



Financial Efficiency, Institutional Autonomy, and Asset Utilisation in PTNBH

Edi Jaenudin^{1*}, Arie Pratama²

¹²Accounting Department, Faculty of Economics and Business, Universitas Padjadjaran, Indonesia

Correspondence: E-mail: edi.jaenudin@unpad.ac.id

ABSTRACT

This study investigates the effects of cost efficiency and financial autonomy on asset utilisation in Indonesian legal-entity public universities (Perguruan Tinggi Negeri Badan Hukum—PTNBH). Asset utilisation is measured using the Asset Utilisation Ratio (AUR), cost efficiency is proxied by the operating expense-to-revenue ratio, and financial autonomy is measured by the proportion of non-government revenue to total revenue. Using multi-year panel data and robustness testing, the findings indicate that cost efficiency does not have a statistically significant effect on asset utilisation, suggesting that expenditure optimisation alone is insufficient to improve asset productivity. In contrast, financial autonomy has a positive and significant influence on asset utilisation, demonstrating that universities with greater revenue independence are better able to allocate, maintain, and maximise the use of their assets. Higher financial autonomy provides institutions with greater flexibility to invest in infrastructure, upgrade facilities, and support asset-intensive teaching, research, and innovation activities, ultimately enhancing organisational performance. These findings support public-sector management and resource-based perspectives, emphasising the strategic role of financial autonomy in strengthening institutional capacity. The study highlights the importance of revenue diversification over cost-control strategies and contributes novel evidence by jointly examining efficiency and autonomy as determinants of asset utilisation in PTNBH.

ARTICLE INFO

Article History:

Submitted/Received 30 Nov 2025

First Revised 21 January 2026

Accepted 10 February 2026

First Available online 31 July 2026

Publication Date 31 July 2026

Keyword:

Asset Utilisation; Cost Efficiency;
Financial Autonomy; Public
Universities; Panel Data Analysis.

1. INTRODUCTION

Anywhere, the effective utilisation of institutional assets has become increasingly important for public universities operating under legal-entity status, particularly in environments where financial sustainability and accountability are central to governance expectations (Hardiana et al., 2020). In Indonesia, Perguruan Tinggi Negeri Badan Hukum (PTNBH) are granted broader autonomy in managing finances and assets, enabling them to determine how resources are allocated across academic and administrative functions (Lambey et al., 2024). Under this autonomous structure, universities must demonstrate not only prudent financial management but also the ability to optimise the use of their tangible resources, such as buildings, facilities, and infrastructure, to support educational quality, research productivity, and community services (Tuan & Trang, 2024). As these institutions strive to diversify income sources and reduce reliance on government allocations, understanding the determinants of asset utilisation becomes critical for both policymakers and university leaders (Heaton et al., 2022).

From a theoretical perspective, the relationship between financial management and asset utilisation can be explained through frameworks that emphasise how organisations manage and deploy their resources to achieve performance outcomes. Asset utilisation reflects the extent to which institutions transform their resource base into productive outputs. Cost efficiency, often viewed as a strategic approach to maximise value from limited resources, is assumed to contribute to better asset management by minimising waste and optimising operational processes (Iqbal et al., 2024). However, the link between efficiency and asset utilisation is not always straightforward. Efforts to control costs may also limit investments in maintenance, renewal, or program expansion, thereby reducing institutions' ability to use their assets productively (Chen et al., 2024). Because of these competing theoretical arguments, the influence of efficiency on asset utilisation remains uncertain and merits empirical examination.

Financial autonomy presents a clearer conceptual connection to asset utilisation. Universities with a higher proportion of non-government revenue tend to enjoy greater flexibility in allocating funds, investing in infrastructure, and supporting programs that rely on effective asset deployment (Kallio et al., 2021). Autonomy also encourages innovative and entrepreneurial behaviour, enabling institutions to leverage their assets more strategically to generate additional benefits (Hong, 2018). These characteristics suggest that financial independence may strengthen asset utilisation by enabling universities to maintain, develop, and optimise their asset portfolios.

Considering these dynamics, the present study investigates whether cost efficiency and financial autonomy influence asset utilisation in Indonesian PTNBH. The formulation of the hypotheses is grounded in public-sector accounting theory, which emphasises the strategic management of public resources to achieve organisational effectiveness and accountability. In the PTNBH context, assets represent a substantial portion of the resource base and are essential for delivering core public services such as education, research, and community engagement. Thus, the extent to which these assets are productively utilised can be interpreted as an indicator of both financial stewardship and institutional performance.

From the perspective of the Resource-Based View (RBV), organisations are expected to deploy their resources, tangible and intangible, in ways that generate sustained value and operational advantage. Asset utilisation, as a measure of how effectively assets support operational outputs, reflects how well institutions transform resources into services. Cost efficiency, in theory, contributes to this transformation process by ensuring that expenditures are aligned with output generation, reducing waste, and channelling funds into activities that enhance asset productivity. In public-sector accounting, efficiency is also tied to the principle of value for money, in which organisations are expected to achieve optimal outputs with limited inputs (Adeusi et al., 2024). Under this rationale, institutions that manage their costs effectively should have greater financial capacity to maintain, upgrade, or expand the use of their assets, thereby improving asset utilisation. However, public-sector efficiency strategies may also involve cost-reduction measures that inadvertently restrict asset-related spending, such as deferred maintenance or limited investment in asset-intensive programs (Afonso et al., 2024). Thus, the theoretical relationship is conceptually plausible but not guaranteed, and it must be empirically tested. Therefore:

H1: Cost efficiency influences asset utilisation in legal-entity public universities.

In contrast, the expected relationship between financial autonomy and asset utilisation is more direct. Public-sector accounting frameworks increasingly emphasise New Public Management (NPM) principles, in which autonomy and decentralisation enable institutions to become more entrepreneurial, flexible, and performance-oriented (Verbeeten & Speklé, 2015). For PTNBH, a higher share of non-government revenue indicates greater financial independence, which, in turn, provides the institution with greater discretion to allocate funds according to strategic priorities. This aligns with Stewardship Theory, where managers of public institutions are viewed as stewards entrusted with maximising the long-term value of resources, including assets. With enhanced financial autonomy, stewards can invest in asset-intensive initiatives, modernise infrastructure, strengthen academic services, and support innovation, all of which require productive use of assets (Torring & Bentzen, 2020). Additionally, from the Public Value Framework, financially autonomous universities are better positioned to leverage their asset base to create greater public value through expanded access, improved service quality, and diversified programs (Brinkerhoff & Brinkerhoff, 2015). For these reasons, financial autonomy is theoretically expected to enhance asset utilisation by enabling more flexible, strategic, and proactive asset management. Thus:

H2: Financial autonomy positively influences asset utilisation in legal-entity public universities.

2. METHODS

This study adopts a quantitative research design to examine the influence of cost efficiency and financial autonomy on asset utilisation among Indonesian legal-entity public universities (Perguruan Tinggi Negeri Badan Hukum - PTNBH). A quantitative approach is appropriate because the research relies on numerical indicators derived from audited

financial statements, enabling objective measurement of variables and statistical analysis of relationships across institutions and time. The study focuses on PTNBH because these institutions possess legal and financial autonomy that necessitates a higher level of accountability in resource management, particularly in how their assets are utilised to support educational, research, and administrative functions.

The population of the study consists of all 24 PTNBH in Indonesia. However, because panel data covering a five-year period (2020–2024) is required for the analysis, the study employs purposive sampling. Of the 24 PTNBH, only 11 institutions were established between 2013 and 2015, making them sufficiently mature to provide complete and comparable financial data across the required timeframe. The remaining PTNBH were established in 2019 or later, making them ineligible due to insufficient historical data. From the 11 eligible institutions, only seven universities had complete, publicly accessible financial information for the full study period. Accordingly, these seven PTNBH constitute the final sample, resulting in a balanced panel dataset of 35 institutional-year observations. This sampling approach ensures that the sample reflects institutions with comparable autonomy, maturity, and consistent reporting practices, thereby strengthening the validity of the analysis.

Data were collected exclusively from secondary sources, including audited annual financial statements, publicly available accountability reports, and supporting documentation issued by each PTNBH. These documents provide standardised financial information across institutions, particularly concerning revenue composition, expenditure levels, and asset values. Data extraction involved identifying relevant financial statement components, such as the Statement of Financial Position, Statement of Operations, and Notes to the Financial Statements, and converting them into measurable variables based on predetermined formulas. Because all data originate from audited reports, measurement reliability is strengthened, and no additional margin of sampling error is required.

The study's variables were operationalised in line with established financial management and public-sector accounting practices. Asset utilisation, the dependent variable, is measured by the Asset Utilisation Ratio, which represents the institution's ability to generate operational revenue from its asset base. Cost efficiency, the first independent variable, is measured using the Efficiency Ratio, which captures the relationship between operating expenses and operating revenue. Financial autonomy, the second independent variable, is measured by the Autonomy Ratio, which reflects the proportion of non-government revenue to total institutional revenue. These operational definitions align with public-sector performance measurement concepts such as value for money, financial independence, and resource productivity.

Table 1. Operationalization Variable

Variable	Operational Definition	Formula / Measurement
Asset Utilisation (AUR)	Measures the university's ability to generate revenue from its asset base	$AUR = \text{Operational Revenue} / \text{Total Assets}$

Cost Efficiency (EFF)	Indicates the extent to which the university manages costs relative to revenue	EFF = Operating Expenses / Operating Revenue
Financial Autonomy (AUT)	Measures the degree of university financial independence from government funding	AUT = Non-Government Revenue / Total Revenue

Source: Own

Table 1 above presents the operationalisation of variables for this research. Data analysis was conducted using panel data regression, a technique that combines cross-sectional and time-series dimensions to capture institutional heterogeneity and temporal variation. The empirical procedure involved estimating pooled ordinary least squares (OLS), fixed-effects, and random-effects models. Model selection followed standard specification tests, including the Chow Test, Hausman Test, and Lagrange Multiplier Test, to determine the most appropriate estimator. Diagnostic assessments were carried out to examine normality, homoscedasticity, multicollinearity, and serial correlation where applicable. The results from the selected regression model form the basis for evaluating the influence of cost efficiency and financial autonomy on asset utilisation within the sampled PTNBH. Below is the equation for the multiple regression:

$$AUR_{it} = \beta_0 + \beta_1 EFF_{it} + \beta_2 AUT_{it} + \varepsilon_{it} \dots \dots \dots (1)$$

Where:

AUR_{it}	= Asset Utilisation Ratio of university i in year t
EFF_{it}	= Efficiency Ratio of university i in year t
AUT_{it}	= Autonomy Ratio of university i in year t
β_0	= Intercept
β_1, β_2	= Regression coefficients
ε_{it}	= Error term

3. RESULTS AND DISCUSSION

3.1 Descriptive Statistics

Table 2. Descriptive Statistics

Variable	Minimum	Maximum	Mean	Std. Deviation
EFF	0.61	1.89	1.0434	0.32284
AUT	0.42	0.88	0.7046	0.11818
AUR	0.20	0.63	0.4017	0.11587

Source: Own

Table 2 above presents the results of descriptive statistics. The descriptive statistics summarise the financial characteristics of the seven PTNBH observed over a five-year period (2020–2024), resulting in 35 institutional-year data points. The cost efficiency ratio (EFF) shows a mean value of 1.0434, indicating that, on average, operating expenses are slightly

higher than operating revenue. The relatively wide range (0.61 to 1.89) and higher standard deviation (0.32284) suggest considerable variation across universities in how efficiently they manage operational costs.

The financial autonomy ratio (AUT) has a mean of 0.7046, indicating that approximately 70% of total university revenue comes from non-government sources. This indicates a generally high degree of financial independence among the sampled PTNBH. The lower standard deviation (0.11818) relative to EFF suggests that autonomy levels are more consistent across institutions, while still showing meaningful variation (ranging from 0.42 to 0.88).

The asset utilisation ratio (AUR), the dependent variable, has an average value of 0.4017, with scores ranging from 0.20 to 0.63. This suggests that universities generate, on average, around 40% of operational revenue relative to the value of their assets. The moderate standard deviation (0.11587) indicates variation in the effectiveness with which institutions convert their asset base into revenue-generating activities.

3.2 Panel Data Regression Analysis

Table 3. Panel Data Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.	VIF
C	0.147989	0.139502	1.060843	0.2967	–
EFF	– 0.045414	0.054404	– 0.834747	0.4100	1.002021
AUT	0.427368	0.157160	2.719322	0.0105*	1.002021
Adjusted R-squared					0.167559
F-statistic					4.421878
Prob(F-statistic)					0.020155*
Prob (Jarque-Bera test)					0.077001
Prob (White test)					0.0756
Prob (Serial Correlation LM-test)					0.0000
Prob (Chow test)					0.0000
Prob (Hausman test)					0.3411
Model Decision	Random Effects Model (based on Hausman test)				

Source: Own

Note: *: significant at $\alpha = 5\%$

The result of the Panel Data regression analysis is presented in Table 3 above. The empirical analysis investigates the effect of cost efficiency and financial autonomy on asset utilisation in Indonesian legal-entity public universities. Using a Random Effects Model, selected based on the Hausman test, the regression demonstrates that the independent variables jointly exert a significant influence on asset utilisation, as indicated by the model's overall significance (Prob(F-statistic) = 0.020155). The adjusted R-squared of 0.167559 suggests that the two variables explain approximately 16.76 per cent of the variation in asset utilisation across the sample, which is acceptable given the small panel structure and the institutional diversity of the universities studied.

Financial autonomy emerges as the only significant predictor of asset utilisation, reinforcing the central role that revenue independence plays in shaping how universities

manage and deploy their asset portfolios. The regression results indicate that financial autonomy has a positive and statistically significant effect on asset utilisation, with a coefficient of $\beta = 0.427368$ ($p = 0.0105$). This relationship suggests that universities that rely more heavily on non-government revenue, such as tuition, research grants, endowments, service income, and partnerships, have greater financial discretion to make strategic decisions about their assets. Unlike institutions constrained by government budgeting rules, financially autonomous universities can allocate resources more flexibly, responding to institutional priorities and external opportunities without awaiting state approval (Hagood, 2019).

A higher degree of financial autonomy strengthens institutional capacity to invest in infrastructure, maintain existing facilities, fund modernisation projects, and support asset-intensive academic or research programs. These activities are essential for enhancing asset productivity because they ensure that physical resources remain functional, relevant, and aligned with evolving educational needs. From a governance perspective, financial autonomy aligns with the stewardship role of university leaders, who are expected to optimise resource use, safeguard institutional sustainability, and maximise the public value generated from university assets. Autonomous institutions, by virtue of having more control over their financing, are better positioned to adopt entrepreneurial strategies, diversify revenue streams, and integrate long-term asset planning into their fiscal practices (Franco-Santos et al., 2017). The empirical results are thus consistent with theoretical arguments that greater autonomy promotes proactive and strategic asset management, enabling universities to leverage their resources more effectively and generate higher operational returns from their asset base.

In contrast, the analysis reveals that cost efficiency does not significantly influence asset utilisation, as reflected by its negative and insignificant coefficient ($\beta = -0.045414$, $p = 0.4100$). Although efficiency is often regarded as a desirable financial practice, the results suggest that efficiency-focused measures do not necessarily translate into improved asset performance in public universities. One potential explanation lies in the nature of efficiency initiatives within the public sector. Cost efficiency is frequently operationalised through tightening expenditure, controlling operational costs, or implementing austerity measures. While such actions may reduce financial waste, they may simultaneously restrict investment in asset-related functions, including maintenance, facility upgrades, and new program expansions (Liao et al., 2024). Because these activities directly contribute to higher asset utilisation, reducing expenditures can paradoxically undermine asset productivity.

Moreover, public universities often operate within rigid budgeting frameworks, in which efficiency improvements may not yield disposable funds (He & Ismail, 2023). Savings generated from efficiency initiatives may be reallocated to non-asset-related mandates or absorbed by administrative rules, preventing reinvestment into physical resources. Public universities often operate within rigid budgeting frameworks, where efficiency improvements may not result in the availability of disposable funds (Kenno et al., 2020). Savings generated from efficiency initiatives may be reallocated to non-asset-related mandates or absorbed by administrative rules, preventing reinvestment into physical resources. Additionally, efficiency ratios may capture short-term spending patterns rather than long-term capacity-building

investments. Universities that appear “efficient” in the short term may, in fact, be deferring maintenance or postponing infrastructure projects, thereby reducing asset functionality and their ability to generate revenue or support academic activities (Alhasnawi et al., 2024). This may explain the negative (though insignificant) coefficient: higher efficiency ratios often reflect higher operating costs relative to income, and institutions under financial pressure may struggle to maintain or utilise their assets optimally.

The insignificant relationship also aligns with broader public-sector theories suggesting that efficiency-driven reforms do not automatically lead to improvements in service delivery or resource utilisation. Unlike private-sector organisations, where efficiency gains can be reinvested to enhance productivity, public universities may not experience such direct benefits due to regulatory constraints and the complexity of allocating funds across diverse academic and public-service mandates (De La Torre et al., 2017). Thus, while efficiency remains an important component of financial management, it appears insufficient, on its own, to drive higher levels of asset utilisation in PTNBH.

Diagnostic tests further validate the model's robustness. The Jarque–Bera test confirms that the residuals follow an approximately normal distribution, and the White test does not reject the homoskedasticity assumption. Although the Breusch–Godfrey test indicates the presence of serial correlation, a common occurrence in small panel data, it does not undermine the overall validity of the random-effects estimation. With the Hausman test indicating that fixed effects are unnecessary, the Random Effects Model remains the most appropriate and efficient estimator for this analysis.

To ensure the stability and reliability of the main empirical findings, a robustness check was conducted using an ARMA (1) model, which explicitly accounts for serial correlation in the residuals. This approach is appropriate given that the Breusch–Godfrey LM test from the main model indicated the presence of serial correlation. By incorporating an autoregressive term (AR (1)), the model accounts for dynamic dependence in the data, yielding more conservative and statistically robust estimates.

Table 4. Robustness Check Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.259069	0.104467	2.479910	0.0190*
EFF	−0.000385	0.070424	−0.005468	0.9957
AUT	0.204739	0.073541	2.784024	0.0092*
AR(1)	0.834103	0.102876	8.107861	0.0000*
SIGMASQ	0.003379	0.000933	3.623203	0.0011*
Adjusted R-squared	0.706391			
F-statistic	21.45011			
Prob(F-statistic)	0.000000***			
Durbin–Watson	2.089057			
AIC	−2.532605			
SC	−2.310413			
HQ	−2.455904			

Source: Own

Note: *: significant at $\alpha = 5\%$

The results of the robustness check are presented in Table 4 above. The robustness results confirm the consistency of the main findings. As with the Random Effects Model, financial autonomy (AUT) remains positive and statistically significant in predicting asset utilisation, with a coefficient of 0.204739 and a p-value of 0.0092. Although the coefficient magnitude decreases slightly due to dynamic adjustment, its significance remains strong, reinforcing the conclusion that universities with higher levels of financial autonomy utilise their assets more effectively. This confirms the theoretical expectation that financial independence enhances resource flexibility and strategic investment capacity.

In contrast, cost efficiency (EFF) remains statistically insignificant in the robustness model (coefficient = -0.000385 , $p = 0.9957$). This is fully consistent with the main regression results, demonstrating that even after correcting for autocorrelation, cost efficiency does not influence asset utilisation. The near-zero coefficient further illustrates that changes in efficiency ratios do not translate into meaningful differences in asset productivity, supporting the interpretation that efficiency-driven cost adjustments in public universities may not target asset-supporting expenditures.

The AR (1) process is highly significant ($p = 0.0000$), confirming that dynamic effects are present in the data and validating the need for this robustness approach. The adjusted R-squared increases substantially to 0.706391, indicating that the ARMA model explains a larger portion of the variation in asset utilisation. Additionally, the Durbin–Watson statistic (2.089057) confirms that serial correlation has been effectively mitigated.

The study concludes that financial autonomy plays a critical role in enhancing the productive use of assets among PTNBH, whereas cost efficiency has no measurable effect. These findings underscore the importance of revenue diversification and fiscal flexibility as strategic levers for improving resource management and operational performance in autonomous public universities.

4. CONCLUSION

This study set out to examine whether cost efficiency and financial autonomy influence asset utilisation in Indonesian legal-entity public universities (PTNBH). The findings consistently demonstrate, across both the main Random Effects Model and the ARMA-based robustness check, that financial autonomy is the only variable that significantly enhances asset utilisation. Universities with higher proportions of non-government revenue are shown to be more capable of deploying their assets productively, aligning with theoretical expectations that autonomy strengthens managerial discretion, resource flexibility, and strategic investment capacity. Conversely, cost efficiency has no significant effect on asset utilisation in any model specification. This indicates that efficiency-driven expenditure controls alone do not necessarily support asset productivity, especially within public-sector budgeting frameworks. These results collectively answer the research questions by confirming that financial autonomy matters for asset utilisation, while cost efficiency does not.

When compared with prior research, the findings reinforce emerging evidence that fiscal autonomy is increasingly central to university performance, while efficiency reforms in the public sector often fail to yield substantive improvements in operational outcomes. The study contributes to the literature by empirically demonstrating, in the specific context of PTNBH, that autonomy, rather than efficiency, is the key driver of asset utilisation, supported by a rare multi-year panel dataset and validated through dynamic robustness testing. The strength of this article lies in its integration of public-sector accounting theory with rigorous panel econometric analysis, offering robust empirical insights on how financial structures shape asset-related performance in autonomous public universities. The results provide evidence-based guidance for policymakers and university leaders: enhancing revenue independence, rather than emphasising cost-cutting, may be a more effective strategy for improving the productive use of institutional assets.

5. REFERENCES

- Adeusi, K., Jejenewa, T., & Jejenewa, T. (2024). Advancing financial transparency and ethical governance: innovative cost management and accountability in higher education and industry. *International Journal of Management & Entrepreneurship Research*, 6(5), 1533–1546.
- Afonso, A., Jalles, J. T., & Venâncio, A. (2024). A tale of government spending efficiency and trust in the state. *Public Choice*, 200(1–2), 89–118.
- Alhasnawi, M. Y., Al-Hasnawi, M. H., Elorabi, K. A., Alshdaifat, S. M., Mohd Said, R., & Khudhair, A. H. (2024). How does budget participation affect managerial performance in the higher education sector? A mediated-moderated model. *Asian Journal of Accounting Research*, 9(4), 325–339.
- Brinkerhoff, D. W., & Brinkerhoff, J. M. (2015). Public Sector Management Reform in Developing Countries: Perspectives Beyond NPM Orthodoxy. *Public Administration and Development*, 35(4), 222–237.
- Chen, B., Chen, Y., Sun, Y., Tong, Y., & Liu, L. (2024). The measurement, level, and influence of resource allocation efficiency in universities: empirical evidence from 13 “double first class” universities in China. *Humanities and Social Sciences Communications*, 11(1).
- De La Torre, E. M., Gómez-Sancho, J.-M., & Perez-Esparrells, C. (2017). Comparing university performance by legal status: a Malmquist-type index approach for the case of the Spanish higher education system. *Tertiary Education and Management*, 23(3), 206–221.
- Franco-Santos, M., Nalick, M., Gomez-Mejia, L., & Rivera-Torres, P. (2017). Governance and Well-being in Academia: Negative Consequences of Applying an Agency Theory Logic in Higher Education. *British Journal of Management*, 28(4), 711–730.
- Hagood, L. P. (2019). The Financial Benefits and Burdens of Performance Funding in Higher Education. *Educational Evaluation and Policy Analysis*, 41(2), 189–213.
- Hardiana, R. D., Tanuatmodjo, H., & Kurniati, F. (2020). Desentralisasi fiskal dan tingkat kemandirian daerah kabupaten/kota di Provinsi Jawa Barat tahun 2015–2019: Evaluasi kinerja pemerintah daerah menjelang dua dekade otonomi daerah di Indonesia. *JPAK: Jurnal Pendidikan Akuntansi dan Keuangan*, 8(2), 197–210.
- He, L., & Ismail, K. (2023). Do staff capacity and performance-based budgeting improve organisational performance? Empirical evidence from Chinese public universities. *Humanities and Social Sciences Communications*, 10(1).

- Heaton, S., Teece, D., & Agronin, E. (2022). Dynamic capabilities and governance: An empirical investigation of financial performance of the higher education sector. *Strategic Management Journal*, 44(2), 520–548.
- Hong, M. (2018). Public university governance in China and Australia: a comparative study. *Higher Education*, 76(4), 717–733.
- Iqbal, S., Taib, C. A. B., & Moosa, K. (2024). Optimizing quality enhancement cells in higher education institutions: analyzing management support, quality infrastructure and staff training. *International Journal of Quality & Reliability Management*, 41(6), 1572–1593.
- Kallio, T. J., Kivistö, J., Kallio, K.M., Pyykkö, R., & Huusko, M. (2021). Balancing between accountability and autonomy: the impact and relevance of public steering mechanisms within higher education. *Journal of Public Budgeting, Accounting & Financial Management*, 34(6), 46–68.
- Kenno, S., Lau, M., Sainty, B., & Boles, B. (2020). Budgeting, strategic planning and institutional diversity in higher education. *Studies in Higher Education*, 46(9), 1919–1933.
- Lambey, L., Jeini Usuh, E., Burgess, J., & Lambey, R. (2024). Challenges and Opportunities to Internationalize the Indonesian Higher Education Sector. *Intechopen*.
- Liao, H., Hao, G., Yasmeen, R., & Shah, W. U. H. (2024). Evaluation of educational resource utilization efficiency, regional technological heterogeneity, and total factor productivity change in 35 European countries. *PLOS ONE*, 19(1), e0295979.
- Torring, J., & Bentzen, T. Ø. (2020). Does Stewardship Theory Provide a Viable Alternative to Control-Fixated Performance Management? *Administrative Sciences*, 10(4), 86.
- Tuan, N. A., & Trang, N. N. (2024). Assessing Impacts of University Autonomy Policies on Universities' Competitiveness in Vietnam. *WSEAS Transactions On Business And Economics*, 21, 957–966.
- Verbeeten, F. H. M., & Speklé, R. F. (2015). Management Control, Results-Oriented Culture and Public Sector Performance: Empirical Evidence on New Public Management. *Organization Studies*, 36(7), 953–978.