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Factors Influencing University Sustainability Reporting

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ABSTRACT

Purpose : The research analyses the factors that influence university Sustainability Reporting (SR) practices consisting of external assurance, internal auditor, signed declaration, sustainability office and stakeholder engagement.
Method : The research uses descriptive, content analysis, and multivariate regression analysis were employed to analyse the data and test the hypotheses. Observational data from 155 universities registered in the Global Reporting Index (GRI) Database from 2010 to 2020 was analysed to examine the relationship between university sustainability reporting with external assurance, internal auditors, signed declaration, sustainability offices and stakeholder involvement with sustainability reporting.
Findings : The findings indicate that external assurance, internal auditors, signed declaration, sustainability offices positively influence sustainability reporting. Stakeholder engagement has no influence sustainability reporting. These results underline the impact of factors that influence sustainability. Similar to previous studies, results of the GRI index disclosure show a relatively low score, there is a possibility of a tendency to gain legitimacy from the GRI 'brand'.
Novelty : The research offers new insights into the factors that influence sustainability reporting in university. This study contributes to a better understanding of the determinants of university sustainability reporting.

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INTRODUCTION

Sustainability reporting refers to the practice of disclosing an organization's environmental, social, and governance (ESG) performance and impacts. This type of reporting aims to provide stakeholders—such as investors, customers, employees, and the community—with transparent information about how an organization manages its sustainability challenges and opportunities. The goal is to enhance accountability and foster trust by communicating not only the positive aspects of sustainability initiatives but also the challenges and areas for improvement

Sustainability reporting requires standards that guide reporting practices. In current practice, there are several sustainability standards. However, GRI (Global Reporting Initiative) standards are among the most widely adopted frameworks for sustainability reporting (Abeysekera, 2022; Khan et al., 2023). According to a 2024 KPMG survey, 77% of the world's largest 250 companies (G250) and 71% of the top 100 businesses in 58 countries (N100) utilize the GRI Standards for their reporting (KPMG, 2024). As reporting standards, the GRI guidelines primarily serve to offer a formal framework for firms to disclose extensive and reliable information about their sustainability operations. Khan et al. (2023) assert that the GRI standards promote the legitimization of sustainability reporting by mandating that disclosed information be comprehensive and reliable. This emphasis on transparency is crucial for organizations seeking to build trust with stakeholders and demonstrate their commitment to responsible practices.

Universities are one of the agents in the global sustainability campaign. Universities have resources such as experts, scholars, research, education, and programs that are directly related to the community. Universities also serve as learning centers for the younger generation, who have great potential in the global sustainability movement. However, as an entity in terms of sustainability practices and reporting, universities still lag behind the industry. This is ironic because universities, as centers for the development of sustainability movements, actually have minimal sustainability reporting practices.

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Sustainability Reporting (SR) is relatively at an initial stage for universities. SR is said to be in its early stages because not many universities have specifically published sustainability reports. The emergence of reports is primarily driven by the need for university rankings. Global university rankings require sustainability programs to be accommodated and reported (Shan et al., 2022). In term of research, there is a growing body of literature recognizing the importance of the reporting for universities in several countries (Ryan et al., 2010) including Asia Pacific (Sordo et al., 2016), Italy (Fonseca et al., 2011), Canada (Beringer et al., 2008), and Atlantic Canada (Ceulemans et al., 2015). Of the small number of universities that produce sustainability reporting, a small fraction use GRI as a standard. The small percentage application of GRI standard in universities, according to Fonseca et al. (2011) because university has particular characteristic in which Global Reporting Index (GRI) standard might not fully suitable. They suggest 'new' sustainability reporting standard for universities.

From the perspective of legitimacy theory, GRI as the most widely used standard in the industry will provide stronger legitimacy. As a public sector institution and receiving funding from the community, the existence of the university depends on the legitimacy of stakeholders and the community (Moggi, 2023). This reason drives universities to use GRI as the standard for sustainability reporting. Therefore, although there is only a small part of GRI is compatible with universities, some universities still use the GRI standards (Moggi, 2023). Apart from those criticisms of the compatibility of GRi standards at universities, some studies employed GRI Database for universities particular countries remain continuing. For instances in Italy (Chatelain-Ponroy & Morin-Delerm, 2016; Dagilienė & Mykolaitienė, 2016; Vagnoni & Cavicchi, 2015), France (Dagilienė & Mykolaitienė, 2016), Lithuania and Canada (Gómezgutiérrez et al., 2017).

The legitimacy theory is the most widely used theory for examining environmental and sustainability reporting (Mohd Fahmi et al., 2022; Ogunode, 2022).The theory posits that corporation's endeavor to match their operations and disclosures with social norms and expectations to preserve their legitimacy. Stakeholder theory perceives legitimacy among specific societal groupings known as stakeholders. Legitimacy theory encompasses a wider societal viewpoint, whereas stakeholder theory is more detailed, focusing on particular stakeholder groups and their impact on corporate conduct. This study uses both theories to examine the motives for using sustainability reporting in general and more specifically to look at its relationship with stakeholders that influence disclosures in sustainability reporting. The concurrent use of legitimacy theory and stakeholder theory has also been conducted by a few of researchers like Khan et al. (2023) and Kumar (2022).

Previous literature had shown factors that influence disclosure practices (Larrán Jorge & Andrades Peña, 2017; Richardson & Kachler, 2017). Using literature reviews related to the use of GRI in universities, they found that disclosure practices by universities are explained by several factors namely institutionalization, geographical region, external assurance and leadership. In this regard, there remains areas that requires exploration to identify other elements influencing disclosure practice reporting.

Thus, as there has been little discussion about factors influencing university sustainability reporting. This research aims to examine factors that that influence university sustainability reporting from GRI database. This research developed models based on both factors from the literature review (Larrán Jorge & Andrades Peña, 2017; Richardson & Kachler, 2017) and empirical studies (Larrán Jorge et al., 2019; Pramono Sari et al., 2023). This study is expected to provide more insights regarding factors that influence university sustainability reporting. Based on the preamble above, this study examines the factors that affect sustainability reporting in universities.

In the view of legitimacy theory according to Deegan (2002), organizations or companies do not actually exist; they are only recognized as existing after gaining legitimacy from society. According to Ogunode (2022) legitimacy theory has dominated the discourse surrounding environmental reporting practices, emphasizing the need for transparency in disclosures related to environmental impacts. The legitimacy theory is also the most widely used theory for examining sustainability reporting disclosures (Mohd Fahmi et al., 2022). This theory views organizations strive to align their operations and disclosures with societal norms and expectations to maintain their legitimacy. Meanwhile stakeholder theory views legitimacy in particular groups of society called stakeholders. In other words, legitimacy theory adopts a broader societal perspective, stakeholder theory is more granular, directing attention to specific stakeholder groups and their influence on corporate behavior.

Legitimacy theory and stakeholder theory are employed as theoretical lens for this study. Both theories offer insights into why organizations engage in sustainability reporting, but they approach the motivations and implications from different angles. while legitimacy theory adopts a broader societal perspective, stakeholder theory is more granular, directing attention to specific stakeholder groups and their influence on corporate behavior. An organization providing reports and its disclosure as a way to maintain its legitimacy in society (Unerman & Bebbington, 2007). In this sense universities reporting and disclosing sustainability practice to obtain legitimacy from their society. In addition, stakeholder theory provides more detail relationship regarding legitimacy (Kurpierz & Smith, 2020). It views that organizations disclosing their information in their reports are based on who are targeted of the information. In other words, stakeholders determine to the type and the extent of disclosure in sustainability reporting. Based on previous research mainly from both the literature review (Larrán Jorge & Andrades Peña, 2017; Richardson & Kachler, 2017) and empirical investigations (Larrán Jorge et al., 2019) some hypotheses are developed for this study.

External assurance is a service for reviewing or auditing sustainability reporting. According to legitimacy theory organizations seek to maintain legitimacy by aligning their practices with societal expectations and norms. External assurance, in this context, serves as a mechanism for organizations to enhance the credibility of their GRI disclosures, thereby reinforcing their legitimacy among stakeholders. Weber (2018) including disclosure level and external assurance, and reporting firms' CSR performance, explain variation in cost of equity capital among CSR disclosers. Design/methodology/approach: The study uses a propensity score matched sample of CSR reports prepared according to the Global Reporting Initiative's (GRI highlights that firms that engage in high levels of GRI disclosure but do not obtain external assurance may be perceived as engaging in "greenwashing," which can lead to a higher cost of equity capital due to increased scrutiny from stakeholders In the context of higher education, this external assurance takes the form of a sustainability reporting audit to encourage universities to better comply with sustainability reporting standards. The audit process is intended to ensure that the audit is similar to the procedures used within the company to produce the reported information. In this case, external guarantees can influence universities to make disclosures as required by sustainability reporting standards. Some researchers state that the use of third-party assurance can increase the credibility of reporting (Ceulemans et al., 2015; Richardson & Kachler, 2017). Universities that are audited by external auditors will be more extensive in their sustainability reporting.

H_1: External Assurance has a positive effect on the level of disclosure in sustainability reporting

Stakeholder theory provides a valuable lens through which to view the role of internal auditing in the context of GRI disclosures. Soh & Martinov-Bennie (2015) social and governance assurance (ESG highlight that internal auditors can contribute to ESG assurance and consulting, which is increasingly demanded by stakeholders. By ensuring that sustainability reports are credible and aligned with stakeholder interests, internal auditors play a critical role in enhancing organizational transparency and accountability. Supervision of the quality of sustainability reports is carried out by the internal auditors of each university (DeSimone et al., 2021; Quyen & Sidorova, 2022). Thus, universities that have internal auditors will disclose sustainability reporting more widely.

H_2: Internal audit has a positive effect on the level of disclosure in sustainability reporting

This refers to sign sustainability documents that reflect a strategic commitment to sustainability (Lozano et al., 2013). Stakeholder theory relates to Signed Sustainability Declarations (SSDs) is through the enhancement of stakeholder trust and engagement. By signing onto SSDs and adhering to GRI standards, organizations can provide a reliable framework for stakeholders to evaluate their sustainability efforts. This transparency is crucial for maintaining stakeholder trust. University needs to encourage systemic transformation in the education sector. This transformation is carried out through the use of national policies, the creation of local and regional initiatives, making more substantial curriculum changes, as well as collaboration between university with external communities and various other stakeholders (Ryan et al., 2010). One approach taken by activists is to encourage universities to sign sustainability documents that reflect a strategic commitment to sustainability (Lozano et al., 2013). One of the strategic commitments to sustainability is the signing of declarations (Grindsted, 2015). Entities that have signed declarations and have not taken specific actions related to sustainability will face protests from stakeholders. Accountability is a crucial issue that seems to only benefit from signing the declaration without actually making any progress. It is important for University to expose themselves to progress monitoring to determine whether commitments have been kept so that statements are more than just greenwashing (Bekessy et al., 2007). So that universities that sign sustainability declarations will be more expansive in disclosing sustainability reporting.

H_3: Signed declaration has a positive effect on the level of disclosure in sustainability reporting

Legitimacy theory posits that organizations, including universities, seek to align their practices with societal norms and expectations to maintain their legitimacy in public. Universities through their sustainability offices, can enhance their legitimacy by adopting structured governance mechanisms that facilitate comprehensive sustainability reporting in line with GRI standards. Universities that have sustainability offices show more commitment and dedicated resources like better human and financial resources to create sustainable universities. And those are reflected on sustainability reports. Universities that have special offices for sustainability activities are more likely to disclose Sustainability Reporting (Rosenbloom, 2010). Wissink (2012) also states that organizations that have good financial performance will have available revenues to engage in sustainability initiatives. Increasing investment in sustainability initiatives will increase Sustainability Performance, which will improve reporting on sustainability and institutional sustainability policies (Uwuigbe et al., 2018). This sustainability office shows that University has a strategic commitment to supporting employee commitments that have an impact on sustainability. According to Bonatxea et al. (2022) the establishment of dedicated sustainability offices within universities to facilitate the reporting process. These offices can facilitate data collection, guarantee adherence to reporting standards, and advance sustainability activities throughout the university.

H_4: Sustainability Office has a positive effect on the level of disclosure in sustainability reporting

Stakeholder theory emphasizes the importance of recognizing and addressing the interests and influences of various stakeholder groups, which is particularly relevant for universities as they navigate the complexities of sustainability reporting. By actively involving stakeholders in the sustainability reporting process, universities can enhance the credibility and relevance of their disclosures, thereby aligning their practices with stakeholder expectations. In this regard, sustainability reports should reflect stakeholder information needs and stakeholder engagement processes in ensuring report quality. To release university sustainability reports related to stakeholder interests (Jorge & Peña, 2017). With stakeholder involvement, universities will be more expansive in disclosing sustainable reporting.

H_5: Stakeholder Engagement has a positive effect on the level of disclosure in sustainability reporting.

RESEARCH METHODS

Using content, descriptive, and inferential statistical analysis—particularly for panel data—this study employs an explanatory design. We choose 155 analysis units from 55 University for 10 years between 2010 and 2020 since we have panel data comprising data from many units and different intervals in time (Table 1).

Data for this study were gathered from GRI database and universities' website. A list of GRI index is employed for content analysis of disclosure in university sustainability reports. Sustainability Report employs GRI indicators, which include economics, environment, labour practices and workplace comfort, people's human and societal rights, organizational profile, material aspects, boundaries, stakeholder involvement, report profile, governance, ethics and integrity, and general reporting standards. To reduce subjective bias in conducting content analysis, we took two steps. In the first step, we used two groups of tabulators; the results were then cross-checked and reconciled. In the second step, we requested verification of the initial results from two different experts. Any discrepancies in their verifications were discussed to obtain reliable content analysis results.

Cross-sectional and time series data are combined in panel data sets. Data gathering methods include documentation procedures, which are a type of content analysis (Hamilton & Waters, 2022; Trireksani et al., 2021). Since panel data regression approaches are advised for data processing, the E-views statistical program is used in this study's processing technique. Hence, the regression equation is shown by equation 1 and variable measures are displayed in Table 2.

$$Y = a + bX_1 + cX_2 + dX_3 + eX_4 + fX_5 + \epsilon \quad \text{......} 1$$

Y = Sustainability Reporting (SR)
X_1 = External Assurance (EA)
X_2 = Internal Audit (IA)
X_3 = Signed Declaration (SD)
X_4 = Sustainability Office (SO)
X_5 = Stakeholder Engagement (SE)
a = Intercept
b, c, d, e, f = Slopes
ϵ = Residual (error)

RESULTS AND DISCUSSIONS

Descriptive statistics provide an overview of research variables, including independent variables which is sustainability reporting, and dependent variables which are external assurance, internal audit, signed declaration, sustainability office and stakeholder engagement. Descriptive statistics include the minimum and maximum values, averages, and standard deviations of each study variable, which are described in the following Table 3.

In panel data linear regression, the standard assumption tests (autocorrelation, heteroscedasticity, multicollinearity, and normality) have to be performed. Every model undergoes a distinct test Fixed Effect Model (FEM), Common Effect Model (CEM) dan Random Effect Model (REM). When using ordinary least squares (FEM and CEM) as the model of choice, the following needs to be tested: multicollinearity and heteroscedasticity. However, if the model known as generalized least square (REM) is selected, the following needs to be tested: multicollinearity (Table 4), heteroscedasticity (Table 5), and normality proximity (Figure 2), where the Jarque-Bera probability value of 0.075100 > sig 0.05.

Using the Chow test (FEM is better than CEM), Hausman test (FEM is better than REM), and LaGrange

Table 1. Determination of the number of research Samples

No.	Criterion	Excluding Criteria	Total
1.	Number of sustainability report listed on the GRI database (2010–2020)	-	249
2.	Number of sustainability report that cannot be accessed in the GRI database	(34)	215
3.	Number of sustainability report that cannot be accessed on University' websites	(60)	155
Final sample over 10 years (unbalanced data)		-	155

Source: GRI Database

Table 2. Variable measurement

Variable	Description	Measurement
Sustainability Reporting (SR)	Sustainability reporting (SR) is the process of disclosing and answering to internal and external stakeholders about how an entity is doing in relation to sustainable development goals	79 indicators of the GRI G3(2010–2011) 84 indicators of the GRI G3.1(2012–2013) 91 indicators of the GRI G4 (2014–2016) 89 indicators of GRI standards (2017–2020) If an Higer Education Institution (HEI) disclosed the items, a value of 1 is assigned; otherwise, a value of 0 is issued (Fonseca et al., 2011; Purwantini et al., 2018). The formula of the index is SDj = $\underline{\sum xij\ nj\ t=1}$ nj
External Assurance (EA)	External assurance is a service to audit sustainability reporting to encourage universities to better comply with sustainability reporting standards.	A value of 1 is assigned to the presence of an External Assurance and 0 otherwise (private) (Larrán Jorge et al., 2019)
Internal Audit (IA)	Internal audits evaluate a company's internal controls, including its corporate governance and accounting processes	A value of 1 is assigned to the presence of an Internal Auditor and 0 otherwise (Larrán Jorge et al., 2019)
Signed Sustainability Declaration (SD)	Signing a declaration or statement as a strategic commitment to sustainability	When a declaration is signed, University are allocated a dichotomous variable with a value of 1; otherwise, a value of 0 is assigned (Bilodeau et al., 2014)
Sustainability Office (SO)	An example of HEI's strategic commitment to sustainability is its creation of a sustainable university through improved human and financial resources	For University with a sustainability office, dichotomous variables with a value of 1 are assigned; otherwise, 0 (Rosenbloom, 2010)
Stakeholder Engagement (SE)	To make sure the appropriate indicators are used, this is typicallydone by involving stakeholders early in the process. Stakeholder Engagement techniques are used to highlight improved reporting quality.	Dichotomous variables taking the value of 1 are assigned for the existence of Stakeholder Engagement and 0 otherwise (Amber & Ruiz, 2010)

Source: Previous studies

multiplier test (REM is better than CEM), the best model between general effects, fixed effects, or random effects was chosen.

Table 6's Chow test results demonstrate that FEM is superior over CEM when it comes to FEM, since there is a 0.0303 < 5% chance. Table 7's Hausman test findings demonstrate that between REM and FEM, FEM performs better due to the higher probability of 0.0073 than REM. Because the Chow and Hausman test results show that FEM is selected, there is no need to carry out the LaGrange test. The FEM was selected based on panel data analysis results, and the multicollinearity and normality tests are the two traditional assumptions that must be met.

The following results from the regression of panel data using the FEM can be seen in Table 8 Panel A. From 155 units of analysis of 55 University, the results show that there are four significant variables with details of all variables at the 1% significance level. According to the corrected R-squared value of 46.61% in Table 8 Panel A, the independent variable in this study may explain the dependent variable by 46.61%, with the remaining 53.39% being explained by variables outside the regression. Four factors influence SR. The coefficient of the following is significant: EA is 0.465829 (sig.0009), IA is 0.450000 (sig.0026), SD is 0.113766 (sig.0253), SO is 0.219411 (sig.0178), and one variable, SE, with a coefficient of 0.004050 (sig 0.0000), does not influence SR.

Similar to previous studies, the measurement results of the GRI index disclosure show a relatively low score of around 25.8%. Some researchers have called for the improvement of sustainability reporting standards that are more suitable for higher education institutions because GRI is not compatible with universities. However, if we look at the relatively low disclosure scores from various studies but see a trend of increasing university use of the GRI standards, there is a possibility of a tendency to gain legitimacy from the GRI 'brand'. Because GRI is the most widely used global sustainability reporting standard and is primarily used by many large companies around the world. The establishment of GRI provides a strong legitimacy effect.

Table 3. Descriptive statistics

	SR	EA	IA	SD	SO	SE
Mean	0.258366	0.664516	0.632258	0.277419	0.780645	0.729032
Median	0.226667	1.000000	1.000000	0.000000	1.000000	1.000000
Maximum	0.966667	1.000000	1.000000	1.000000	1.000000	1.000000
Minimum	0.00000	0.000000	0.000000	0.000000	0.000000	0.000000
Std Dev	0.127453	0.473690	0.483754	0.449177	0.415151	0.445900
Skewness	2.578476	-0.696867	-0.548572	0.994273	-1.356398	-1.030610
Kurtosis	12.16879	1.485624	1.300931	1.988580	2.839815	2.062158
Jarque-Bera	714.6845	27.35640	26.41820	32.14500	47.69428	33.11949
Probability	0.000000	0.000001	0.000002	0.000000	0.000000	0.000000
Sum	40.04667	103.0000	98.00000	43.00000	121.0000	113.0000
Sum Sq. Dev	2.501630	34.55484	36.03871	31.07097	26.54194	30.61935
Observations	155	155	155	155	155	155

Source: E-Views Processing

The Influence of External Assurance on University Sustainability Reporting

According to the first hypothesis, External Assurance has a favourable impact on Sustainability Reporting. The conclusion was that External Assurance significantly improved Sustainability Reporting. The findings suggest that university with external assurance, or audits, communicate their sustainability performance more effectively and publicly. Universities are encouraged to adhere to sustainability reporting standards more closely by sustainability reporting audits. The findings provide credence to the legitimacy theory. Legitimacy theory states that organizations aim to preserve their legitimacy by aligning their operations with the standards and expectations of society. In this regard, external assurance is an instrument that companies may use to strengthen the legitimacy of their GRI disclosures and increase their credibility. Businesses who disclose a lot of information on GRIs but do not have external assurance could be seen as "greenwashing," (Weber, 2018). In this sense, external assurance also assists in addressing and mitigating accusations of greenwashing. Furthermore, these findings validate earlier studies that demonstrate the application of third-party assurance can boost the trustworthiness of reporting (Ceulemans et al., 2015; Richardson & Kachler, 2017).

The Influence of Internal Auditor on University Sustainability Reporting

According to the second hypothesis, internal auditing benefits sustainability reporting. The study's findings indicate a positive correlation between university SR levels and internal audit. H2 is therefore approved. Sustainability reporting is impacted by the internal auditors of each university's monitoring of the quality of sustainability reports. As a result, academic institutions with internal auditors will make better quality of sustainability reporting. This result provides support for stakeholder theory. Internal auditors can help with ESG assurance and advice, which stakeholders are which is increasingly more demanding, (Soh & Martinov-Bennie, 2015). To improve corporate transparency and accountability, internal auditors are essential in making sure sustainability reports are reliable and in line with stakeholder interests. This finding is consistent with prior research, which hold that the internal audit function affects the relationship between the degree of sustainability reporting and CEO duality (DeSimone et al., 2021; Ganesan et al., 2017; Quyen & Sidorova, 2022).

The Influence of Signed Declaration on University Sustainability Reporting

According to the third hypothesis, SD has a positive effect on SR. In conclusion, SD has a positive and significant effect on SR. Urging academic institutions to adopt pro-sustainability declarations implemented by activists on campus is one tactic to convince academic institutions to increase sustainability (Lozano et al., 2013). Enrolling in

Table 4. Multicollinearity test

	EA	IA	SD	SO	SE
EA	1.000000	0.81831276	0.07403282	-0.3106026	0.30465412
IA	0.81831276	1.000000	0.14382855	-0.3396032	0.22742728
SD	0.07403282	0.14382855	1.000000	0.15434101	0.02112585
SO	-0.3106026	-0.3396032	0.15434101	1.000000	-0.1127024
SE	0.30465412	0.22742728	0.02112585	-0.1127024	1.000000

Source: E-Views Processing

Table 5. Heteroskedasticity test white

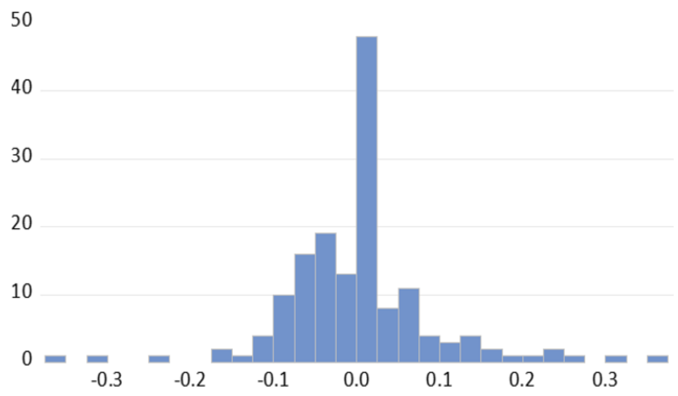
Heteroskedasticity Test: White			
Root MSE	0.052731	R-Squared	0.567521
Mean dependent var	0.080025	Adjusted R-Squared	0.293153
SD dependent var	0.080446	S.E of regression	0.067634
Akaike info criterion	-2.262922	Sum squared residual	0.425422
Schwarz criterion	-1.074515	Log likelihood	233.1135
Hannan-Quinn criterion	-1.780171	F-statistic	2.068467
Durbing-Watson	3.313644	Prob (F-statistic)	0.000827

Source: E-Views Processing

this declaration will demonstrate a calculated dedication to sustainability. Several case studies have exploited these expectations to see university with similar behavioural statements, but no real action has been taken to implement them. The findings of this research provide support for stakeholder theory, which states that activist campaigns include pressuring universities to sign sustainability documents as a tactical commitment to sustainability. Stakeholder acknowledgment and support will be obtained by universities that sign sustainability declarations. Stakeholder theory emphasizes the necessity for organizations to consider the interests and influences of various stakeholder groups, which can significantly impact their sustainability practices and reporting. In this regard, SDs enhance the credibility of sustainability reports and help organizations align their practices with stakeholder expectations. This alignment is essential for building trust and maintaining legitimacy in an increasingly scrutinized business environment.

The Influence of Sustainability Office on University Sustainability Reporting

According to the fourth hypothesis, the existence of sustainability offices has a beneficial effect on sustainability reporting. The Sustainability Office has a favourable impact on sustainability reporting, it is concluded. University that have sustainability offices are more committed to sustainability and have superior financial and human resources to establish sustainable universities, which increases the chance to issue sustainability reports. The study's findings are consistent with the legitimacy theory, which holds that universities' contributions to the creation, management, and dissemination of sustainability reports are acknowledged by society. Sustainability offices serve as central hubs for coordinating sustainability initiatives, engaging stakeholders, and ensuring that sustainability is integrated into the university's strategic framework. By bringing institutional practices into line with wider community expectations and environmental imperatives, this integration is crucial for bolstering the legitimacy of sustainability initiatives. This result supports evidence from previous observations studies Rosenbloom (2010); Uwuigbe et al. (2018); Wissink (2012). In addition, according to research, one of the most important steps in integrating sustainability into higher education is the creation of sustainability offices. According to Abubakar et al. (2020), these offices are responsible for creating official rules and procedures that direct sustainability projects and encourage accountability and good governance. The presence of a dedicated sustainability office can significantly enhance a university's capacity to implement sustainability programs, as it allows for systematic planning and resource allocation towards sustainability goals. Sustainability offices can tailor reporting practices to align with the institution's educational objective and community involvement initiatives, thereby enhancing the relevance and effect of the reports (Sułkowski et al., 2021).



Series: Standardized Residuals
Sample: 2010-2020
Observation: 155

Mean	-3.56e-19
Median	0.00000
Maximum	0.37333
Minimum	-0.37333
Std. Dev.	0.093125
Skewness	0.373538
Kurtosis	7.121419
Jarque-Bera	113.3064
Probability	0.075100

Figure 2. Normality

Table 6. Chow Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.096907	(54.95)	0.3423
Cross-section Chi-square	75.111041	54	0.0303

Source: E-Views Processing

Table 7. Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	15.861070	5	0.0073

Source: E-Views Processing

The Influence of Stakeholder Engagement on University Sustainability Reporting

According to the fifth hypothesis, sustainability reporting is unaffected by stakeholder engagement. The study's findings indicate that there is no correlation between university' levels of sustainability reporting and stakeholder engagement with sustainability. This means the reported stakeholder engagement has not yet been fully implemented in a way to improve sustainability reporting. H5 is thus disregarded. Stakeholder theory and earlier research are not supported by this result. The theory views that universities are less transparent in disclosing sustainable reporting when stakeholders are not engaged. From the descriptive statistics, the table 3 shows that stakeholder engagement is relatively high. However, the statistical results show that stakeholder engagement does not have a significant impact on the sustainability report. The report is likely not very comprehensive and only serves to show that the university has a stakeholder engagement program, but it is not sufficiently complete according to GRI criteria. This shows that the university is trying to present stakeholder engagement in the report to demonstrate its commitment to sustainability in order to gain recognition from the public. However, the university does not report its stakeholder engagement in sufficient detail. In other words, current sustainability reports are not up to par and do not adequately represent stakeholders' interests. In order to ensure report quality, sustainability reports should take into account stakeholder involvement procedures and information needs (Jorge & Peña, 2017).

The results of this study support the legitimacy theory. Factors such as external assurance and the sustainability office have been proven to influence disclosures in accordance with GRI criteria. The presence of these two factors bolsters the legitimacy of the university in the wider community. For sustainability reporting at universities that is entirely voluntary, the creation of sustainability reporting is an effort to gain legitimacy. GRI was chosen as the reporting standard because of its wide usage, and it is used by many large companies, which indicates that GRI has significant legitimacy value. As a public organization, the existence of a university is highly dependent on recognition from society, both locally and globally. The demand for global rankings drives universities to create sustainability reporting, as sustainability has become a significant evaluation point in global university rankings(Shan et al., 2022). In this regard, although only a small number of universities use GRI, it continues to show slight upward trend year after year (Moggi, 2023).

Factors namely internal audit and signed declaration are factors that prove the support of stakeholder theory. These two factors refer to the accommodation of the more specific demands and needs of stakeholders. Meanwhile, the factor indicating stakeholder engagement, although reported quite frequently (72.9%), shows in this study that it does not affect the quality of sustainability reporting. Hence the stakeholder theory perspective that views stakeholder engagement as encouraging the accommodation of stakeholder interests in sustainability reporting is not supported. This result actually shows that stakeholder engagement is only reported for the sake of legitimacy. There

Table 8. Results of the regression analysis

Panel A. $Y_{it} = 0.483291 + 0.465829X_{1it} + 0.450000X_{2it} + 0.113766X_{3it} + 0.219411X_{4it} + 0.004050X_{5it} + e_{it}$

Variable	Coefficient	t	p-value
Constant	0.483291	3.883046	.0002***
EA	0.465829	-3.44146	.0009***
IA	0.45	3.098848	.0026***
SD	0.113766	-2.27279	.0253***
SO	0.219411	-2.41109	.0178***
SE	0.00405	0.072012	0.9427

Adj R2 = .466132; F = 7.47; p-value = 1%***, 5%**, 10%*; N = 155

Panel B

Jarque-Bera .0751***

Multicollinearity >0.8

Notes: There is no issues with multicollinearity, heteroscedasticity, or autocorrelation because all of the regression assumptions have been met. The findings of regression analysis using the FEM are shown in Panel A. Panel B presents the results of normality and multicollinearity. SR = Sustainability Reporting; EA= External Assurance; IA=Internal Audit; SD = Signed Declaration; SO = Sustainability Office; SE = Stakeholder Engagement.

***statistically significant at 0.01; ** statistically significant at 0.05; *statistically significant at 0.10.

is a possibility that the indication of stakeholder involvement is more ceremonial and does not touch the essence of true engagement. The indication points towards disclosure to pursue a positive image or measurement points in university rankings (Shan et al., 2022). This may be categorized as impression management in sustainability reporting (Diouf & Boiral, 2017).

CONCLUSIONS

The purpose of this research is to identify the factors that influence sustainability reporting from global universities listed in the GRI database. The results show that the accreditation scores are still relatively low, similar to previous studies. There are two implications from these findings, first reinforcing the call from several academics to create more specific sustainability reporting standards for higher education institutions due to the unique characteristics of universities. Second, it strengthens the legitimacy motive in sustainability reporting at universities because GRI is the most widely used global reporting standard, giving the GRI 'brand' high legitimacy power. Regardless of low compliance with the standards, apparently what matters is using the GRI standards which is considered capable of providing strong legitimacy.

Legitimacy theory and stakeholder theory are employed as theoretical lens for this study. Legitimacy theory encompasses a wider societal viewpoint, whereas stakeholder theory is more detailed, focusing on particular stakeholder groups and their impact on organisation conduct. External assurance and the sustainability office have been demonstrated to affect sustainability reporting. The findings of this study corroborate the legitimacy theory. Internal audit and signed declaration are factors that also affect sustainability reporting. In stakeholder theory view, these two factors enable stakeholder to be accommodated in sustainability reporting.

Apart from previous factors that significantly affect sustainability reporting, the other factor namely stakeholder engagement, despite being reported frequently, demonstrates that it does not influence the disclosure of sustainability reporting. Stakeholder theory views sustainability reports should reflect stakeholder information needs and stakeholder engagement processes in ensuring report quality. This finding indicates that stakeholder engagement is reported solely for the purpose of legitimacy. The evidence suggests the disclosure aims to enhance reputation or improve measurements in global university rankings. This may be classified as impression management in sustainability reporting.

This study contributes to the factors influencing university sustainability reporting. University may find it useful to use our model as a strategy to improve the quality of sustainability reporting. Good sustainability reporting will enhance accountability and foster trust by conveying both the favorable aspects of sustainability activities and the challenges along with places necessitating enhancement. The reporting also facilitates sustainability orientation, performance, and continuously drive the sustainability agenda. The limitation of this research is that the data is only available in the GRI database until 2020. There is a time lag in the available GRI data list, so at the time this research was conducted, the available data only went up to 2020. Further data is not available on the GRI website. Future studies might look at higher education sustainability reporting determinants in a wider context. An in-depth investigation of the motives of legitimacy and indications of impression management in sustainability reporting practices will be a compelling upcoming research agenda.

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