



Regular Article

Management accounting system: Insights from the decision making theories

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ARTICLE INFO

Keywords:

Decision making

MAS

Management account system

Pre-factor

Thinking styles

ABSTRACT

Management accounting system (MAS) improves business growth through quality decision making process, but scholars have mixed views about MAS and constantly debate its efficacy. Drawing on the decision-making theories, the current research deviates from the debates and adopts a 'think-outside-the-box' approach, aiming to advance the knowledge of MAS's efficacy. Research data are gathered from the MAS literatures and cognitive studies. Following the research findings, we identify a new pre-factor (thinking style) and incorporate it into the MAS. Specifically, decision makers' cognitive process is found to affect the design and implementation of MAS, as rational thinking style, administrative thinking style, and political thinking style may affect the MAS's efficacy differently. Research findings have brought valuable insights to the MAS literatures, by highlighting the strength and weakness of different thinking styles in designing management accounting system. Moreover, decision makers, such as organizational leaders and business managers, are encouraged to monitor their thinking styles: that is, with better understanding of thinking styles, decision makers can better utilize MAS and rectify the style-driven deficits in time.

1. Introduction

Accurate decision-making is crucial to the organizational management and business success, and people are always keen to explore what could be done to improve the quality and outcome of their decision making process (e.g., Hollihan & Baaske, 2022; Mumani et al., 2021). In the last decade scholars have conducted different studies to examine the methods of decision making, and their findings are fruitful. In particular, scholars have proposed the concept of management accounting system (MAS), claiming that MAS can promote decision making process, enabling managers to make the best business strategies for the organizations (e.g., Chenhall & Morris, 1986; Ndemewah & Hiebl, 2022; Ngo, 2020; Steen, 2022).

The concept of management accounting system originates from management accounting, and Chenhall (2003) describes management accounting as a dynamic process, containing a series of creating, recording and integrating information. Management accounting can be seen as an accounting method that creates statements, reports, and documents for decision making (Soobaroyen & Poorundersing, 2008). Inspired by the management accounting literatures, management accounting system is then designed to deliver the best best-quality

information through a series of strategic integration of information, allowing decision makers to make the most credible and sensible decisions (Chenhall, 2003; Soobaroyen & Poorundersing, 2008). Although management accounting system has earned its name in the literature, however, organizational leaders, business managers, and management researchers have proposed mixed views about MAS and questioned its applicability in the real world (Awwad et al., 2013; Campbell et al., 2019; Ngo, 2020). For instance, some managers and researchers have praised MAS as a cunning information collector, as it is capable of consolidating various types of information in a timely manner (Chenhall & Morris, 1986; Ndemewah & Hiebl, 2022); yet, other scholars have regarded MAS as a trivial factor in gathering information, claiming that MAS does not necessarily work until other environmental conditions are satisfied, such as information scope, data compilation procedure and management policy (Ghasemi et al., 2019; Maheshwari et al., 2021). The debates between MAS supporters and questioners seem never ending (see relevant reviews in: Ghasemi et al., 2019; Hiebl, 2018; Maheshwari et al., 2021), jeopardizing the reasoning and consolidation of MAS literatures.

In view of what has preceded, we conduct the current research, along with three reasons:

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Firstly, previous research has indicated a need to conduct a new research, so different empirical viewpoints and theoretical perspectives of MAS can be further scrutinized, compared and critically discussed (Howitt & Cramer, 2020). It is our belief that research findings will contribute to the amalgamation of various viewpoints and heterogeneous perspectives, advancing the knowledge of management accounting system.

Secondly, continuing the debates between MAS supporters and questioners does not necessarily help explain the function of MAS, as per the comments in prior studies and investigations (e.g., Axelsson & Wynstra, 2002; Chenhall & Morris, 1986; Ndemewah & Hiebl, 2022; Ngo, 2020). Instead, adopting a new perspective in analyzing MAS shall help enlarge the shadow between supporters and questioners, hence bringing new insights to the MAS theories.

Finally, scholars have called for more MAS research, aiming to enhance the understanding of MAS's design and implementation (e.g., Ghasemi et al., 2019; Maheshwari et al., 2021; Nitz, 2016; Saha, 2022). A more in-depth understanding of MAS is therefore important and essential, as it helps managers appreciate the characteristics of MAS and craft the best implementation strategies to maximize the efficacy of management accounting system.

2. Literature review

What is management accounting system (MAS)? Where is it applied to? What are the benefits for implementing management accounting system? To answer these questions, we may refer to the history of managerial accounting for further ideas. Broadly speaking, managerial accounting is a type of accounting practice, commonly used by finance managers, accountants and decision makers in the organization. Through the managerial accounting practice, people prepare, gather, process and produce information for the management team, so the best decisions can be developed, such as market segmentation strategies, business KPIs and short/long-term organizational objectives (Ghasemi et al., 2016). The types of information are many and vary; for instance, it ranges from chronological records, statistical statements, financial reports, corporate repository, to summative documents (Axelsson & Wynstra, 2002). Following this line of research, the prototype of management accounting system is gradually formed. This article now turns to discuss the rise of management accounting system and introduce its concept and characteristics. Details follow:

The concept of management accounting system (MAS) is first proposed in the field of management accounting, in which MAS is defined as a platform to collect, integrate, contrast and integrate information for the purpose of quality information management (Chenhall, 2003; Chenhall & Morris, 1986). More recently MAS is seen as a dynamic process, covering data identification, production, categorization, consolidation and presentation; specifically, MAS is designed and operated in line with the organizational development and business strategies. (Ndemewah & Hiebl, 2022; Steen, 2022). From a different but relevant perspective, through the lens of MAS, managers can monitor and understand how different business aims and objectives are initiated, formed, integrated and communicated (Ngo, 2020).

Management accounting system (MAS) is originally developed and utilized in the field of accounting (Chenhall & Morris, 1986); nevertheless, due to its function and merits, MAS has also been applied to other areas. For instance, MAS is applied to data compilation and integration, providing an informative summary to the managers in their policy evaluation and decision making (Ghasemi et al., 2019; Maheshwari et al., 2021). Managers from the healthcare sector have used MAS in improving the quality of their service provision and delivery (Ngo, 2020). MAS is also used in political resource analysis, helping the organization in identifying the need for change, gaining others' support for change and implementing change (Hiebl, 2018). In other words, MAS does not confine itself within the accounting field; instead, MAS has earned its name in various types of business and commercial activities

nowadays.

In terms of the MAS's value and merits, managers and scholars have proposed a variety of viewpoints. For example, the value of information-processing is subject to the degree of the MAS design, in which information scope, timeliness, aggregation and integration all affect the applicability of MAS. Only when the aforementioned factors are considered can the MAS reach its maximum effect (Chenhall & Morris, 1986). From a different but more holistic perspective, scholars regard MAS as strategic integration of managerial resources and accounting practices, offering the best-quality information to assist managers' decision-making, so the organizational KPIs can be maximized to their full potential (Chenhall, 2003; Soobaroyen & Poorundersing, 2008; Stouthuysen et al., 2019). Although different in nature, prior studies have implied that, when the MAS is well designed and implemented, its outcome can be influential and productive, such as better business strategies and more KPIs to be achieved.

Having said this, however, scholars actually have mixed views about the efficacy of MAS. On the one hand, some scholars advocate its efficacy, claiming that MAS is capable of consolidating various types of information in a timely manner (Chenhall & Morris, 1986; Ndemewah & Hiebl, 2022). MAS provides valid and rich information to the managers, not only facilitating their decision-making process, but also refining their managerial strategies, which in turn contribute to the competitive advantages of the organization (Awwad et al., 2013; Ngo, 2020). On the other hand, however, other scholars question the applicability of MAS in the real world and advise managers to interpret its efficacy with caution. For instance, there is no universal MAS for all types of organizations, because the organizational characters, leadership styles, managerial performance, and environmental factors all affect the implementation of MAS (Ghasemi et al., 2016; Gonçalves & Gaio, 2021). MAS may not necessarily function until the aforementioned conditions and factors are taken into consideration during the MAS design and implementation period (Ghasemi et al., 2019; Maheshwari et al., 2021).

To sum up, based on the literature reviews above, we have learnt that scholars have proposed a variety of viewpoints to explain the functions and merits of MAS, and that the debates between MAS supporters and questioners are still continuing, e.g., each perspective has its own merits. The difference between supporters and questioners is still massive, making no contribution to the amalgamation of MAS literatures, and leaving a glaring knowledge gap. In order to advance the knowledge of MAS, therefore, conducting a new MAS research with new perspective would be necessary and important. As such, this article now turns to explain the new perspective (i.e., *decision making theories*) and corresponding method (i.e., *think outside the box*). Details follow.

3. Method

3.1. Data collection

To achieve the research aim, we gathered MAS literatures and cognate items (e.g., journal articles, websites & chapters) from the renowned database portals. These portals were: for instance, EBSCO, Google Scholar and Research Gate. The three portals were recognized by the UK Research Innovation and hence adopted for the current research. To ensure the quality of data collection, we defined clear inclusion criteria and searching parameters; specifically, we first selected MAS related items, such as management accounting, accounting system, accounting management and information management. Then, we set 'decision making' as a filtering criterion, so non-decision making related items were excluded. The spectrum (range) of the data was set from 2012 to 2022, reflecting the advancement of 'decision making – MAS' in the recent decade. During the data collection, we repeated the aforementioned filtering procedure until the data saturation was achieved. Finally, we abided by the institutional research ethical guidelines, in which all individual and organizational identities were anonymised during the analysis and discussion, except for the originality and

copyright purposes.

3.2. Philosophical stance

To advance the knowledge of MAS and its efficacy, the current research adopts the ‘*think outside the box*’ approach (Deeley, 2010; Woods & Rosenberg, 2016), in line with two unique reasons. Firstly, scholars have carried out numerous MAS research and cognate studies in the last two decades, but there is no clear answer to conclude the efficacy of MAS (e.g., Chenhall, 2003; Soobaroyen & Poorundersing, 2008; Stouthuysen et al., 2019). Our proposition is: If researchers wish to break through the impasse between MAS advocates and questioners, there would be no need to continue the extant debates in MAS, such as approving or dis-approving MAS’s function and impact. On the contrary, if researchers wish to bring new insights to the MAS literatures and theories, it would be more realistic to conduct a new study through a new perspective. For the same reason, adopting ‘*think outside the box*’ approach in the new study would be very sensible.

Secondly, although scholars generally recognize MAS’ function and appreciate its potential in facilitating decision making process, MAS is an ‘information-management-and-integration tool’ (Howitt & Cramer, 2020); that is, MAS *per se* does not produce or guarantee the quality outcome, such as the best decision, or the perfect solution (see similar remarks in: Maheshwari et al., 2021; Ngo, 2020). It is the human who makes the decision, such as business stakeholders, corporate leaders and organizational managers. Following this line of research, we propose that decision makers shall focus on the decision making process and evaluate the influence of their own decision making style, rather than debating the characteristics and applicability of MAS. Our proposition is: Adopting a new perspective (such as decision making style) shall help explain the application of MAS and its efficacy.

3.3. Selection of new perspective: Decision-making theories

As aforementioned, we aim to advance the knowledge of MAS and its efficacy through a new perspective. To achieve the aim, we adopt a deductive reasoning approach in data compilation and analysis, as it helps generate new knowledge through the acquisition and integration of existing knowledge (Blaikie, 2007; Woiceshyn & Daellenbach, 2018). Specifically, we adopt ‘decision-making theories’ as new perspective, along with the rationale below.

In layman’s term, decision-making describes a cognitive process, from idea generation, refinement, evaluation to decision identification. Theories for the decision-making are many and vary. In the current research, three particular theories are selected for further analysis and discussion, as their characteristics are highly relevant to the design and implementation of the management accounting system. These theories are: *rational model*, *administrative model*, and *political model* (see Table 1 for summary). Details follow:

Rational model (Model R): The model is renowned for its logical and fact orientation, comprising a series of step-by-step stages and aiming to reach the best outcome at the final stage (Kutschera & Ryan, 2009). These stages may include, for example, define the problem, identify the decision criteria, weight the criterions, propose solutions, and finalize solutions (Giesecke, 1993). For instance, when applying Model R, decision makers are keen to achieve the optimization through the best method; that is to say, they will choose the best method to reach the maximized outcomes (e.g., utility, function and effect).

Administrative model (Model A): Inspired by the Model A, the rationality of decision makers is bounded, and they tend to consider limited criteria and alternatives (Kutschera & Ryan, 2009). The Model A highlights the value of individual evaluation and satisfaction, and decision-makers may select a decision that meets a minimum standard of sufficiency (Khatri & Alvin, 2000). For instance, if there are two decisions with the same cost, decision makers will select the one with more outcomes. If two decisions come with similar outcomes, decision makers

Table 1
Summary of the three theories.

Theories	Authors	Viewpoints (characteristics) ^a
Rational model (Model R)	Kutschera and Ryan (2009)	<ul style="list-style-type: none"> ● Decision making process comprises a series of stages. ● Decision makers aim to gain the optimization through the best method. Desirable outcome for the best decision: <ul style="list-style-type: none"> ● A decision can reach the maximized outcomes (e.g., utility, function & effect).
Administrative model (Model A)	Khatri and Alvin (2000).	<ul style="list-style-type: none"> ● Decision making is a self-evaluation and satisfaction process. ● Decision makers emphasize on subjective judgment and perception. Desirable outcome for the best decision: <ul style="list-style-type: none"> ● A decision can reach the maximized outcomes but with the minimized cost (e.g., capital & personnel investment).
Political model (Model P)	Giesecke (1993) Elbanna and Child (2007)	<ul style="list-style-type: none"> ● Decision making is a haggling and negotiation process. ● Decision makers engage in continuous evaluation and comparison process. Desirable outcome for the best decision: <ul style="list-style-type: none"> ● A decision can outperform other decisions, bearing both maximized outcomes and minimized cost in mind.

Note.

^a Due to the limited space, only the most popular viewpoints are presented in the table.

will select the one with less cost, because one’s subjective judgment and perception (e.g., observation, evaluation and satisfaction feelings) are crucial to the decision makers (Khatri & Alvin, 2000).

Political model (Model P): In the lens of Model P, decision making is like a haggling and negotiation process where individuals pursue their own interests within the organization of ideas, such as values, cost, time and other relevant parameters (Giesecke, 1993). In a similar vein, Elbanna and Child (2007) describe the political model as continuous evaluation and comparison process, in which all probable decisions are repeatedly evaluated and compared against each other, and only the most competent decision will be selected. For instance, decision makers may come up numerous ideas at the onset, but reduce to limited numbers (of ideas) through the reviewing process; finally, a decision that outperforms others will be made.

3.4. Data integration and analysis

The aforementioned theories all have their unique characteristics and merits. The rational model highlights the values of thinking and planning in advance of action (Kutschera & Ryan, 2009), the administrative model focuses on individual evaluation and satisfaction in addition to the outcome (Khatri & Alvin, 2000), whereas the political model emphasizes on the integrated analysis and reviewing process (Elbanna & Child, 2007; Giesecke, 1993). Despite the conceptual differences, actually, these models jointly convey a message that the decision making process is not linear or straight-forward. From a different but relevant perspective, Staerklé (2015) claims that individuals are not always rationale and consistent in their thinking styles, and both inconsistencies and constant changes are inevitable human natures. For instance, people tend to show more confidence in their comfort zone but less confidence in new attempts, resulting in different behavioral outcomes (*argument or acceptance*: Hollihan & Baaske, 2022). Employees often show preference towards the individuals and groups who show similar or same thinking styles in the workplace (*Manager--employee-heterophily*: Chang et al., 2017). Thinking styles are found to

affect people’s cognitive process, leading to different levels of performance (*depth of exploration*; Kao et al., 2008). Finally, thinking styles may influence knowledge-sharing behavior and magnitude of knowledge innovation (*executive-vs. legislative-thinking style*; Cheng et al., 2023).

Following the decision making theories and thinking styles related studies above, we wonder whether thinking styles may play a role in delivering MAS. Our question is: Do thinking styles affect the design and implementation of MAS? If so, how? To our knowledge, there is no direct answer to respond to our question. Having said that, however, prior studies may have offered preliminary credence to the question, showing the sign of answers.

On the one hand, during the design and implementation of MAS, decision makers’ cognitive process (such as preferred thinking style) is vital and thus should be taken into the consideration. To be exact, when people prefer Model R (e.g., rational thinking style) in their decision making, they are likely to value the logical and fact-based process, but they may also lack the continuous evaluation and comparison process (Kutschera & Ryan, 2009). When people adopt Model A (e.g., administrative thinking style) in their decision making, they are likely to value personal judgment and feelings at the individual level, but they may also underestimate the importance of logicity and fact-observation during the comparison of different decisions (Khatri & Alvin, 2000). When people prefer Model P (e.g., political thinking style) in their decision making, they are likely to value the synthetic data collection and analysis, but they may also neglect the importance of subjective evaluation and self-perception (Elbanna & Child, 2007).

On the other hand, however, decision making is like a thinking process of making choices. As explained by prior studies of preferences (Chang et al., 2017; Staerklé, 2015), people may have preferred ways in gathering information, evaluating information, and integrating information, leading to their desirable decision(s). However, people are also found to use different thinking styles at different situations, and people may use multiple styles if they believe it is sensible to do so (e.g., Elbanna & Child, 2007; Kutschera & Ryan, 2009; Stone et al., 2022). People may adopt ‘trial and error’ and ‘predict & act’ during the decision making process, evaluating whether their thinking leads to the best outcome (Bonjean-Stanton & Roelich, 2021; Collins & Shenhav, 2022; Staerklé, 2015). In other words, although preferred thinking styles exist, people may possibly ‘jump out’ their preferences and adopt a style that they feel necessary and sensible to do so. To sum up, ‘thinking style’ does matter, affecting people’s attitude and behavior. Based on the data analysis and reasoning above, we suggest that thinking style should be considered as the pre-stage component to the MAS. That is, based on the research findings, we can regard ‘thinking style’ as a pre-factor to the MAS (See Fig. 1 for details).

4. Discussion and conclusion

Scholars claim that management accounting system (MAS) contributes to the organizational growth and business success through the implementation of quality decision-making process, enabling managers to make the best decisions for the organizations (e.g., Chenhall & Morris, 1986; Ndemewah & Hiebl, 2022; Ngo, 2020; Soobaroyen & Poorundersing, 2008). Despite the contribution of MAS, however, scholars still have mixed views about MAS’s merits and often question its efficacy in reality; actually, the understanding of MAS’s function remains inclusive, and the debates between MAS supporters and questioners are never ending (Ghasemi et al., 2019; Gonçalves & Gaio, 2021; Maheshwari et al., 2021).

Hence, in order to bring new insights to the MAS literatures and advance the knowledge of MAS’s efficacy, the current research departs from the aforementioned debates by adopting the ‘*think outside the box*’ approach (Deeley, 2010; Woods & Rosenberg, 2016). The underlying rationale is: Continuing the debates does not necessarily contribute to the consolidation of different MAS literatures and heterogeneous viewpoints. Adopting an alternative perspective to examine and discuss the efficacy of MAS would be more practical and feasible. Therefore, following the ‘*think outside the box*’ approach, the current research reviews a series of MAS literatures and adopts decision-making theories to evaluate the merits and efficacy of MAS. Research findings are meaningful and the contribution is twofold:

In terms of knowledge advancement, the research findings have suggested a unique pre-factor (i.e., thinking style) to the MAS’s design and implementation, through the integration and analysis of three decision making theories. These theories are: *rational model* (Kutschera & Ryan, 2009), *administrative model* (Khatri & Alvin, 2000), and *political model* (Elbanna & Child, 2007; Giesecke, 1993). Based on the aforementioned decision making theories, the current research has found the significance of the pre-factor, as it not only helps rectify the potential deficits during the decision making process, but also allows more space and time for interventions. That is to say, when the pre-factor is valued and incorporated into the MAS application, decision makers (e.g., organizational leaders and business managers) are more capable of examining the design and implementation of MAS practices, hence improving the MAS’s efficacy. Research findings also bring new insights to the ongoing MAS debates (c.f., Ghasemi et al., 2019; Gonçalves & Gaio, 2021; Maheshwari et al., 2021), as the pre-factor helps explain why MAS does not always work in reality. For instance, decision makers may not be aware of the potential deficit(s) embedded in their own thinking style(s), although these deficits can affect the design and implementation of their MAS practices. From a preventive perspective, however, if the decision makers can detect these potential deficits in

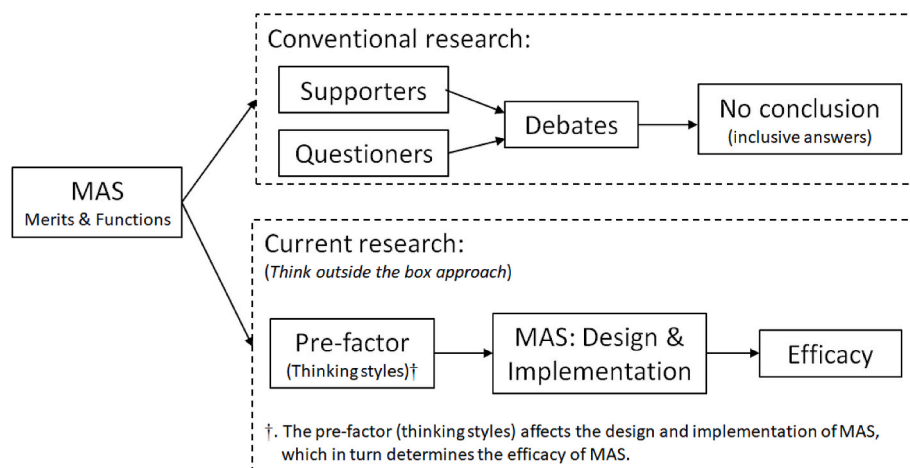


Fig. 1. Methodological flowchart.

advance, they shall be able to rectify the deficits in time and, more importantly, improve the MAS's efficacy accordingly.

In terms of operational implication, the research findings have indicated that decision makers' cognitive process plays a crucial role to the MAS's design and implementation, because rational thinking style (Kutschera & Ryan, 2009), administrative thinking style (Khatiri & Alvin, 2000), and political thinking style (Elbanna & Child, 2007; Giesecke, 1993) may affect the MAS's efficacy differently. For instance, we have learnt from the research findings that managers with rational thinking style may reach the maximized outcome, but neglect the relevant cost and resource consumption. Managers with administrative thinking style may reach the maximized outcome with the minimized cost, but the 'outcome-cost evaluation' tends to be subjective judgement. Managers with political thinking style may reach the maximized outcome with the minimized cost, but the process involves numerous haggling and negotiation process (e.g., individual interests may be compromised to achieve the organizational interests). Inspired by the research discoveries, we sincerely advise managers to 'reflect on' their thinking styles. As affirmed by the research findings, 'thinking styles' may affect the design and implementation of MAS, which in turn determines the efficacy of MAS practices. Our proposition is: the more managers know their own thinking styles (e.g., deficits & weakness), the better they rectify the 'style-related problems', hence improving the efficacy of MAS practices.

The research findings have important implications to the MAS practitioners and policy makers. Previous research indicates that thinking styles are related to individual experiences and personality, and that the personality may not change or get altered in a short period of time (see similar remarks in: Shaw & Choi, 2023; Tehrani & Yamini, 2020). For the same reason, we encourage the organization to regulate MAS policies and practices more closely, along with the following suggestions: i). MAS practitioners (e.g., organizational leaders and managers) shall attend the MAS training programmes prior to the MAS implementation, acquiring the MAS knowledge and skills, including theories, functions, merits and limitation in application; ii). We advise the senior management team to monitor their MAS policies and practitioners regularly and, if necessary, develop intervention strategies to rectify the style-driven deficits in MAS, as per the research findings. That is, a stitch in time saves nine; and, finally, iii). We advise the governing body (e.g., Business Committees & Stake Holders) to compile both successful and unsuccessful cases of MAS, providing the genuine materials to the education of future MAS practitioners. Learning from the real cases helps!

Finally, the limitation and weakness of current research should be noted as well. To begin with, only three theories of decision-making are selected for the analysis and discussion, which may not cover all possibilities and complexities of decision making processes and their influence on the design and implementation of management accounting system. Future studies may adopt alternative theories (e.g., *computational model*; Stone et al., 2022) to continue this line of research, so the full picture of decision making and its influence on MAS can be unveiled. Next, although the pre-factor (i.e., thinking style) is theory-informed and has been supported by several conceptual studies, its validity and reliability (c.f., actual facilitation effect and accuracy improvement magnitude; Gonçalves & Gaio, 2021) cannot be tested and confirmed until further investigations. To advance the knowledge of thinking style, therefore, we suggest scholars to continue this line of research in their future research projects, such as empirically examining the role of thinking style or analyzing its implications on the implementation of management accounting system.

Data availability statement

The data that support the findings of this article are available from the corresponding author upon reasonable request after the article being published. The dataset was newly collected and never being used for publication.

Ethical approval

The research reported was conducted in accordance with the Institutional Research Ethics Guidelines.

CRedit authorship contribution statement

Kirk Chang: Conceptualization, Methodology, Data curation, Writing – original draft, Investigation, Writing – review & editing. **Alhashmi Aboubaker Lasyoud:** Data curation, Visualization, Software. **Diaeldin Osman:** Data curation, Visualization, Software.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

We would like to express our sincere gratitude to two colleagues Prof Phil Scarf and Prof David Percy who have offered valuable comments to an earlier version of this paper. The insight provided by our colleagues and their constructive criticism has greatly improved our paper.

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