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Female Directors, Intellectual Assets and Sustainability Report Quality: Moderation of Audit Quality

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ABSTRACT
The purpose of this study is to investigate that audit quality moderate the relationship between female directors, intellectual assets and sustainability report quality. This paper examines sustainability reports of 1.523 listed companies on the Indonesia Stock Exchange for 2020-2022. Using the Generalized Least Square (GLS) regression model, the empirical results indicate that the moderating effect of audit quality proxied by a Big Four public accountant firm shows a positive significant effect. This study's findings have important implications especially for the corporate top management. Companies are encouraged to not only consider the existense of female board of directors to enhance higher quality of sustainability report, but also to strengthen the role of the board by hire higher quality financial statement's auditor.

Keywords: *Female Directors, Intellectual Asset, Audit Quality, Sustainability Report Quality*

1. INTRODUCTION

Today's investors do not only consider financial information, but also non-financial information related to ESG (Environmental, Social, and Governance) (Saini & Singhania, 2018). Stakeholders also have the need for non-financial information that can be disclosed from sustainability reports (Van der Zahn, 2022). A sustainability report is a report disclosing non-financial information including economic, social, and environmental information resulting from its main business process (Girón *et al.*, 2021).

Sustainability reports show the company's sustainability behavior which is demonstrated by the nature of developing something based on current needs without reducing the ability to meet future needs (Bhatia & Tuli, 2018). Indonesia's company listed on the Indonesia Stock Exchange is obligated to issue an annual sustainability report in conjunction with an annual report every year starting in 2022. Rules according to this policy contained in POJK No.51/POJK.03/2017 about the Implementation of Sustainable Finance for Financial Services Institutions, Issuers, and Public Companies. Information contained in sustainability reports can be used as an investor's decision-making basis (Girón *et al.*, 2021) and increase the company's information transparency (Van der Zahn, 2022) so the quality needs to be considered.

Sustainability reports are made based on the policies and decisions of the company's executive board which includes the top of management team (TMT) and board of directors. This is because the POJK regulations do not provide detailed instructions regarding what must be contained in a sustainability report. Therefore, the quality of the information conveyed depends on the decision of the company's executive board or management. Based on agency theory, management as an agent will make decisions that benefit the principal and itself (Panda & Leepsa, 2017), so management also has an interest in publishing quality sustainability reports. Indonesia uses a two-tier system of governance, which separates supervisory and management functions between the two executive boards. The board of directors has the function of supervising TMT as executives and TMT has the function of managing the company (UU no. 40 of 2007). In this research, testing was carried out on the board of directors as the executor of company management.

1.1. Theoretical Framework and Hypotheses Development

Intellectual assets and female directors are things owned by the company related to its business activities. Monitoring procedures are required for various corporate operations to make sure everything goes according to plan. One of them is the presence of an external auditor as an examiner of financial reports, which is proof of the company's operational sustainability. To obtain the maximum benefit from monitoring, the quality of the financial report audit must be considered. Audit quality depends on how likely the auditor is to be able to discover violations of the client's

accounting system and issue report (DeAngelo, 1981). Audit quality can be described by the type of public accounting firm used by the company as an indication of the higher experience (Mutmainnah & Wardhani, 2013).

In this research, the type of public accounting firm will be used as a measurement of company audit quality, namely Big Four and non-Big Four accounting firms. The higher the quality of the audit, the higher the quality of the investment cycle and business decisions (Setyawan *et al.*, 2020). This is due to the increase in the process and quality of monitoring by auditors (Mutmainnah & Wardhani, 2013). Furhermore, Big Four accounting firms also appear to have more awareness of sustainability aspects, as seen from their website pages which contain many articles regarding sustainability aspects. These four public accounting firms also often hold campaigns related to sustainability and have published their own sustainability reports. Therefore, audit quality is thought to be able to positively influence the quality of financial reports. High quality audit can improve company business decisions (Setyawan *et al.*, 2020), so it is thought to be able to improve the quality of female directors' decisions regarding the sustainability reporting process. Therefore, audit quality is thought to be able to increase or strengthen the positive influence of female directors on the quality of sustainability reports.

H1. *Audit quality is able to moderate the positive relationship between the number of female board members and the quality of sustainability reports.*

Increasing business decisions and investment cycles quality are also able to improve the quality of the company's intellectual assets (Rahman & Liu, 2023). So audit quality is thought to be able to increase the positive influence of intellectual assets on the quality of sustainability reports.

H2. *Audit quality is able to moderate the positive relationship between intellectual assets and the quality of sustainability reports.*

2. RESEARCH METHOD

2.1 Research Design and Samples

This research uses an analysis unit of public companies listed on the Indonesia Stock Exchange which discloses sustainability reports for the 2020-2022 financial year. The research period was chosen for the reason that it corresponds to the year when disclosure of sustainability reports is required. In accordance with POJK 51/POJK.03/2017 concerning the Implementation of Sustainable Finance for Financial Services Institutions, Issuers, and Public Companies, sustainability reports must be disclosed starting in the 2021 financial year. In the 2020 financial year, companies have started to disclose sustainability reports as preparation.

The sample was selected based on the criteria; the company must publish an SR (Sustainability Report) for the 2020-2022 financial year. For companies that do not publish a separate SR (stand-alone) and combine it with the annual report, identification is carried out by observing the table of contents of the annual report. Observations were made using certain keywords (Harindahyani, 2023) such as "sustainability report", "sustainability report", "GRI" and "POJK 51". The total sample used was 1,523 with a total of 686 public companies. Sample testing uses an unbalanced panel data model with the GLS (Generalized Least Square) regression method, processed using Eviews software.

2.2 Variable Definition and Measurements

The dependent variable in this research is SRQ which describes the quality of sustainability reports. This variable is measured using SDI (Sustainability Disclosure Index) by Hassan *et al.*, (2020). This research uses 2 independent variables, namely female directors (BOD_Female) and intellectual assets (VAIC); meanwhile, audit quality (AUD) is used as a moderating variable. This research also uses three control variables which include SIZE, AGE and LEV. Sample testing in this study used an unbalanced panel data model with the GLS (Generalized Least Square) regression method with a regression model:

$$SRQ = \beta_0 + \beta_1 BOD\_Female + \beta_2 VAIC + \beta_3 AUD + \beta_4 BOD\_Female*AUD + \beta_5 VAIC*AUD + \beta_6 SIZE + \beta_7 AGE + \beta_8 LEV + \varepsilon$$

Table 1. Sample distribution of the research

Variables	Measurements
SRQ (sustainability report quality)	Using 15 SDI (Sustainability Disclosure Index) by (Hassan *et al.*, 2020) which relate to social, economic and environmental aspects. Each indicator in the SDI is given a value of 1 if it is available in the sustainability report, and 0 if it is not available.

BOD_Female	Female BOD is measured by female directors to total directors.
VAIC (Value Added Intellectual Capital)	This calculation uses information from financial reports which focuses on 3 capital components, namely, Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE) and Capital Employed Efficiency (CEE) (Bayraktaroglu *et al.*, 2019).
AUD	Audit quality: 1 if a firm audited by big four firms, 0 otherwise (Bananuka *et al.*, 2022).
Control Variables	Consists of company's size (SIZE) (Cybinski & Windsor, 2013); company's age (AGE) (Cha & Rew, 2020), leverage (LEV) (Hussain *et al.*, 2022).

3. RESULTS AND DISCUSSIONS

3.1 Descriptive Statistics

Based on Table 2, the descriptive statistical values of each research variable can be seen. SRQ has a mean value of 6.3969, a median value of 6, a maximum value of 15 and a minimum value of 0. This means that the sample company has an average SRQ value that does not reach half of the maximum value. It can be concluded that the quality of the financial reports published by the sample companies is poor. Next, BOD_Female has a mean value of 0.1445, a median value of 0, a maximum value of 1, a minimum value of 0, and a standard deviation value of 0.1903. This means that the proportion of female board of directors in companies has an average of 0.1445 with a maximum value of 1 or 100% and a minimum value of 0 or 0%. VAIC has a mean value of 5.8287, a median value of 3.2499, a maximum value of 2,236.5 and a minimum value of -76.945. There is a large gap between the maximum and minimum values for VAIC. The company with a VAIC value of 2,236.5 is INAF for the observation year 2022. Meanwhile, the company with the lowest VAIC value, namely -76.945, is NICK with the observation year 2022.

SIZE as the first control variable has a mean value of 28.819, a median value of 28.769, a maximum value of 35.228 and a minimum value of 20.361. This means that the sample companies have sizes that are not much different. However, the research sample still consists of several company sizes. The second control variable is AGE with a mean value of 32.753, then a median value of 31, a maximum value of 111 and a minimum value of 1. This means that the companies have a variety of ages, from companies that are very experienced (111 years) to companies that still newly established (1 year). LEV as the third control variable has a mean value of 0.9596, a median value of 0.8031, a maximum value of 149.86 and a minimum value of -598.44. The average sample company has a liability to equity ratio of 0.9596. There is quite a difference between the maximum value and the minimum value for the sample companies. The company with the maximum LEV value is KBLV 2021 and the company with the minimum LEV value is CLAY 2022.

Table 2. Descriptive Statistics

Variables	SRQ	BOD_FEMALE	VAIC	SIZE	AGE	LEV
Mean	6.3969	0.1445	5.8287	28.819	32.753	0.9596
Median	6.0000	0.0000	3.2499	28.769	31.000	0.8031
Maximum	15.0000	1.0000	2236.5	35.228	111.00	149.86
Minimum	0.0000	0.0000	-76.945	20.361	1.0000	-598.44
Std. Dev.	3.3665	0.1903	58.951	2.0228	17.165	17.665
Skewness	0.1837	1.2468	35.811	0.1068	0.6808	-26.822
Kurtosis	2.2279	4.0704	1349.2	3.1176	3.9214	895.30
Observations	1523	1523	1523	1523	1523	1523

Tabel 3. Dummy Variable Descriptive Statistics (AUD)

Dummy	Percentage
Big Four (1)	32,76%
non-Big Four (0)	67,23%
Total	100%

Based on Table 3, it can be seen that the percentage of companies that use Big Four public accounting firm is 32.76% while non-Big Four public accounting firm is 67.23%. Sample companies use non-Big Four more than Big Four.

3.2 Regression Results

To find out which regression model is suitable for use in research, several tests were carried out such as the Chow test, Hausman test, and Lagrange multiplier test. Based on the results of these tests, it was concluded that the best model for this research was the Random Effect Model or also called GLS.

Table 4. GLS Regression Results

Variables	Coefficient	Std. Error	t-Statistic	Prob.	One tailed
C	-9.938196	1.571111	-6.325583	0.0000	0.0000
BOD_FEMALE	-0.008590	0.529477	-0.016224	0.9871	0.4935
VAIC	-0.001040	0.000917	-1.134321	0.2568	0.1284
AUD	0.946834	0.279299	3.390037	0.0007	0.0003
BOD_FEMALE*AUD	1.254317	0.906198	1.384153	0.1665	0.0832
VAIC*AUD	-0.002717	0.008811	-0.308372	0.7578	0.3789
SIZE	0.538154	0.057506	9.358266	0.0000	0.0000
AGE	0.011758	0.006325	1.859097	0.0632	0.0316
LEV	0.002686	0.003298	0.814514	0.4155	0.2078

The moderating effect of audit quality can be seen in Table 4. It shows that audit quality is able to strengthen the positive influence of BOD_Female (one-tailed 0.0832) on the quality of sustainability reports (BOD_Female_AUD). This supports the researcher's main argument, when a company is audited by a Big Four KAP, there will be an increase in business decisions and investment cycles. This increase in decisions can strengthen the influence of female directors who are more socially responsible (Cicchiello et al., 2021), so this will be followed by an increase in the quality of sustainability reports. This is evident from the results of previous research by DeAngelo (1981) and Setyawan et al., (2020) which found an increase in audit quality followed by an increase in decision quality. These decisions can include reporting decisions and investment decisions. This also strengthens the influence of female directors, because there is conservatism in them. In this case, H1 is accepted. However, audit quality moderation was not able to strengthen the positive influence of intellectual assets on the quality of sustainability reports (one-tailed 0.3789), so H2 is rejected.

The control variables also have a significant positive effect on the quality of sustainability reports. It can be seen in Table 4 that company size (SIZE) has a significant positive effect on sustainability reports. This means that the larger the company size, the higher the quality of the sustainability report. Apart from that, company age (AGE) also has a significant positive effect on sustainability reports. This is of course related to the company's flying hours and experience, the longer the company operates, the higher the quality of the sustainability report produced. The company's capital structure (LEV) has no significant effect, meaning that the funding structure does not influence sustainability reporting decisions.

4. CONCLUSION

Through this research, it can be concluded that female board of directors are unable to influence the quality of sustainability reports. The positive influence of female directors can be seen when company supervision is also of high quality. Quality supervision can be seen from audit quality, as one of the company's monitoring measures. When the monitoring and evaluation function that performs well, the true nature of women in charge can be stronger in influencing sustainability reporting decisions.

Intellectual assets are parts of a company that are able to provide competitive advantages. This asset is able to improve the quality of business and operational processes, but according to this research, it is still not considered capable of improving the quality of sustainability reports. In this research, the VAIC proxy is used which uses financial report information and tends to lead to efficiency and innovation. Furthermore, it is hoped that there will be research or studies that will produce measurements of intellectual assets that are oriented toward aspects of corporate sustainability.

REFERENCES

Bhatia, A., & Tuli, S. 2018. Sustainability reporting: an empirical evaluation of emerging and developed economies. Journal of Global Responsibility, Vol 9(2): 207–234. https://doi.org/10.1108/JGR-01-2018-0003

Cicchiello, A. F. dkk. 2021. Gender diversity on corporate boards: How Asian and African women contribute on sustainability reporting activity. Gender in Management. Vol 36(7): 801–820. https://doi.org/10.1108/GM-05-2020-0147

DeAngelo, L. E. 1981. Auditor size and audit quality. Journal of Accounting and Economics. Vol 3(3): 183-199. https://doi.org/10.1016/0165-4101(81)90002-1

Girón, A. dkk. 2021. Sustainability Reporting and Firms' Economic Performance: Evidence from Asia and Africa. Journal of the Knowledge Economy. Vol: 12(4): 1741–1759. https://doi.org/10.1007/s13132-020-00693-7

Harindahyani, Senny. 2023. Karakteristik Dewan, Jasa Asurans Keberlanjutan, Reputasi Perusahaan, dan Nilai Perusahaan di Indonesia. Doctoral Thesis.

Hassan, A. dkk. 2020. Voluntary assurance of sustainability reporting: evidence from an emerging economy. Accounting Research Journal. Vol 33(2): 391–410. https://doi.org/10.1108/ARJ-10-2018-0169

Mutmainnah, N., & Wardhani, R. 2013. Analisis dampak kualitas komite audit terhadap kualitas laporan keuangan perusahaan dengan kualitas audit sebagai variabel moderasi. Jurnal Akuntansi dan Keuangan Indonesia. Vol 10(2): 147-170.

Panda, B., & Leepsa, N. M. 2017. Agency theory: Review of theory and evidence on problems and perspectives. Indian Journal of Corporate Governance. Vol 10(1): 74–95. https://doi.org/10.1177/0974686217701467

Rahman, M. J., & Liu, H. 2023. Intellectual capital and firm performance: the moderating effect of auditor characteristics. Asian Review of Accounting. Vol 31(4): 522-558. https://doi.org/10.1108/ARA-03-2022-0054

Saini, N., & Singhania, M. 2018. Corporate governance, globalization and firm performance in emerging economies. International Journal of Productivity and Performance Management. Vol 67(8): 1310–1333. https://doi.org/10.1108/IJPPM-04-2017-0091

Setyawan, B., Apriyanto, G., & Firdiansjah, A. 2020. Efek Kepemilikan Institusional, Kinerja Perusahaan, Kualitas Audit terhadap Luas Pengungkapan CSR Perusahaan Pertambangan. Jurnal Riset Pendidikan Ekonomi. Vol 5(2): 101-110. http://ejournal.unikama.ac.idHal|101

Van der Zahn, J. L. W. M. 2022. Sustainability reporting regime transition and the impact on intellectual capital reporting. Journal of Applied Accounting Research. Vol 24(3): 544-582. https://doi.org/10.1108/JAAR-06-2021-0143