

Internal control and financial viability: the moderating role of leadership qualities on management of income-generating activities at Indonesian higher education

ICS and MIG at
Indonesian
higher
education

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Abstract

Purpose – The implementation of income-generating still faces problems, such as the lack of well-established internal control and differences in implementation in each unit. This study aims to analyze internal controls, financial viability (FV) and leadership qualities (LQ) in the implementation of income-generating in Indonesian higher education.

Design/methodology/approach – This study is quantitative and uses a causal approach. The population of this research is the unit leader and the person in charge of the activity that generates income, with a total sample of 111 people. The sampling technique used is simple random sampling. Data were analyzed using moderation regression analysis (MRA) with the WrapPLS (partial least square) analysis tool.

Findings – The results indicate that internal control and FV significantly affect the management of income-generating. The existence of LQ as a moderating variable can moderate and weaken the influence of internal controls and FV on the management of income-generating. In this finding, the unit leader and the person in charge of activities that generate income in higher education need to improve managerial skills, including ethics, uphold integrity, clear vision, quick adaption, honestly and trust so that the management of income-generating can achieve higher education goals more effectively and efficiently.

Research limitations/implications – This research shows that universities need to create a good environment to build an ecosystem that can improve the management. The university encourages the good management by strengthening the leadership. However, the research has a limitation: the study was only conducted in one state university.

Originality/value – The implementation of income generation in the public financial management system of legal entity universities requires accountability for sources of income so that internal controls and the role of finance are needed to ensure the continuity of universities.

Keywords Financial viability, Implementation of income-generating, Internal control, Leadership qualities

Paper type Research paper

Introduction

Higher education quality services can increase public welfare knowledge of the importance of higher education and problem-solving in the economy. It is also driven by the need for nation-building in the era of a knowledge-based economy. A nation's competitiveness is no longer



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determined by the availability of natural resources but by the ability to develop and utilize knowledge innovatively and creatively. In this context, quality is the main key to win a competition. To achieve the quality of higher education at the higher education level, a university has at least three main characteristics: internationalization, being supported by lecturers with an international academic reputation and attracting students worldwide (Frezghi and Tsegay, 2019). Universities will only progress and develop if they are supported by a conducive environment (Liu and Gao, 2021).

Several factors drive the success of a university (Alshubiri, 2021; Liu and Gao, 2021; Miranda *et al.*, 2016; Siswanto *et al.*, 2013). First, guaranteed academic freedom, which is a core value of a university. Second, there is autonomy in planning, managing, and developing the institutions. Universities have the authority to appoint, dismiss and promote their lecturers independently. Universities must also have the authority to manage funds independently, for example, in terms of setting a salary scale and allocating research funds according to their choice of focus and strategy (Liu and Gao, 2021; Alshubiri, 2021). Third, consistent and sustainable government support is required. Fourth, public accountability exist in both the academic and non-academic fields (Siswanto *et al.*, 2013; Miranda *et al.*, 2016).

In Indonesia, the growth and development of higher education are regulated in Law Number 12 of 2012, Law No. 26 of 2015 and Law No. 8 of 2020. The law states that a legal entity state university is a state university established by the government and has the status of an autonomous legal entity, both in the academic and non-academic fields. This law also guarantees the autonomy of higher education institutions with a legal entity, the state's obligation to finance higher education and access to people who come from economically disadvantaged circles. With full autonomy, tertiary institutions can independently manage their own households in accordance with campus vision, mission and goals of the campus (Cahyana and Farida, 2019; Mahmud *et al.*, 2023). Thus, universities can develop and innovate more quickly. Furthermore, legal entity state universities are a government strategy to increase the quality of higher education in Indonesia (Budianto and Borobudur, 2021).

The management of income generation in legal entity universities requires proper financial system support and is different from financial management in the form of public service agency higher education (Sulaeman *et al.*, 2019; Harun *et al.*, 2019; Pannen *et al.*, 2019; Muslim *et al.*, 2021). In practice, universities have autonomy over financial and managerial matters (James, 2001) including business plans and budgets (Christensen *et al.*, 2008), accounting systems (Christensen *et al.*, 2008), costing systems (Jung, 2014) and organizational structures (Kickert, 2010). Universities use this authority to diversify their sources of income. The more sources of higher education income, the higher the education will achieve financial sustainability (Garland, 2020; Irvine and Ryan, 2019; Osei-Kuffour and Peprah, 2020; Pittaway and Hannon, 2008) so that organizational goals are achieved and management of income-generating (MIG) goes well.

Efforts to achieve good MIG require a good internal control unit to realize a good implementation and achievement. A good internal control system (ICS) can be determined as a component of income generation (Yap, 2022). The lack of internal control in income-generating activities hinders the monitoring and analysis of unit's operations (Manasan and Revilla, 2015). All problems of poor resource mobilization and inappropriate handling of resources in universities revolve around the ICS, which can pose a serious threat to all functions and the existence of an MIG implementation strategy (Adora, 2019; Yemer, 2017). Internal controls, credit policies, financial risk management and internal audits affect income-generating performance (Towett *et al.*, 2019). Furthermore, Karanja (2014) revealed that effective monitoring and evaluation affects the sustainability of income-generating projects in Kenya.

Another focus that needs to be analyzed according to research recommendations by Miranda *et al.* (2016) and Adan and Keiyoro (2017) is financial viability (FV) (Pittaway and Hannon, 2008; Irvine and Ryan, 2019), social and economic contributions and leadership

qualities (LQ). LQ can moderate the implementation of accountability practices in the public sector (Alam *et al.*, 2019). Income generation as a form of higher education autonomy policy in Indonesia needs to be carried out systematically, especially at the stage of identifying sources of income outside of student tuition fees, which are carried out by the leadership (Mahmud *et al.*, 2022), as well as financial management autonomy policies (Cahyana and Farida, 2019; Nasution *et al.*, 2020; Muslim *et al.*, 2021; Pannen *et al.*, 2019) and create management techniques through a learning strategy (Suryadi and Supriatna, 2018).

Financial viability is another factor that determines the income-generating performance. FV is a predictor that can be used to test the performance of income-generating (Miranda *et al.*, 2016). FV refers to an organization's ability to generate sufficient revenue to meet operational needs, commitments to pay obligations and enable institutional growth in maintaining levels of service and performance (Almarri and Boussabaine, 2017). FV is the ability to survive on an ongoing basis and achieve goals (Serfontein, 2019).

This research refers to the internal control theory of the Committee of Sponsoring Organization (COSO) and Treadway Commission framework (Dangi *et al.*, 2020) and also resource dependence theory (Hillman *et al.*, 2009), which explains that universities do not depend on government funding but have the autonomy to increase income so that the internal institutions needs evaluation and monitoring. It also explains the theory of good university governance, which prioritizes the principles of accountability and transparency (Yirdaw, 2016).

Financial funding problems rely on National Budget disbursements. Universities are forced to charge the high fees collected from the community to support their operations. This reality still shows that higher education products from science results do not generated income. Business units generate income to support academic and non-academic activities. There is still a need for empirical testing of the relationship between internal control and FV in realizing income generation and the role of LQ in increasing higher education income. However, these three variables have rarely been studied. Aspects that are often studied qualitatively include law and finance.

Literature review and hypotheses

Legal entity state university in Indonesia State University with legal entity

A legal entity state university is a state university established by the government with an autonomous legal entity status. Seeing the enthusiasm to make state universities in Indonesia a form of independent autonomous body following the Tridharma of Higher Education, the birth of a legal entity state university status went through a long and tortuous process. Initially, the process of creating autonomy in state universities began in 1999 with the issuance of Government Regulation No. 61 of 1999 concerning the Determination of Higher Education as Legal Entities. State universities as legal entities are better known as state-owned legal entities.

Furthermore, in 2009, an Education Legal Entity in accordance with Law No. 9 of 2009 concerning Educational Legal Entities was issued. However, this law was annulled by the Constitutional Court Decision No. 11-14-21-126-136/PUUVII/2009 dated March 31 2010, because it was deemed not in accordance with the mandate of the 1945 Constitution of the Republic of Indonesia. With the Constitutional Court's decision, the government finally returned the status of a legal entity state university to a state university organized by the government through PP No. 66 of 2010 concerning Amendments to Government Regulation Number 17 of 2010 concerning Management and Implementation of Education. However, in 2012, Law Number 12 of 2012 concerning Higher Education was issued, and a new concept emerged in the management of state universities, namely legal entities.

Legal entity state universities' funding assistance were allocated from the national budget. The funding assistance for legal entity state universities is the revenue of legal entity

state universities, which is managed autonomously and is not non-tax state revenue (Gaus *et al.*, 2019). One of the fulfillments of the funding is done through the implementation of income-generating. Income-generation is separate from single tuition fees (STF) and institutional development donations (IDD). In the Indonesia's higher education, the income generation is obtained from business units, asset management, seminars, workshops, conferences and training contributions, article processing charges, laboratory services and research grants (Mahmud *et al.*, 2022). Moreover, the income-generating unit that generates the most income in state universities comes from rental income, training and seminars. In contrast, the lowest income is sufficient to return library books (Towett *et al.*, 2019; Tsuma and Mugambi, 2014).

With full autonomy, a state university can independently manage its households according to the campus goals. It is hoped that universities will develop and innovate more quickly. State universities with legal entity status have wider autonomy. This means that the legal entity state university can independently manage its households. For example, a state university with a legal entity state university status can open a new study program or close it when deemed no longer needed. In financial affairs, staffing matters are also regulated by the college itself. Another advantage of the legal entity state university is its authority to open and close study programs. In addition, the authority to regulate their remuneration pattern forms their business entity, open a business legal entity and compile the organizational structure and work procedures of the organization under the chancellor.

Other benefits include openness and the ability to present relevant information promptly in accordance with laws, and regulations and applicable reporting standards to stakeholders. Changing the status of a state university to a legal entity state university requires an increase change in the reputation and quality of the state university both in terms of institutions and resources, as well as graduates. The initial purpose of public tertiary institutions to change their status and become legal entities is to improve quality.

Good university governance and income generating. The latest challenge for state universities is to carry out good university governance and grow new productive funding sources, financial management and greater freedom in formulating curricula, academic matters and public accountability (Kretek *et al.*, 2013; Sajadi *et al.*, 2020). The concept of good university governance is a derivative of corporate governance in terms of how organizations are structured and managed to lead to effective performance in achievement, desired results and stakeholder satisfaction (Edwards, 2000).

The principles of good university governance include participation, consensus orientation, accountability, transparency, responsiveness, effectiveness and efficiency, equality and inclusivity and law enforcement/supremacy (Munawir *et al.*, 2018). In simple terms, a university with good governance can apply it's the basic principles of good governance. Private universities, systems and government processes in higher education go through various adjustments based on the values that must be upheld in higher education administration, particularly education in general (Digdowiseiso, 2020; Manan, 2015). It is based on developing academic education, science and full personal development (Sulaeman *et al.*, 2019).

Siswanto *et al.* (2013) studied the implementation of good university governance in the management of income generation. MIG is said to be good if the principles such as law-abiding, academic-oriented, accountable, transparent, professional and independent can be fulfilled. Further research indicates that there are problems in managing income generation that are not optimal, such as applying a one-door system in financial management and low income as a form of problems in implementing the principles of accountability and transparency (Nasution *et al.*, 2020).

Internal control (Committee of Sponsoring Organization and Treadway Commission) framework. COSO's Concept of Internal Control was developed by collaborating with five private sector organizations to provide thought leadership for the framework and guidance

for enterprise risk management, internal control and fraud and prevention. As this research provides suggestions and recommendations for internal control implementation of income-generating policies, the most appropriate is the internal control framework developed by COSO (Dangi *et al.*, 2020). Another purpose of internal control in the public sector is to promote the accountability of resources, especially in the public financial management system, so that all people receive good services and public trust will increase (Atan *et al.*, 2017; Salminen and Ikola-Norrbacka, 2010).

Internal controls play an important role in increasing accountability in the public sector (Alam *et al.*, 2019), whereas Said *et al.* (2016) argued that internal controls increase accountability and transparency and can prevent and detect corruption. Research of Tong *et al.* (2014), for example, reported that better quality internal controls could reduce the unfairness of related party transactions between state-owned enterprises (SOEs) controlled by the government. Without strong internal controls, corruption will undermine the allocation of resources and, hence, the performance of public organizations. As a result, poor service communities, increased social polarization, low local investment and reduced economic growth will occur. It is estimated that 30% of the price of development and public spending goes to bribes and kickbacks, while other corruption eliminates 50% of foreign investment (Alam *et al.*, 2019).

Yap (2022) shows that the IG (income-generating) development model consisting of formalization, risk assessment, information and communication systems, financial reporting and analysis, vision and mission, business planning, motivation, pricing and promotion is statistically significant in generating income. Furthermore, risk assessment, information and communication systems, reporting and financial analysis are indicators that measure internal control (Dangi *et al.*, 2020).

H1. The existence of an ICS in universities has a significant influence on the management of income generation.

Financial viability

Research conducted by Irvine and Ryan (2019) classifies the financial health of a public organization into three parts: financial vulnerability, FV and financial resilience. The results show that the tertiary sector, which can diversify its income results, will have FV, but finances can become vulnerable if efforts to diversify their income fail. One source of income obtained by universities is income generation. Diversifying higher education income can be achieved by optimizing the resources owned by universities, improving the supervision process and improving the entrepreneurial skills of each party in the university (Miranda *et al.*, 2016). Other studies have found that universities that can diversify sources of income through income-generating activities will make their financial condition viable (Irvine and Ryan, 2019) so that MIG accountability will run according to organizational goals (Siswanto *et al.*, 2013).

Universities can carry out various kinds of financial innovations so that they are not dependent on funds provided by the central government (Jyothi and Rathod, 2019; Mahmud *et al.*, 2023). Strategic partnerships are carried out with outside parties such as research grants, assisting the project, developing the business unit and partnerships with private institutions to increase FV in order to improve revenue management performance (Swift, 2012; Harun *et al.*, 2019). The financial management approach applied includes the new public management approach which focuses on providing services and good governance based on institutional performance (Armstrong and Chapman, 2011; Gaus *et al.*, 2019).

H2. The FV influences the MIG.

Leadership qualities

Leadership has a positive or negative relationship with the accountability outcomes. Leadership is the key to the success of an organization, but it does not guarantee that the organization will have a high level of accountability for its performance. This depends on how a leader leads the organization. The vision and mission of a leader can direct employees and all existing units to achieve the same goal. Therefore, leaders must have a clear vision, mission and goals so that all forms of action and behavior of leaders become role models for employees (Garwe, 2012). Leaders must combine the collegiality ethos in working with a responsive approach that can create a comfortable working atmosphere so as to create good tertiary management performance (Davies *et al.*, 2001).

Leadership quality can be a moderator of the ICS (Alam *et al.*, 2019; Dangi *et al.*, 2020) and FV (Imam and Reza, 2016; Miranda *et al.*, 2016). Previous research has found a relationship between ICSs and MIG (Adora, 2019; Towett *et al.*, 2019; Yemer, 2017) moderated by LQ. A good ICS in MIG encourages universities to be more optimal in overcoming financial management problems. Furthermore, ethics education and training leaders will significantly influence organizational accountability outcomes (Atan *et al.*, 2017). The ethics of leaders play an important role in the management process in an organization and will influence workers to be responsible when carrying out their responsibilities, resulting in high accountability (Ann Feldheim and Wang, 2002). Ethics education will train employees on the importance of accountability in managing daily income generation.

A leader needs to have appropriate moral values; be highly ethical; uphold integrity, honesty, trust, vision, absolute respect, passion, commitment, compassion, justice, kindness, forgiveness, courage, love, deep listening, integration and originality multi-dimensionality and adaptability, which can moderate the FV to income-generating performance. A good leader can encourage employees to complete their financial work quickly and accurately to achieve predetermined targets can be achieved (Panigrahi, 2018). If the target is achieved, then the financial performance is good (Towett *et al.*, 2019).

H3. LQ moderate the relationship between the ICS and the management of income generation.

H4. LQ moderate the relationship between FV and MIG.

This research is based on the concept that income-generating activities, such as those carried out by companies, are challenging for each manager. Based on the theoretical analysis and the results of previous research, the conceptual framework of the research is described in Figure 1.

Method

Research design

This research is quantitative and emphasizes the analysis of numerical data or numbers obtained by statistical methods and is carried out in inferential research or to test hypotheses so that the significance of the relationship between the variables studied is obtained. The stages of the research were carried out by the researchers, namely determining the central theme or problem management related to the implementation of income-generating in each unit, faculty and study program. At this stage, the chairperson and team members conducted a joint analysis by searching for literature sources and observations in units within the university environment. Furthermore, internal controls of income-generating implementation were analyzed by reviewing international journal articles. The chairperson and team members reviewed and continued manufacturing the research instruments.

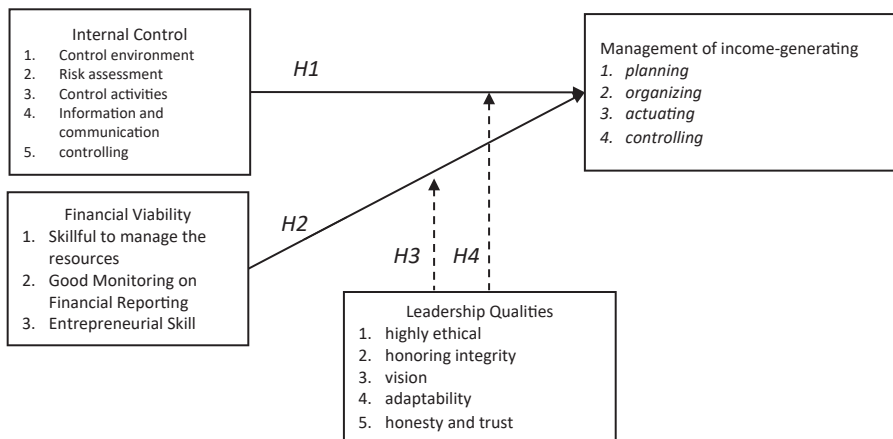


Figure 1.
The research model

Source(s): Author's own creation/work

Subsequently, the research was carried out and the chairman carried out the data processing. The results and discussions were conducted to obtain recommendations and outputs. Recommendations were used as materials for evaluating the implementation of an income-generating program at the university.

Population and sample/study group/participants

The population of this research is the unit leader and the person in charge of income generation. Based on the income-generating data available at the university, there are 150 people were in charge of activities and 18 unit leaders. Using the Slovin formula, 111 samples were obtained with a degree of error of 5%. The sampling technique used is simple random sampling. Every unit leader and the person in charge of income generation have an equal chance or probability of being selected as the sample of this study; therefore, the sampling technique used is simple random sampling – each individual is chosen at random. In addition, this technique lack bias or at least it removes all hints of bias.

Variables

Internal control is a continuous operation and an integrated system at all levels in an organization. Indicators of internal control include the control environment, risk assessment, control activities, information, communication and controlling (Towett *et al.*, 2019). The items developed are in the Table 1.

FV refers to universities' financial sustainability. Indicators of FV include managing resources, strong financial control and entrepreneurial skills (Alshubiri, 2021). The items developed are in the Table 2.

LQ are the skills and leadership styles that help achieve positive qualities and outcomes. Indicators of LQ are highly ethical, honoring integrity, vision, adaptability, honesty and trust with item modification for each indicator (Alam *et al.*, 2019). The items developed are in the Table 3.

The management of income generation applies an alternative source of income for universities. The indicators of MIG use the principles of planning, organizing, actuating and controlling as proposed by Terry (1986). This study used a Likert scale ranging from 1

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ICS1	There is a review of policies and procedures to ensure that internal control is carried out following what has been established
ICS2	There is approval from the Chancellor on written policies and procedures for implementing internal control
ICS3	There is updated information related to rules and regulations for decision-making
ICS4	Information on policies and procedures in implementing income-generating is provided to all staff
ICS5	A system takes certain actions if non-compliance with implementing activities that generate income
ICS6	A system ensures that all activities responsible for or management personnel understand their role and know how their activities relate to others
ICS7	There is a system that ensures that every rule and regulation in the unit is complied with and accounted for
ICS8	A system ensures financial transactions within the unit are properly documented and reported, following rules and regulations
ICS9	There is engagement with internal auditors to review operational activities

Table 1.
Items development of
internal control

Source(s): Adapted from [Towett et al. \(2019\)](#)

FV1	The work unit has proper financial records in every activity that generates income
FV2	The work unit has experience in carrying out good financial management
FV3	Periodic financial reports are prepared by the work unit neatly and correctly
FV4	The work unit has a diversification of products/services in each unit according to the community's needs
FV5	The work unit maximizes the opportunity to mobilize existing products/services so that it can increase the amount of income-generating
FV6	Building a strong base of cooperation with local institutions/governments to utilize work unit resources
FV7	The work unit conducts resources training and professional management to manage income-generating activities such as computerization, staff performance improvement, audits, and reporting systems
FV8	The work unit has a training budget allocation to improve the qualities of income-generating management resources

Table 2.
Items development of
financial viability

Source(s): Adapted from [Alshubiri \(2021\)](#)

LQ1	Leaders follow up on decisions made and ensure actions are taken and reported
LQ2	The leader ensures that the strategy is in place and is aligned with the vision, mission, and goals
LQ3	Leaders ensure that stakeholders are informed and appropriately involved in the decision-making process
LQ4	Leaders ensure that policies, processes, and resources are in place to support plans
LQ5	Leaders show wisdom in dealing with complex situations and problems
LQ6	Leaders ensure that all income-generating managers know and act according to agreed values, attitudes and behaviors
LQ7	Leaders adapt to different people and situations and use various leadership styles
LQ8	Leaders track performance and provide income-generating managers with feedback on their performance
LQ9	Leaders encourage income-generating managers to overcome challenges to achieve the vision
LQ10	Leaders encourage income-generating managers to build networks and relationships that keep them informed about the external environment
LQ11	Leaders empower income-generating managers to complete each activity
LQ12	Leaders encourage income-generating managers to experiment and take calculated risks
LQ13	Leaders provide motivation and direction to managers of income-generating

Table 3.
Items development of
leadership qualities

Source(s): Adapted from [Alam et al. \(2019\)](#)

(strongly disagree) to 5 (strongly agree). The items developed for the management of income generation are in the [Table 4](#).

Data collection

The research was conducted at an Indonesia public university in April 2021 via an online word processor using Google form. Data-collection methods used are questionnaires and documentation. Questionnaires are used to explore the implementation of income-generating, while documentation is used to obtain data on the number of staff and unit leaders. The Google form questionnaires were delivered directly to the respondent by email address. All respondents give feedback so we can use the data.

Data analysis

This study uses statistical analysis to answer research questions and test hypotheses by analyzing and testing empirical models. The first was data analysis, namely descriptive analysis. Descriptive analysis was carried out to determine and explain the general description of the respondents. The descriptive analysis provides the respondents' data, such as age, gender and unit.

Second, an inferential analysis is carried out, namely a moderation regression analysis (MRA). Inferential analysis was used to interpret the research results and measure the reliability of conclusions from the research samples.

Results

Research result

The profiles of the research respondents are the unit leader and the person in charge of activities that generate income in higher education.

Gender

[Table 5](#) shows that most of the respondents were dominated by the male sex, as many as 67 people or 60.4%, and the rest were female respondents, 44 people or 39.6%. Even so, the number of male and female respondents did not have a significant difference, so it can be

MIG1	There is a plan for the amount of income-generating targeted by each unit
MIG2	The manager or person in charge of activities can present the implementation of activities that generate income in an open, fast, and accurate manner
MIG3	The manager or person in charge of the activity can provide the best service for participants/service users
MIG4	The manager or person in charge of the activity can account for the policies taken proportionally
MIG5	The manager or person in charge of the activity can build a conducive entrepreneurial climate
MIG6	Manager or person in charge of responsive activities for each service user
MIG7	The manager or person in charge of the activity has clear duties and responsibilities
MIG8	There is no throwing of jobs in carrying out their duties and responsibilities
MIG9	There are clear regulations regarding the implementation of income-generating in each unit
MIG10	There are clear standard operating procedures in implementing income-generating in each unit
MIG11	The distribution of income-generating sharing is clearly defined and known by the unit leader
MIG12	The manager or person in charge of the activity is protected from outside party intervention in implementing income-generating
MIG13	There is the monitoring of the income-generating implementation in each unit
MIG14	There is an evaluation of the implementation of income-generating in each unit

Source(s): Adapted from [Terry \(1968\)](#)

Table 4.
Items development of
management of income
generating

Description		N	%
Gender	• Male	67 People	60.4%
	• Female	44 People	39.6%
Age Group	• Until 25	Not any	0%
	• 26–29	1 Person	0.90%
	• 30–39	60 People	54.05%
	• 40–49	25 People	22.52%
	• More than 50	25 People	22.52%
Work Unit	• Faculty of Economics	42 People	37.84%
	• Faculty of Mathematics and Science	8 People	7.21%
	• Faculty of Language and Art	9 People	8.11%
	• Faculty of Education	3 People	2.70%
	• Faculty of Sport	8 People	7.21%
	• Faculty of Social	6 People	5.41%
	• Faculty of Engineering	13 People	11.71%
	• Audit Board of the Republic of Indonesia	16 People	14.41%
	• BACK	2 People	1.80%
	• PM	1 Person	0.90%
	• LPPP	1 Person	0.90%
	• PPS	1 Person	0.90%
	• LAB SCHOOL UNNES	1 Person	0.90%

Table 5.
Distribution of
frequency and
percentage of research
respondents

Source(s): Research data

concluded that income-generating actors at the Semarang State University pay attention to gender equality and provide equal opportunities for men and women.

Age group

The age of the respondents was dominated by the age 30–39 years ($f = 60$ people, 54.05%), indicating the age of maturity for this position. This also explains why unit heads and persons in charge of activities that generate income have years of experience in understanding the operation of income-generating projects. Furthermore, there were 25 people aged 40–49 years and over 50 each with a percentage of 22.52%, while the rest aged 26–29 years were one person or 0.90%.

Work unit

The respondents in this study were from various units at the university. There were 42 respondents from the economics faculty unit (37.84%), 16 from the financial planning bureau (14.41%) and the 13 from the engineering faculty (11.71%). Furthermore, the language and arts faculties are nine respondents (8.11%), the mathematics and natural sciences faculties and sports science faculties are eight respondents (7.21%) and the social sciences faculties are as many as six respondents (5.41%) and then three faculty of education (2.70%), two student academic bureaus (1.80%), the rest are research and community service institutions, professional development institutions, postgraduates and school laboratories each 1 people or 0.90%.

Validity test and reliability test

Testing the validity and reliability of the research questionnaire is a step that must be completed before testing the hypotheses. This study conducted a convergent and discriminant validity tests using a research instrument. The criteria used to determine

whether the questionnaire is valid or not refers to the previous description that the factor loading is greater than 0.05 to 0.06 is considered sufficient as a criterion for meeting convergent validity.

Next, the discriminant validity test was performed. Based on the results of the simultaneous equation structure analysis with the WarpPLS approach on the combined loadings and cross-loading table, it is known that each indicator on the ICS, LQ, FV and MIG has a loading factor greater than 0.05 and each is significant ($p < 0.001$). Thus, the research questionnaire comprising these six variables met convergent validity. Tables 6 and 7 shows that questionnaire has passed the discriminant validity test, where the average variance

ICS and MIG at Indonesian higher education

	ICS	LQ	FV	MIG	Type (a)	SE	p value
ICS1	0.786	-0.043	0.030	0.084	Reflect	0.078	<0.001
ICS2	0.840	-0.168	-0.178	0.160	Reflect	0.076	<0.001
ICS3	0.851	-0.093	0.090	-0.227	Reflect	0.076	<0.001
ICS4	0.715	0.343	0.227	-0.156	Reflect	0.079	<0.001
ICS6	0.750	0.306	-0.054	0.215	Reflect	0.078	<0.001
ICS8	0.851	-0.093	0.090	-0.227	Reflect	0.076	<0.001
ICS9	0.840	-0.168	-0.178	0.160	Reflect	0.076	<0.001
LQ1	0.237	0.791	0.115	-0.124	Reflect	0.077	<0.001
LQ2	-0.069	0.832	0.098	0.103	Reflect	0.077	<0.001
LQ3	0.071	0.823	-0.075	0.017	Reflect	0.077	<0.001
LQ4	0.180	0.840	-0.214	0.367	Reflect	0.076	<0.001
LQ5	-0.101	0.905	0.042	0.035	Reflect	0.075	<0.001
LQ6	0.062	0.831	0.004	0.040	Reflect	0.077	<0.001
LQ7	-0.228	0.858	-0.135	-0.166	Reflect	0.076	<0.001
LQ8	-0.098	0.858	0.094	-0.004	Reflect	0.076	<0.001
LQ9	0.128	0.837	-0.003	-0.041	Reflect	0.076	<0.001
LQ10	-0.000	0.810	0.161	-0.042	Reflect	0.077	<0.001
LQ11	0.077	0.719	-0.006	-0.222	Reflect	0.079	<0.001
LQ12	-0.228	0.858	-0.135	-0.166	Reflect	0.076	<0.001
LQ13	0.016	0.820	0.067	0.175	Reflect	0.077	<0.001
FV1	0.020	-0.052	0.820	-0.019	Reflect	0.077	<0.001
FV2	0.148	-0.341	0.848	0.012	Reflect	0.076	<0.001
FV3	0.126	-0.208	0.841	0.194	Reflect	0.076	<0.001
FV4	-0.009	0.166	0.867	-0.075	Reflect	0.076	<0.001
FV5	-0.051	0.055	0.897	-0.080	Reflect	0.075	<0.001
FV6	-0.083	0.209	0.847	-0.182	Reflect	0.076	<0.001
FV7	0.042	0.042	0.830	0.097	Reflect	0.077	<0.001
FV8	-0.199	0.126	0.793	0.065	Reflect	0.077	<0.001
MIG1	-0.066	-0.008	-0.107	0.901	Reflect	0.075	<0.001
MIG2	-0.174	0.154	0.265	0.863	Reflect	0.076	<0.001
MIG3	-0.066	-0.008	-0.107	0.901	Reflect	0.075	<0.001
MIG4	0.135	-0.046	-0.264	0.878	Reflect	0.076	<0.001
MIG5	0.165	-0.158	-0.262	0.799	Reflect	0.077	<0.001
MIG6	0.210	-0.247	-0.274	0.867	Reflect	0.076	<0.001
MIG7	-0.075	-0.065	-0.111	0.865	Reflect	0.076	<0.001
MIG8	0.076	-0.128	-0.004	0.861	Reflect	0.076	<0.001
MIG9	0.055	0.053	0.021	0.818	Reflect	0.077	<0.001
MIG10	-0.067	0.052	0.024	0.853	Reflect	0.076	<0.001
MIG11	-0.036	0.275	0.069	0.818	Reflect	0.077	<0.001
MIG12	0.031	-0.042	0.009	0.804	Reflect	0.077	<0.001
MIG13	-0.016	0.033	0.324	0.858	Reflect	0.076	<0.001
MIG14	-0.150	0.136	0.413	0.881	Reflect	0.076	<0.001

Source(s): Research data

Table 6. Convergent validity test results

extracted (AVE) value of the extracted average variation must be higher than the correlation involving the latent variable (Hamid *et al.*, 2017).

Furthermore, we tested the consistency level of the measuring instrument, namely the instrument reliability test. This measurement is carried out using one-shot, namely the measurement is only performed once; then, the results are compared with other questions or measure the correlation between the answers to the questions is measured. The test was performed by examining the Cronbach's alpha value. The instrument is reliable if the Cronbach's alpha value is > 0.60. The results of the instrument reliability testing are shown in Table 8. The Cronbach alpha value for all variables shows the number was >0.60. Thus, this research instrument meets the reliable criteria as a variable measurement tool. Reliability testing using the composite reliability value in this study for all variables in this study yielded a value of 0.70. Thus, this study is composite reliable.

Hypotheses test

Model fit and qualities indices. The research hypothesis was tested using structural equation modeling with WarpPLS. The fit and quality index models are presented in Table 9.

The output results in Table 9 show that the model is a good fit, which means that there is no problem with multicollinearity problem between the indicators and variables. There were no causality problems in the model. The model used in this study was fitted with the data to continue the next test. The following is an image of the research model and the results obtained based on data processing using the WarpPLS 6.0 program.

Hypothesis in the WarpPLS analysis was tested using a *t*-test. The decision rule for hypothesis testing is carried out as follows: if the *p* value is 0.10 (alpha 10%), then it is said to be weakly significant; if the *p* value 0.05 (alpha 5%) is said to be significant and if the *p* value is 0.01 (alpha 1), then it is said to be highly significant. The output path coefficient and *p* values are presented in Table 10 and Figure 2.

The summary results of hypothesis testing in Table 10 show that ICS influences the management of MIG. LQ significantly moderated and weakened the relationship between ICS and MIG ($\beta = 0.128, 0.08 < 0.10; = -0.225, p = 0.007$). Therefore, H1 and H3 are accepted. FV can significantly influence the management of MIG strongly and LQ can moderate the

Table 7.
Discriminant validity test results

	ICS	LQ	FV	MIG
ICS	0.806	0.725	0.602	0.562
LQ	0.725	0.831	0.778	0.786
FV	0.602	0.778	0.843	0.858
MIG	0.562	0.786	0.858	0.855

Note(s): Square roots of average variance extracted (AVEs) shown on diagonal
Source(s): Research data

Table 8.
Reliability test results

Cronbach's alpha coefficients		Composite reliability coefficients	
ICS	0.909	ICS	0.928
LQ	0.962	LQ	0.966
FV	0.942	FV	0.952
MIG	0.972	MIG	0.974

Source(s): Research data

ICS and MIG at Indonesian higher education

Model Fit and Qualities Indices				
No.	Model Fit and Qualities Indices	Fit criteria	Analysis result	Description
1	Average path coefficient (APC)	$p = 0.002$	0.331 $p < 0.001$	Accepted
2	Average R-squared (ARS)	$p < 0.001$	0.868 $p < 0.001$	Accepted
3	Average adjusted R-squared (AARS)	$p < 0.001$	0.863 $p < 0.001$	Accepted
4	Average block VIF (AVIF)	Accepted if ≤ 5 , ideally ≤ 3.3	2.014	Ideal
5	Average full collinearity VIF (AFVIF)	Accepted if ≤ 5 , ideally ≤ 3.3	3.224	Accepted
6	Tenenhaus GoF (GoF)	small ≥ 0.1 medium ≥ 0.25 large ≥ 0.36	0.832	Large, Accepted
7	Sympson's paradox ratio (SPR)	Accepted if ≥ 0.7 , ideally = 1	1.000	Accepted
8	R-squared contribution ratio (RSCR)	Accepted if ≥ 0.9 , ideally = 1	1.000	Accepted
9	Statistical suppression ratio (SSR)	Accepted if ≥ 0.7	1.000	Accepted
10	Nonlinear bivariate causality direction ratio (NLBCDR)	Accepted if ≥ 0.7	0.500	

Source(s): Research data

Table 9. Fit test result and qualities indices

Hypothesis	Relationship between variables		Coefficient.		Description
	Explanatory variables	Response variable	Track	p value	
H1	Internal Control (ICS)	Management of income-generating (MIG)	0.128	$0.08 < 0.10$	Significant
H2	Financial viability (FV)	Processing of income-generating (MIG)	0.781	$<0.001 < 0.05$	Significant
H3	Interaction (LQ*ICS)	Management of income-generating (MIG)	-0.225	$0.007 < 0.05$	Moderate
H4	Interaction (LQ*FV)	Management of income-generating (MIG)	-0.191	$0.018 < 0.05$	Moderate

Source(s): Research data

Table 10. Hypothesis testing results

relationship between FV and management of MIG ($\beta = 0.781, p < 0.001$; $= -0.191$ and $p = 0.018$). Thus, H2 and H4 are accepted.

Discussion

Internal control (ICS) on the management of income-generating (MIG). MIG is an alternative application of an additional source of income for universities other than STF and IDD. The study results indicate that internal control has a significant positive effect on the management of income generation. This means that an institution or institution with a good ICS will diversify its income-generating system and allow it to generate sufficient income through good MIG. On the other hand, for institutions or institutions that do not have an ICS, this results in several issues, such as difficulties in handling resources, running only a few activities and inadequate funds (Yemer, 2017).

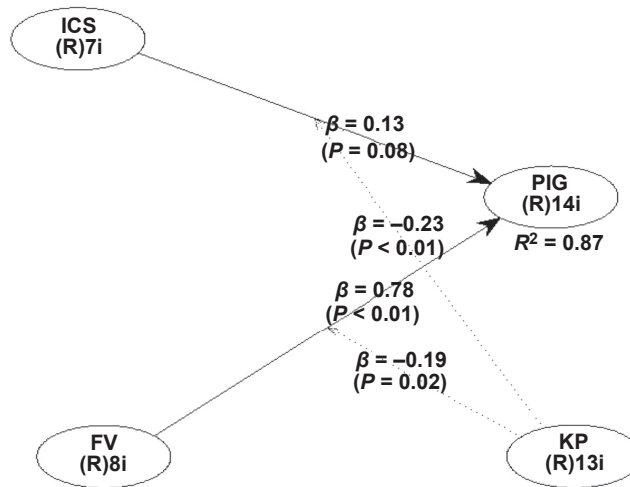


Figure 2.
Research result

Note(s): This figure is output from Warppls 8.0 which reports that the hypothesis will be accepted if the coefficient value is positive and has a p -value below 0.05

Source(s): Research data

During the management of income generation, internal control can be carried out through supervision or supervision activities. Weak supervision during activities can lead to several income-generating projects (Adan and Keiyoro, 2017). Supervisory activities are implemented more efficiently than traditional management, such as functional divisions based on hierarchical levels in an organization. Internal control can prevent risks related to cash and ensure the reliability of a financial statement (Tsuma and Mugambi, 2014), where the collection of funds is the main key to implementing income generation in an institution. Internal control plays an important role in increasing accountability in the public sector (Alam *et al.*, 2019), and Said *et al.* (2016) suggests that internal control improves accountability and transparency and can prevent and detect corruption. For example, Tong *et al.* (2014) report that better quality of internal control can reduce the unfairness of related party transactions between SOEs controlled by the government.

Financial viability (FV) on income-generating management (MIG). FV refers to a university's financial sustainability. The study results indicate that FV has a significant influence on the management of income generation. Financial sustainability is reflected through good resource management, for e.g. the ability of work units to diversify products/services in each unit that follows the community's needs while at the same time generating income from external parties. The research of Alshubiri (2021) uses financial expenditure as a proxy for FV and shows that FV has a positive and significant impact on investment income abroad.

To achieve public trust, universities incur financial expenditures to build campus facilities and provide qualities services. Indirectly, when the public's trust is fulfilled, it will bring in investors to provide capital to universities. The entrepreneurial ability of a university is also a factor in its FV of a university. The higher the dependence on higher education income coming from students and parents of students, the more significant the problem for the principles of good management in income-generating (Siswanto *et al.*, 2013). Income-generating is a source of income other than STF and IDD. However, building a business unit in an academic area is a disadvantageous when applying the principles of academic orientation.

Leadership qualities as a moderating variable weakens the relationship between internal control system relationship and financial viability and management of income-generating. The results of the study through regression analysis using Warppls 7.0 show that LQ as a moderating variable affect the relationship between ICSs and income-generating implementation. This causes the relationship between ICSs and income-generating implementation to change, so it can be concluded that LQ weaken the relationship between ICSs and income-generating implementation. The significant results indicate that leadership quality has an influence on the relationship between the ICS and the implementation of income generation. The leadership at university is good because a good leadership can be seen from the ability to manage staff directly, provide ideas, take initiative, intelligence and supervision (Purnama *et al.*, 2021). However, the quality of leadership in this study weakens the ICS's relationship with income-generating implementation. That is, an increase in the quality of leadership causes the role/influence of the ICS in optimizing MIG to decrease.

LQ and ICSs are the internal factors that influence the accountability of public sector organizations (Aziz *et al.*, 2015). On leadership practice, Senjaya and Pekerti (2010) explained that leaders with strong and healthy ethics could lead an organization in fostering an environment of accountability among employees. In addition, leadership practice in public organizations such as universities encourages the achievement of quality and positive organizational output (Aziz *et al.*, 2015). The existence of high control by unit leaders in tertiary institutions raises high expectations of organizational performance, one of which is the management of income generation. If expectations/targets are not achieved, then organizational performance can be said to be experiences a downward trend. In addition, a strict control system and results-oriented leaders can reduce employee performance (Supriaddin *et al.*, 2022), which decreases the ability of organizations to achieve their goals, such as generating income in universities. Thus, this study also suggests that every unit leader and person in charge of activities generating income in higher education can align the strategy with the established vision, which is seen as important in creating an environment with accountability.

The results of the study through regression analysis using Warppls 7.0 show that LQ as a moderating variable weakens the relationship between FV and the implementation of income generation management. This means that there is an increase in the quality of leadership causing the effect of the stable financial condition of higher education (FV) on the implementation of income generation to decline. One of the efforts to create the FV of higher education is through the leadership vision regarding entrepreneurial skill (Davies *et al.*, 2001; Jyothi and Rathod, 2019). Leaders who do not have the ability to see opportunities (vision) to create businesses indicate weak management of income-generating universities in generating income. In this case, leaders need input from staff who deal with income-generating in order to produce entrepreneurial innovations that might be implemented. The contribution of each individual shown through a good work attitude such as helping other workers, volunteering for extra tasks and complying with regulations can improve the performance of an organization (Munawir *et al.*, 2018). This proves the success of good university governance at a university so as to encourage the success of university performance, one of which is the performance of income-generating.

Conclusion

Internal controls and FV have a significant effect on managing income generation in universities. The existence of LQ as a moderating variable can moderate and weaken the influence of internal control and financial viability on the management of income generation. In this finding, the unit leader and the person in charge of activities that generate income need

to improve leadership skills, including ethics, uphold integrity, having a clear vision, adapt quickly, honesty and can be trusted. Leaders who have good leadership skills in managing income generation can achieve higher education goals more effectively and efficiently. Management of income generation requires supervision on every project related to income generation. Strict and comprehensive supervision can prevent individuals from committing fraud such as corruption. In addition, stable financial sustainability makes institutions or universities spend cash to diversify goods/services products to increase public confidence and increase higher education's income through investment or other income.

The theoretical implication of this research is to explain good higher education management by implementing campus autonomy to maintain its existence in the global arena. Good management of tertiary institutions includes transparency, accountability and participation so as to create good management of MIG. Theoretically, this study describes good university governance in managing all institutional resources for the welfare and satisfaction of wider community. In addition, it also explains the resource dependence theory in identifying and determining financial resources, infrastructure needs and information originating from external sources. The additional income that has been collected or collected can be used to meet non-academic needs which will impact the quality of campus infrastructure services to create comfort. Implementing good public financing contributes to the creation of sustainable finance.

From a university management perspective, the implementation of income-generating policies involves many parties, including employees, who share the same vision and mission to achieve common goals. The existence of internal control can form a directed management because there is a separation of authority between employees, lecturers, unit heads and institutional leaders. In addition, there is also supervision in every line of management so that there is a clear division of tasks, rights and authorities. The quality of the leadership determines the performance of the institution so that all forms of policies, attitudes, actions and behavior of the leaders become role models for employees in carrying out their daily work. Likewise, suggestions and input can also determine the success of implementing income generation in tertiary institutions.

When viewed from the perspective of the education field, the implications are as follows: first, tertiary institutions do not depend on funding from the government but can explore sources of income independently. In practice, universities can determine the amount of institutional contributions based on the abilities of each student. Institutional donations are used to procure and repair the learning infrastructure so that students can enjoy campus facilities optimally with good quality. Adequate quality learning facilities can improve student performance by creating highly competitive and competitive graduates.

Researchers suggest using a more complex research model by adding independent variables such as the profile of human resources that manage income generation, top management support and management supervision. As the study was limited to one university, further studies can be conducted in other universities. In addition, this study does not investigate various income-generating activities separately, but it is limited to the management of income generation in general. Further studies can investigate the management of income generation using various income-generating activities and make comparisons between these activities.

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