



Management Accounting System Dimensions as Mediating The Effect of Decentralization and Environmental Uncertainty on Managerial Performance

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ABSTRACT

This research aims to determine and examine the effect of Decentralization and Environmental Uncertainty on Managerial Performance with the Management Accounting System as Intervening Variables in STARKES Accredited Hospitals in Bandung. The research method used is a combination method: sequential explanatory design. This study uses primary data consisting of questionnaires and interviews. The total population of this study is 11 hospitals. This research is hypothesis testing research. The research model was analyzed using PLS (Partial Least Square) analysis. The analysis results show that the management accounting system can mediate the effect of decentralization on managerial performance, where the company is more decentralized and supported by a high management accounting system, which will produce an adequate managerial performance. In addition, the management accounting system can mediate the effect of environmental Uncertainty on managerial performance. The higher the environmental Uncertainty and supported by the high use of MAS (Management Accounting System), the more adequate managerial performance.

Keywords: Decentralization; Environmental Uncertainty; Management Accounting System.

INTRODUCTION

The health and hospital sectors have unique market characteristics that differ from those in other sectors. One of the characteristics that are unique to hospitals is Uncertainty, asymmetry of information, SID (Supply Induced Demand), unnecessary procedures, intangible, non-competitive market, non-profit motive, mix input, joint product, mix output, and high entry barrier to market. However, this does not affect the growth of the hospital industry from time to time. It is recorded that the growth of hospitals in Indonesia has increased rapidly in 2010 – 2020, especially for-profit private hospitals, accompanied by a tendency to increase in Network/Group Hospitals. In the last 11 years (2010-2020), the number of hospitals in Indonesia has increased by 80% or more than 1300 hospitals from 1632 to 2943. Most of the hospitals are general hospitals (82%), while the majority are maternal hospitals for special hospitals. And Children (RSIA) 67% (353/528). However, the growth of hospitals in Indonesia is still concentrated in Java Island (50%), Sumatra (25%), and Sulawesi (9%). This certainly causes inequalities in hospital services in Indonesia (kppu.go.id)

The improving investment climate and regulations in Indonesia also drive the development of the hospital industry. However, government intervention and the development of the hospital industry in Indonesia must be balanced with improving the quality of hospital services, which is reflected in hospital managerial performance. Regarding service readiness, the 2019 health facility research report data shows that the achievement of hospital service performance in Indonesia still needs to be below the set minimum standards. Meanwhile, competition between hospital service providers, if not managed properly, will lead to market failure and inefficiencies that are detrimental to industry players and the community as users of hospital services. After the Covid-19 pandemic, public awareness of services has increased, and demands for patient rights as consumers have also increased. This condition forces managers to make the right decisions in the middle of the complexity of the problems they face.

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Managers are required to have the ability to identify problems, select and implement adaptation processes as well as see and use existing opportunities in order to maintain the continuity of the organization. As in other organizations, managerial performance in hospitals is also important because increasing managerial performance can improve the overall company/organizational performance (Ayu, 2015). Managers can control costs and increase productivity using a Management Accounting System (MAS) (Johnson & Kaplan, 1987). Information within an organization depends on various factors, such as the company's organizational structure and environmental uncertainties. However, each organization's level of availability of each characteristic of management accounting information is different. The level of information needs provided depends on the company's organizational structure, both decentralized and centralized.

Less information is needed in centralized organizations than in decentralized organizations. This happens because managers need more information for their decision-making activities in a decentralized system. Meanwhile, in a centralized system, managers only carry out tasks ordered by superiors. One important tool is to improve performance (Waterhouse and Tiesan, 1978 and Galbraith, 1973). So, if the level of decentralization in the company is high, it needs to be supported by the characteristics of a reliable management accounting system. Meanwhile, difficulties in decision-making, control, and planning activities occur in companies with high environmental uncertainty levels. Managers will use their participation as well as possible when there are big environmental changes to obtain information related to tasks, and in the end, managerial performance will increase with the availability of accurate management accounting information (Fitrianingrum, 2011)

However, previous research was mostly conducted in the commercial sector. At the same time, the authors tried to examine the effect of decentralization and environmental Uncertainty mediated by the dimensions of the management accounting system in the hospital sector as a semi-commercial enterprise sector oriented towards community service. In addition, based on the results of the research shows the different effect on each research subject, so in contingency theory, it is said that these variables may have a significant relationship in an organization but may also not be significant in other organizations according to the situation and conditions. Therefore, starting from the contingency theory, the variables tested by previous researchers were re-tested with different research subjects. Research (Melanthon R, Ja Minta S, 2018) shows that the management accounting information system positively affects managerial performance. Meanwhile, research (Qibtiyah, 2017) states that the management accounting system does not affect managerial performance.

RESEARCH METHODS

In taking responsibility for their work, managers need more timely information regarding the frequency and speed of reporting. Timely information is also needed by unit managers in hospitals that handle special services such as inpatient rooms, operating rooms, and laboratories where patient safety is a top priority (Hammad et al., 2013). In addition, the more decentralized one company unit is, the more likely the diversity of activities will increase so that integrated information will assist managers in coordinating with the increasing diversity of operational decisions. Information that is integrated with the Management Accounting System is more profitable for managers with decentralized organizations so that it can improve managerial performance (Soobaroyen & Poorundersing, 2008).

The research design uses causation to describe a causal relationship between variables. (Sugiyono, 2013) said that quantitative causality research is used to prove the relationship between variables. The data used in this study are primary data from STARKES-accredited hospitals in Bandung. The population consists of 11 STARKES-accredited hospitals in 2020. The sample taken is the same as the population, The number of research samples is 11 hospitals, because the population is relatively small, and the sampling method used is non-probability sampling.

Data collection techniques using a combination of sequential explanatory models. Quantitative data collection (the dominant method) was carried out sequentially before collecting qualitative data. Quantitative data collection was carried out using a survey method with questionnaires as a means of

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data collection, and interviews carried out qualitative data collection. The research analysis uses descriptive statistical analysis. According to (Baron & Kenny, 1986), moderating variables are variables that can strengthen or weaken the relationship between the independent variable and the dependent variable.

Table 1 List of KARS Accredited Hospitals in Bandung

No.	Hospital Name
1	Immanuel Bandung General Hospital
2	Limijati Mother and Child Hospital
3	Melinda General Hospital 2
4	Cicendo Eye Special Hospital
5	Humana Prima General Hospital
6	RSU Bhayangkara Tk. II Sartika Asih
7	Pindad General Hospital
8	RSAU dr. M. Salamun
9	Hermina Arcamanik General Hospital
10	Bandung Eye Center Eye Hospital
11	Hermina Pasteur General Hospital

http://akreditasi.kars.or.id/application/report/report_accredited.php

Data processing uses the SmartPLS 3.0 application. SmartPLS 3.0 measures small samples and formative indicators (Ghozali & Latan, 2019). According to (Ghozali & Latan, 2019). There are three steps in implementing SEM-PLS. The first step is to set specifications for the research model, which can be seen in Figure 1.

The equation used is as follows:

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_2X_3 + \beta_3Z + \beta_1X_1*Z + \beta_2X_2*Z + \beta_3X_3*Z \rightarrow (1)$$

The second step uses the evaluation of the measurement model (outer model), which tests the validity and reliability tests. The validity test is divided into two: convergent validity, which can be seen from the outer loadings value, and discriminant validity, which is seen from the AVE (average variance extracted) value or cross-loaded between the indicators and their constructs. In comparison, the reliability test is seen from composite reliability and Cronbach alpha values. An indicator is considered reliable if it has a correlation value > 0.70 or > 0.50. It is still acceptable, so the model can be said to be good (Ghozali & Latan, 2019).

The next step is to test the structural model (inner model) as seen from the R-square value. The goodness-fit model test aims to determine the ability of the independent variables to influence the dependent variable. In this case, there are several criteria. If the R-square value is 0.75, it means it has a large relationship value, a value of 0.50 has a moderate relationship value, and 0.25 has a weak effect of interaction (Ghozali & Latan, 2019).

The hypothesis testing was analyzed to determine the significance value of the relationship from the independent variables on the dependent variable, as well as on the moderating variable, and whether it was able to weaken or strengthen the relationship of the independent variables on the dependent variable. The test uses the t-test on the bootstrapping path coefficients algorithm. Where the value of the variable can be stated to be significant if the t statistic value is > 1.96 or if the t table of significance 5% = 1.96 (Ghozali & Latan, 2019).

RESULTS AND DISCUSSION

Questionnaires and interviews consisted of 56 (fifty-six) questions with details of 5 (five) questions regarding decentralization, 10 (ten) questions regarding environmental Uncertainty, 19 (nineteen) questions regarding management accounting system, and 22 (twenty-two) item questions regarding managerial performance.

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Table 2 Average Variance Extracted (AVE)

Latent Variable	AVE	Communality
Decentralization (X ₁)	1,000	1,000
Environmental Uncertainty (X ₂)	0,563	0,563
Management Accounting System (Z)	0,819	0,819
Kinerja Manajerial (Y)	0,707	0,707

Source: Results of SmartPls 3.0 data processing

Based on the results of the validity test with convergent validity and discriminatory validity, it is known that the outer loadings value of each variable is $1.000 > 0.50$. The decentralization variable has an outer loading value of 1.000, and other variables, including environmental Uncertainty, use of the Management Accounting System, and managerial performance, have a value of more than 0.50. It can be concluded that the output results are acceptable and meet convergent validity.

While the results of the reliability test, when viewed from the composite reliability of all constructs, are classified as very good because they have a score > 0.7 so that it can be concluded that all construct indicators (manifest variables) are reliable or in other words, all manifest variables are proven to have accuracy, consistency, and accuracy of the instrument in a measure the construct.

Table 3 Hypothesis Test Results (Bootstrapping Path Coefficient)

	Original sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (O/STERR)
Decentralization -> Management Accounting System	0,376	0,379	0,102	0,102	3,702
Decentralization -> Managerial Performance	0,242	0,261	0,117	0,117	2,066
Environmental Uncertainty -> Managerial Performance	0,282	0,277	0,127	0,127	2,219
Environmental Uncertainty -> Managerial Performance	0,289	0,281	0,107	0,107	2,695
Management Accounting System -> Managerial Performance	0,310	0,298	0,095	0,095	3,258

Source: Results of SmartPls 3.0 data processing

Hypothesis testing is as follows:

1. The results of the hypothesis test in table 3 show that the coefficient value of the effect of interaction between decentralization on the use of the Management Accounting System is 0.376, with a standard error of 0.12 with an average value of 0.379. Because the statistical value is $3.702 > 1.65$, the null hypothesis is rejected (H_0). This means that decentralization has a significant positive relationship on the use of the Management Accounting System.

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2. The coefficient value of the effect of decentralization on managerial performance is 0.242, with a standard error value of 0.117 and an average value of 0.261. Because the statistical value is $2.066 > 1.65$, the null hypothesis is rejected (H_0). This means that decentralization has a significant positive effect on management performance.
3. The coefficient value of relationship between Environmental Uncertainty on the use of the Management Accounting System is 0.282, with a standard error value of 0.127 and an average value of 0.277. Because the statistical value is $2.219 > 1.65$, the hypothesis is rejected (H_0). This means that there is a significant positive relationship of environmental Uncertainty on the use of the Management Accounting System.
4. The coefficient value of Environmental Uncertainty on Managerial Performance is 0.289, with a standard error value of 0.107 and an average value of 0.281. Because the statistical value is $2.695 > 1.65$, the hypothesis is rejected (H_0). This means that there is a significant positive relationship of Environmental Uncertainty on Managerial Performance.
5. The coefficient value of the Management Accounting System on Managerial Performance is 0.310, with a standard error value of 0.107 and an average value of 0.298. Because the statistical value is $3.258 > 1.65$, the hypothesis is rejected (H_0). This means that the Management Accounting System has a significant positive relationship on Managerial Performance.

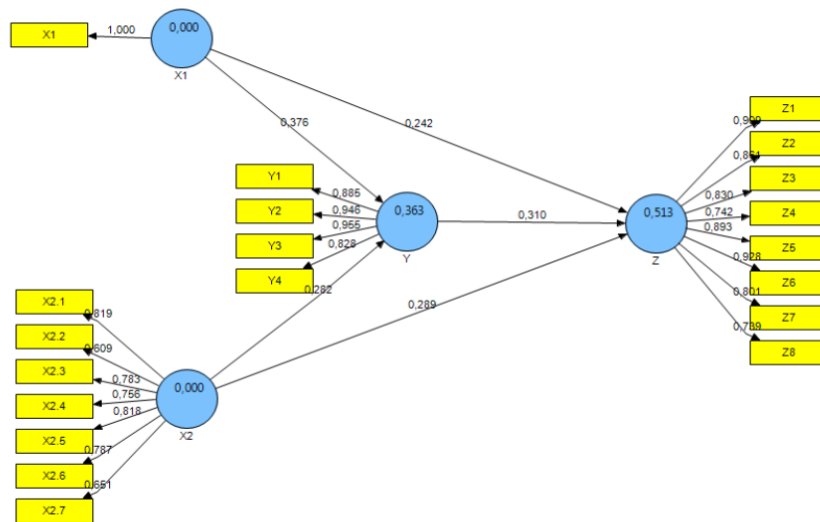


Figure 1. Path Model Coefficient

This study aims to examine the effect of decentralization and environmental Uncertainty on managerial performance mediated by the management accounting system, which can be seen in Table 4.

Table 4 Contribution of Direct and Indirect Relationship between Variables

Variable	Direct relationship on Z	Direct relationship on Y	Indirect relationship to Y through Z
Decentralization (X1)	14.1%	5.9%	11.6%
Environmental Uncertainty (X2)	7.9%	8.4%	8.7%
Managerial Performance (Y)	-	9.6%	-

Source: Results of SmartPls 3.0 and Excel data processing

DISCUSSION

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Effect of Decentralization on the use of Management Accounting System

The first hypothesis says that decentralization does not affect the use of the Management Accounting System (MAS), while based on the results of the previous hypothesis I test, it can be said that decentralization has a positive and significant effect on the use of the management accounting system. This is indicated by the t-count value of 3.702, which is greater than the t-table value of 1.65 with an error rate of 5%, so H_1 is rejected and H_0 is accepted. Besides that, table 4.57 shows that decentralization contributed a direct relationship of 14.1% to the management accounting system. This follows previous studies, according to (Chenhall & Morris, 1986), that aggregated information MAS has a significant relationship with decentralization. In organizations that tend to be decentralized, managers will be assigned based on their area of responsibility or aggregated. Then, there is a significant relationship between integrated information MAS and decentralization. In other words, aggregated and integrated information is more beneficial for managers whose organizational structure is decentralized.

In addition, the research results by (Hammad et al., 2013) state that there is a significant positive relationship between decentralization and broad scope, timely, and integrated information MAS. Other studies supporting this hypothesis are the results of research that state that decentralization is positively and significantly related to timely information, information aggregation MAS, and information integration MAS.

Effect of environmental Uncertainty on the use of Management Accounting System (MAS).

The second hypothesis says that environmental Uncertainty does not affect the use of the Management Accounting System (MAS), while based on the results of the previous hypothesis test, it can be said that environmental Uncertainty has a positive and significant effect on the use of the management accounting system. This is indicated by the t-count value of 2.219, which is greater than the t-table value of 1.65, with an error rate of 5%, meaning that H_1 is rejected and H_0 is accepted. In addition, based on table 4, it is known that environmental Uncertainty contributes a direct relationship of 7.9% to the management accounting system. This follows previous research (Chenhall & Morris, 1986) that environmental Uncertainty is significantly related to broad scope MAS information and timeliness of MAS information.

Effect of Decentralization on managerial performance through the use of Management Accounting System (MAS)

The third hypothesis says decentralization does not affect managerial performance through Management Accounting Systems (MAS). This is indicated by the t-count value of 2.066, which is greater than the t-table value of 1.65 with an error rate of 5%, so H_1 is rejected, and H_0 is accepted. In addition, based on table 4, it is known that decentralization directly influences managerial performance by 5.9%. The magnitude of the contribution of the indirect effect of decentralization on managerial performance is 11.6%. From these results, It is known that the contribution of the direct effect of decentralization on managerial performance is lower than the indirect effect through the management accounting system. Thus, the management accounting system can mediate the effect of decentralization on managerial performance, where the company is more decentralized and supported by the use of a high management accounting system, which will produce adequate managerial performance. The results of this study are in line with previous research. Thus, it can be concluded that the management accounting system can mediate the effect of decentralization on managerial performance, where the company is more decentralized and supported by a high management accounting system, which will produce an adequate managerial performance. The results of this study are in line with previous research. Thus, the management accounting system can mediate the effect of decentralization on managerial performance, where the company is more decentralized and supported by a high management accounting system, which will produce an adequate managerial performance. This study's results align with previous research (Soobaroyen & Poorundersing, 2008), which states that MAS has an intervening effect between decentralization and managerial performance.

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Effect of environmental Uncertainty on managerial performance through the Management Accounting System (MAS).

The fourth hypothesis states that environmental Uncertainty does not affect managerial performance through the use of the Management Accounting System (MAS), while based on the results of the previous fourth hypothesis test, it can be said that environmental Uncertainty has a positive and significant effect on managerial performance mediated by the use of the management accounting system. This is indicated by the t-count value of 2.695, which is greater than the t-table value of 1.65 with an error rate of 5%, so H_1 is rejected and H_0 is accepted. In addition, based on table 4, it is known that environmental Uncertainty contributes a direct relationship on managerial performance at 8.4%. The magnitude of the contribution of the indirect effect of environmental Uncertainty on managerial performance is 8.7%. From these results, it is known that the contribution of the direct effect of environmental Uncertainty on managerial performance is lower than the indirect effect through MAS. Thus, the management accounting system can mediate the effect of environmental Uncertainty on managerial performance, where the higher environmental Uncertainty supported by the high use of MAS will result in adequate managerial performance. This study's results align with previous research (Mia, 1993), which stated that the use of MAS information plays a role in mediating the relationship between environmental Uncertainty and managerial performance.

Effect of Using Management Accounting System (MAS) on managerial performance

Based on the previous Hypothesis 5 test results, the use of the management accounting system has a positive and significant effect on managerial performance. This is indicated by the t-count value of 3.258, which is greater than the t-table value of 1.65, with an error rate of 5%. In addition, table 4.57 shows that the use of the management accounting system contributes a direct relationship of 9.6% to managerial performance. This follows previous research (Mia, 1993) proving a positive and significant relationship between MAS information and managerial performance. Then, (Soobaroyen & Poorundersing, 2008) proved that there is a significant relationship between MAS and managerial performance. In addition, integrated information MAS related to inputs, outputs, operating processes, and technologies used by other departments can be significant for functional managers.

The research results by (Hammad et al., 2013), among others, prove that broad-scope information MAS and timely information MAS positively relate to managerial performance. The results of this study are consistent with the research of Gul and Chia (1994), which states that broad-scope information MAS and aggregation information MAS are significantly related to managerial performance.

CONCLUSION

Based on the research results, decentralization and environmental Uncertainty have a significant positive effect on managerial performance mediated by the dimensions of the management accounting system, including broad scope, timeliness, aggregation, and integration. Furthermore, the research results on the moderating variable show that the Management Accounting System moderates the effect of decentralization and environmental Uncertainty on management performance in STARKES-accredited hospitals in Bandung City so that the moderating variable can strengthen the dependent variable. Limitations in this study include the limited number of samples and research population. The authors suggest that other researchers can expand the research subjects with certain criteria with a wider number of samples in other areas to compare the results. The author also suggests that data collection be carried out for upper, middle, and lower-level management with different task complexities so that the research results are more complete and thorough.

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BIBLIOGRAPHY

- Cai, T., Guo, S., Li, Y., Peng, D., Zhao, X., & Liu, Y. (2018). Quantitative stress measurement of elastic deformation using mechanoluminescent sensor: An intensity ratio model. *Review of Scientific Instruments*, 89(4), 127–168. <https://doi.org/10.1063/1.5024417>
- Chenhall, R. H., & Morris, D. (1986). The Impact of Structure, Environment, and Interdependence on the Perceived Usefulness of Management Accounting Systems. *Source: The Accounting Review*, 61(1), 16–35. <http://www.jstor.org/stable/247520> <http://www.jstor.org/page/info/about/policies/terms.jsp>
- Chia, Y. M. (1995). Decentralization, Management Accounting System (Mas) Information Characteristics and Their Interaction Effects on Managerial Performance: a Singapore Study. *Journal of Business Finance & Accounting*, 22(6), 811–830. <https://doi.org/10.1111/j.1468-5957.1995.tb00390.x>
- Gordon, L. A., & Narayanan, V. K. (1984). Management accounting systems, perceived environmental Uncertainty and organization structure: An empirical investigation. *Accounting, Organizations and Society*, 9(1), 33–47. [https://doi.org/10.1016/0361-3682\(84\)90028-X](https://doi.org/10.1016/0361-3682(84)90028-X)
- Hammad, S. A., Jusoh, R., Ghozali, I., Hammad, S. A., Jusoh, R., & Ghozali, I. (2013). *Article information* :
- Mariana, A. (2009). Pengaruh Sistem Akuntansi Manajemen terhadap Kinerja Manajerial dengan Ketidakpastian Lingkungan dan Desentralisasi sebagai Variabel Moderating. *Jai*, 5(2), 131–141.
- Mia, L. (1993). The role of management accounting information in organizations: An empirical study. In *British accounting review* (Vol. 25, pp. 269–285).
- Nata, K. B. W. A., & Wirakusuma, M. G. (2020). The Effect of Business Strategy and Decentralization in The Relationship Between The Characteristics of Management Accounting Information System and Managerial Performance Unit Leader in PT Bank BPD Bali. *International Journal of Business, Economics and Law*, 21(5), 193–198.
- Nazaruddin, I., & Fajry, S. (2005). Pengaruh Customization dan Interdependensi terhadap Karakteristik Informasi Sistem Akuntansi Manajemen Broad scope dan Aggregation. *Jurnal Akuntansi & Investasi*, 6(1), 94–113.
- Nuraisiah, R. (2018). Pengaruh Intensitas Persaingan, Delegasi, Strategi Dan Perubahan Sistem Akuntansi Manajemen Terhadap Kinerja Organisasi. *Progress: Jurnal Pendidikan, Akuntansi Dan Keuangan*, 1(1), 111–135. <https://doi.org/10.47080/progress.v1i1.133>
- Octavia Feronica, I. (2013). Pengaruh Desentralisasi dan Sistem Akuntansi Manajemen Terhadap Kinerja Manajer Dealer Di Manado. *Jurnal EMBA*, 1 No.3(3), 818–825.
- Paylosa, F. (2014). Pengaruh Strategi Manajer Dan Desentralisasi Yang Saling Terhubung Antara Pemanfaatan Informasi Sistem Akuntansi Manajemen Dengan Kinerja Manajerial. *Jurnal Akuntansi FE Universitas Negeri Padang*, Volume 9,(1), 1–20.
- Pizzini, M. J. (2006). The relation between cost-system design, managers' evaluations of the relevance and usefulness of cost data, and financial performance: An empirical study of US hospitals. *Accounting, Organizations and Society*, 31(2), 179–210. <https://doi.org/10.1016/j.aos.2004.11.001>
- Shao-Hsi Chung,. (2012). Broad scope management accounting system and managerial performance: The impact of role ambiguity and functional difference. *African Journal of Business Management*, 6(30), 8873–8878. <https://doi.org/10.5897/ajbm11.2181>
- Sigilipu, S. (2013). Pengaruh Penerapan Informasi Akuntansi Manajemen Dan Sistem. *Jurnal EMBA*, 1(3), 239–247.

DOI:

<https://doi.org/10.32670/coopetition.v14i1.2781>

- Society, B. (2004). *The Effect Of Contingency Variables On Management Accounting System Characteristics And Managerial Performance*. 12(2), 47–70.
- Soobaroyen, T., & Poorundersing, B. (2008). The effectiveness of management accounting systems: Evidence from functional managers in a developing country. In *Managerial Auditing Journal* (Vol. 23, Issue 2). <https://doi.org/10.1108/02686900810839866>
- Sulaeman, M., & Kusnandar, H. F. (2017). Pengaruh informasi akuntansi dan ketidakpastian tugas terhadap kinerja manajerial (studi pada PDAM Tirta Anom Banjar). *Jurnal Riset Akuntansi Mercu Buana*, 3(2), 102. <https://doi.org/10.26486/jramb.v3i2.413>
- Thompson, JD 1986. *Organizations in Action*. Mc. Graw-Hill. Waterhouse, JH and Tiessen. 1995. A Contingency Framework for Management Accounting Systems Research, Accounting, in *Managerial Accounting – The Behavioral Foundation*. JL Livingstone, Columbus, Ohio: Grid Inc. pp. 65 – 80.

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