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Which aspect of the Management Accounting System (MAS) matters most in enhancing Tax Management in Manufacturing Firms?

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Abstract

This study aimed to investigate the contribution of management accounting system (MAS) to tax management. The study establishes the aspect of a management accounting system that matters most in enhancing tax management in manufacturing firms. Using a cross-sectional research design, data were collected from 160 manufacturing firms in Uganda using a structured questionnaire. Data was analysed using the Statistical Package for Social Scientists v21 and smart partial least squares structural equation modelling (PLS–SEM). Results indicate that management accounting systems significantly contribute to effective tax management. Also, the aspect of broad scope contributes more than the other elements (aggregation, integration and timeliness) in explaining the variances in tax management. This study provides initial empirical evidence on the contribution of management accounting systems to tax management. It also enhances our understanding of which aspect of the contribution of management accounting system contributes more to tax management using evidence from an emerging economy setting. Manufacturing firms should ensure the adoption of robust information systems that provide information for tax decision making, specifically, information systems that can gather and process information from internal and external sources to analyze tax implications of all budgeted expenditures. Also, regulatory bodies like the Uganda Revenue Authority could encourage manufacturing firms to have sophisticated

management accounting systems that can provide quality, reliable, and timely information relating to tax matters to improve tax compliance. However, the generalization of results is limited as the study only focused on Uganda's manufacturing firms. Therefore, further studies could be carried out in other contexts.

Keywords: *Tax management, Management Accounting system, Resource-based theory, Uganda*

1.0 Introduction

Tax management has emerged as a critical component that every organization must carefully handle in an increasingly dynamic and complex corporate environment to ensure corporate financial sustainability (Rely, 2023). Companies whose tax affairs are effectively managed are likely to avoid costs such as fines, penalties, and other similar risks likely to be negative elements in company profits, going concern, and goodwill/reputation. Effective management of tax affairs protects firms from being tax audited (Hbaieb & Omri, 2019) and therefore escape additional taxes and penalties. Effective tax management enables companies to maintain compliance with all tax legal requirements while maximizing profitability as well as increasing shareholder's wealth (Hakim & Omri,2015; Moore et al., 2017).

Despite the importance of tax management, manufacturing firms in Uganda continuously face challenges with tax management. For example, wrong computation of deductions allowable on capital expenditures indicated with the increasing tax disputes for unrecognized claims (Mdala, 2018) results to penalties and high legal costs. Further, the Economic Research Policy Report of 2019 indicated that manufacturing firms evade income tax at rate of 67% and the Uganda Revenue Authority (URA) Report in 2021 indicated several such firms listed among tax defaulters. Additionally, in 2022, URA confiscated assets of 40 firms for non-compliance with tax laws. Given these alarming statistics, it is vital to investigate how internal mechanisms, such as MAS, can address tax mismanagement.

The purpose of this study was to examine the contribution of management accounting system to tax management among Uganda's manufacturing firms. The study further investigated the contribution of individual aspects of MAS towards management of tax affairs. We argue that reliable management accounting systems that offer reliable apposite information on tax matters can support efficient tax management in organizations. Likewise, scholars like Bouwens and Abernethy (2000), Naranjo-Gil and Hatmann (2007) noted that management accounting systems are organizational mechanisms that provide relevant information for making strategic decisions. Tax management involves planning, organizing, controlling and communicating tax affairs to ensure compliance and avoid fines and penalties. This requires various information sources such as external sources relating to changing economic conditions, technological developments and tax law amendments, financial information on incomes and expenses incurred, and non-financial information relating to customers, suppliers, and employees for tax planning, controlling and filling timely tax returns (Rely, 2023; Wibowo, 2024). Such information can be obtained with a system that provides quality information in terms of scope, aggregation, integration and timeliness, which becomes hard to achieve

without an advanced MAS tax management.

The academic community has emphasized the importance of quality internal information environment in managing taxation matters. For example, Gallemore and Labro (2015) examined the importance of the internal information environment for tax avoidance and found that high internal information quality allows firms to reduce their tax liability without increasing the risk of their tax strategies. Their study provides evidence that the internal information environment of the firm is important for understanding the firm's tax avoidance and its outcomes. Hamilton and Stekelberg (2017) also indicated that effective tax planning is influenced by the timely and reliable information facilitated by high quality information technology. Accordingly, firms with high information technology can avoid more taxes while incurring less tax risks compared to firms with low quality information technology systems (Hamilton & Stekelberg, 2017). Similarly, McGuire, Rane and Weaver (2018) examined the association between internal information quality and tax-motivated income shifting and found it significantly positive. According to their findings, organizations with higher levels of uncertainty and coordination requirements have a stronger correlation with greater information quality, which helps managers to identify and implement opportunities for tax income shifting better. Although earlier studies have linked information quality to tax planning, no study has specifically investigated which MAS dimension contributes most to tax management, leaving a crucial gap in both theory and practice. Therefore, this study investigated the contribution of MAS and its elements in explaining variances in tax management.

Previous studies on tax management have largely employed content analysis methodologies (Gallemore & Labro, 2015; Moore et al., 2017; Beasley, et al., 2021). These studies document the indirect motivations behind tax management by measuring the extent of tax planning in companies using effective tax rates obtained from financial statements. Although content analysis studies are known for being objective, the rationale for the preparation of annual reports used in content analysis studies is never known. At the same time, in case of any errors in the annual reports, findings will be biased to such errors (Beasley et al., 2021). This study utilized perception-based data collection techniques that provide direct managerial motivations for the management of tax affairs (Belal and Momin, 2009).

This study focused on Uganda's manufacturing firms. Manufacturing firms often handle multiple production processes and must comply with taxes like Value Added Tax, Excise duty, Corporate income tax, Pay As You Earn and Digital tax stamps (URA 2023). In addition, they are required to comply with requirements from other statutory bodies like Uganda Investment Authority, National Environment Management Authority (NEMA), Uganda National Bureau of Standards (UNBS) and Local governments to obtain a trading license and pay local service tax. This amplifies the need for an automated system that provides timely, integrated, aggregated, and broad-scope information to facilitate tax management processes (Wibowo, 2024). Besides, the manufacturing sector is a main source of Uganda's tax revenue. As reported in the URA performance reports 2021, 2022 and 2023, the manufacturing sector contributed 22.7%, 22.62 and 23.16% respectively second to the wholesale and retail trade; repair of motor vehicles and motorcycles sector which contributed 29.43%, 28.07% and 26.34%. Therefore, manufacturing firms are of interest to the tax authority because the decline in tax compliance

resulting from mismanagement of taxation would adversely impact the national resource envelope. Using a questionnaire survey with responses from the chief financial officers, internal auditors, or accountants in charge of tax matters in 160 manufacturing companies, we report that management accounting system makes a positive and significant contribution to tax management. We further report that the broad scope of information makes a more significant contribution to tax management than aggregation, integration and timeliness.

This study makes several contributions to the body of existing literature. First, we support the Resource-based View Theory by demonstrating that companies with significant technology resources, like MAS, are more capable at managing taxes than those without. Specifically, our results contribute by documenting that MAS and individual aspects are resources that significantly contribute to tax management. The implication of our results is that to improve tax management, emphasis should be on adopting and implementing automated information systems that enable the collection and processing of quality information for decisions relating to tax management matters. Manufacturing firms need to implement a comprehensive system that generates prompt tax reports incorporating both historical and future financial and non-financial tax data. In terms of policy, regulatory bodies like the Uganda Revenue Authority could encourage manufacturing firms to adopt robust management accounting systems than can provide quality, reliable and timely information relating to tax matters.

Second, this study's results contribute to the body of literature on tax management in developing countries, especially in Africa (Laguir et al., 2015) where empirical research on the topic is scarce. This study also builds and extends on the existing studies on managing tax affairs (Gallemore and Labro, 2015; McGuire, et al., 2018) whose focus was largely on the quality of information. The study adds to existing literature by documenting the contribution of MAS and its aspects in explaining variances in tax management.

The rest of the article is organized as follows. The literature review is discussed in the section that follows. The theory is examined in the literature review section, followed by the formulation of hypotheses. The literature review is followed by methodology and, finally, the findings. The discussion follows in the second-to-last part, followed by the conclusion and recommendations for additional study.

2.0 Literature review

2.1 Theoretical foundation

The resource-based view (Barney, 1991) explains that firms with internal resources and capabilities that are rare, valuable, inimitable, and non-substitutable are likely to achieve competitive advantage over those without. Based on the resource-based view, manufacturing firms possessing valuable resources can manage their tax affairs effectively and avoid tax penalties. According to Barney (1991), a firm's resources comprise all its assets, capabilities, organizational procedures, firm attributes, information, and knowledge that can be used to develop and execute strategies that increase the firm's effectiveness and efficiency. A management accounting system is a valuable resource that provides relevant information in

terms of scope, aggregation, integration and timeliness that facilitates decisions involved in the management of tax affairs. The broad scope involves internal and external financial and non-financial tax information relating to past and future events which facilitate tax planning. MAS provides integrated information from different departments affecting the taxable incomes, deductions and liabilities.

Tax management involves planning, organizing, controlling and communicating tax affairs to ensure compliance and avoid fines and penalties. This requires having proper books of accounts, and audited accounts, deducting tax at sources, planning future taxes, and filling timely tax returns, which are all supported by an information system. Through provision of accurate, and timely tax information, MAS leads to improved tax management, sustainable performance and competitive advantage.

2.2 Literature review and Hypothesis development

2.2.1 Tax Management

Tax management refers to decisions and actions that ensure that the taxpayer minimizes tax risks. It is concerned with implementing strategies aimed at reducing annual tax payable on the firm's income and monitoring tax implications of corporate activities (PWC, 2008). Tax management is the downward control of taxable income through tax activities to pay a minimal amount of taxes, according to Hakim & Omri (2015). Moore et al. (2017) define tax management as the extent to which managers employ tax planning to keep cash inflows, tax liabilities, and/or tax-related expenses under control. Mulyadi and Anwar (2015) define tax management as the process of organizing a business to keep its tax liabilities as low as possible in accordance with the tax code while taking opportunity and political costs into account. Since taxes constitute a substantial expense for businesses and, ultimately, for shareholders, managing taxes is a crucial aspect of managerial activities. Effective management of tax affairs involves actions concerned with filling timely tax returns, having proper books of accounts, and audited accounts, deducting tax at sources, planning future taxes, and managing finances for purposes of paying taxes. Tax management in this study refers to the process of planning, organizing, controlling and communicating tax affairs to ensure compliance and avoid fines and penalties.

2.2.2 Management accounting systems

Management accounting systems refer to organizational controls concerned with an organization's information system designed to facilitate management decision-making (Gordon & Narayanan, 1984). Moores and Yuen (2001) define management accounting systems as formalized routines and procedures with the help of computers, technical staff, and financial modelling that make available information for purposes of decision-making. Gerdin (2005) described management accounting systems as those parts of the formalized information system used by organizations to influence the behaviour of their managers that lead to the attainment of organizational objectives. According to Bouwens and Abernethy (2000), management accounting systems are formal systems that provide sophisticated information to

managers for effective operational decisions. Moores and Yuen (2001) emphasise that MAS provides quality information in terms of relevance, reliability, material, comparability and understandability.

Existing literature provides that MAS are essential resources for companies to make management decisions. Ghasemi et al. (2019) suggests that the main role of MAS is to support managers in decision making. Naranjo-Gil and Hartmann (2007) documents that MAS provide relevant information which assist managers to make strategic decisions. Naranjo-Gil and Hartmann (2007) provide evidence that the use of MAS influences organizational strategic change toward prospector positions which emphasizes innovations and rapid responses to environmental demands. According to Soin and Collier (2013), MAS enable value creation through effective use of resources, as well as envisioning future conditions affecting the business environment by fostering strategic direction and problem-solving. Using evidence from Iranian financial organizations, Ghasemi et al. (2019) indicated that MAS can assist managers to survive in a competitive and changing environment by providing helpful information for planning, controlling, monitoring and decision making. Mazi and Ebere (2019) also noted that with MAS, reports are produced regularly and routinely through clearly specified rules and habitual procedures which enhance planning and operational processes in organizations.

2.2.3 Management accounting system and tax management

Empirical evidence on the association between Management accounting systems and tax management is uncommon. However, existing literature suggests that the availability of quality information facilitates tax management. For example, Gallamore and Labro (2015) investigated the effect of the internal information environment on tax avoidance using evidence obtained from content data of 134 firms in Morocco. They found that the ability of the firm to avoid taxes is affected by the firm's internal information quality in terms of accessibility, usefulness, reliability, accuracy, quantity, and signal-to-noise ratio of the data and knowledge collected, generated, and consumed within an organization. Hamilton and Stekelberg (2017) in their study found that firms with high-quality information were able to avoid tax with less risk as compared to firms with low-quality information technology systems. McGuire et al. (2018) also indicated that quality information environments provide improved information that allows managers to identify and execute opportunities for tax-motivated income shifting. Additionally, Oats and Tuck (2019) document that corporations with systems and processes that integrate tax data with other information systems within the organization are more likely to minimize their tax liabilities.

We expect that firms with management accounting systems have greater access to information that is relevant for tax management decisions. MAS provides managers in manufacturing firms with information for learning about available tax incentives and holidays, tax laws, and applications and interpretations of new tax laws leading to accurate and appropriate tax reporting in response to tax environment requirements implying that managers are likely to receive information from well-designed and advanced MAS, and such information is suitable for planning, organizing, controlling and communicating tax matters

leading to enhanced tax management. Implementation of MAS not only reduces delays and mistakes in human reporting procedures in tax reporting, and enables firms to remain updated with amendments in tax regulations (Wibowo, 2024). We therefore hypothesize that:

H1: Management accounting system positively contributes to tax management in manufacturing firms

2.2.4 Broad scope and tax management

Broad scope of the information is explained with the focus, quantity and time frame of the information (Bouwens & Abernethy, 2000). The focus dimension of broad scope refers to the ability of the system to collect information from both internal and external sources. Quantity relates to the ability of the system to collect both financial and non-financial information while the time frame refers to the extent to which the information collected relates to future rather than historical events. For this study, broad scope MAS provides internal, external, financial, and non-financial futuristic tax information that facilitates tax management. The broad scope information system provides management with external information relating to changing economic conditions and technological development in the tax administration and compliance leading to improved tax management.

According to previous studies (Ghasemi et al. 2019; Soobaroyen & Poorundersing, 2008) the broad scope of MAS positively and significantly enhances managerial performance. Similarly, Afifa and Saleh (2021) investigated the direct relationship between management accounting systems effectiveness and enterprise risk management using evidence from Jordan. Their findings indicate that broad scope MAS has a positive direct relationship with enterprise risk management. Afifa and Saleh (2021) also document that a wide variety of information and full information at a high-quality level generated by a broad-scope MAS facilitates managerial interests as well as maximizing the interests of other stakeholders. The broad scope aspect enables organizations to remain updated with the continuous amendments in tax regulations which support formulation of tax planning strategies. From this empirical evidence, we expect broad scope MAS to positively impact on the management of tax affairs in manufacturing firms.

H2- Broad scope has a significant effect on tax management

2.2.5 Aggregation and tax management

Aggregation refers to summation in formats consistent with formal decision models such as dis- counted cash flow analysis for capital budgeting, simulation and linear programming in budgetary applications, cost-volume-profit analysis, and inventory control models (Bouwens & Abernethy, 2000). In their study investigating the association between MAS and enterprise risk management, Afifa and Saleh (2021) found the aggregated information form MAS positive and significantly influencing how enterprises manage risks. They indicate that enterprises can effectively manage risk if they have systems providing information showing the influence of events in different activities as risk assessment is done on different activities. Other scholars like Ghasemi et al. (2019), Soobaroyen and Poorundersing (2008) also found that an aggregation

of information is significantly important for achieving managerial performance. Soobaroyen and Poorundersing (2008) indicated that organizations should have effective MAS facilitating aggregation of information to enhance managerial performance in terms of planning and controlling. In this study, we expect that an aggregated MAS provides information reports summarizing tax effects on all activities from different sections which facilitate management decisions relating to corporate taxation. Also, the separation of capital expenditures from revenue expenditures enables accurate computation of the allowable deductions in determining the company's tax liabilities. Thus, we hypothesize that:

H3- Aggregation has a significant effect on Tax Management

2.2.6 Integration and tax management

According to Bouwens and Abernethy (2000), information about the operations of other departments within the company and how decisions taken in one department may affect the performance of other departments make up the integration dimension. The inputs, outputs, operational procedures, and technologies used by other departments may be related to this information. Reports that detail the kind and quantity of output generated by other departments, along with the expenses, income, and prices related to that output, are examples of integrated information (Bouwens & Abernethy, 2000). Ghasemi et al. (2019) define integration as the extent to which the information given by MASs covers the precise goals of the operations and the interrelationship with sub-units, as well as the documentation of interactions between sub-units. According to Soobaroyen and Poorundersing 2008, integrated information from MAS has significant influence on managerial performance. Ghasemi et al. (2019) found integration not significant in explaining managerial performance of financial organizations in Iran. Afifa and Saleh (2021) found that the integration dimension of MAS has a positive and significant association with enterprise risk management among Jordanian listed companies.

Given that tax-related information is often scattered in different departments, the integration of information gathers information from various sections like payroll, invoicing and sales revenue into a centralized platform. This facilitates accuracy in self-assessment of both direct and indirect taxes, which facilitates planning and reporting on tax matters. Therefore, we hypothesed that:

H4- Integration has a significant effect on Tax Management

2.2.7 Timeliness and tax management

The Timeliness characteristic means the degree of frequency of reporting and the pace of reporting provided to users by MAS (Afifa & Saleh, 2021). Pedroso and Gomes (2020) explain that timeliness reflects the concern of management to obtain information frequently and without delays to support timely decision-making. Existing literature documents inconclusive results on the influence of the timeliness attribute of MAS in managerial decision-making. For instance, Ghasemi et al, (2016 and 2019), and Soobaroyen and Poorundersing (2008) document that timeliness in MAS positive and significantly influences managerial performance. But Afifa and Saleh (2021) reported a non-significant negative relationship between timeliness

and enterprise risk management. In taxation literature, Hamilton and Stekelberg (2017) noted that timely information facilitated by high quality information technology was among the most critical drivers of information quality in enabling effective tax planning. This study predicts a positive association between timeliness and tax management. This is because effective tax management encompasses the timely filling of tax returns which requires an information system that provides frequent reports on a systematic and regular basis. This is because missing deadlines for filing tax returns and payments attract fines and penalties. We therefore hypothesize that:

H5- Timeliness has a significant effect Tax Management.

3.0 Methodology

3.1 Design, population and sample

This study adopted a cross-sectional and correlational research design in which all data was collected at once to address a research phenomenon (Saunders et al., 2009). At the same time, because the study intended to measure the degree of association between MAS as the independent variable and dependent variable tax management, a correlational design was found appropriate (Creswell, 2014). This study population was 885 manufacturing firms that were members of the Uganda Manufacturers Association (Uganda Manufacturers Association, 2020) and were in the central region. This was because the largest number of firms (85%) were in central Uganda. Out of 885 firms, 242 firms were small, and were excluded from the study. This is because the taxation system in Uganda provides a specialized taxation for small firms using a presumptive tax regime different from medium/large. This left a total of 643 members of UMA of which 30 firms were in the provision of services such as banks and insurance firms; these were excluded from the study as URA categorizes them in the financial and assurance activities. The final population for this study therefore was 613 manufacturing firms from which a sample of 242 firms was obtained using Yamane's formula of $n=N/(1+N(e)^2$. We used a simple random sampling method and received 321 usable questionnaires from 160 firms, indicating a response rate of 66.1% which was sufficient according to Mellahi and Harris (2016). The unit of inquiry was at least two officers per manufacturing firm, including the Chief Finance Officer (CFO) or internal auditor, and tax accountant or any accountant in charge of tax affairs, and their responses were aggregated to a particular manufacturing firm. The CFOs were selected because they headed the finance and / accounts departments and as such had the overall responsibility of aligning all financial planning and taxation issues with business goals to help improve the efficiency of business operations. Internal auditors provided objective assurance on the effectiveness of the organization's risk management activities to ensure that key business risks were being managed appropriately, while accountants were involved in the preparation and filing of tax returns. Respondents were informed that participation was voluntary and the information they provided would be treated confidentially, and this statement was also included in the introductory paragraph of the questionnaire. Respondents were also allowed to decide when to complete the questionnaire provided it was within the time frame. The respondents' characteristics are presented in Table 1 below.

Table 1: Respondents' Characteristics

Details	Measurement	Frequency	Percentage
Gender	Male	173	53.9
	Female	148	46.1
Age	Less than 35 Years	72	22.4
	36 - 45 Years	178	55.5
	46 - 55 Years	69	21.5
	Above 55 Years	2	0.6
Level of education	Diploma	18	5.6
	Bachelor's Degree	148	46.1
	Master's Degree	142	44.2
	PhD	13	4.0

Source: Primary data

The majority of respondents were male at 53.9%, indicating that the positions of Chief Finance Officer, internal auditor and tax accountant were held by male. This confirms the UBOS report of 2019 which indicated that most employees (67%) in manufacturing firms were male. In terms of age, 55.5% of the respondents were between 35 and 45 years of age. Regarding the level of education, 46.1% held a Bachelor's degree while 44.2% had obtained a Master's degree. This meant that respondents had the required knowledge to understand the questions asked in the questionnaire.

3.2 Questionnaire and measurement of variables

A questionnaire with a six-point rating system, from 1-Completely Disagree, 2- Mostly Disagree, 3- Slightly Disagree, 4- Slightly Agree, 5- Mostly Agree And 6- Completely Agree was used to gather data for this study. The questionnaire was developed after reviewing empirical literature and theory underpinnings on management accounting systems and tax management. To measure management accounting systems, we applied an instrument developed by Chenhall and Moris (19860, Bouwens and Abernethy (2000), and Moores and Yuen (2001) using latent variables such as broad scope, aggregation, integration, and timeliness in providing information. Tax management was measured using latent variables such as planning, organizing, controlling, and communication proxies of management.

We also controlled confounding variables as they could falsely lead to rejecting the hypotheses that would have been accepted as Bartov et al. (2000) recommended. Previous study indicates that tax management is linked to corporate governance and capital structure (Minick & Noga, 2010). Therefore we selected board composition and financing approach as control variables because previous studies found them as significant influencers of tax management. For example, Minick and Noga (2010) found that board composition was significantly associated with tax management.

3.3 Reliability and validity

Reliability tests, including the Cronbach alpha reliability and the composite reliability (CR), were performed on the questionnaire. The Cronbach alpha coefficient measures the extent to which item scales measure the same construct or variable (Field, 2009; Hair et al., 2019). The sample variance–covariance matrix computed Cronbach's alpha, while factor loadings were used to evaluate composite reliability. According to Hair et al. (2019), the reliability of the questionnaire is considered to be high if both the Cronbach alpha and CR values are above 0.7; and for this study, both the values for the Cronbach α and CR were all above the 0.7 thresholds as presented in Table 2 below.

Table 2: Reliability and Validity Estimates

Management Accounting Practices	**Cronbach's Alpha**	**CR**	**AVE**	**VIF**
Aggregation	.748	.754	.501	1.601
Broad Scope	.870	.873	.608	1.716
Integration	.738	.761	.559	1.398
Timeliness	.713	.718	.539	1.264
Tax Management	**Cronbach's Alpha**	**CR**	**AVE**	**VIF**
Communication	.857	.858	.539	1.656
Controlling	.850	.859	.530	1.570
Organising	.799	.805	.554	1.511
Planning	.881	.884	.514	1.773
CR- *Composite Reliability*				
AVE-*Average Variance Extracted*				
VIF- *Variance Inflation Factor*				

Source: Primary data

For validity, both convergent and discriminant validity tests were performed. Convergent validity is about the extent to which the indicators belonging to one latent variable measure the same construct (Benitez et al., 2020); and it was tested using the Average Variance Explained (AVE). An AVE above 0.5 is acceptable (Hair et al., 2019; Benitez et al, 2020). Indeed, AVE of all variables was greater than the cutoff of 0.5-factor loading, implying that the items measured what they were supposed to measure. On the other hand, discriminant validity, is about the extent to which two or more constructs are statistically different from one another (Hair et al., 2019); and it was measured using the HTMT values suggested by Henseler et al. (2015). HTMT is the mean value of the item correlations across constructs relative to the geometric mean of the average correlations for the items measuring the same construct (Hair et al., 2019). According to Hair et al. (2019), HTMT should be less than 0.85 for conceptually different constructs and below 0.9 for conceptually similar constructs. For this study, HTMT values were found to be below 0.85, as can be seen in Table 3, indicating that the constructs were statistically different from one another.

Table 3: Using Heterotrait Monotrait (HTMT) Ratio for Discriminant Validity

Management Accounting Practices	**AG**	**BS**	**IG**	**TM**
Aggregation [AG]				
Broad Scope [BS]	.799			
Integration [IG]	.826	.772		
Timeliness [TM]	.776	.654	.613	
Tax Management	**CM**	**CN**	**OG**	**PL**
Communication [CM]				
Controlling [CN]	.892			
Organising [OG]	.859	.786		
Planning [PL]	.861	.849	.843	

Source: Primary data

Controls for common method bias (CBM)

This study controlled common method variance using procedural and statistical methods (Podsakoff et al., 2012). For procedural remedies: (i) Respondents received explicit notification that the information they submitted, and their identity would be kept private; (ii) At least two respondents were chosen from each manufacturing firm, and data was aggregated at firm level; (iii) The instrument did not include any double-barreled questions; (iv) The instrument was also pretested with a representative sample of respondents, comprising academics and practitioners, assessing the content validity. Statistically, Harman's single factor test was used to detect common method bias (Kock et al., 2021; Podsakoff et al., 2003). Results indicated that when all questionnaire items for a particular variable were loaded on to one factor the variance explained was less than 50%. For example, the management accounting system was 27.1%, while tax management was 26.6%. Podsakoff et al. (2003) recommended the use of Harman's single-factor test to check for common methods bias in perception-based researches that use questionnaires.

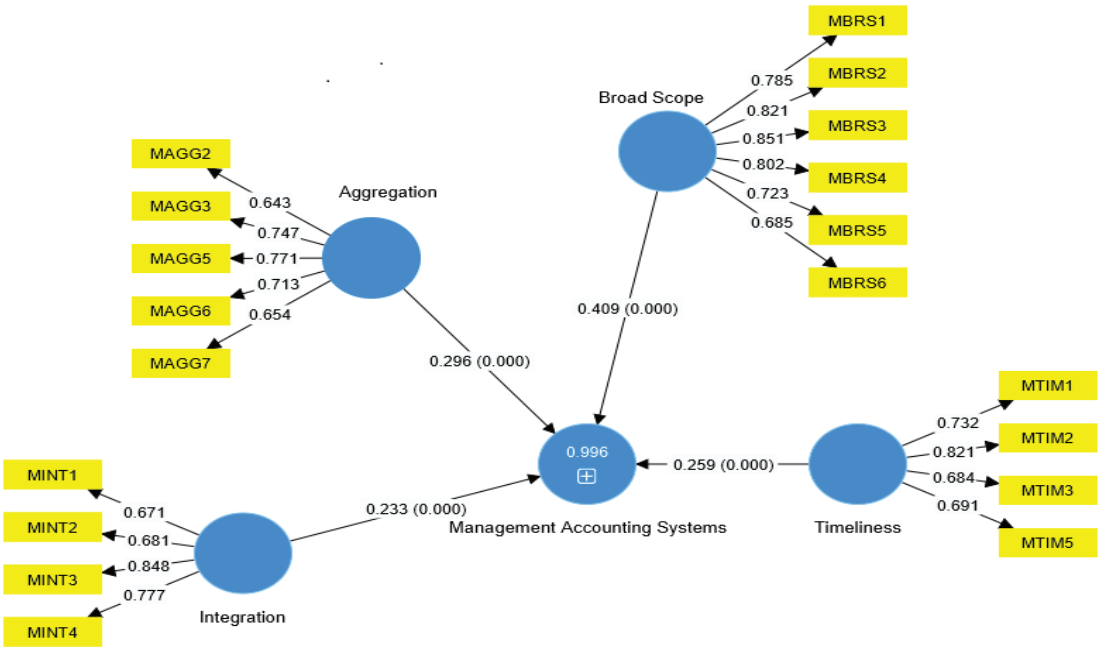
4.0 Data analysis

The purpose of this study was to establish the contribution effect of management accounting system and its attributes on tax management, using a survey of 160 manufacturing firms. As such, Smart PLS software version 3 was utilized. The choice was based on three factors as recommended by Hair et al. (2020): working with a large sample, testing a theoretical framework from a prediction perspective, and estimating path models that include one or more formatively measured constructs. A stepwise process of evaluating PLS results was employed, which starts with examining measurement models before assessing the structural models. While structural models look at the relationship between explanatory variables and the dependent variable, measurement models investigate the relationship between measured variables and their corresponding latent variable (Hair et al., 2017).

4.1 Measurement models

The measurement model in PLS-SEM examines the indicator loadings, which are the correlations between observable variables with the corresponding constructs (Hair et al., 2019; Schuberth, 2021). According to Hair et al. (2019), loadings above 0.708 indicate that the construct explains more than 50 per cent of the indicator's variance and therefore provides an acceptable item reliability. However, Benitez et al. (2020) argue that if the construct validity and reliability criteria are met, threshold for factor loadings as high as 0.708 is not important. Results in Figure 1 indicate a measurement model for MAS with loadings as low as 0.643 which are acceptable according to Benitez et al. (2020) as the criteria for validity and reliability were met as shown in Table 2.

Figure 1: Measurement Model for Management Accounting Systems



The results in Figure1 above indicate that all the four dimensions, i.e. broad scope, integration, aggregation and timeliness are significant measures of MAS, and when combined, they explain 99.6% of variance in MAS among manufacturing firms in Uganda. Results further show that MAS is more explained by the broad scope information with beta value of (β= 0.409, $p < 0.05$), aggregation followed with (β= 0.296, $p < 0.05$) then timeliness at (β= 0.259 $p < 0.05$) and integration is the least (β=0.233, $p < 0.05$).

Figure 2: Measurement Model for Tax Management

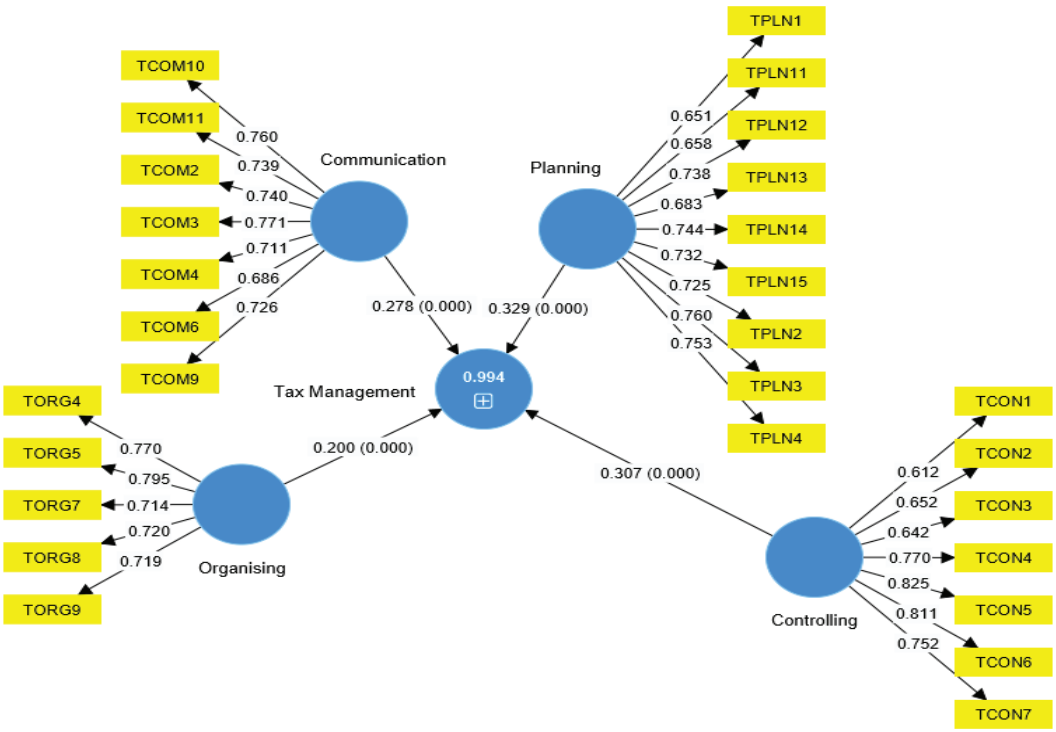


Figure 2 above shows the measurement model for tax management measures. The results indicated planning, controlling, organizing and communicating are significant measures for tax management. Following the arguments of Benitez et al. (2020), factor loading as low as 0.612 were considered acceptable.

4.2 Structural models

To examine the correlations among the study variables, the bootstrapping procedure, accompanied by pertinent t-statistics and path coefficients (Wong, 2013) was utilized. This is because bootstrapping procedure enables the research to assess the significance of loading and path coefficients. Results in Table 4 and Figure 3 show the significance of testing, relating to the global variables. We find that MAS positively and significantly contributes to tax management ($\beta = 0.897$, $p < 0.05$). This means that an improvement in MAS enhances tax management. Thus, H1, which states that "MAS is positively associated with tax management in Uganda's manufacturing firms", is supported.

Figure 3: Structural Model for Global variables

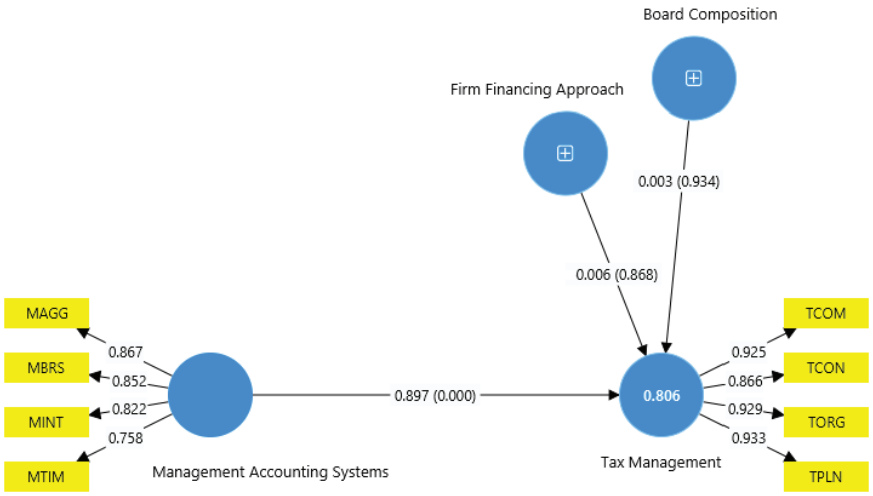
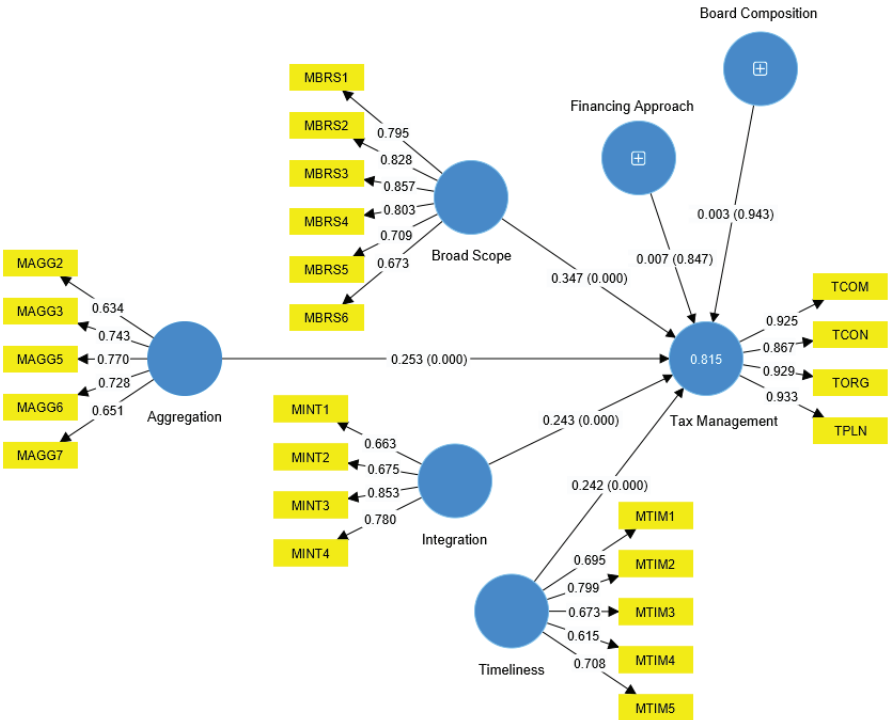


Table 4: Model Estimates for Management Accounting Systems and Tax Management

	B	Std. Error	T-*statistics*	*p-value*
Board Composition ▬► Tax Management	.003	.037	.083	.934
Firm Financing Approach ▬► Tax Management	.006	.037	.167	.868
Management Accounting Systems ▬► Tax Management	.897	.015	61.274	.000

Source: Primary data

Figure 4: Structural Model for Prediction of Tax Management



Results in Figure 4 above represent a structural model for the broad scope, integration, aggregation, and timeliness aspects of MAS in predicting tax management. The findings indicate that all MAS indicators make a significant contribution to tax management. Therefore, H2, H3, H4 and H5 are supported. It is further indicated that of the four aspects, broad scope is a stronger predictor ($\beta = 0.347$, $p < 0.05$), followed by aggregation ($\beta = 0.253$, $p < 0.05$), integration ($\beta = 0.243$, $p < 0.05$) and timeliness ($\beta = 0.242$, $p < 0.05$), respectively.

Table 5: Model Estimates for Management Accounting Systems and Tax Management

	β	Std. Error	T-*statistics*	*p-value*
Financing Approach ▬► Tax Management	.007	.036	.193	.847
Board Composition ▬► Tax Management	.003	.036	.071	.943
Aggregation ▬► Tax Management	.253	.062	4.093	.000
Broad Scope ▬► Tax Management	.347	.067	5.199	.000
Integration ▬► Tax Management	.243	.064	3.823	.000
Timeliness ▬► Tax Management	.242	.054	4.521	.000

Source: Primary data

Table 5 indicated that beta values, t-statistics and the respective path coefficients were significant, which confirms the validity of the model based on explanations by Hair et al. (2020). We further calculated the effect size (f^2) for each predictor dimension and results are presented in Table 6. The f2 values that range from 0.020 to 0.150 indicate a small effect size, 0.150 to 0.350 indicate a medium effect, while values larger or equal to 0.350 indicate a large effect size (Benitez et al, 2020). Results indicated a medium effect size with board scope ($f^2 = 0.296$), Aggregation ($f^2 = 0.153$), integration ($f^2 = 0.163$), and timeliness ($f^2 = 0.191$). Additionally, the predictive relevance Q^2 was assessed using the blindfolding procedures in PLS-SEM; a value of 0.790 was obtained indicating a predictive accuracy of the model according to Hair et al. (2019). The Q^2 values are presented in Table 6.

Table 6: Effect Size and Model Fit Estimates

Effect Size Estimates	*f-square*	Q^2 *predict*	Model Fit Indices	
Financing Approach	.000		SRMR	NFI
Board Composition	.000			
Broad Scope	.296			
Aggregation	.153			
Integration	.163			
Timeliness	.191			
Tax Management		.790	.075	.821

Source: Primary data

We used the SRMR to assess the overall goodness of fit for the estimated model, and the results in Table 6 show an SRMR value of 0.075, which is below the recommended threshold of 0.08 (Benitez et al., 2020). Our results suggest that the proposed model fits well in explaining the contribution of management accounting systems in terms of broad scope, aggregation,

integration, and timeliness to tax management among manufacturing firms. Additionally, we ran the normed fit index (NFI), which is the ratio of the specified model to the null model. According to Hair et al. (2014) NFI values range from 0 to 1, and values closer to 1 indicate a good fit. As shown in Table 6, NFI value for the model was 0.821, indicating an acceptable relative model fit.

Regarding the control variables which are board composition, and capital structure, there is no evident prediction effect on tax management, according to the results. Although previous scholars like Minnick and Noga (2010), found board composition significantly associated with tax management, this study found a non-significant association. This could be attributed to different factors such as the difference in complexity of tax laws in the country where the studies were conducted, the board not being directly involved in tax management matters in some companies and such matters are left to tax departments to handle. We also found a non-significant association between financing approach and tax management. Tax management involves examining tax implications of different company activities including operations and regardless of the financing approach, the company should comply with the tax laws relating to such activities. Our results indicate that the control variables do not significantly explain any variance in tax management. Therefore, our models are quite credible since they are not affected by confounding variables.

5.0 Discussion

Underpinning the resource-based view (Barney, 1996), this study investigated the role of MAS in tax management. The study further investigated the contribution of each aspect of MAS, that is: broad scope, integration, aggregation and timeliness of information) in explaining variance in tax management. Our results indicate that MAS plays a positive and significant role in predicting tax management. We found that all the four dimensions of MAS make significant contributions to tax management. These results mean that the management accounting system provides relevant information that facilitates tax management decisions. The finding that management accounting systems significantly contribute to tax management is consistent with other research on the function of management accounting systems in supplying information that supports managerial choices. For example, Afifa and Saleh (2021) found that management accounting systems influence enterprise risk management. Other scholars like Ghasemi et al. (2019) and Soobaroyen and Poorundersing (2008) found that management accounting system is positively and significantly associated with management performance.

We found that the broad scope of information provided by MAS significantly contributes to tax management. This means that manufacturing firms in Uganda can manage tax affairs and avoid fines and penalties if their information system can collect information from internal and external sources. The broad scope information system provides management with external information relating to changing economic conditions and technological development in the tax administration and compliance leading to improved tax management. In addition, the broad scope MAS that collects and processes tax information relating to future events like proposed amendments in tax laws enables firms to prepare for the required interpretation of

such laws which leads to improved tax management. Through combining both historical and predictive analytics, MAS broad scope enables the optimization of tax strategies, which helps manufacturing firms to leverage tax incentives and minimize tax liabilities. Our results do not differ from those of previous studies: for example, Ghasemi et al. (2019) and Soobaroyen and Poorundersing (2008) document that the broad scope MAS positively and significantly enhances managerial performance. Similarly, Afifa and Saleh (2021), using evidence from Jordan, found that broad scope MAS significantly related to enterprise risk management.

Regarding the contribution of the aggregation aspect of MAS towards tax management, we find that aggregation of information significantly improves on management of tax affairs. This implies that firms with systems providing information that show the tax implications of events in different activities, summarized reports on effect of different sections activities for each department and the overall organization, are effective in tax management. An aggregated MAS also provides tax details about the impact of a transaction at a specific time. By automatically producing standardized tax reports, MAS aggregation improves the filing process and facilitates tax reporting. Furthermore, the separation of revenue costs information from capital costs in an aggregated MAS, facilitates accurate tax reporting, which leads to improved tax management.

Our results agree with the findings of Afifa and Saleh (2021) that aggregated information from MAS is positive and significantly associated with enterprise risk management. Other scholars like Ghasemi et al., 2019; Soobaroyen and Poorundersing, 2008) also found aggregation of information significantly important for achieving managerial performance. Soobaroyen and Poorundersing (2008) indicated that organizations should have effective MAS facilitating aggregation of information to enhance managerial performance in terms of planning and controlling.

Results further indicate that the integration of information provided by MAS significantly contributes to tax management. If the information provided by MAS includes the specific objectives of the activities, the relationship with sub-units, and the documentation of contacts between sub-units, then it is implied that corporations manage their taxes properly. For example, an integrated MAS can provide tax information relating to the tax decisions on the performance of other departments. An information system that provides tax information about different department costs and the pricing of goods facilitates accurate assessment of taxes, especially indirect taxes like value added tax and excise duties. MAS integration also creates a centralized repository of tax information from different sections in the firm, maintaining an audit trail with consistent and well-organized tax data which facilitated the regular internal and tax audits. Although our results contradict the findings of Ghasemi et al. (2019) that integration is not significant in explain managerial performance of financial organizations in Iran, they concur with the findings that integrated information from MAS has a positive and significant relationship with enterprise risk management (Afifa & Saleh, 2021) and managerial performance (Soobaroyen & Poorundersing, 2008).

Also, the contribution of timeliness towards tax management was found to be positive and significant. Implying that for effective tax management in manufacturing firms, there must

be an information system that provides information immediately upon request. MAS, in which information is supplied to management whenever it is needed, facilitates timely decisions which in turn enables the organization to communicate tax matters within periods specified by the tax laws. MAS timelines ensure timely completion of tax filings and payments within the period specified by the tax laws. This reduces the risks associated with late filing and payments like tax penalties and legal issues. With the Timeliness attribute, MAS can provide frequent reports on tax implication of different organizational activities which enhances tax planning and controlling just as previously noted by Hamilton and Stekelberg (2017). Our results agree with Ghasemi et al. (2016), Ghasemi et al. (2019) and Soobaroyen and Poorundersing (2008), who found that timeliness in MAS is positive and significantly influences managerial performance. However, Afifa and Saleh (2021) reported a non-significant negative relationship between timeliness and enterprise risk management.

6.0 Conclusion

The study aimed at investigating the role of management accounting system in tax management. The study further aimed at establishing whether the specific attributes of MAS individually had an association with tax management. A questionnaire study of 160 manufacturing companies in Uganda, with CFOs, internal staff, and accountants serving as the units of inquiry, was used to accomplish the study objectives. Results indicated that MAS plays an important role in providing information that facilitates tax management. Results also showed that all the four attributes of broad scope, integration, aggregation and timeliness were positive and significantly associated with tax management. We further report that of the MAS attributes, the broad scope information was the strongest in explaining tax management. This study provides theoretical support for the resource-based approach, which holds that businesses with more technology resources, specifically MAS, are more adept at managing taxes. Organizational resources such as information systems provide quality, relevant and reliable tax information, leading to improved tax management.

Our results indicate that MAS and its attributes significantly contribute to tax management. Therefore, those in charge of the management and governance of manufacturing firms should ensure that firms are equipped with robust information systems that provide information for tax decision-making. Accurate tax assessment and timely return filing are made possible using management accounting systems that offer comprehensive, aggregated, integrated, and timely information. For example, with a broad scope MAS, firms can gather and process information from internal and external sources used to analyse tax implications of all budgeted expenditures, which is essential for controlling tax expenditure. Broad-scope information also enables firms to keep up-to-date with new amendments in tax laws which facilitate tax management strategies. It is important that firms adopt MAS in which information is supplied to managers to enable prompt responses to messages from the tax authority and thus improved tax management.

In terms of policy, regulatory bodies like the Uganda Revenue Authority could encourage manufacturing firms to adopt robust management accounting systems than can provide quality,

reliable and timely information relating to tax matters. The Electronic Fiscal Receipting and Invoicing Solution (EFRIS), which records company transactions and shares the data with URA in real time (concurrently), was recently promoted by URA for businesses. This system does not meet the broad breadth, aggregation, and integration features of management accounting systems, even though it allows taxpayers to track and validate company activities in real time for timely and effective business management. Therefore, firms should have information systems able to collect, and process financial and non-financial information from both internal and external sources for effective tax management.

This study also contributes to literature on tax management among manufacturing firms in developing economies by providing empirical evidence on the role of the management accounting system and its attributes. Previous studies have largely focused on examining the role of quality information in explaining variances in tax management, specifically tax planning/ avoidance (Gallemore & Labro, 2015). These findings add to such literature by examining the effect of specific attributes of a system that provides quality information in explaining variances in tax management. These findings mean that an information system should have the characteristics of broad scope, aggregation, integration and timeliness for it to provide quality and reliable information requirements for effective tax management.

7.0 Limitations and future research

This study has some limitations despite the significant contributions made. First, this study only looked at a limited sample of Ugandan manufacturing companies; hence it may only be applicable to Uganda and other nations with comparable tax laws. Therefore, similar research may be conducted involving other sectors like financial services sector and in different contexts. Second, this study only focused on medium/large firms, results may not be generalized to small firms. Future studies could explore and compare if the relationship between MAS and tax management differs. Third, this study only focused on the contribution of individual aspects of MAS and their interactive effect was not examined; which could be considered in future studies.

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