,315
	B4	L	L	H	0,386
	B6	L	L	L	0,269
	B8	L	H	L	0,331
	B9	L	H	H	0,202
	B12	H	H	H	0,038
	B13	H	H	H	0,337
	B14	L	L	L	0,380
	B17	L	H	L	0,234
	B18	L	H	L	0,364
	B19	H	H	L	0,105
	B20	L	L	H	0,300
	B25	L	L	H	0,386

Source : data, processed.H : High L: Low

CONCLUSION

Based on the Results of Mapping Analysis based on core Capital, Bank size and Profit are Concluded that

1. Within the same core capital category, commercial banks use the same combination of input costs to produce different profit efficiency values for each commercial bank.
2. Not all commercial banks that have a large bank size have high profit efficiency, and vice versa. The combination of input costs owned by commercial banks is one of the determinants of the level of profit efficiency.

The high profit level does not always have a high profit efficiency value, and vice versa. The level of profit is high, the combination of high input costs has high profit efficiency, meaning that the combination of input costs used by each commercial bank influences the level of profit efficiency through the amount of profit generated.

References

Financial Stability Review–FSR, March 2018)

Aigner, Dennis, C.A K. Lovell dan Peter. S, 1977. Formulation and Estimation Of Stochastic Frontier Production Function Models, Journal of Econometrics 6 (1977) 21-37, North-Holland Publishing Company.

Anwar, Mokhamad, 2016. Banking Efficiency in Indonesia: Islamic Banks vs. Conventional Banks, Monetary and Banking E-Bulletin Bulletin, Volume 18, Number 3, January 2016, p. 307-354.

Ascarya, 2012. Dual Monetary Policy Transmission and Effectiveness Flow in Indonesia, Bulletin of Monetary Economics and Banking, Vol. 12, No. 3, January 2012, p. 283-315.

Astiyah, Siti and Jardine A. H, 2006. Function of Intermediation in Banking Efficiency in Indonesia: Derivation of Profit Functions, Bulletin of Monetary Economics and Banking, March.

Battese, G.E danCoelli, T.J, 1995. A Model for Technical Inefficiency Effects in A Stochastic Frontier Production Function for Panel Data, Empirical Economics (1995) 20:325-332.

Barth, James R., Chen Lin, Yue Ma, Jesus Seade, Frank M. Sang, 2013. Do Bank Regulation, Supervision, and Monitoring Enhance or Impede Bank Efficiency? Journal of Banking & Finance 37 (2013) 2879-2892.

Berger, Allen N and Humphrey D. B, 1992. Output Measurement in The Service Sector, The National Bureau of Economic Research, January 1992, pp 245-300.

Berger, Allen N and Mester, Loretta J, 1997, Inside the Black Box : What Explain Differences in The Efficiencies of Financial Institutions, Forthcoming, Journal of Banking and Finance, Vol. 21.

Coelli, Timothy J, D.S Prasada Rao, Christopher J.O'Donnell and George E. B, 2005. An Introduction To Efficiency and Productivity Analysis, Second Edition, Springer.

Faza, Muh. Firdaus and Hosen Muh. Nadratuzzaman, 2013. Efficiency of Islamic Commercial Banks Using the Two-Stage Data Envelopment Analysis Approach, Bulletin of Monetary Economics and Banking, October.

Gaspersz, Vincent, 2011. Managerial Economics, Eighth Edition / Revised Edition, Publisher Vinchristo Publication, July.

Georgios E. Chortareas, Claudia Girardone, Alexia Ventouri, 2012. Bank Supervision, Regulation and Efficiency : Evidence From The European Union, Journal of Financial Stability 8 (2012) 292-302.

Ivan. Gumilar SP and Siti, Komariah, 2011. Measurement of Performance Efficiency with the SFA Method in Islamic Banking, Four-Month Monthly Scientific Journal, ISSN 1411-9366, Vol. 7 No. 2.

Izah, Mohd. Tahir danSudin, Haron, 2008. Technical Efficiency Of The Malaysian Commercial Banks; A Stochastic Frontier Approach, Bank and Bank System, Volume 3 Issue 4.

Kamau, A. W, 2011. Intermediation Efficiency and Productivity Of The Banking Sector In Kenya, Interdisciplinary Journal of Research in Business, Vol. 1, Issue 9, (pp. 12-26) September, October.

Kong, Xiang, Marks, Robert E dan Wan Guang Hua, 1999. Technical Efficiency, Technological Change and Total Factor Productivity Growth in Chinese State-Owned Enterprises in The Early 1990s, Asian Economic Journal 1999, Vol. 13 No.3.

Maghyereh A. Iand Awartani, Basel, 2014, The Effect of Market Structure, Regulation and Risk On Banks Efficiency, Journal of Economic Studies Vol. 41 No. 3, 2014 pp. 405-430.

Matthews, Kent and Thompson, John, 2005. The Economics of Banking, John Wiley & Sons Ltd, The Atrium.

Matthews, Kent, 2010, Banking Efficiency in Emerging Market Economics, Cardiff Business School, Working Paper Series, ISSN 1749-6101, November 2010.

Miller, Roger LeRoydanVanHoose David D, 2007. Money Banking & Financial Markets, 3rd edition, Thomson Advantage Books.

Muliaman D. Hd, Wimboh S, Eugenia M, DhanielIlyas, 2003, Parametric Approach to Banking Efficiency, Bulletin of Monetary Economics and Banking, December.

Nicholson, Walter dan Snyder, Christopher, 2008. Microeconomics Theory, Basic Principles and Extensions, 10th Edition, International Student Edition, Thomson South-Western.

Nicholson, Walter dan Snyder, Christopher, 2007. Theory and Application of Intermediate Microeconomics, 10th Edition, International Student Edition, Thomson South-Western.

Porcelli, Francesco, 2009. Measurement of Technical Efficiency. A Brief Survey An Parametric and Non-Parametric Techniques.

Putri, Vicky Rahma and NikiLukviarman, 2008. Measurement of Commercial Bank Performance with an Efficient Approach: A Study of Public Banking in Indonesia, JAAI Volume 12 No. 1, June 2008 p. 37-52.

Ritter, Lawrence S danSilher, William L, 1993. Principles of Money, Banking and Financial Markets, 8th edition, Basic Books Inc.

Rose, Peter. S dan Hudgins Sylvia C, 2010. Bank Management and Financial Services, 8th Edition, International Edition, McGraw-Hill.

Sharma, Suparn; Dalip Raina danSurender Singh, 2012. Measurement Of Technical Efficiency and Its Sources An Experience Of Indian Banking Sector, Int. Journal Of Economics and Management 6 (1) : 35-57.

Wijayanto, Andi and Sutarno, 2010. Efficiency Performance of Intermediation Functions of State-Owned Banks in Indonesia by Using DEA, Journal of Finance and Banking, Vol. 14 No: January 1, 2010 p. 210-221, Accredited SK No. 167 / DIKTI / KEP / 2007.

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