THE EFFECT OF INDEPENDENCY AND GENDER DIVERSITY OF THE BOARD OF COMMISSIONERS ON COST EFFICIENCY: INTERNAL AUDIT QUALITY AS A MODERATING VARIABLE

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ABSTRACT

This study examines the effect of independency and gender diversity of the board of commissioners (BOC) on cost efficiency with internal audit quality as a moderating variable. Cost efficiency is measured by using Stochastic Frontier Analysis (SFA) intermediation approach with frontier software 4.1 while the hypotheses are tested using panel data regression analysis. The sample of the study is 22 Conventional Commercial Banks listed on the Indonesia Stock Exchange in the period of 2008-2017. The results showed that independency and gender diversity of BOC had a positive effect on cost efficiency. Beside, this study also found that internal audit quality moderates the relationship between independence and gender diversity of BOC and cost efficiency.

Key words: Board of Commissioner, Cost Efficiency, Gender Diversity, Independency, Internal Audit Quality

INTRODUCTION

Banking financial performance in Indonesia in 2016, in terms of efficiency with operating expenses per operating income, average banks in Indonesia are still lower than other Southeast Asian countries (Malaysia, the Philippines, Thailand and Singapore). A low efficiency ratio indicates an inability to survive and it can reduce competitiveness. However, the profitability of Indonesian banks has the greatest Return on Assets (ROA), despite the slowdown in economic and credit development. Based on the domestic financial performance of Indonesian banks in the period 2010 to January 2019 from ROA has decreased from 2.86 per cent to 2.59 per cent for and the value of operating expenses per operating income is quite high from 86.14 to 87.79 per cent. This phenomenon shows the large opportunities for improvement for the efficiency of Indonesian banks.

For the banking sector whose main function as intermediation, there is an alternative method to measure efficiency rather than using financial ratios that is the parametric method SFA with a cost efficiency approach (Titova, 2016; Tripe & Ngo, 2017. Berger & DeYoung (1997) stated that the concept of cost efficiency is suitable for financial institutions because the banking base uses economic optimization as a market reaction, price, and competitiveness. Measuring cost efficiency by considering the input and output of banks, are bank resources that must be managed optimally.

Banking competitiveness can be reflected in the level of efficiency (Mulyawan et al., 2014) but the magnitude of this level of efficiency will greatly depend on various factors, including the issue of independency and gender diversity of BOC in the company as an internal mechanism of corporate governance that received much attention from academics, market participants, and regulators. The board of director (BOD) can strengthen the value of the company through monitoring and control services based on their experience and knowledge (Fama & Jensen, 1983). Previous research stated that companies with more independent board of directors would increase efficiency (Su & He, 2012) but were also found to have a negative effect on efficiency (Soba et al., 2016).

The gender diversity of BOC shows one of the variations contained in BOC. A greater percentage in gender diversity indicates the greater presence and involvement of women on the BOC. Personality, communication style, educational background and career experience and expertise (Liao, Luo, & Tang, 2014), contribute to a broader perspective in decision making. Alongside, gender diversity could influences bank efficiency (Arayssi, et al., 2016; Titova, 2016). Ramly, et al. (2015) found that women in BOD would be more effective in playing their roles if they were also independent BOD. Even gender diversity will improve performance in weak corporate governance because it can provide additional monitoring for BOD (Gul, et al., 2011).

This study examines the role of internal audit quality to moderate the effect of independency and gender diversity of BOC on cost efficiency because internal audit quality plays a major role in corporate governance mechanisms (Gramling et al., 2004; Christopher et al., 2009).

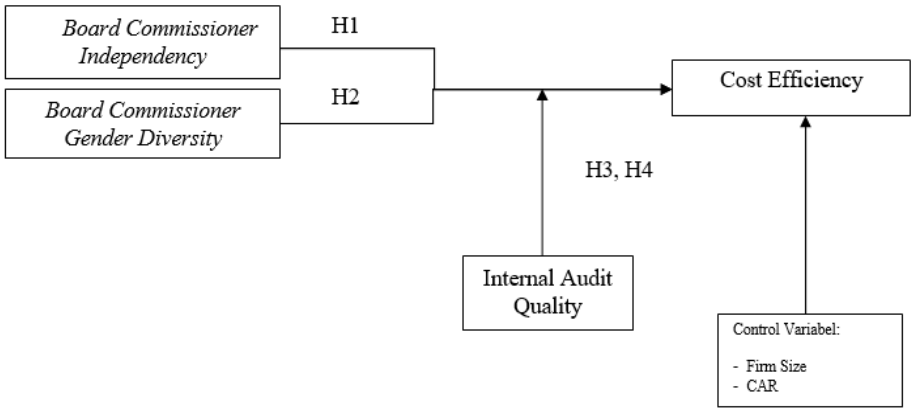
LITERATURE REVIEW

Theoretical Framework and Hypotheses Development

The study of the role of internal audit quality on the relationship between independency and gender diversity of BOC on cost efficiency is closely related to corporate governance. Corporate governance is stemmed from the agency theory needed for the company to ensure that agents' major risks and problems are mitigated (Donaldson & Davis, 1991; Eisenhardt, 1989). Alternative explanations of the role of BOC have also been proposed, as suggested by the resource dependence theory (Jeffry Pfeffer, 1972), implying that the board can provide additional networks and better access to resources (Kiel and Nicholson, 2003) through gender diversity in BOC which should be useful to maximize company value and increase efficiency.

Transaction cost economics (TCE) is a variation of agency theory and is very suitable for internal audit (Spraakman, 1997). The purpose of internal audit within the TCE framework is to provide information about how well internal control has been running in the company. Internal audits ensure control that supports the operational system, namely to ensure that each operation is managed and controlled as expected by senior management and the audit committee (Spraakman, 1997). Figure 1 shows the conceptual framework of this research.

Figure 1. Conceptual Framework



Independency of BOC

According to agency theory, there is an interest between managers and shareholders, so a higher percentage of independent directors positively influence efficiency or performance. Borokhovich et al.(2004) stated that non-executive directors sought to maximize the interests of shareholders by ensuring a stable income stream during the accounting period. Demonstrate that efficiency is an integral part of the objective function of non-executive directors. Perry & Shivdasani (2005) in their study stated that most non-executive directors on the board increase the probability of performance improvement measures (for example, asset restructuring) being introduced to improve financial position. However, in such cases, agency and costs problems may be exacerbated as a result of increased managerial considerations because managers choose to pursue selfish activities that do not add value to the owner (Hossain et al., 2001). So without non-executive directors to reduce such contract incentive conflicts, operational inefficiencies can occur (Agrawal & Knoeber, 1996).

Pi dan Timme (1993) stated that non-executive directors are not relevant to bank performance as measured by ROA and cost efficiency. No significant relationship was found between the percentage of independent directors and bank performance as measured by return on buy-and-hold (Aebi, Sabato, & Schmid, 2012). Adams & Mehran (2012) documented an insignificant relationship between independent directors (non-executive) and Tobin's Q. The other side of the literature also states that there is a negative relationship between board independence and performance (Erkens et al., 2012; Beltratti & Stulz, 2012; Wang et al., 2012). According to Yeh et al. (2011), banks with a larger independent board on the board of commissioners (for audits and risks) provide better performance, as measured by stock returns and accounting measures. There is a non-linear relationship between board independence and bank performance measured by Tobins Q (Andres & Vallelado, 2008). Therefore, the following hypothesis is proposed:

Hypothesis 1: The independency of BOC has a positive effect on cost efficiency.

Gender Diversity of BOC

A greater percentage in gender diversity indicates the greater presence and involvement of women on the BOC. According to Nielsen & Huse (2010), women on the council create greater vitality and facilitate a more complete and comprehensive process. So it can be seen from previous studies that showing gender diversity on the board can improve not only decision making but also the role of board oversight which has the main benefit of increasing the level of bank efficiency (Ramly et al., 2015)
However Bohren & Strom, (2010) found that relatively few studies linking gender diversity and company performance and the results are conflicting. Gul et al.(2011) stated that the addition of women to board would increase internal divisions, which could limit the council's ability to act. As a result the board becomes ineffective and does not produce significant abnormal returns for the company (Farrell & Hersch, 2005). In some countries, specifically for the banking industry, which is often regulated by regulators, they are eager to implement mandatory requirements to increase women's participation in the council so that the effect of gender diversity can be detrimental to bank efficiency (Ramly et al., 2015).

Most empirical results show a positive relationship between gender diversity and company performance (Krishnan & Park, 2005; Nguyen & Nghiem, 2015). Recent studies have shown that gender diversity will improve performance in weak corporate governance arrangements because companies will benefit from woman directors who can provide additional monitoring of the board of directors (Adams & Ferreira, 2009; Gul et al., 2011). Therefore, the following hypothesis is proposed:

Hypothesis 2: The gender diversity of BOC has a positive effect on cost efficiency.

Internal Audit Quality, Independency of BOC, and Cost Efficiency

The independency of BOC increases the oversight function of the board of management policies in the company's operations, especially those relating to efficiency. Independent commissioners or non-executive directors with human capital value will reduce agency problems in the company (Lin et. al., 2001). Whereas quality internal audits that provide reports in addition to management, also provide reports to BOD or the board of commissioners or through the audit committee, can be seen from the Chief Audit Executive function (IIA, 2017), will support the performance of BOC that carrying out the supervisory function. For this reason, the following hypotheses can be proposed:

Hypothesis 3: The quality of internal audit strengthens the positive effect of the independence of the board of commissioners on cost efficiency.

Internal Audit Quality, Gender Diversity of BOC and Cost Efficiency

Resource dependence theory (Pfeffer dan Salancik, 1978) explains the expected relationship between women in the BOC and company efficiency, and diverse members of the BOC guarantee the availability of different resources, making diversity interesting and predicting positive relationships between levels of gender diversity and performance through cost reduction. Gender diversity on the corporate board plays a role in reducing internal control weaknesses (ICW), supported by the tendency of the characteristics of women board members to be more likely to discuss difficult issues, be more conservative in fiscal terms, monitor better, and less tolerant of opportunistic behavior (Chen et al., 2016). Support from internal audit in the form of a systematic and objective assessment of company operations (Sawyer's, 2005: 10), will strengthen the role of women on the BOC and help oversight functions of members of the board of commissioners or non-executive directors as a whole to ensure that organizational goals have been effectively achieved. Therefore, we propose the following hypothesis:

Hypothesis 4: The quality of internal audit reinforces the positive influence of gender diversity of BOC on cost efficiency.

RESEARCH METHOD

Sample Selection and Data Collection Procedure

The population in this study is all conventional commercial banks listed on the Indonesia Stock Exchange in 2017 with a financial reporting period of 2008-2017. The sampling technique is purposive sampling. The companies that became the study sample were 22 banks for 10 years in the period 2008-2017 with a total analysis unit of 220 units. Data collection methods in this study are in the form of archives with data sources in the form of secondary data from Bank Indonesia, the Financial Services Authority, and Bank Annual Reports on each bank's website.

Measures

Cost Efficiency

Efficiency is the comparison between the actual use of resources and the optimal results observed in industry (Farrell, 1957). Cost efficiency comes from the cost function and is measured through a cost frontier for each available price data and the company is assumed to minimize costs (Coelli et al., 2005). So cost efficiency is defined as the ratio of the minimum cost of best practice to actual costs. This study uses an intermediation approach because it is suitable for evaluating the performance of financial institutions (Berger & Humphrey, 1997). A cost model with an intermediation approach where the banks use deposits (X1: total deposits), physical capital (X2: total fixed assets) and labor (X3: number of employees) to produce loans and other productive assets. Input prices are Price of Fund (PFund), Price of Physical Capital (PCap) and Price of Labor (PLab). So the total cost of the bank (TC) = X1.PFund + X2.PCap + X3.PLab. This model is widely used in the banking efficiency literature (Tripe and Ngo, 2017; Dong et al., 2014; Bos et al., 2009; Berger and DeYoung, 1997) so that it is used as a cost efficiency model in this study.

Furthermore, the measurement of cost efficiency with the SFA model, where the efficiency value is calculated based on the residual. Using the cost function to calculate cost efficiency consists of two deterministic parts (lny_{it}, lnw_{it}) and a random part v_{it} + u_{it}. The basic model in this approach assumes that the total cost incurred by a bank is different from the optimal cost due to the random noise v_{it} and the inefficiency component u_{it}. The single equation of the stochastic cost function for panel data can be written as follows:

$$lnTC_{it} = f(lny_{it}, lnw_{it}) + v_{it} + u_{it} \quad \text{.....} \quad 1$$

Where TC_{it}: natural logarithm of total costs observed for the i-bank in the t-period, y_{it}: *Vector* quantity of output produced by the i^{th} bank in the t^{th}-period, w_{it}: *Vector* input prices from the i^{th} bank in the t^{th}-period, v_{it}: Random factors that cannot be controlled, u_{it}: Erorr factors that can be controlled (inefficiencies).

Based on the above equation, the model used to estimate efficiency begins with a specification of the cost function (Berger dan Mester, 1997) consisting of input variables and output variables (table 3.1). For this study using the Cobb Douglas model as a cost function describing the correlation between variables (Coelli et al., 2005) as follows:

$$LnTC_{it} = \beta_0 + \beta_1 (\ln(loan)) + \beta_2 (\ln(APL)) + \beta_3 (\ln(Plab)) + \beta_4 (\ln(pCap)) + \beta_5 (\ln(PFund) + v_{it} + u_{it} \quad \text{.....2}$$

Note: TC_{it} : natural logarithm of total costs observed for the i-bank in the t-period, *lnLoan*: natural logarithm of total loans, *lnAPL*: other productive asset logarithms, *lnPCap*: natural logarithms of labor costs, *lnPCap*: logarithms natural cost of physical capital, *lnPFund*: natural logarithm of the cost of third party funds,v_{it}: Random factors that cannot be controlled, u_{it}: Erorr factors that can be controlled (inefficiencies).

Then the SFA estimation is done by calculating the maximum-likelihood estimation for the parameters of the stochastic frontier model using the Frontier 4.1 program. Benchmarking packages in the Frontier 4.1 program are used to produce efficiency scores for stochastic frontier analysis. Residual values are divided into two, namely error and inefficiency. The score of the efficiency value is calculated from the minimum residual value divided by the residual value of each cross section. Efficiency scores range from infinity to 1 with values close to 1 indicating a high level of efficiency. A value of 1 indicates that the company is in frontier best practice or very efficient. Values above 1 indicate the bank's operational costs are above the frontier or inefficient / inefficient use of resources (Abid & Goaied, 2017). The inefficiency output is multiplied by -1 for analysis and hypothesis testing.

Independency of BOC

The proportion of independent commissioners is measured by the ratio between the number of independent commissioners compared to the total members of the BOC (Anafiah et al., 2017). The characteristics of the independent BOC function as a control for management policies.

Gender Diversity in BOC

Gender diversity on the board of commissioners shows the ratio of the level of gender diversity within the BOC. Gender diversity is measured by using the following Blau Index:

$$Blau\ Index\ = 1 - \sum_{i=1}^{n} P_i^2$$

Blau Index is the percentage of board members in each category and n is the number of board members (Blau, 1977). Pi = Gender fraction of the population of each group. Blau's calculation sums the square results of the male and female fraction values. Blau values for gender diversity range from 0 to maximum 0.5.

Internal Audit Quality

The Institute of Audit Internalors (IIA's) as cited in the International Professional Practices Framework - IPPF (2010), defines internal audit as an activity of assurance and consultation independent that aims to add value and improve the organization's operations. Quality concepts are generally considered to be a relative measure of the merit of a product or services. In measuring quality, there are important aspects in determining quality. Important aspects used in describing quality refer to the internal audit performance evaluation matrix based on the Key Performance Index (KPI) regarding effectiveness and efficiency (including quality) (IIA, 2010). Internal audit quality in this study is measured using the Balance Scorecard approach consist of: 1) Stakeholders satisfaction (Audit Committee/BOC, BOD/Management/Auditees); 2) Internal audit process. The audit process include risk assessment, planning and audit methodologies; 3) Innovation and internal audit capabilities. Innovation and capability include effective use of technology, training, and industry knowledge. Internal audit quality disclosures are measured using bank annual report. Each disclosure of an item will be given a value of 1 and 0 if the item is not disclosed. Index calculation in this study uses the scoring method. The index was formulated systematically by Copelanc dan Fredericks (1968). Total expected item disclosures are 32 items.

$$I = \frac{N}{K}$$

Note: I: Internal Audit Quality Index, N: total score of company disclosure items per year, K: expected total disclosure items (32 items).

ANALYSIS AND DISCUSSION OF FINDINGS

Descriptive Statistics

This study conducted a descriptive statistical analysis with the aim of knowing the distribution of data in the form of central tendencies and data dispersion. The results of the descriptive statistical analysis of the research variables are presented in the following table:

Table 1. Descriptive Statistics - Research Variables

Variabel	N	Minimum	Maximum	Mean	Std. Deviasi
Cost Efficiency – CE	220	-1.8592	-1.0241	-1.3279	0.2218
Independency of BOC	220	0.33	1.00	0.57	0.10
Gender Diversity of BOC	220	0	0.44	0.13	0.17
Internal Audit Quality	220	0.28	0.91	0.57	0.15

Ln Firm Size	220	14.35	20.84	17.79	1.58

Source: Data processed

The average cost efficiency of commercial banks in the 2008-2017 period was 1.3279. This shows that the conventional bank cost efficiency is approaching the value of one, meaning that it is increasingly efficient. The cost efficiency variable has a smaller standard deviation compared to the average value. This shows that the variable cost efficiency of sample banks has fairly low variation. The proportion of the independency of BOC is above 50% even though there are still a number of banks below it. Gender diversity in conventional commercial banks listed on the Stock Exchange is on average 0.13 and standard deviation is 0.17, based on data obtained there are still banks that do not involve women on the board of commissioners. The lowest average Internal Audit Quality of 28% in 2009 at PT. Bank Jawa Timur and the highest at PT. Bank Negara Indonesia in 2016 amounted to 91%. The trend is increased and the average during the observation period was high enough (56.84 %.).

Statistical Test Results and Discussion

Before testing the hypothesis on panel data regression software eviews 10, model selection is first performed. The results of the model selection through the Hausman test and the Chow test show that the random effect model is selected. The results of testing the research hypothesis were conducted to examine the effect of the interaction of internal audit quality variables and the independent variables (independency and gender diversity of BOC) on cost efficiency and firm size and capital adequacy ratio as control variables. The test results are presented in the following table:

Table 2. Statistical Testing Results

$$CE_{it} = \beta_0 + \beta_1(BI)_{it} + \beta_2(GD)_{it} + \beta_3(BI*IAQ)_{it} + \beta_4(GD*IAQ)_{it} + \beta_5(UP)_{it} + \beta_6(CAR)_{it} + e_{it}$$

Variable	Prediction	Coef. (t-Stat) P-value
Constanta		-0.169
BI	+	0.126 (2.204)**
GD	+	0.151 (3.380)***
*BI*IAQ*	+	0.116 (1.521)*
*GD*IAQ*	+	0.210(2,760)***
CS		-0.066 (-7.299)***
CAR		-0.002 (-1.532)*
Adjusted R-squared		0.21
F-statistic		14.92668
Prob (F-Statistic)		0.0000***)
Totat unit analysis		220

*** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

Note: CE: Cost Efficiency; BI: Board Independence; GD: Gender Diversity; BI * IAQ: Interaction between Internal Audit Quality and Independence Board; GD * IAQ: Interaction of Internal Audit Quality and Gender Diversity; CS: Company Size; CAR: Capital Adequacy Ratio

Source: Data Processed using Eviews 10

Hypothesis 1 states that there is a positive influence between the independency of BOC on cost efficiency is accepted. This means that the higher the independency of BOC, the higher cost efficiency in the bank. The independency of BOC is measured by the number of the board of commissioners originating from outside the company compared to all members of BOC, whether it is really able to increase the company's cost efficiency.

The greater proportion of independent commissioners can contribute to aligning the interests of managers and shareholders and having additional insight into the problems facing by the company. The results of this study support the theoretical foundation of agency theory, where there is a conflict between the interests of directors and shareholders so that a high percentage of independent commissioners can improve company performance in this case is cost efficiency. This study also supports other research which states the positive influence of the independent board of commissioners on cost efficiency (Borokhovich et al., 2004; Ramly et al., 2015).

Hypothesis 2 states that the gender diversity of BOC has a positive effect on cost efficiency. The results show a positive effect of gender diversity of BOC on cost efficiency. The notion that the greater the gender divercity of BOC, the greater incresaing cost efficiency is accepted.

High gender diversity supports the duties and functions of the board of commissioners in supervising and providing advice and opinions to the board of directors. According to Liao et al. (2014) with the characteristics of women who have more commitment and desire to be involved, more diligent and less self-oriented, so that they can improve the decision making process and increase the effectiveness of BOD and company performance. BOD women have a better attendance record (Adams & Ferreira, 2009), offer a different perspective on decision making and have a strong attitude to get a solution (Plessis et al., 2014), women on the council create more vitality large and facilitate a more complete and comprehensive process (Nielsen & Huse, 2010). So that

gender diversity not only improves decision making but also increases the role of the supervisory that benefits to increase the level of bank efficiency (Ramly et al., 2015).

The results of the study support research conducted by Krishnan & Park (2005) and Nguyen & Nghiem (2015) which show the positive influence of gender diversity on company performance. Gender diversity will improve performance in weak corporate governance arrangements because companies will benefit from a female board of commissioners who can provide additional monitoring of the board of directors (Adams & Ferreira, 2009; Gul et al., 2011).

Hypothesis 3 states that the internal audit quality strengthens the influence of the independency of BOC on cost efficiency. The results of statistical testing show that there is a significant interaction between the quality of internal audit and the independency of BOC on cost efficiency so that the hypothesis is accepted. It means that the quality of internal audit can strengthen the influence of the independency of BOC on cost efficiency.

From the results of descriptive statistics of internal audit quality measured from four aspects, namely the supervisory board /audit committee, the internal audit process, innovation and capability as well as management/auditee showed an average of 56.86%, meaning that the quality of the internal audit was quite good. Internal audit quality will support a good internal control system, so that it supports the supervisory function of the BOC. Internal audit quality can increased company cost efficiency, because one of the objectives of internal audit can add value by helping organizations achieve economic, efficiency and effectiveness (Al-Twaijry et al., 2003).

Hypothesis 4 states that internal audit quality strengthens the positive influence of gender diversity on cost efficiency. The interaction between internal audit quality and the board's gender diversity significantly have a positive effect on cost efficiency. This means that the quality of internal audit can strengthen the positive influence of the board's gender diversity on cost efficiency. Qualified internal audit can encourage increased company cost efficiency, because one of the objectives of internal audit is to add value by helping organizations achieve economic, efficiency and effectiveness (Al-Twaijry et al., 2003). So with the good internal audit quality, it can increase the positive influence of gender diversity on cost efficiency.

CONCLUSION AND IMPLICATIONS

It can be concluded that the quality of internal audit can moderate the influence of independency and gender diversity of BOC on cost efficiency. This research has theoretical implications in supporting Agency Theory and Resource Dependence Theory, and also Transaction Cost Economics theory where the good internal audit quality could encourage efficiency within the company. Internal audit activities will assist the BOC in carrying out supervisory and control in the decisions made by company management.

REFERENCES

Abid, I., & Goaied, M. (2017). A Meta-Frontier Assessment of Bank Efficiency in Middle East and North Africa Countries. *International Journal of Productivity and Performance Management*, *66*(2), 266–296. https://doi.org/10.1108/IJPPM-01-2016-0020

Adams, Renee B, & Ferreira, D. (2009). Women in the Boardroom and Their Impact on Governance and Performance. *Journal of Financial Economics Journal*, *94*, 291–309. https://doi.org/10.1016/j.jfineco.2008.10.007

Adams, Renée B, & Mehran, H. (2012). Bank Board Structure and Performance : Evidence for Large Bank Holding C ompanies. *Journal of Financial Intermediatio*, *21*, 243–267. https://doi.org/10.1016/j.jfi.2011.09.002

Aebi, V., Sabato, G., & Schmid, M. (2012). Risk Management , Corporate Governance , and Bank Performance in the Financial Crisis. *Journal of Banking and Finance*, *36*, 3213–3226. https://doi.org/10.1016/j.jbankfin.2011.10.020

Agrawal, A., & Knoeber, C. R. (1996). Firm Performance and Mechanisms to Control Agency Problems between Managers and Shareholders. *The Journal of Financial and Quantitative Analysis*, *31*(3), 377–397.

Anafiah, V. A., Diyanty, V., & Wardhani, R. (2017). The Effect of Controlling Shareholders and Corporate Governance on Audit Quality. *Jurnal Akuntansi Dan Keuangan Indonesia*, *14*(1), 1–19.

Andres, P. De, & Vallelado, E. (2008). Corporate Governance in Banking : The Role of the Board of Directors. *Journal of Banking and Finance*, *32*, 2570–2580. https://doi.org/10.1016/j.jbankfin.2008.05.008

Arayssi, M., Dah, M., & Jizi, M. (2016). Women on boards , Sustainability Reporting and Firm Performance. *Sustainability Accounting, Management and Policy Journal*, *7*(3), 37–401. https://doi.org/10.1108/SAMPJ-07-2015-0055

Beltratti, A., & Stulz, R. M. (2012). The Credit Crisis Around the Globe : Why did some banks perform better ? *Journal of Financial Economics*, *105*, 1–17. https://doi.org/10.1016/j.jfineco.2011.12.005

Berger, A. N., & DeYoung, R. (1997). Problem Loans and Cost Efficiency in Comercial Banks. *Journal of Banking and Finance*, *21*.

Berger, A. N., & Humphrey, D. B. (1997). Efficiency of Financial Institutions : International Survey and Directions for Future Research. *European Joumal of Operational Research*, *98*, 175–212.

Berger, A. N., & Mester, L. J. (1997). Inside the Black Box : What Explains Differences in the Efficiencies of Financial Institutions ? *Journal of Banking & Finance*, *21*, 895–947.

Bohren, O., & Strom, O. (2010). Governance and Politics : Regulating Independence and Diversity in the Board Room. *Journal of Business Finance & Accounting*, *37*(9), 1281–1308. https://doi.org/10.1111/j.1468-5957.2010.02222.x

Borokhovich, K. A., Brunarski, K. R., Crutchley, C. E., & Simkins, B. J. (2004). Board Composition and Corporate Use of Interest Rate Derivatives. *The Journal of Financial Research*, *XXVII*(2), 199–216.

Chen, Y., Daniel E, J., & Soileau, J. S. (2016). Board Gender Diversity and Internal Control Weaknesses. *Advances in*

Accounting, *33*, 11–19. https://doi.org/10.1016/j.adiac.2016.04.005
Coelli, T. J., Rao, D. S. P., O'Donnell, C. J., & Battese, G. E. (2005). *An Introduction to Efficiency and Productivity Analysis*. United States of America: Springer Science-i-Business Media, Inc.
Copelanc, R. M., & Fredericks, W. (1968). Extent of Disclosure. *Journal of Accounting Research*, *6*(1), 106–113.
Donaldson, L., & Davis, J. H. (1991). Stewardship Theory or Agency Theory: CEO Governance and Shareholder Returns. *Australian Journal OfManagement*, *16*(1), 49–65.
Eisenhardt, K. M. (1989). Agency Theory : An Assessment and Review. *The Academy of Management Review*, *14*(1), 57–74.
Erkens, D. H., Hung, M., & Matos, P. (2012). Corporate Governance in the 2007 – 2008 Financial Crisis : Evidence from Financial Institutions Worldwide. *Journal of Corporate Finance*, *18*(2), 389–411. https://doi.org/10.1016/j.jcorpfin.2012.01.005
Fama, E. F., & Jensen, M. C. (1983). Separation of Ownership and Control. *[Journal of Law & Economics*, *XXVI*, 301–325.
Farrell, K. A., & Hersch, P. L. (2005). Additions to Corporate Boards : the Effect of Gender. *Journal of Corporate Finance*, *11*, 85–106. https://doi.org/10.1016/j.jcorpfin.2003.12.001
Farrell, M. J. (1957). The Measurement of Productive Efficiency. *Journal of the Royal Statistical Society*, *120*(3), 253–290.
Gul, F. A., Srinidhi, B., & Ng, A. C. (2011). Does board gender diversity improve the informativeness of stock prices ? $. *Journal of Accounting and Economics*, *51*(3), 314–338. https://doi.org/10.1016/j.jacceco.2011.01.005
Hossain, M., Prevost, A. K., & Rao, R. P. (2001). Corporate Governance in New Zealand : The Effect of the 1993 Companies Act on The Relation Between Board Composition and Firm Performance. *Pacific-Basin Finance Journal*, *9*, 119–145.
Kiel, G. C., & Nicholson, G. J. (2003). Board Composition and Corporate Performance : How the Australian Experience Informs Contrasting Theories of Corporate Governance. *Corporate Governance*, *11*(3), 189–205.
Krishnan, H. A., & Park, D. (2005). A Few Good Women — On Top Management Teams. *Journal of Business Research*, *58*, 1712–1720. https://doi.org/10.1016/j.jbusres.2004.09.003
Liao, L., Luo, L., & Tang, Q. (2014). Gender Diversity , Board Independence , Environmental Committee and Greenhouse Gas Disclosure. *The British Accounting Review*, 1–16. https://doi.org/10.1016/j.bar.2014.01.002
Mulyawan, D., Hafidz, J., Astuti, R. I., & Oktapiani, R. (2014). *Faktor-Faktor Penentu Efisiensi Perbankan Indonesia serta Dampaknya Terhadap Perhitungan Suku Bunga Kredit* (No. WP/2). Indonesia.
Nguyen, T. T. T., & Nghiem, S. H. (2015). The Interrelationships Among Default Risk, Capital Ratio and Efficiency Evidence from Indian banks. *Managerial Finance*, *41*(5), 507–525.
Nielsen, S., & Huse, M. (2010). The Contribution of Women on Boards of Directors : Going beyond the Surface. *Corporate Governance: An International Review*, *18*(2), 136–148. https://doi.org/10.1111/j.1467-8683.2010.00784.x
Perry, T., & Shivdasani, A. (2005). Do Boards Affect Performance ? Evidence from Corporate Restructuring. *The Journal of Business*, *78*(4), 1403–1432.
Pfeffer, Jeffrey, & Salancik, G. R. (1978). The External Control of Organizations. A Resource Dependence Perspective. *The Economic Journal*, *89*, 969–970.
Pfeffer, Jeffry. (1972). Size and Composition of Corporate Boards of Directors : The Organization and its Environment. *Administrative Science Quarterly*, *17*(2), 218–228.
Pi, L., & Timme, S. G. (1993). Corporate Control and Bank Efficiency. *Journal of Banking and Finance*, *17*, 515–530.
Plessis, J. Du, O'Sullivan, J., & Rentschler, R. (2014). Multiple Layers of Gender Diversity on Corporate Boards: To Force or Not to Force? *Deakin Law Review*, *19*(1), 1–50.
Ramly, Z., Chan, S.-G., Mustapha, M. Z., & Sapiei, N. S. (2015). Women on Boards and Bank Efficiency in ASEAN-5 : The Moderating Role of The Independent Directors. *Review of Managerial Science*. https://doi.org/10.1007/s11846-015-0186-4
Soba, M., Erem, I., & Ceylan, F. (2016). The Impact of Corporate Governance Practices on Bank Efficiency: A Case of Turkey. *Journal of Süleyman Demirel University Institute of Social Sciences*, *3*(25), 305–322.
Spraakman, G. (1997). Transaction Cost Economics : A Theory for Internal Audit ? *Managerial Auditing Journal*, *12*(7), 323–330.
Su, D., & He, X. (2012). Ownership Structure , Corporate Governance and Productive Efficiency in China. *Journal of Productivity Analysis*, *38*, 303–318. https://doi.org/10.1007/s11123-011-0257-8
Titova, Y. (2016). Are Board Characteristics Relevant for Banking Efficiency ? Evidence From the US. *Corporate Governance*, *16*(4), 655–679. https://doi.org/10.1108/CG-09-2015-0124
Tripe, D., & Ngo, T. (2017). Measuring Efficiency of Vietnamese Banks Accounting for Nonperforming Loans in a Single-step Stochastic Cost Frontier Analysis. *Pacific Accounting Review*, *29*(2), 171–182. https://doi.org/10.1108/PAR-06-2016-0064
Wang, W., Lu, W., & Lin, Y. (2012). Does Corporate Governance Play an Important Role in BHC Performance ? Evidence from the U . S . *Economic Modelling*, *29*(3), 751–760. https://doi.org/10.1016/j.econmod.2012.01.021
Yeh, Y., Chung, H., & Liu, C. (2011). Committee Independence and Financial Institution Performance during the 2007 – 08 Credit Crunch : Evidence from a Multi-country Study. *Corporate Governance: An International Review*, *19*(5), 437–458. https://doi.org/10.1111/j.1467-8683.2011.00884.x

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