

ANTECEDENTS AND CONSEQUENCES OF HIGHER EDUCATION FINANCIAL PERFORMANCE IN INDONESIA

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Abstrak

Tujuan Utama – Penelitian ini bertujuan untuk menguji peran intervening kinerja keuangan pada pengaruh akuntabilitas manajemen dan kinerja operasional perguruan tinggi swasta dengan didukung sistem informasi akuntansi.

Metode - Penelitian ini menggunakan Partial Least Square-Structural Equation Modeling (PLS-SEM) berbasis varian untuk melakukan analisis data dan pengujian hipotesis. PLS-SEM dapat digunakan untuk menguji model pengukuran sekaligus menguji model struktural secara bersamaan.

Temuan Utama - Secara tidak langsung, kinerja keuangan dapat menjadi intervening bagi akuntabilitas manajemen dan kinerja operasional perguruan tinggi swasta. Selain itu, sistem informasi akuntansi berpengaruh positif terhadap akuntabilitas manajemen. Selanjutnya akuntabilitas manajemen berpengaruh positif terhadap kinerja keuangan dan kinerja operasional perguruan tinggi swasta.

Implikasi Teori dan Kebijakan - Secara teoritis penelitian ini mengonfirmasi teori penetapan tujuan berkaitan dengan sistem informasi akuntansi, akuntabilitas manajemen, kinerja keuangan dan operasional dalam konteks institusi perguruan tinggi swasta. Adapun secara praktis, hasil penelitian ini memberikan rekomendasi kepada manajemen perguruan tinggi untuk meningkatkan kinerja operasionalnya melalui penerapan akuntabilitas manajemen pada pengelolaan kinerja keuangan dengan didukung sistem informasi akuntansi.

Kebaruan Penelitian - Studi ini meneliti peran intervening kinerja keuangan pada hubungan antara akuntabilitas manajemen dan kinerja operasional perguruan tinggi swasta. Disisi lain, riset ini dilakukan pada saat pandemi COVID-19 terjadi yang mana dampaknya juga dirasakan oleh perguruan tinggi swasta.

Abstract

Main Purpose - This study examines the intervening role of financial performance on the effect of management accountability and operational performance of private HEIs supported by accounting information system.

Method - This study used a variant-based Partial Least Square-Structural Equation Modeling (PLS-SEM) to perform data analysis and hypothesis testing. The PLS-SEM can be used to test measurement models while testing structural models simultaneously.

Main Findings - In indirect influence, financial performance could be an intervention for management accountability and operational performance of private HEIs. In addition, the accounting information system had a positive effect on management accountability. Furthermore, management accountability had a positive effect on the financial performance and operational performance of private HEIs.

Theory and Practical Implications - Theoretically, this study confirms the goal-setting theory related to accounting information systems, management accountability, financial performance, and operations in private HEIs. Meanwhile, practically, the results of this study provide recommendations to higher education management to improve their operational performance through the application of management accounting in financial performance management, supported by an accounting information system.

Novelty - This study scrutinized the intervening role of financial performance on the relationship between management accountability and the operational performance of private HEIs. On the other hand, this research was carried out during the COVID-19 pandemic, private HEIs also felt the impact.

Keywords: Accounting Information System, Management Accountability, Financial Performance, Operational Performance

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How to cite this article. Pratolo, S., Mukti, A.H., Widyaningsih, A. (2022). ANTECEDENTS AND CONSEQUENCES OF HIGHER EDUCATION FINANCIAL PERFORMANCE IN INDONESIA. *Jurnal ASET (Akuntansi Riset)*. Program Studi Akuntansi. Fakultas Pendidikan Ekonomi dan Bisnis Universitas Pendidikan Indonesia, 14(2), 349–362. Retrieved from <http://ejournal.upi.edu/index.php/aset/article/view/50467>

History of the article. Received: August 2022, **Revision:** October 2022, **Published:** December 2022
Online ISSN: 2541-0342. Print ISSN: 2086-2563. DOI : 10.17509/jurnal.aset.v14i2.50467
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INTRODUCTION

Higher education institutions (HEIs) are currently faced with intense competition between individuals, institutions, and countries, giving rise to multi-level competition that causes them to compete with each other (Musselin, 2018). Every HEI must possess such a competitive advantage to maintain its existence in the education industry (Muhardi, 2004). Currently, the QS World University Rankings (QS WUR) and the World University Rankings (The WUR) are used to assess the quality and reputation of HEIs around the world (Altbach & Salmi, 2017). On the other hand, university rankings are also developed by the government and other private sectors (Tjahjadi et al., 2019), so good quality will also indicate good HEI performance (Pratolo et al., 2020). Until now, the performance issue in private HEIs is still a special concern as it is the achievement of the desired goals and targets (Tjahjadi et al., 2019). The COVID-19 pandemic has also brought challenges for private HEIs to maintain their quality and performance (Tahar et al., 2022); operational performance is no exception, which is the management of the quality of an organization's activities (Kurniawan & Rinofah, 2016). In Indonesia, the quality assurance system for HEIs, both public and private, is carried out with an accreditation system (Menteri Riset, Teknologi, dan Pendidikan Tinggi, 2016), in which the performance of HEIs is part of the indicator elements used. However, out of 4,529 HEIs in Indonesia, only 1,223 submitted their accreditation assessments, with details of 59 (4.28%) getting "Very Good (A)", 441 (36.06%) obtaining "Good (B)", and the remaining 723 (59.12%) were still "Not Good (C)" (Pratolo et al., 2020). Therefore, this study needs to be conducted to provide a wealth of new knowledge related to operational performance in the public sector by explaining the determining factors so that higher

education institutions can continue to compete and maintain their existence.

On the other hand, goal setting theory is also proposed to interpret the linear relationship between goal difficulty and task performance, which has been validated from individual goal setting to organizational level achievement (Locke & Latham, 2006). In addition, HEIs are organizations whose operational activities are directed by the organization's vision, mission, and goals (Pratolo et al., 2021). When HEIs have clear goals, it will be easier to interpret each individual's tasks to meet the organization's desired achievements. However, an adequate accounting information system is also needed to support management accountability to produce maximum financial performance and improve the operational performance of HEIs. Thus, it will impact increasing accreditation, and HEIs can compete competitively.

Several previous studies discussing performance have been carried out with different findings. Al-Delawi & Ramo (2020) found that applying accounting information systems in the oil industry in Iraq made management perform better. Furthermore, Muktiadji et al. (2020) stated that when HEIs apply the principle of accountability, it will improve the organization's performance. However, Ahyaruddin & Akbar (2016) asserted that implementing accountability in public organizations has not significantly improved organizational performance. Agustawan & Halim (2019) also uncovered that accountability could not make public sector organizations improve their performance. In addition, Bone (2017) revealed that when the resulting financial performance is good, it will improve managerial performance at Mulawarman University. Moreover, Aisyah (2022) also revealed that financial performance plays a key role in implementing good governance, which will improve the performance of an

organization. Thus, the inconsistency of research results in direct influence has created research gaps. Seeing these conditions, one of the focuses to improve the performance of HEIs is to implement good university governance through the practice of new public management on aspects of financial performance (Bone, 2017; Pratolo et al., 2020). Financial performance is measured by analyzing financial rules using the concept of value for money (Bone, 2017). The concept rests on three main elements: economy, efficiency, and effectiveness (Pratolo et al., 2016). Based on this explanation, it is crucial to investigate the role of financial performance as an intervening variable in improving the operational performance of private HEIs. It is because financial performance is the main concern of management in measuring organizational development in its economic and operational aspects and its ability to create value for stakeholders (Galeazzo & Furlan, 2018; Kim et al., 2021).

Meanwhile, previous research on operational performance is still limited to business organizations rather than non-profit organizations, such as HEIs (Adem & Viridi, 2021; Lyu et al., 2019; Uraon & Gupta, 2020). To cover this gap, it is vital to initiate this research. In addition, this study differs from the previous literature, where financial performance is an intervention in improving the operational performance of HEIs. On the other hand, this research was carried out during the COVID-19 pandemic, private HEIs also felt the impact.

Further, this research has contributed to the development of knowledge related to the intervening role of financial performance in the influence of management accountability, assisted by an accounting information system, on the operational performance of HEIs. In addition, this study provides additional references for further research. Meanwhile, theoretically, this study confirms the theory of goal setting related to accounting information

systems, management accountability, financial performance, and operations in the context of private HEIs. Meanwhile, practically, the results of this study provide recommendations to higher education management to improve their operational performance through the application of management accounting in financial performance management, supported by an accounting information system.

METHOD

This study involved private HEIs in Java (the research population), where most of Indonesia's HEIs are located. This study used a cluster sampling method based on six provinces in Java: Banten, DKI Jakarta, West Java, Central Java, Yogyakarta Special Region, and East Java (Tahar et al., 2022).

Data Types, Sources, and Collection Techniques

The type of data used in this research was quantitative. In addition, the data source in this study was primary data. The data collection technique was carried out using a survey method through a questionnaire. In addition, respondents in this study were considered experts who understood the financial and operational performance of private HEIs where they worked, including the rector/director/head/deputy rector/deputy director/deputy head, dean, and head of the study program (Tahar et al., 2022).

Operational Definition and Measurement of Variables

Before developing the research instrument in the form of a questionnaire, the operationalization of the research variables was formulated first, which can be seen in Table 1.

Table 1. Variable Operationalization

Variable	Dimension	Indicator
Accounting information system (Meiryani et al., 2020)	Financial accounting information system	Reliability
		Responsiveness
	Management accounting information system	Assurance
		Tangible
Management accountability (Peraturan Pemerintah, 2014)	Academic	Reliability
		Responsiveness
	Human resources	Learning Implementation
		Determination of course score
Financial performance (Pratolo et al., 2016)	Finance	Employee recruitment
		Employee Placement
	Infrastructure	Budget
		Finance report
Operational performance (Menteri Riset, Teknologi dan Pendidikan Tinggi, 2015)	Economy	Planning
		Procurement
	Efficiency	Availability of standard rates
		Availability of target output
Human resources	Effectiveness	Income effectiveness
		Shopping effectiveness
	Learning process	Student soft skills development
		Objectivity and transparent evaluation of study results
Infrastructure and facilities	Infrastructure and facilities development	Able to develop appropriate and updated learning plans
		Priority on achievement of infrastructure and facilities development

Source: Meiryani et al., (2020); Menteri Riset, Teknologi dan Pendidikan Tinggi, (2015); Peraturan Pemerintah (2014); Pratolo et al. (2016).

In addition, the measurement of all variables used a Likert scale of 1 to 5, where 1 = "strongly disagree"; 2 = "disagree"; 3 = "neutral"; 4 = "agree"; 5 = "strongly agree," used for all statements (Pratolo et al., 2021). Since the questionnaire in this study has often been used in studies in Indonesia, the researchers did not conduct a pilot study.

However, researchers conducted a Focus Group Discussion (FGD) to improve and validate the questionnaire. The FGD results were followed up by improving the questionnaire in terms of vocabulary in each statement and synchronizing the statement sentences with indicators.

Data Analysis Technique

This study used a variant-based Partial Least Square-Structural Equation Modeling (PLS-SEM) for data analysis and hypothesis testing. Several dependent constructs use PLS as a latent variable modelling technique (Fornell & Larcker, 1981). Furthermore, in using PLS, the researchers needed to follow a multistage process consisting of model specification, evaluation of the outer model, and evaluation of the inner model. The model specification stage was concerned with setting the inner and outer models. The outer model is better known as a measurement model, namely the validity and reliability test. Meanwhile, the inner or structural model shows the relationship between the exogenous and endogenous variables evaluated (Hair et al., 2014). The use of PLS was motivated by the non-parametric nature of the Likert scale and the large possibility of multicollinearity (Akbar et al., 2012). Another reason for using PLS is that it is suitable for current research as it allows minimal data assumptions and requires a relatively small sample size (Chin et al., 2003). Chin et al. (2003) stated that using a theoretical basis that was not too strong also became the background for the PLS selection.

RESULTS AND DISCUSSION

Bias Test and Descriptive Statistics

Bias testing was carried out before analyzing the descriptive statistical values. Due to the self-reporting approach of survey research,

there is a potential normative bias called Common Method Variance (CMV). Harman's Single Factor Test is one method to detect this problem (Tahseen et al., 2017). Bias significantly influences study results if one latent factor is more than 50% (Podsakoff et al., 2003). In this study, the CMV analysis results showed that the first factor only explained 37.54% or less than 50%. These results explain that Common Method Bias was not a fundamental problem in this study.

Furthermore, Table 2 displays the descriptive statistical values for each variable. According to Alach (2017), for implementing certain policies in an organization, the mean score of the Likert scale is interpreted as 1 = very bad to 5 = very good. The results of the accounting information system application in most private HEIs still uncovered not maximized results, with a value of 3.91. Some still scored below 2, indicating the lack of private HEIs in utilizing the role of technology to improve the operational performance of HEIs. In addition, most private HEIs had a prominent level of management accountability, as indicated by the mean score of 4.21. Furthermore, the mean score of financial performance was still at 3.71. It denotes that most private HEIs still do not have effective and efficient financial governance. Meanwhile, the mean operational performance score of most private HEIs was 3.82. It signifies that many private HEIs were still not optimal in conducting the learning process, lack of competent human resources, and did not have priorities in terms of developing facilities and infrastructure.

Table 2. Descriptive Statistics Test Results

Description	Mean	Min	Max	SD
Accounting information system	3.91	1.2	5	0.64
Management accountability	4.21	2	5	0.52
Financial performance	3.71	1.6	5	0.59
Operational performance	3.82	2	5	0.54

Source: Data processed with SPSS (2022)

Validity Test

First, convergent validity was assessed, i.e., the extent to which some of these items could

measure the concept. Hair et al. (2014) argued that the value of outer loading and average variance extracted (AVE) could be used to evaluate convergent validity. Table 3 shows that all indicators in each construct revealed numbers greater than 0.5 (Hair et al., 2014). Table 3 also presents the AVE values following the rule of thumb, greater than 0.5 for each variable (Fornell & Larcker, 1981).

Second, the discriminant validity test would show how indicators could be distinguished between constructs (Compeau et al., 1999). In addition, Table 4 displays the discriminant validity test, which was also valid. It can be seen from the Fornell-Larcker score, which was higher for each construct than the other (Barclay et al., 1995; Fornell & Larcker, 1981).

Table 3. Outer Loading and AVE Test Results

Code	Indicator	Outer Loading	AVE
AM 1	The process of placing and dismissing employees is based on predetermined criteria.	0.699	
AM 2	Budgeting and disbursement of funds are carried out based on predetermined operating standards.	0.773	
AM 3	The use of funds is accounted for and supported by correct evidence.	0.738	0.567
AM 4	The internal control unit or KAP audits the financial statements.	0.741	
AM 5	Reporting on the procurement of facilities and infrastructure is based on regulations with provisions.	0.810	
KK 1	Procurement of goods/services by selecting prices	0.822	
KK 2	Using item resources to maximize predetermined outcomes	0.851	
KK 3	Using service resources to maximize the outcomes set	0.736	0.585
KK 5	Comparison of the realization of personnel expenditure against the target	0.630	
KO 1	The teaching and learning process in the classroom achieves the objectives according to the semester lesson plan (RPS).	0.745	
KO 2	The number of lecturers' teaching attendance reaches 100%.	0.795	0.554
KO 3	The number of student lecture attendance reaches 100%.	0.761	
KO 5	The level of quality of available facilities and infrastructure	0.670	
SIA 1	The financial accounting information system can present timely financial reports.	0.806	
SIA 2	An internal party evaluates the performance of the financial accounting system every year.	0.784	
SIA 3	A management accounting information system has supported the annual budget preparation.	0.850	0.690
SIA 4	A management accounting information system has supported measuring unit performance in an HEI environment.	0.834	
SIA 5	Management accounting information systems facilitate the generation of internal information.	0.875	

Source: Data processed with Smart PLS v.3.2.9 (2022)

Table 4. Fornell-Larcker Test Results

Description	Management accountability	Financial performance	Operational performance	Accounting information system
Accounting information system	0.753			
Management accountability	0.564	0.765		
Financial performance	0.516	0.558	0.744	
Operational performance	0.681	0.558	0.449	0.830

Source: Data processed with Smart PLS v.3.2.9 (2022)

Reliability Test

Third, a reliability test was conducted to assess the consistency between indicators (Tahar et al., 2022). Table 5 shows that Cronbach's alpha

values were greater than 0.6, so each construct could be said to be reliable (Chin et al., 2003). In addition, the composite reliability score is also, under the rule of thumb, greater than 0.7 (Fornell & Larcker, 1981).

Table 5. Cronbach's Alpha and Composite Reliability Test Results

Description	Cronbach's Alpha	Composite Reliability
Accounting information system	0.809	0.867
Management accountability	0.761	0.847
Financial performance	0.731	0.832
Operational performance	0.887	0.917

Source: Data processed with Smart PLS v.3.2.9 (2022)

Hypothesis Test

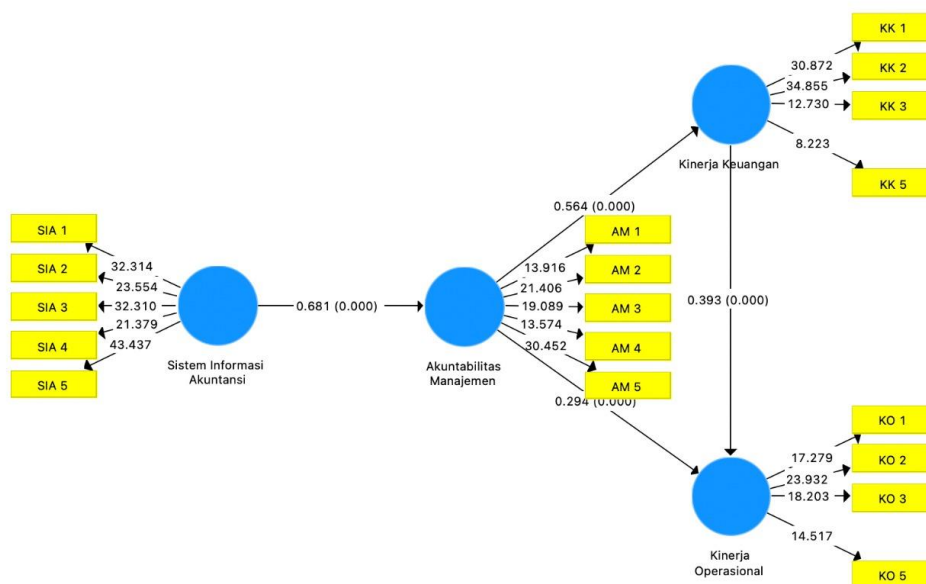
Furthermore, Table 6 contains the hypothesis testing results, while Figure 1 depicts the path analysis testing results. Panel A shows the test results for the direct effect, while Panel B provides the indirect effect (mediation) results. As a result, each hypothesis in this study was supported. In addition, it was found that the

adjusted R-Square score for the operational performance of private HEIs was 0.364, meaning that the factors in the model explaining the dependent variable (operational performance of private HEIs) were 36.4%. At the same time, other factors outside the model explained the rest (63.6%). Referring to Chin (1998), this study had an R-Square score at a moderate level.

Table 6. Hypothesis Testing Results

Code	Description	Original Sample	Sample Mean	Standard Deviation	T-Statistic	P-Value	Decision
Panel A. Direct Effect							
H1	SIA → AM	0.681	0.686	0.057	11.857	0.000	Supported
H2	AM → KK	0.564	0.568	0.062	9.101	0.000	Supported
H3	KK → KO	0.393	0.397	0.062	6.355	0.000	Supported
H4	AM → KO	0.294	0.295	0.068	4.322	0.000	Supported
Panel B. Indirect Effect (Mediation)							
H5	AM → KK → KO	0.221	0.225	0.043	5.203	0.000	Partial Mediation

Source: Data processed with Smart PLS v.3.2.9 (2022)



Source: Smart PLS v.3.2.9 (2022)

Figure 1. Path Analysis Test Results.

The Effect of Accounting Information Systems on Management Accountability

The results of this study reveal that the accounting information system has a positive effect on management accountability. On the other hand, the current study also uncovered that good university governance's role effectively improved the operational performance of HEIs in terms of learning, service, quality, research, publications, community service, and internal process management. It is indicated from the results that the accounting information system, as part of the instrument for good university governance, had a positive effect on management accountability. This finding corroborates with Al-Delawi & Ramo (2020); Dewi et al. (2021); and Patel (2015), where accounting information systems help entities to collect, store, process, and inform financial data, thus improving management performance. The mechanism also helps in facilitating decision-making for management. In addition, the system has always played an important role in the decision-making by managers related to financial and economic issues. Moreover, Mashkour & Abbas (2018) emphasized that accounting information

systems could influence output and are the foundation of good governance standards. Uyar et al. (2017) also highlighted that the output of accounting information systems provides credibility, objectivity, integrity, and accuracy of financial reports, which can increase management accountability by focusing on fundamentals, principles, and mechanisms.

The Effect of Management Accountability on Financial Performance and Operational Performance

The next result is management accountability positively affected financial and operational performance. This research agrees with Muktiadji et al. (2020) on the organization performance aspect, specifically Budiasni & Ayuni (2020); Juniar & Hermanto (2020), which asserted that accountability had a positive effect on financial performance, and Han & Hong (2019) on operational performance, but in contrast to the findings of Agustawan & Halim (2019); Ahyaruddin & Akbar (2016). It signifies that by applying the principle of accountability to management, financial performance will improve better. In this case, the management of HEIs can be

responsible for the financial management of the utilization of existing funds under the predetermined plans. Here, accountability is a manifestation of the obligation of a person or organizational unit to account for the management and control of resources and the implementation of policies entrusted to him to achieve goals (Novatiani et al., 2019). Accountability from management also acts as a guarantor of effectiveness and efficiency. In addition, a trusted person must work with high accountability and be professional, as in being responsible for financial statements. It is done to achieve good financial performance. Therefore, management accountability in private HEIs is very much needed, especially during the current pandemic. Moreover, leaders in the organization are expected to have the ability to account for all the results of the work submitted to them. In other words, when HEIs management implements the accountability principle well, operational performance will run well, and activities can run according to the desired target.

The Effect of Financial Performance on Operational Performance

The results of this study revealed that financial performance had an influence, either directly or indirectly, on the operational performance of HEIs. It is possible because financial performance has three important aspects: economic, efficient, and effective, which are of great concern to HEIs during the pandemic. In direct influence, the financial performance positively affected the operational performance of private HEIs in Indonesia. Thus, the higher the financial performance of private HEIs, the higher their operational performance. This study aligns with what has been done by Azim et al. (2015); Bone (2017); Harningsih et al. (2019); and Hermawan & Ajimat (2020), showing the results that when financial performance is managed properly, it will improve the operational quality of an educational organization.

On the other hand, by having clear objectives for each HEIs, financial performance can be

managed according to planning and result in a high level of achievement, thereby maximizing operational performance (Locke, 1975). Although the main objective of private HEIs as a public sector organization is not to achieve financial performance, it is essential in achieving its ultimate goal, i.e., the operational performance of private HEIs, in providing higher education services to the entire academic community, either students, lecturers, or staff education. The operational activities of HEIs will also not run long-term if it is not supported by good financial performance.

The Effect of Management Accountability on Operational Performance through Financial Performance

The next finding is the indirect effect on the relationship between management accountability and operational performance through financial performance. It denotes that management accountability will improve operational performance if supported by good financial performance. This research is consistent with Aisyah's (2022) research, stating that financial performance could mediate the indirect relationship between good corporate governance and firm value. On the other hand, based on goal setting theory, every person in the organization can perform well if they understand the organization's goals (Locke & Latham, 2013). HEIs need personnel who fully understand their goals or targets during pandemic conditions. During this pandemic, the average HEIs also have competent internal controls, such as structural officials, who carry out their performance in an accountable manner. In this case, one of the measuring tools for maintaining organizational quality is the financial performance by analyzing financial statements and providing recommendations for future improvements through the concept of value for money (Putra & Wirawati, 2015; Saifi, 2019). With the concept of value for money, indicator-based information will be presented on whether the funds spent produce good value (Nordriawan & Hertianti, 2010). Thus, with financial

performance based on the concept of value for money, management accountability will be better for improving operational performance to maintain the competitive advantage of HEIs.

CONCLUSION

This study aims to examine the effect of accounting information systems and management accountability on the financial and operational performance of HEIs. Furthermore, it investigates the intervening role of financial performance on the effect of management accountability on operational performance. In summary, this study found that management accountability positively affected operational performance, both direct and through financial performance. In addition, the accounting information system had a positive effect on management accountability. Moreover, management accountability had a positive effect on financial and operational performance. Lastly, the financial performance also positively affected the operational performance of HEIs.

Further, this research provides crucial theoretical and practical contributions to the development of science. Theoretically, this study confirms the goal-setting theory related to accounting information systems, management accountability, financial performance, and operational performance in the context of HEIs. Meanwhile, practically, the results of this study provide recommendations to the management of HEIs to improve their operational performance through strengthening management accountability in financial performance management, supported by an accounting information system.

Undeniably, this research also has limitations. The sample in this study was limited to private HEIs in Java. Thus, readers should be careful when they want to generalize the results of this study in a wider context. For this reason, it is recommended for further research to expand the scope of the HEIs sampled so that the results obtained are better. Besides, this

research was conducted quantitatively through a survey method. Therefore, further research is suggested to use a qualitative approach or both so the findings obtained are more meaningful and reflect the actual conditions in the field.

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