

MEDIATION ROLE OF ENVIRONMENTAL MANAGEMENT ACCOUNTING ON THE EFFECT OF GREEN COMPETITIVE ADVANTAGE ON SUSTAINABLE PERFORMANCE

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Abstract: As hotels grow, the social and environmental problems they pose are becoming more and more complex. This study aims to develop a framework to identify the role of environmental management accounting and the effects of green competitive advantage on sustainability performance. This study uses an explanatory research approach by investigating the effect of green competitive advantages on sustainability performance mediated by environmental management accounting. This study analyses the responses of general managers of hotels in Indonesia as many as 287 respondents. Data was collected by self-administered surveys and the results were analysed using structural equation modeling to test conceptual models and hypotheses. It was observed that green competitive advantage is an essential factor for companies to improve the achievement of sustainable performance. Environmental management accounting directs the management to environmental aspects, communicates the relationship between employee actions and the organization's sustainable goals and encourages the setting of sustainability performance priorities. Competitive advantage causes variations in the application of environmental management accounting to realise sustainable practices. The findings of this study indicate the importance of implementing environmental management accounting to realise competitive advantages in organisations; therefore, environmental management accounting mediates the relationship between green competitive advantages and sustainability performance.

Keywords: Sustainability performance, green competitive advantage, environmental management accounting, global sustainable tourism concept, hospitality.

Introduction

Indonesia is currently experiencing a boom in the hotel industry, as an opportunistic response to soaring tourist arrivals, both domestic and foreign. Traveller visits to Indonesia grew from 1,113,328 in 2016 to 1,405,554 in 2019 and during this period, the development of the number of hotels identified in Indonesia increased 55.3%, from 18,829 to 29,243. Along with the growth of hotels, the social and environmental problems caused by this expansion in capacity are increasingly complex. For example, hotels produce toxic and hazardous waste (Han *et al.*, 2018; Saputra *et al.*, 2021). Moreover, hotels in Indonesia do not have a great history with sustainability programmes. Namely, about 35% or 8,012 hotels in Indonesia does not have any

environmentally friendly systems. Secondly, 51%, or 17,934 hotels do not apply the 3R concept to reduce, reuse and recycle. Thirdly, 52% or 18,210 hotels do not have a sewage treatment system. Therefore, there is a need for hotels to improve their sustainability performance. Improving sustainability performance requires simultaneous internal and external control. Internal control can be done by implementing an environment-based management control system (Guenther *et al.*, 2016; Gunarathne & Lee, 2019). Those who carry out supervision from outside the company are the wider community (Pedregal & Pérez, 2010). Strict enforcement of environmental regulations should be carried out by the relevant authorities and government (central and regional) (Saputra *et al.*, 2021).

Mensah and Blankson (2013) recommend conducting a study on the adoption of sustainability performance in developing countries because the hospitality industry in developing countries is progressing at a high-speed and is used as a means of economic development (Mihalič *et al.*, 2012; Dwyer *et al.*, 2014). It is, therefore, essential to assess the sustainability performance of hotels in developing countries such as Indonesia. A survey conducted by booking.com on 20,432 respondents from 22 countries showed the desire of tourists for sustainable tourism. The survey was conducted online in March 2020. The respondents of Indonesian tourists stated that 93% considered sustainable tourism important and choose accommodations with a sustainable programme. These results indicate respondents' desire for the hotel industry in Indonesia to implement a sustainable programme and conduct consistent sustainability performance assessments (Sezen & Çankaya, 2013; Ara *et al.*, 2019).

In the context of hotel sustainability performance, instructions from the Government of the Republic of Indonesia regarding tourism regulates the management of sustainable tourism have directed the use of the Global Sustainable Tourism Council (GSTC) international standards to measure the performance of hotels in dealing with sustainable tourism, especially in destinations and accommodation. Measuring sustainability performance is based on the four pillars of the GSTC that can help managers focus on the sustainability issues and evaluate and assess the impact on sustainability of the tourism industry, social economy, culture and environment (Mutana & Mukwada, 2017; Modica *et al.*, 2018; Dedusenko, Wagenseil, 2020 & Andrariladchi & Arunotai, 2021). Studies on hotels in Indonesia have not used GSTC indicators to measure sustainability performance (Werastuti *et al.*, 2018).

Sustainability performance can also be improved by strengthening the motivational factors, namely green competitive advantage (Lin & Chen, 2017; Almada & Borges,

2018; Widiyati & Murwaningsari, 2019), encouragement to gain legitimacy, compliance with regulatory requirements and pressure from stakeholders to implement sustainable strategic management (Rodríguez-Antón *et al.*, 2012; Mihalič *et al.*, 2012; Cvelbar & Dwyer, 2013; Vencato *et al.*, 2014; Dimitrios *et al.*, 2020; Rubio-Mozos *et al.* 2020). In sustainability performance, research in developing countries is still limited (Asadi *et al.*, 2020). Studies on sustainable hotel performances have primarily been conducted in developed countries (Werastuti *et al.*, 2018). In addition, previous research has not considered indicators of sustainable tourism-based sustainability performance measurements, namely the Global Sustainable Tourism Council (GSTC) (Mensah & Blankson, 2013).

Solovida and Latan (2017) stated that environmental management accounting directs management to environmental aspects, communicates the relationship between employee's actions and organizational sustainability goals and encourages sustainability priorities. Chaudhry *et al.* (2020) found that competitive advantage causes variations in the application of environmental management accounting to realize sustainability practices. Based on the reasons described earlier, it is necessary to realise the implementation of environmental management accounting mechanisms with the aim of supporting competitive advantage strategies that can be implemented within the organisation, this study adds an environmental management accounting construct, which mediates the relationship between green competitive advantage and sustainability performance (Jasch & Stasiskiene, 2005; Möller & Schaltegger, 2005).

The results of this study contribute to the stakeholder theory. It states that stakeholders play an important role in the sustainability of the company (Gibson, 2012; Tangestani *et al.*, 2020). This is because stakeholders have the ability to control the necessary resources and the environment, necessary for the survival of the company. Companies must maintain good working relationships with stakeholders

by accommodating their wants and needs, especially stakeholders who have the power over the availability of the resources used in the company's operational activities, such as employees, customers and owners (Mensah & Blankson, 2013). The company's existence is to maximise the shareholders' welfare and serve the interests of the company's stakeholders (Gibson, 2012; Tangestani *et al.*, 2020). Companies are required to be able to meet the diverse interests of stakeholders and this condition has implications for a broader perspective of the company as a multilateral relationship between stakeholders and not just a bilateral relationship between the company owners and managers (Gibson, 2012; Adinehzadeh *et al.*, 2018).

This study emphasises how hotels can gain a green competitive advantage (Chen & Chang, 2013; Ge *et al.*, 2018; Ribeiro & Neto, 2021). With the strategy proposed by Chen and Chang (2013), hotels will need to pay more attention to attributes that can provide them with competitive value, such as brand, quality, innovation, service, technology, skills and experience of employees. A hotel will need to differentiate itself from its competitors to attract customers. They will need a strategy that will give their hotel a better chance to grow sustainably.

The green competitive advantage proposed by Chen and Chang (2013) adopted Porter's typology and added environmental management as one of the strategies. The first strategy is that the hotel industry will focus on a low-cost green competitive advantage through recycling and energy-saving methods. Second, the hotel needs to focus on an environmentally friendly strategy by using recycled materials in its products and services based on energy conservation. Third, the hotel could show excellence in terms of environmental research and development and environmental innovation. Fourth, the hotel could demonstrate its capability in conducting environmental operations as compared with its competitors.

Environmental management accounting analyses the costs and benefits of environmental management which consist of operational costs,

pollution and carbon control, energy savings, recycling and maintaining clean air circulation (Burritt *et al.*, 2002). Generally, conventional management accounting places more emphasis on identifying and controlling costs, especially those related to the company's business processes for producing and setting product prices (Agustia *et al.*, 2019). The company's management had not realised that the business processes involved are environmental factors (Fuzi *et al.*, 2020). The management did not realise that the business processes involved are environmental factors and they affect the environment (Qian *et al.*, 2011; Fuzi *et al.*, 2019). Environmental management accounting forms two indicators (Burritt *et al.*, 2002), financial and physical information.

Sustainability performance consists of sustainable management, social and economic, culture preservation and eco-friendly service (Al-Wattar *et al.*, 2019; Kurznack *et al.*, 2021). Ferreira *et al.* (2010) explained that social performance creates added value through all the activities that are related to stakeholders, who are business financial partners, local government and shareholders (Adams *et al.*, 2014). Sustainability performance is the approach companies use to assess the organisation's sustainability strategy by focusing on aspects of sustainability of the tourism business, social and economic, cultural and environmental preservation in every business consideration (Rubio-Mozos *et al.*, 2020). Sustainability performance has four integrated indicators under the GSTC guidelines.

This research was conducted due to the limited literature and studies done in the field of management accounting in hotel service business organisations. Previous research on sustainability performance had not considered the four pillars of the GSTC to measure a hotel's sustainable performance (Duric & Topler, 2021; Pereira-moliner *et al.*, 2021). The motivational factors need to be the focus of research as predictors of hotel sustainability performance in developing countries, including green competitive advantage. This study investigates

the factors that affect sustainability performance so that all stakeholders can contribute optimally to the effort to realise sustainable performance. The control mechanism, which in this case is environmental management accounting, is thought to mediate the relationship between green competitive advantage and sustainable performance (Staniškis & Arbačiauskas, 2009).

The contribution of this research is that the management can apply a sustainable performance measurement system based on the four pillars of the GSTC (Rubio-Mozos *et al.*, 2020). Each category in the GSTC concept is tightly integrated. Most activities require planning, policy support and programmes that combine various activities and performances. The management will need to provide a new perspective on sustainable tourism destinations. Sustainable tourism is a variety of activities designed with the aim of increasing the benefits and avoiding the negative impacts of the tourism business (Rasoolimanesh *et al.*, 2020; Andrariladchi & Arunotai, 2021).

The findings of this study also provide an understanding to hotel company managers regarding the role of various factors in improving the company's sustainable performance, where this performance is a reflection of their work performance (Journeault, 2016). Understanding the factors that drive sustainable performance will help managers to assess how effective the efforts that have been made so far have been in improving performance and can assess the costs and benefits of the steps that have been taken and will be taken (Aissa & Goaid, 2016).

Materials and Methods

The research was conducted in the natural setting in each hotel in the research location, where the researcher's involvement was minimal, namely when explaining the research procedures to the respondents. The time horizon of data collection is cross-sectional, i.e., once when filling out the questionnaire. The unit of analysis in this study is the organisational, consisting of general managers at 4 and 5-star hotels in Indonesia.

The total population in this study amounted to 1,010 4 and 5-star hotels. From the formula calculation results, a sample of 287 general managers of 4 and 5-star hotels in Indonesia was used. The sampling technique used was the disproportionate Stratified Random Sampling technique.

This study uses a survey method, namely a self-administered survey, in which respondents filled out the questionnaire independently without any supervision from the researcher. The variables of green competitive advantage, environmental management accounting and sustainability performance were measured using a five-point Likert scale. Hypothesis testing of mediating variables was carried out with a Sobel Test. The mediation effect can be tested if the main effect is significant. The mediation effect test cannot be continued if this does not happen. The mediating variable in the context of this study is to see if there is a significant relationship between the indirect effect of endogenous and exogenous variables by testing the mediation model. The study is to test the intervention of the mediating variable, whether it is proven to act as a perfect mediating variable or partial mediation or if it is not a mediating variable.

Results

A measurement model consisting of green competitive strategy construction, environmental management accounting and sustainability performance was evaluated. Convergent validity of the measurement of the validity of research indicators as a construct can be presented through the value of AVE and Commuality > 0.50. These values are presented in Table 1.

The discriminant validity test was conducted to evaluate the validity of the research instrument in explaining or reflecting latent variables (Table 2). In short, the measurement model satisfies the test of validity and reliability. Therefore, the constructs developed for this measurement model are reliable and can be used to test the structural model and related hypotheses.

Table 1: Convergent validity

	AVE	Composite Reliability	Cronbach's Alpha	Commonality
Green Competitive Advantage (X1)	0,871	0,852	0,848	0,915
Low cost (X1.1)	0,855	0,848	0,855	0,954
Differentiation (X1.2)	0,862	0,856	0,862	0,950
Green innovation (X1.3)	0,857	0,851	0,857	0,975
Environmental management (X1.4)	0,848	0,954	0,848	0,935
Environmental Management Accounting (Y1)	0,848	0,955	0,864	0,905
Monetary information (Y1.1)	0,856	0,954	0,845	0,911
Physical information (Y1.2)	0,851	0,953	0,862	0,856
Sustainability Performance (Y2)	0,861	0,856	0,954	0,851
Sustainable management (Y2.1)	0,858	0,847	0,954	0,856
Socio-economic sustainability (Y2.2)	0,871	0,843	0,956	0,847
Cultural preservation (Y2.3)	0,857	0,860	0,955	0,843
Environmental sustainability (Y2.4)	0,843	0,848	0,955	0,857

Table 2: Discriminant validity

	AVE	√AVE	Inter Variable Correlation		
			Green Competitive Advantage (X1)	Environmental Management Accounting (Y1)	Sustainability Performance (Y2)
Green Competitive Advantage (X1)	0,946	0,959	1		
Environmental Management Accounting (Y1)	0,953	0,979	0,949	1	
Sustainability Performance (Y2)	0,985	0,990	0,857	0,848	1

After the measurement model met the assessment of validity and reliability, hypothesis testing was conducted. Table 3 summarises the overall suitability index of the structural model and shows that green competitive advantage has a positive and significant effect on Sustainable Performance, this can be seen from the positive original sample estimate value of 0.0680 and T-Statistic 2.7646 > 1.699. Green competitive advantage has a positive and significant effect on environmental management accounting, this can be seen from the positive original

sample estimate value of 0.9140 and T-Statistics 60.5351 > 1.699. Environmental management accounting has a positive and significant effect on sustainable performance. This can be seen from the original value of the optimistic sample estimate of 0.9034 and T-Statistics 41.4832 > 1.699. According to the rules by Muisyo *et al.* (2022), to find out the mediation role, there are several assumptions; namely, a green competitive strategy that has a significant effect on sustainability performance, a green competitive strategy that has a significant effect

Table 3: Structural Model

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (O/STERR)
Green competitive advantage → Sustainability performance	0.0680	0.0606	0.0246	0.0245	2.7646
Green competitive advantage → Environmental Management Accounting	0.9140	0.9629	0.0151	0.0151	60.5351
Environmental Management Accounting → Sustainability performance	0.9034	0.9388	0.0230	0.0231	41.4832

on environmental management accounting and environmental management accounting that has a significant effect on sustainability performance. If after entering the mediating variable, the effect of green competitive advantage on sustainability performance is not significant and partial mediation if after entering the mediating variable the effect of green competitive advantage on sustainability performance is still significant.

Discussion

The findings of this study indicate that the green competitive advantage variable has a significant positive effect on sustainability performance in the hospitality business in Indonesia. This means that hotels in the archipelago can apply a green competitive strategy to their organisation's operations. Customers or consumers will receive hotels that implement a green competitive strategy. The results of this study state that hotel customers are currently more interested in staying at hotels that implement sustainable and green hotel-based practices. Green competitive advantage has a strategic concept that aligns with the Indonesian government's commitment to reducing the hotel's environmental impact and emissions from all their operations. This study supports previous research from Salvo *et al.* (2017), Verma and Chandra (2018) and Zameer *et al.* (2020).

Green competitive advantage positively affects environmental management accounting,

meaning that green-based competitive strategies affect the practice of environmental management control. Applying management accounting principles that are integrated with the environment in the hospitality business is very important for business sustainability (Chen & Chang, 2013; Ge *et al.*, 2018). The study emphasises that environmental innovation in the hotel business sector still needs to be developed.

Green competitive advantages have recently become a buzzword in environmental management accounting research (Rahman & Reynolds, 2016; Saputra *et al.*, 2021). The researchers symbolise this as an opportunity to promote good sustainability. But, this principle is used with different explanations from various perspectives of the field of science (Basuki, 2015; Chaudhry & Amir, 2020). An alternative view holds that green competitive advantage should go beyond the development of new services to integrate all processes, practices and techniques that must be modified with environmental management accounting mechanisms for environmental sustainability (Jasch & Stasiskiene, 2005; Figueroa *et al.*, 2010). These research results are similar to the research results of Chen and Chang (2013), Ge *et al.* (2018) and Sidik *et al.* (2019).

Environmental management accounting has a positive effect on sustainability performance, meaning that Indonesia has become a pioneer in the transition to a sustainability-based business by making efforts to become a

successful industry and support low-carbon green economic growth (Fukey & Issac, 2014; Sidik *et al.*, 2019). In 2022, Indonesia will host the G20 meeting in Bali. The republic also launched a green economy initiative to support sustainable development in various industrial and government sectors (Anthony, 2019). The tourism business sector in Indonesia has begun to move towards a sustainability-based business and concentrate on environmental cleanliness to reduce the overuse of resources (Mensah & Blankson, 2013; Saputra *et al.*, 2022). The environmental policies of most hotels in Indonesia emphasise that solid waste (for example, used tissues, plastic, used batteries and other hazardous waste) is recycled by utilising independent resources or using other partners (Gray, 2010; Nielsen *et al.*, 2019).

Environmental regulations stipulate that measures to save water and electricity energy must be implemented in all hotel business areas, be it rooms, kitchens, gardens or swimming pools (Poll, 2015; Dhawan *et al.*, 2019; Pereira *et al.*, 2021). Tracking the carbon footprint by involving internal and external parties of the hotel and creating a flow of accountability for each natural department for the use of hazardous materials (e.g., paint products, acids, water sanitation and chemicals) (Poll, 2015; Salvo *et al.*, 2017; Fu *et al.*, 2020; Pereira *et al.*, 2021). Hotels must also use climate control technology in various areas (Bohdanowicz & Martinac, 2007). In addition, hotels in Indonesia are required to have local, national and international certifications.

Hotels must integrate the concept of sustainability into the hotel's vision and mission, goals and strategies, as well as in operational systems (Gheribi, 2018; Kaliappen *et al.*, 2019). Environmental orientation is a strategic focus contained in the hotel's vision and mission, managers can start implementing sustainability initiatives by forming a green team that is oriented towards creating a sustainable hotel performance (Walsh & Dodds, 2017; Bhochhibhoya *et al.*, 2020). Previous research confirms that organisations are relatively more

open to collaborative mechanisms regarding green competitive advantage, environmental management accounting and sustainability performance (Thornton, 2013; Anthony, 2019; Gunarathne & Lee, 2021).

Conclusion

Previous research only considers financial performance, which ultimately impacts the company's sustainability in its social environment. Research on sustainability performance has not considered the four pillars of the GSTC to measure the sustainability performance of hotels. However, this research can answer these shortcomings by reviewing overall performance based on the concept of sustainable finance integrated with social and environmental aspects.

The data collection technique adopts a closed survey method using the help of a list of questions. The general manager was chosen because he has the power and authority over hotel management and the decision-making model in the hotel. Collecting data by self-managed survey and analysed using statistical aid to assess hypotheses about the impact of green competitive advantage on improving sustainability performance.

Environmental management accounting directs management to environmental aspects, communicates the relationship between employee actions and the hotel's sustainability goals, and encourages the setting of sustainability performance priorities. Competitive advantage causes variations in the application of environmental management accounting to realise sustainable practices. The findings of this study indicate the importance of implementing environmental management accounting to realise competitive advantages in organisations; therefore, environmental management accounting mediates the relationship between green competitive advantage and sustainability performance.

There are some limitations of this research that must be considered. First, this study uses a relatively small sample of hotels: Many

companies do not provide information about their performance because most hotels classify this information as “confidential”. Strategy, accounting and financial information and performance achievement are unknown to the general public. Second, this study only considers strategic factors that affect the company’s sustainability performance without examining other factors, such as context or contingencies. Different results can be obtained when considering the two. Finally, this study uses an instrument adopted from previous studies without reviewing the unidimensional construct indicators.

Further research can broaden the sample size and research objectives by considering the role of organisational capabilities in mediating the relationship between green competition strategy and sustainability performance. Other factors, such as organisational culture, sustainability audits and local wisdom can also be considered for further study. Furthermore, future research could investigate changes in environmental management accounting practices over time.

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