Internal control implementation and quality of higher education institutions: a moderation effect testing

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Abstract

Purpose – This study aims to examine the moderating effect of internal control on the relationship between internal quality assurance implementation and higher education institution (HEI) quality.

Design/methodology/approach – The study employed a survey method with hypothesis testing using partial least squares-structural equation modelling (PLS-SEM) technique with a second-order analysis approach. The questionnaire survey was administered to 191 HEIs.

Findings – The results revealed that internal control and internal quality assurance implementations are positively associated with HEI quality. Additionally, internal control implementation strengthened the relationship between internal quality assurance and HEI quality.

Originality/value – This study adds to the body of knowledge on the moderating role of internal control in the HEI sector and its role in the non-economic aspect, namely, the HEI quality.
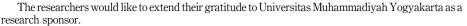
Keywords Higher education institution, Internal control, Internal quality assurance, Quality

Paper type Research paper

1. Background

The global demand for higher education institutions (HEIs) quality has prompted changes in management and governance practices, particularly in control mechanisms, monitoring methods and quality assurance (Sofyani, 2020). In line with this international movement, which aims for quality improvement, the Indonesian government has launched several initiatives linked to governance and New Public Management (NPM) corroboration for Indonesian HEIs. Specifically, in 2003, the government adopted the accreditation system to assess and manage HEI quality, in which internal quality assurance was made mandatory. Internal quality assurance helps HEI assess whether teaching and learning, research, publication, service community and other performance indicators have met specific criteria of HEI quality (Aburizaizah, 2022).

However, despite mandatory regulation implementation of internal quality assurance, most HEIs in Indonesia have remained with the old status quo. This has triggered the initiation of new regulations related explicitly to implementing internal control in HEIs, which

was then ratified in 2009. The implementation of internal control aimed to improve the quality of good governance practices in HEIs, especially in financial management and accountability practices. Those aspects have been argued as being poor and the roots of low HEI quality in many Indonesian HEIs. For example, the Indonesia Corruption Watch found 37 corruption scandals in HEIs between 2006 and 2016 were due to poor governance practices (Sofyani *et al.*, 2022). Corruption has negatively affected HEI budget use, causing it to suffer in performance and quality (Van Vu *et al.*, 2018).

Even though several previous studies have concluded that internal control implementation at HEIs could enhance financial performance (see Muhunyo and Jagongo, 2018; Abdullahi and Muturi, 2016), whether it contributes to quality improvement has not been adequately explored. Thus, the Indonesian government's affirmation of policies to improve the quality of HEI through internal control implementation initiation has not been supported by empirical evidence. As such, the presence of two core policies at HEI, namely, internal quality assurance and internal control, is considered questionable by academics as it adds to their workload at HEI (Sofyani, 2020). Many scholars believe that the internal control policy might not improve the quality of HEI. It is because the internal control implementation is more often associated with financial matters like fraud and financial accountability (Muhunyo and Jagongo, 2018; Abdullahi and Muturi, 2016) instead of common indicators of HEI quality, such as teaching, research and publication, community service, etc. (Sofyani *et al.*, 2022). On one side, the preliminary interview of this study deduced that the quality of the HEI is considered manageable enough with the existence of an internal quality assurance policy (Sofyani, 2020).

However, according to the Resource Orchestration perspective, an organisation could realise its resources' full value when the resources are structured, bundled and managed harmoniously (Sirmon *et al.*, 2011). Likewise, Asiaei *et al.* (2021) argued that mobilised resources integrated into a robust system could create a better alignment, coordination and direction for specific organisational achievement. Based on that insight, better HEI quality could be achieved if the two internal HEI resources, internal quality assurance and internal control, could be harmonised. Thus, the Indonesian government's initiatives to launch an internal control policy to support the internal quality assurance mechanics in promoting HEI quality are timely and reasonable. Nevertheless, it is difficult to verify this claim due to the lack of studies examining it. Therefore, this study aims to address the gap by examining whether the internal control done together with the implementation of internal quality assurance is sufficient in promoting HEI quality.

As this study focuses on the Indonesian context, it will provide valuable insight for other developing countries, especially those pursuing HEI quality improvements. To date, Indonesia has more than 4,500 active HEIs, thus making Indonesia one of the countries in Asia with the largest HEI population. However, as a country with a high level of corruption (Umam *et al.*, 2020) and many HEIs, providing additional HEI's operational budget alone is insufficient for improving HEI quality and possibly not even reasonable. Based on this, it is plausible to say that improving governance practices in HEIs would be the most critical for the Indonesian government in enhancing HEI quality, given that good governance practices could mitigate fraudulent use of HEIs budget, especially to pursue performance and quality (Wahyuni-TD *et al.*, 2021). Part of this study will address the issue by empirically answering whether progressive changes in governance and NPM policies at HEIs in Indonesia, mainly through strengthening and integrating internal control and internal quality assurance, offer any value in improving HEI quality. Specifically, this study answered whether internal control supported the role of internal quality assurance in influencing HEI quality. From a theoretical perspective, the examination of the moderating role of internal control by using the Resource Orchestration theory provided new insights into the related literature, given

that most previous studies on internal control had focused more on agency problems using the agency theory (e.g., Abdullahi and Muturi, 2016; Tenbele, 2019).

2. Literature review and hypotheses development

2.1 HEI quality, internal quality assurance and internal control

The HEI quality is defined as "the level of compatibility between HEI management with quality standards set" (Indonesia Government, 2016, p. 2). The quality of Indonesian HEIs is pursued by ratifying quality assurance regulations for HEIs, of which internal quality assurance is a component. Although the issue of internal quality assurance today is widely discussed in the disciplines of education and industrial technology, it is also discussed by accountants, especially in management accounting. In the accounting curriculum in Indonesia, the quality issue is one of the concerns, and it is a subject under the management control system. For example, a Kaizen concept is an assigned subject in management accounting to maintain quality and reduce costs. Chartered Global Management Accounting (CGMA) defined Kaizen as a philosophy of customer-driven improvement. It aims to create a continuous quality, cost and delivery improvement culture across the value chain (CGMA, 2021). Through the Regulation of Minister of Education and Culture No. 62 of 2016 concerning the Quality Assurance System for HEI, the Indonesian government officially adopted the Kaizen method to guide HEI in implementing internal quality assurance.

Furthermore, in Indonesia's context, efforts to improve the quality of HEIs also involve internal control implementation. The Indonesian government has officially adopted the definition and measurement of internal control proposed by COSO for internal control practices in the public sector through government Regulation n0 of 2008. However, internal control implementation in HEIs is regulated by the Indonesian Regulation of National Education Minister Number 16 of 2009, amended by the Indonesian Regulation of National Education Minister Number 44 of 2011. Chalmers *et al.* (2019) reviewed 60 US papers and 34 non-US or cross-country papers published from 2013 to 2016. Their findings revealed that the existing internal control studies were based on two issues: (1) the determinants (internal and external) of internal control effectiveness, including board and board sub-committee characteristics, ownership structure, external audit, regulatory and market features and national culture and (2) the consequences of internal control for management decisions, executive compensation and turnover, equity and bond markets and other stakeholders. A new area of research has consequently opened up following the adoption of internal control by not-for-profit organisations (NFPOs), including HEIs. However, Chalmers *et al.* (2019) concluded an ongoing lack of related studies in the context of NFPOs, including HEI, especially in an Asian setting, which makes this a fruitful avenue to pursue.

2.2 Hypotheses development and conceptual framework

Various studies have found that internal control implementation-assisted companies in improving their financial performance (Altschuller *et al.*, 2016; Länsiluoto *et al.*, 2016). However, as these previous studies were conducted in a company setting, they only focused on the role of internal control on economic aspects and neglected its contribution to non-economic ones (Chalmers *et al.*, 2019). This situation raises the question of whether internal control could contribute to non-economic aspects, such as HEI quality. To date, empirical research addressing this question is still lacking (Chalmers *et al.*, 2019). As the COSO (2013) suggested, internal control aims to ensure that an organisation's operations and goals are achieved effectively and efficiently, its financial and non-financial reports are reliable and its

related regulations are satisfactory. Since HEI quality assessment includes the elements of performance, management, governance practices, service quality and HEI administration (Das and Mukherjee, 2017), implementing internal control is considered pivotal for achieving better HEI quality. Thus, the following hypothesis was formulated:

H1. Internal control implementation is positively associated with HEI quality.

Implementing internal quality assurance plays a significant role in overseeing, ensuring and controlling HEI activities to align with the quality standards and indicators (Santos and Dias, 2017). Internal quality assurance encompasses various quality aspects of the HEI, such as external accountability, academic programmes, improvement of academic performance, outcome assessments and academic programme databases (Prakash, 2018). From this, internal quality assurance could improve HEI quality (Aburizaizah, 2022). Thus, the following hypothesis was formulated:

H2. Internal quality assurance implementation is positively associated with HEI quality.

The Resource Orchestration theory (Sirmon *et al.,* 2011) proposed that an organisation would achieve a competitive advantage if its management mobilised and orchestrated its resources harmoniously, integrated and effectively. In Indonesian HEIs, internal control policies are ratified to support their internal quality assurance. More effective integration of these two resources is expected to promote better HEI quality. Therefore, this study predicts that integration between internal control and internal quality assurance might enable internal control to act as a moderator. Nonetheless, Sofyani (2020) noted a lack of harmonisation and integration between the two policies in question in some HEIs in Indonesia. It is because the internal quality and control units were independently focusing on their respective functions and responsibilities without proper coordination. This condition contradicts the resource orchestration premise mentioned above. However, as empirical evidence for the interaction of both policies in determining HEI quality has not been explored adequately, it is necessary to address this gap to obtain empirical evidence that strengthens or rejects the premise of the Resource Orchestration theory instead.

From different research contexts, Mohammed and Kakanda (2017) found that implementing internal control moderated the statutory allocations besides generating revenues for government expenditures. In another study, Huang *et al.* (2019) discovered that internal control could positively moderate the relationship between cross-border mergers and acquisition (M&A) policies and corporate performance. Internal control helped the companies manage the risks of cross-border M&A and mitigated the losses of cross-border M&A to an acceptable level, thereby improving the performance of cross-border M&A. Until today, related studies that place the role of internal control as moderating are still scarce. Based on the previous discussions, we formulated the following hypothesis:

H3. Internal control implementation strengthens (moderates) the relationship between internal quality assurance implementation and HEI quality.

3. Research methodology

3.1 Population and sample

This study took Indonesian HEIs as a population. The samples were determined using the purposive sampling approach (Sekaran and Bougie, 2019) with two criteria: (a) The HEIs had implemented internal control and internal quality assurance and (b) The respondents were heads or members of the management of the internal control and internal quality assurance units in HEIs. However, in cases where no internal control unit exists, core members of the HEI management team (rector, vice-rector, dean, deputy dean and head of the department)

were recruited because of their responsibilities in implementing internal control and internal quality assurance in their respective HEIs. Two different sets of questionnaires were prepared: Set 1 contained questions on internal control. These were administered to respondents from the internal control units. Set 2 contained questions about internal quality assurance and HEI quality. These were distributed to respondents from the internal quality assurance units. The questionnaire was separated as a measure to ensure that suitable respondents completed the questionnaires with the required capabilities.

Moreover, this study employed the non-probability sampling technique where the specific size of the total population was unknown, in line with Memon *et al.* (2020), who mentioned that sample size should be determined using power analysis. Based on the power analysis result, thus, the minimum sample size for the current study was determined at 77 HEIs.

3.2 Constructs and measurements

The questionnaire used in this study was adapted and developed from relevant literature. In the context of this study, the Indonesian government regulations on internal control and internal quality assurance for Indonesian HEIs were also referred to. Since the Indonesian government had officially regulated HEIs' internal control through the Indonesian Regulation of National Education Minister Number 44 of 2011, this regulation and the COSO Integrated Framework (COSO, 2013) were thus adapted as the primary reference in developing the internal control measurement, which consisted of five elements: control environment, control activities, risks assessment, information and communication and monitoring. In addition, the Regulation of the Minister of Research, Technology and Higher Education of the Republic of Indonesia No. 62 of 2016 on the Quality Assurance System for HEI and the internal quality assurance guidance book of 2018 were used as the primary reference when developing the internal quality assurance implementation measurements. Nonetheless, several relevant studies related to internal quality assurance (including Santos and Dias, 2017; Mourad, 2017) were referred to confirm the compatibility of the measures. In essence, internal quality assurance was measured using internal quality assurance mechanisms, integration and scope. Lastly, an accreditation assessment instrument for Indonesian HEI was used to measure HEI quality. In addition to the study context, the Indonesian accreditation assessment has adopted an international framework and criteria for HEI quality assessment, namely, AUN-Q [1] and QS World University ranking. Hence, quality indicators used refer to quality criteria from a global perspective. Based on the theoretical framework and measurement developed, we formulated the conceptual framework of the research as presented in Figure A1 (available online at: https://umyac-my.sharepoint.com/:b:/g/personal/hafiez_sofyani_umy_ac_id/EUFBjvxXxs5LqVPklJoowykB19sTcO1eDDpaS9y1jz_RPA?e=31G0b7).

3.3 Questionnaire development

To ensure the content validity of the constructs, the questionnaire was then examined by 13 experts from the accounting fields (He *et al.*, 2021). Based on their feedback, the questionnaire was improved for the fieldwork. Subsequently, a pilot test was conducted to ensure the comprehensibility and reliability of the questionnaire (Zikmund *et al.*, 2013). In doing so, 110 respondents from different HEIs (66 for internal control and 44 for internal quality assurance) were involved as the pilot samples. From the results, only some minor issues required revision on the questionnaire.

3.4 Field data collection results

Due to the COVID-19 pandemic, all questionnaires were distributed online. A paired questionnaire has been submitted to 628 HEIs in all provinces of Indonesia. However, only

271 HEIs (43.15%) responded by filling them. After removing inappropriate respondents and extreme answers responses, the total number of questionnaires that could be processed was 251 for internal control and 206 for internal quality assurance. However, as this study used the paired response technique, and only 191 HEIs have filled in paired questionnaires completely, that number could be processed for data analysis. It has fulfilled the minimum requirement of 77 HEIs, as Memon *et al.* (2020) suggested.

Due to the self-reported nature of the survey data, there was a potential for common method variance (CMV) (Podsakoff *et al.*, 2003). Hence, to detect this issue, Harman's single-factor test was used (Tehseen *et al.*, 2017). The test results showed that the first factor only explained 29.57%, confirming that CMB was not a severe problem in this research because the value was less than 50% (Podsakoff *et al.*, 2003).

3.5 Data analysis
Variant-based partial least squares-structural equation modelling (PLS-SEM) was employed to test the hypotheses. PLS was chosen because of the non-parametric nature of the Likert scale (Sholihin and Ratmono, 2021). Specifically, this study developed a formative-formative second-order analysis as the two constructs within the model [see Figure A1 in Appendices], internal control and internal quality assurance, are built on several dimensions with the formative-formative type (Hair *et al.*, 2021). We employed a repeated indicator approach in the first analysis to measure the outer model. However, the two-stage approach test was developed for hypotheses testing (inner model assessment) as it is the fittest one for the moderating construct using formative measures (Ramayah *et al.*, 2018).

4. Results and discussion
4.1 Demographic and descriptive statistics
The demographic data of the HEIs and respondents are outlined in Appendices (Table A1) (available online at: https://umyac-my.sharepoint.com/:b:g/personal/hafiez_sofyani_umy_ ac_id/EUFBjvxXxs5LqVPklJoowykB19sTcO1eDDpaS9y1jz_RPA?e=31G0b7). Table 1 shows descriptive statistics of the data.

4.2 Measurement (outer) model testing
Due to the rules for limiting the number of words in the *Asian Journal of Accounting Research (AJAR)*, the Tables showing the results of measurement model testing are presented in the Appendices.

4.3 Hypotheses testing
Table 2 summarises the hypotheses testing results using the bootstrapping technique in PLS. All hypotheses were supported. It was found that the adjusted *R*-squared values of the

Criteria	COEV	RISK	COACT	INCOM	MON	IQAM	IQAI	IQAS	QUAL
Min	1.59	0.00	1.30	0.00	0.40	2.05	2.00	1.82	1.03
Max	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	4.93
Mean	3.92	3.78	4.09	4.09	3.85	4.20	4.35	4.06	3.30
SD	0.69	0.87	0.76	0.73	0.87	0.54	0.58	0.64	0.67

Table 1.
Descriptive statistics

Source(s): Authors' own work

endogenous variables (i.e., HEI quality) were 0.365 (without moderation) and 0.375 (with moderation). Chin (1998) noted that the adjusted R-squared value ranging from 0.34 to 0.66 is moderate. Additionally, the f-squared value of the internal control as moderator, namely, 0.022, showed a medium effect size (Ramayah *et al.*, 2018). It confirmed that the moderating role of internal control is crucial to consider.

4.4 Discussion
4.4.1 Internal control, internal quality assurance and HEI quality. This study confirmed that internal control implementation is positively associated with HEI quality. As suggested by several kinds of literature, effective internal control will enhance accountability practices so that the use of the organisation's budget will meet its purposes, namely, pursuing performance and quality and minimised the risk of budget abuse (Sofyani *et al.*, 2022; Pratolo *et al.*, 2022; Yaya, 2017). This result expands on past studies by Muhunyo and Jagongo (2018) and Abdullahi and Muturi (2016), who found that internal control implementation in HEIs promoted good financial performance. Separately, the current study also found that internal control contributed to another broader achievement: quality. Referring to the literature and the prevailing context of Indonesia, financial performance is an element of HEI quality.

Furthermore, it was found that implementing internal quality assurance is positively associated with HEI quality. This finding was expected, given that an internal quality assurance policy was explicitly aimed at ensuring that the HEI manages and improves its quality. Internal quality assurance is a systematic control policy that covers teaching, learning, research, community service, governance/leadership, service, management, planning, internal and external university relationships and other performance indicators (Santos and Dias, 2017). Implemented effectively, it meets the required mechanism points, integrates with policies and between units in the HEI and covers all HEI scope of operations. These could improve the HEI's quality, enabling it to achieve the targeted KPIs.

4.4.2 Role of internal control as a moderator. Besides directly promoting HEI quality, implementing internal control was also found to act as a moderating variable. In other words, internal control strengthens the role of internal quality assurance in promoting HEI quality. This result aligns with prior studies by Mohammed and Kakanda (2017) and Huang *et al.* (2019), as highlighted in the hypotheses development. In this study context, effective internal control could generate more reliable information about the achievements of HEI standards and performance (quality assessment). These achievements are the central purpose of internal quality assurance. Effective internal control could also promote effective and efficient operations and compliance with HEI standards, targets, indicators and specific regulations the Quality Assurance Board sets. Additionally, effective internal control drives

	Model 1: Without moderation	Model 2: With moderation
Internal Control (IC)	0.161** (H1)	0.157**
Internal Quality Assurance (IQA)	0.543** (H2)	0.584**
IC*IQA (Moderation)		0.108* (H3)
Adjusted R-squared	0.365	0.375
The effect size of moderation		0.022 (Medium)
Note(s): *$p < 0.05$; **$p < 0.01$		
Source(s): Authors' own work		

the increase in HEI accountability which is closely related to the fulfilment of HEI quality standards (Sofyani *et al.*, 2022).

4.4.3 Theoretical implications. Theoretically, the study results confirmed the Resource Orchestration perspective, which contains the central principle of "resource mobilisation" by which mobilised resources are integrated into a robust system to support better alignment, coordination and direction for specific use (Asiaei *et al.*, 2021). Formally, the theory claims that organisations could harness the full potential of their internal resources and capabilities when these are deployed complementary (Burin *et al.*, 2020). Sirmon *et al.* (2011) emphasised that organisational resources could promote better performance when structured, bundled and leveraged to fit a particular market. Applying this notion to this study context, it is thus deduced that aligning internal control with internal quality assurance in HEI is crucial to achieving a competitive advantage today, as seen from the quality.

However, it is essential to note that the moderation shown in this study is quasi or complementary. It can be seen from the direct effect of internal quality assurance on HEIs quality remains significant even when the interaction model (internal control as moderator) is tested. In other words, internal quality assurance has somehow remained independent in influencing HEI quality and does not always depend on internal control. However, with the significant moderating effect to consider in this study, a wiser justification would be that in pursuing HEI quality, the interaction between internal control and internal quality assurance policies is preferable instead of relying on internal quality assurance alone. This argument is corroborated by the higher adjusted R-squared value of the model with moderation rather than the one without moderation and the effect size of moderation that is considered at the medium level (Ramayah *et al.*, 2018).

4.4.4 Practical implications. The outcomes derived from this study offer several implications for practitioners. First, this study suggests that HEI management should oversee the effectiveness of internal control and internal quality assurance implementation to improve HEI quality. More specifically, it is recommended for HEI management to integrate the two policies in question to create better quality improvements rather than just relying on the role of internal quality assurance alone. Second, it is proposed that regulators and policymakers formulate specific rules for all Indonesian HEIs to encourage better internal control and internal quality assurance implementation. The preparation of standards, indexes or guidelines could be implemented, given that this had not been undertaken thus far, especially for internal control policy. Finally, there is a need to conduct more training and mentoring on implementing both policies at many HEIs due to the benefit they could promote.

5. Conclusion

This study has examined the role of internal control and internal quality assurance implementations on HEI quality by placing internal control as a moderating variable. This study found that internal control and internal quality assurance implementations are positively associated with HEI quality. Implementing internal control also strengthened the relationship between internal quality assurance and HEI quality. These findings contribute to the development of internal control literature and the Resource Orchestration theory, particularly in the HEI setting of a developing country. Practically, by presenting empirical evidence, this study contributes to answering the debate regarding the importance of the presence or absence of an internal control policy at HEI and its integration with internal quality assurance.

This study has its limitations. First, it examined questionnaire survey data only. However, to ensure the robustness of the results, survey research should involve cross-validation checks that retest the model using secondary data. In the context of this study, however, cross-validation was not possible because the related secondary data required were not

publicly available. Second, this research does not cover what resources need to be harmonised and not yet integrated (between internal control and quality control) related to improving the quality of HEI. Thus, future studies could be carried out qualitatively to reveal how internal control and internal quality assurance can be integrated to pursue performance and quality in HEI.

Note
1. AUN-QA (The ASEAN University Network Quality Assurance).

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