

The Moderating Role of Barriers to Agility and their Impacts on Organisational Performance

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Abstract

Competing in fast-changing environments requires organisations to be more agile. However, barriers to agility hinder an organisation's ability to enhance its responsiveness in decision-making processes and performance. This study investigates the impact of agility and barriers to agility on organisational performance and the moderating role of barriers to agility on the relationship between agility and organisational performance. Resource-Based View (RBV) and Contingency Theory were implied by using a quantitative deductive reasoning methodology. Data were collected via interviews. The stratified random sampling technique was employed to choose 153 oil palm plantation executives. Key findings revealed that agility positively impacts organisational performance ($\beta = 0.243$). However, barriers to agility were found to negatively impact organisational performance ($\beta = -0.013$). Further analysis also revealed that the moderating effect of barriers to agility caused an effect on the positive relationship between agility and organisational performance ($\beta = -0.230$). The effect of barriers to agility also changed the relationship between agility and organisational performance's positive direction to negative. This study concludes that barriers to agility hinder an organisation's agility. Addressing these barriers is crucial for organisations to fully leverage the potential of agility and achieve higher performance levels in a dynamic and competitive business environment.

Keywords: Agility, Barriers to Agility, Moderating Variable, Organisational Performance, Partial Least Squares Structural Equation Modelling (PLS-SEM).

Introduction

For several years, businesses and organisations have faced an increasingly more volatile and challenging environment, such as changing markets, increased competition, and economic uncertainty (Al-Azzam & Irtaimah, 2018; Obidat et al., 2023; Samani et al., 2018). As a response, different concepts have emerged that should enable organisations to master these challenges, such as sustainability, agility, flexibility, and leanness (Altalhi, 2018; Saputra

et al., 2021). Being agile in recognising and grasping chances to drive innovation (Holbeche et al., 2018; Khalil et al., 2023), increasing the response to disruptions (Abourokbah et al., 2023; Altalhi, 2018), and strengthening resilience against external threats (McIver et al., 2018; Saputra et al., 2021) are all necessary to compete in fast-changing environments. It illustrates how business models need to change over time if organisations want to create value consistently and stay competitive in a complex world (Lee et al., 2017; Samani et al., 2018). Reconfiguring business models is an essential skill for the organisation's survival and growth. This helps reduce the risks associated with change and enables organisations to take advantage of new opportunities that create value, particularly when a business has been using the same strategy for a long time (Al-Azzam & Irtaimeh, 2018; Walter, 2021).

Besides that, the complexity of the business environment makes organisations want to survive and increase their adaptability and innovation (Obidat et al., 2023; Saputra et al., 2021). Organisations can adopt different processes and achieve goals through equal facilities and equipment (Franco & Landini, 2022). An organisation needs to make timely decisions based on accurate and relevant information, including monitoring key performance indicators, analysing data, and assessing market trends to promptly make informed decisions (Gao & Wang, 2021; Saputra et al., 2018). Organisations can respond effectively to changes in the market and maximise resource utilisation by making decisions on time. They can also take advantage of new chances and challenges because of it (Obidat et al., 2018). One way to evaluate an organisation's agility at this point is to look at extensive aspects like how rapidly the organisation adapts to changes in the industry. Another key factor is how efficiently the company understands and meets market demand. (Franco & Landini, 2022). The concept of agility was first established in 1991 to describe the practices followed and was studied as an important aspect of manufacturing (López-Gamero et al., 2023). The ability of an organisation to react, adjust, and prosper in the face of unpredicted events is known as agility (Dehaghi et al., 2014; Holbeche et al., 2018). It is also acknowledged as the organisation's ability to thrive in a volatile and unstable business environment (Elazhary et al., 2022; Mukherjee et al., 2015; Teimouri et al., 2017).

Competency, or the organisation's capacity to fulfil its aims, purposes, and ambitions, is thus another factor used for evaluating agility (Teimouri et al., 2017). Even though leaders now understand the value of agility, many organisations, especially those with substantial operations, find it difficult to develop and sustain it (Prats et al., 2018). Organisations need to develop and incorporate new knowledge to thrive and obtain a competitive advantage (Dehaghi et al., 2014). They can become nimbler as a result, guaranteeing the longevity of performance improvement and organisational learning (Al-Azzam & Irtaimeh, 2018; Ransom et al., 2021; Saha et al., 2017). Thus, in many instances, the organisation might not be capable of responding as speedily and faithfully as the remainder of the organisation (Saputra et al., 2021; Walter, 2021). Thus, the last variable to measure agility is speed, which means the organisation can do work quickly (Teimouri et al., 2017; Walter, 2021). Agility in the agriculture sector refers to the capacity of farmers, agricultural corporations, and the sector as a whole to promptly react to and adapt to opportunities, difficulties, and changes (Lin et al., 2020). It involves being nimble, flexible, and proactive in addressing evolving conditions and adapting innovative practices to achieve desired outcomes (Abourokbah et al., 2023; Ransom et al., 2021). Hence, organisations' responsiveness, competency, adaptability, and speed are important in forming organisational agility (Dong et al., 2021; Saputra et al., 2021).

Unfortunately, barriers to agility become obstacles or difficulties that hinder an organisation's capacity to continue being responsive and nimble in its operations and decision-making processes (Davies et al., 2021; Kumar et al., 2022; Mukherjee et al., 2015). Barriers to agility can manifest in various forms and across different dimensions of organisational functioning, such as bureaucratic processes, resistance to change, lack of innovation culture, ineffective communication, cultural resistance, and resource constraints (Garza-Reyes et al., 2022; Kwarteng et al., 2023; Laurett et al., 2021). Bureaucratic processes could slow down decision-making ability if the process requires a complex approval procedure and involves rigid hierarchical structures with excessive bureaucracy (Kim et al., 2020; Yang & Jiang, 2023). In the agricultural fields, bureaucratic processes can create barriers that obstruct agility and efficiency; for instance, the lengthy approval timelines and excessive paperwork in the process of obtaining permits and licences for agricultural activities (Jasni & Othman, 2017). These problems can cause delays in agricultural projects and make it more difficult for farmers or agricultural organisations to address the changing environment (Syahlan et al., 2020; Tang & Al-Qahtani, 2020).

Resource constraints such as monetary, labour, physical infrastructure, technology, human resources, and inputs required for agricultural operations are another barrier to agility in the agriculture sector (Azman et al., 2018; Ishak & Manaf, 2020; Parveez et al., 2022). Strict budgets and financial capital limitations can be major barriers to agricultural organisations' agility, as they limit the organisation's capacity to react swiftly to market needs (Mukherjee et al., 2015; Tang et al., 2021). Inadequate physical infrastructure can hinder agricultural productivity and agility, such as irrigation systems, roads, storage facilities, and processing plants (Davies et al., 2021; Syahlan et al., 2020). Poor infrastructure can limit farmers' ability to efficiently transport goods to market, store perishable products, or access necessary inputs, resulting in increased costs, post-harvest losses, and reduced competitiveness (De Vos et al., 2021). Besides financial capital and physical infrastructure, a shortage of skilled labourers can impede the ability to scale up production, adopt new technologies, or implement efficient farming practices (Hassan et al., 2018; Jasni & Othman, 2017). The availability of skilled labour is essential for agricultural operations, including planting, harvesting, pest control, and farm management (Zahid-Muhamad et al., 2018). Similar to the shortage of skilled labourers, limited access to agricultural inputs can hinder optimal production, limit crop quality, or increase vulnerability to pests and diseases (Parveez et al., 2022). Restricted farmers' access to essential agricultural inputs such as quality seeds, fertilisers, pesticides, or livestock feed can obstruct agility by preventing farmers from adapting their practices or optimising yields (Kushairi et al., 2018).

According to Davies et al (2021), Laurett et al (2021), and Sudarevic et al (2017), barriers to agility are not given enough attention in agricultural research studies, even though they may act as a moderator between agility of agriculture organisations and their performance. Kwarteng et al (2023), Laurett et al (2021), and Sudarevic et al (2017), suggested that agility can influence organisations' performance. On the other hand, barriers to agility may decrease the agility impact on organisations' performance. Barriers to agility may act as moderators, affecting the direction or strength of the relationship between agility and organisational performance. Specifically, the role of the moderator can help explain under what conditions the relationship may be strengthened or weakened by the presence of the moderator (Cugno et al., 2021). An organisation may reach its full potential and thrive in

today's competitive and dynamic business world by removing the barriers that stand in its direction of agility. The thorough literature analysis indicates that agility is a crucial quality for long-term success in a rapidly changing sector, especially the palm oil industry. The industry can respond to difficulties and enhance performance by being agile (Gathogo & Kiiru, 2021; Saha et al., 2017). It also makes it possible for the sector to react swiftly and efficiently to new problems and evolving conditions.

The development of agility will enable the palm oil organisation to efficiently manage allegations and challenges, thus strengthening its recognised proficiency. Even though oil palm plantations are an important source of upstream oil for the Malaysian industry (Chik et al., 2023; Jaffar et al., 2022), there hasn't been much research done on the crops' agility. The importance of being agile in agriculture has been reinforced by frameworks that have been constructed by studies conducted by (Yusuf et al., 2023; and Saputra et al., 2021). Although agility seems to be a great exposition for Malaysian oil palm plantation survival, the challenges or barriers faced in implementing agility can hinder the plantation from being flexible, responsive and adaptative to any challenges. As a prominent industry that was established more than 100 years ago in Malaysia, the oil palm industry has operated similarly, with established practices and processes (Jaffar et al., 2022). Thus, this presents one of the avenues to study the role of barriers to agility in Malaysian oil palm plantations in ensuring their ability to sustain themselves in a rapidly changing business environment. Overcoming these challenges can help the oil palm plantation successfully implement agility and gain the benefits of improved performance. Bridging this research gap will enable plantations to pinpoint opportunities for optimising agility and tackle the barriers to agility that ultimately contribute to improved organisational performance, sustainability, and competitiveness within the oil palm industry. Hence, this study aims to investigate the impact of agility and barriers to agility on organisational performance. Specifically, the objectives are:

1. To examine the relationship between agility and organisational performance.
2. To determine the relationship between barriers to agility and organisational performance.
3. To explore the moderating role of barriers to agility on the relationship between agility and organisational performance.
- 4.

Significantly, this study attempts to provide beneficial information that can enhance organisational performance through implementing agility. This study also highlights the importance of addressing the barriers to agility to achieve better organisational performance. This paper will discuss the method used, including the conceptual framework and research methodology, alongside the results and discussions. A conclusion will wrap up the whole study together with implications of the study, limitations and recommendations for future research.

Literature Review

Resource-Based View

In the field of management, the Resource-Based View (RBV) provides an assumption that firm resources are distributed heterogeneously and stay constant across time (Lubis, 2022; Munoz-Pascual & Galende, 2020). Edith Penrose introduced RBV theory in 1959 with a suggestion that firms are institutions with a pool of resources or an organised combination of competencies (Rihayana et al., 2022; Sobaih et al., 2020). The Resource-Based View (RBV)

emphasises the value of analysing firms based on their resources rather than their products. (Tarafdar & Qrunfleh, 2017). Materials, experience, organisational procedures, systems, data, and information are examples of a firm's resources. Besides, it can be said that no two organisations have the same resources, either tangible or intangible (Munoz-Pascual & Galende, 2020). Tangible resources can be observed physically, controlled by the organisation, and have a financial value (Garza-Reyes et al., 2022). In other words, tangible resources can be touched, seen, and measured by accounting standards, building equipment, and lands (Lubis, 2022). Intangible resources, such as intellectual property and reputation assets, cannot be perceived or measured and are much more difficult to outline (Marin-Garcia et al., 2016; Wernerfelt, 1984). Culture, human resource management and organisational structure are categorised as intangible organisational assets because they can create barriers to imitation by competitors (Tarafdar & Qrunfleh, 2017). The RBV focuses on how an organisation leverages its resources to attain excellent performance (Lubis, 2022). In other words, RBV aims to investigate the connection between internal characteristics and an organisation's performance (Rihayana et al., 2022; Garza-Reyes et al., 2022).

The Resource-Based View (RBV) can be associated with the concept of agility (Abourobah et al., 2023; Mukherjee et al., 2015; Munoz-Pascual & Galende, 2020). Firms that fail to be agile might lose market shares and competitive advantages (Elazhary et al., 2022; McIver et al., 2018). Since agility relates to an organization's capacity to react quickly and effectively to changes in a fast-changing environment, it is consistent with RBV (López-Gamero et al., 2023). Developing organisational learning, organisational capabilities, and organisational innovativeness may facilitate the generation of agility (Khalil et al., 2023). Hence, with the implementation of RBV, agility represents an organisational capability that enables an organisation to sustain competitive advantages (Vliet et al., 2017). The Resource-Based View (RBV) theory is highly relevant to the agriculture and farming sectors (Rejeb et al., 2022; Sobaih et al., 2020). Although the industrial and service industries were the primary emphasis of RBV's initial development, the farming and agricultural sectors can benefit from using its concepts and principles (Junior et al., 2019). In agricultural and farming scenarios, the RBV provides a useful framework for comprehending and assessing the strategic resources and competencies that can give an edge over competitors.

Contingency Theory

Contingency Theory is a leadership and management theory that suggests no best way to organise or lead an organisation (Araral, 2020; Coombs & Tachkova, 2022; McAdam et al., 2019). In Contingency Theory, organisations are viewed as open systems that require strategic management to align internal priorities and respond to external factors (Citrayanti & Yuhertiana, 2021; Kim et al., 2020). The core principle of Contingency Theory is that different situations demand different approaches; what succeeds in one context may not be effective in another (Kwarteng et al., 2023; Sudarevic et al., 2017). The theory highlights that the most effective way to structure and manage an organisation depends on various factors known as contingent factors (Abedin, 2022; Yang & Jiang, 2023). Contingent factors refer to the specific variables or elements that influence the design and management of organisations and subsequently determine organisational effectiveness and performance (Coombs & Tachkova, 2022; Garza-Reyes et al., 2022). Some common contingent factors are the organisation's size, technology, external environment, strategy, workforce characteristics, barriers, culture, and organisational goals (Araral, 2020; Sudarevic et al., 2017). In the Contingency Theory, barriers

that serve as contingent factors can create misalignment and tension between management directions and organisational performance (Kwarteng et al., 2023). For an organisation to reach optimal performance and effectively adapt to its circumstances, it must overcome certain obstacles or barriers (Kumar et al., 2022). These barriers can arise from various sources and significantly impact the organisation's agility and adaptability (Kim et al., 2020). In Contingency Theory, the concept of barriers to agility relates to the idea that organisations must align their design and management practices with their contingencies to be effective (Araral, 2020; McAdam et al., 2019).

While Contingency Theory emphasises the importance of fitting organisational practices to specific environmental conditions, barriers can hinder this alignment and impede organisational agility (Sudarevic et al., 2017; Yu et al., 2020). Contingency theory suggests that organisations must assess and understand their contingencies, including the external environment and internal factors, to design appropriate structures, processes, and practices (Abedin et al., 2022; Coombs & Tachkova, 2022). However, barriers can emerge within the organisation, such as bureaucratic procedures, rigid hierarchies, resistance to change, lack of communication channels, or inadequate resources, which can impede the organisation's ability to respond effectively to its contingencies (Citrayanti & Yuhertiana, 2021; Yang & Jiang, 2023). Barriers to agility highlight the importance of considering external contingencies and internal organisational factors enabling or inhibiting agility (Araral, 2020; Garza-Reyes et al., 2022). To increase their agility and better respond to and adapt to changing conditions, organisations need to recognise and solve these barriers (Coombs & Tachkova, 2022; Yu et al., 2020). External factors in the organisation's environment can pose barriers to agility, including rapidly changing market conditions, disruptive technologies, intense competition, economic fluctuations, regulatory constraints, or social and cultural factors (Kim et al., 2020; Kwarteng et al., 2023). Environmental barriers can make it challenging for organisations to anticipate and respond to changes, limiting their ability to be agile (Abedin et al., 2022; Lee et al., 2017). In agriculture, contingency theory recognises that different farming systems, environments, and contexts require tailored approaches for optimal outcomes (Citrayanti & Yuhertiana, 2021; Lee et al., 2017).

In agriculture, Contingency Theory considers the impact of multiple contextual factors on decision-making and farm management, such as climate conditions, soil types, availability of resources, market dynamics, consumer preferences, and regulatory frameworks (Sudarevic et al., 2017). By analysing these contingencies, farmers can identify the most appropriate strategies, practices, and technologies for their specific situations (Garza-Reyes et al., 2022). Contingency theory acknowledges no universal best approach to organisational management (Araral, 2020; Abedin et al., 2022; Coombs & Tachkova, 2022). Instead, the theory suggests that the design and implementation of organisational management systems should align with each organisation's specific circumstances and goals (Kwarteng et al., 2023). It is crucial to recognise that, depending on their needs, many organisations may need to implement distinct workflows, management structures, and strategies for allocating resources.

Research Variables

Independent Variable

In a study, an independent variable is thought to affect the dependent variable (Yoon, 2020). They are manipulated or observed to determine their potential impacts on dependent

variables, the outcomes or responses of interest in a study. In this study, the independent measure is agility. Research by Saputra et al. (2021), Dong et al. (2021), Saha et al. (2017), and Abourokbah et al. (2023) demonstrated the clear relationship between organisational performance and agility.

Dependent Variable

The variable of interest that is hypothesised to be influenced or predicted by other factors in the research model is known as the dependent variable (Gathogo & Kiiru, 2021; Yoon, 2020). It is the variable researchers seek to understand, explain, or predict based on the relationships with other variables. There are many studies conducted that measure organisational performance as the dependent variable, such as Gupta (2022), Rahim et al (2023), and Ramayah et al., (2011). To improve decision-making within companies and to maintain competitiveness in the market, performance measurement is essential. (Rahim et al., 2023). In this study, the dependent variable is organisational performance, where the role of organisational performance is to estimate its relationships with agility and barriers to agility.

Moderating Variable

According to Alkhazali et al (2021), and El-Ghorra et al (2023), a moderating variable is a third variable that affects how strongly a dependent and an independent variable are related. By affecting the predictor's effect's variation based on the moderator's level or value, a moderator variable modifies the association between two variables (Rahmadani et al., 2022). Most moderating variables are significant, assess causal links, and have the potential to strengthen or weaken the relationship between independent and dependent variables (Anisimova & Weiss, 2022). A moderator variable indicates whether an impact is enhanced, facilitated, or inhibited (Junior et al., 2019; Yoon, 2020). Put otherwise, it clarifies if an influence is significant, minimal, present, absent, positive, or negative (Alkhlaifat & Alshaweesh, 2017). Barriers to agility are the moderating variable in this study that will regulate the association between agility and organisational success. It has an impact on how the independent and dependent variables are related to one another. The link between the focus variables is altered by an interaction effect introduced by a moderating variable (Buechl et al., 2021). Knowing the circumstances in which the connection between the independent and dependent variables may change is beneficial (Kim et al., 2020).

Methods

Conceptual Framework

The underlying theories of this study, Resource-Based View (RBV) and Contingency Theory were thoroughly examined in previous research to formulate the hypotheses. Agility and barriers to agility are factors that have been shown to impact organisational performance, according to the research that has been discussed. Thus, the relationship between organisational performance, agility, and barriers to agility is briefly described in the conceptual framework shown in Figure 1.

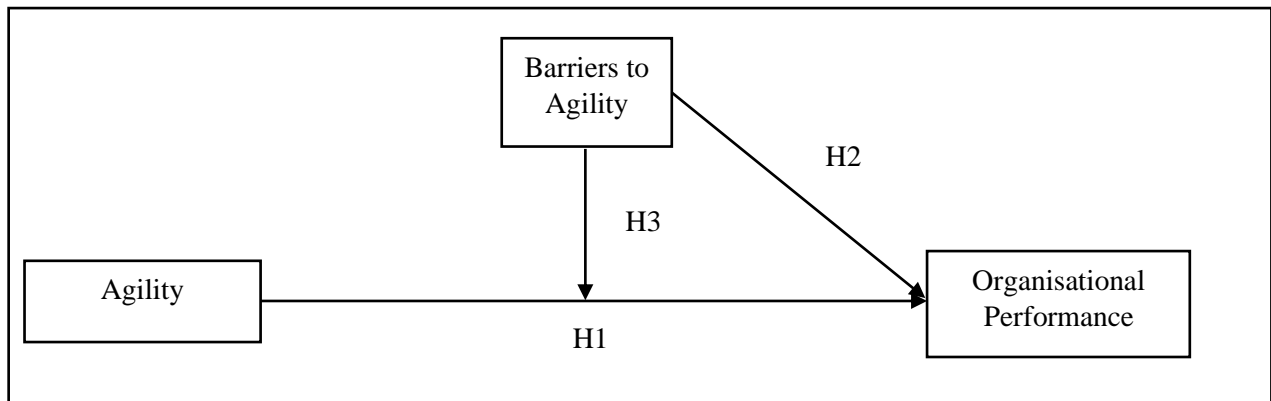


Figure 1: Conceptual Framework

Source: Authors' work

According to Abourokbah et al (2023), agility in the context of the Resource-Based View (RBV) refers to an organization's capacity to quickly adjust and reorganise its strategic resources and capabilities to effectively respond to shifting market dynamics, environmental circumstances, and competitive pressures. A company's unique assets and competencies may offer a long-term competitive advantage, according to the Resource-Based View (RBV) philosophy of strategic management (Rejeb et al., 2022). Accordingly, agility is defined as a construct that includes competency, speed, responsiveness, and adaptability (Saha et al., 2017). Organisational agility, according to Saha et al (2017), consists of several essential components of promptness and flexibility, such as competency, adaptability, speed and responsiveness to changes in the surrounding environment. Much research has looked at the relationship between agility and organisational performance (Abourokbah et al., 2023; Dong et al., 2021; Saha et al., 2017; Saputra et al., 2021).

Therefore, the purpose of this study is to evaluate how agility impacts the performance of Malaysian oil palm plantations. However, as the Contingency Theory illustrates, there is no one ideal way to design or lead an organisation, and what functions well in one circumstance might not be in another (Araral, 2020; Kwarteng et al., 2023). Contingency Theory claims that different situations require different approaches, and the effectiveness of organisational systems depends on various contingencies or situational factors, known as contingent factors. Barriers can appear in an organisation as a contingent factor. Barriers can create misalignment and impede agility because agility requires proper strategic decisions and commitment from all levels (Mukherjee et al., 2015). Research by Kwarteng et al (2023); Laurett et al. (2021); and Mukherjee et al (2015), demonstrated that barriers do have an impact on how well an organisation performs. Thus, the purpose of this research is to assess how agility barriers impact the performance of Malaysian oil palm plantations.

Besides impacting organisational performance, barriers can change the relationship's direction between two measured variables and imprint the moderating effect (Yoon, 2020). According to Alkhazali et al (2021); and Anisimova & Weiss (2022), a moderator can alter the model itself and shift the relationship orientations from positive to negative or vice versa. Even though there isn't much study on the moderating impact of barriers to agility, recent studies have started to clarify the intricate interactions between these barriers and how they impact organisational performance. The relationship between agility and performance will be

impacted by barriers to agility which impact organisational performance. Therefore, it is expected that the agility barrier will moderate the relationship between agility and the performance of Malaysian oil palm plantations. Finally, for an organisation to continue operating and being competitive, performance measurement is essential.

In this study, organisational performance was measured from the organisation's perspective using a five-point Likert scale, following Alkhazali et al (2021); Gupta (2022), and Ramayah et al. (2011). Some indicators used to measure organisational performances are return on investment (ROI), worker productivity rate, worker turnover rate, reported safety issues, foreign worker shortage issues, and the plantation's ability to produce consistent quality FFB. The following hypotheses were developed following the findings provided by earlier research:

H₁: Agility has a positive impact on organisational performance.

H₂: Barriers to agility have an impact on organisational performance.

H₃: Barriers to agility moderate the relationship between agility and organisational performance.

Sampling Procedure

This study was carried out in all states in Malaysia, and the target population for this study was the oil palm plantations certified under the Malaysian Palm Oil Certification Council (MPOCC). The list from MPOCC comprises a total of 1,699 plantations listed. One plantation executive (manager/assistant manager/supervisor or field assistant) from each plantation was appointed as the respondent to represent their plantation. These executives evaluated and answered the questions about agility, barriers to agility and organisational performance. Stratified random sampling was applied to provide more reliable and detailed information about the sample to obtain an accurate fraction representing the whole population (Etikan & Bala, 2017). The population were stratified according to regions, following (Hassan et al., 2018; Kamaruddin et al., 2018; and Teimouri et al., 2017). The respondents were grouped into five regions: Southern Region, East Coast Region, Northern Region, Central Region, and East Malaysia. Using the G*Power software, the sample size of 153 respondents was calculated.

Questionnaire Design

The questionnaire was divided into five sections, consisting of respondents' profiles (10 open-ended questions), firmographic profiles (11 open-ended questions), agility (32 closed-ended questions), barriers to agility (11 closed-ended questions), and organisational performance (10 closed-ended questions). The 5-point Likert scale measurement was used as recommended by Breffle et al. (2011). Some researchers preferred the 5-point Likert scale over the 7-point Likert scale because it is more stable and less prone to confusion (Michon et al., 2006; Vagias, 2006). Interview data was gathered via phone interviews, online forms, emails, and text messages using an interviewer-administered questionnaire. Additionally, a face-to-face interview was done with the intended respondents.

Results

Partial least squares structural equation modelling, or PLS-SEM, was applied to analyse the data gathered. PLS-SEM is a statistical technique useful in the social sciences to comprehend intricate interactions between many concepts (Razali et al., 2023). When examining complex data with numerous variables at once, is especially helpful (Latip et al., 2021).

Reflective-Formative Measurement Model

The purpose of the measurement model assessment is to ascertain whether the model is valid, dependable, and appropriately captures the relevant latent variables (Hair et al., 2019).

Internal Consistency Reliability

The sole internal consistency reliability metric considered in this study is composite reliability (CR), by the suggestion made by Hair et al (2019), that the construct scores should fall between 0.7 and 0.95. Table 1 shows that the CR values varied from 0.825 to 0.934. It suggests that each construct's dependability produces an acceptable and high rate of internal consistency.

Indicator Reliability (Outer Loadings)

According to Hair et al (2017), the acceptable values for indicator reliability should be more than or equal to 0.708, meaning that the latent variable can account for at least 50% of the variation in the indicator. It is still allowed to have loading values higher than 0.4, 0.5, and 0.6 as long as the total loadings provide high loading scores and add to an average variance extracted (AVE) score higher than 0.5 (Byrne, 2016). The rule of thumb is to eliminate the loadings with the lowest value contributing to the low AVE, provided that the elimination does not exceed 20% of the total items. Several items were deleted because of the low indicator's reliability that affected the AVE value, which are Comp_2 (0.419), Comp_8 (0.417), Adap_5 (0.497) and Adap_7 (0.517), as shown in Table 1.

Convergent Validity

Convergent validity is supported by statistics when each construct explains at least 50% of the variation of the designated indicator (AVE value >0.50; Fornell & Lacker, 1981). The AVE value of the study, which is in the range of 0.517 to 0.586, meets the requirement of being more than 0.5 (Table 1). These showed that the appropriate indicator of each latent construct may account for more than half of its variance.

Discriminant Validity

The discriminant validity of this study was assessed using the Heterotrait-Monotrait (HTMT) ratio. The HTMT results demonstrated that discriminant validity had been established between all constructs, with all indicators highly loaded on their corresponding constructs and below the required threshold value of HTMT.90.

Table 1
Reliability and validity statistics

| Construct | Item | Loading | Composite Reliability (CR) | AVE |
|------------------|-------------|----------------|-----------------------------------|------------|
| Responsiveness | Resp_1 | 0.596 | 0.921 | 0.574 |
| | Resp_2 | 0.801 | | |
| | Resp_3 | 0.865 | | |
| | Resp_4 | 0.762 | | |
| | Resp_5 | 0.864 | | |
| | Resp_6 | 0.801 | | |
| | Resp_7 | 0.742 | | |
| | Resp_8 | 0.568 | | |

| | | | | |
|---------------------|--------------|--------|-------|-------|
| Competency | Comp_1 | 0.602 | 0.825 | 0.519 |
| | Comp_3 | 0.822 | | |
| | Comp_4 | 0.826 | | |
| | Comp_5 | 0.785 | | |
| | Comp_6 | 0.609 | | |
| | Comp_7 | 0.638 | | |
| | Adaptability | Adap_1 | | |
| Adap_2 | | 0.659 | | |
| Adap_3 | | 0.721 | | |
| Adap_4 | | 0.731 | | |
| Adap_6 | | 0.751 | | |
| Adap_8 | | 0.687 | | |
| Speed | Spee_1 | 0.525 | 0.916 | 0.543 |
| | Spee_2 | 0.797 | | |
| | Spee_3 | 0.856 | | |
| | Spee_4 | 0.808 | | |
| | Spee_5 | 0.886 | | |
| | Spee_6 | 0.753 | | |
| | Spee_7 | 0.626 | | |
| | Spee_8 | 0.554 | | |
| Barriers to agility | BtA_1 | 0.659 | 0.934 | 0.566 |
| | BtA_2 | 0.782 | | |
| | BtA_3 | 0.798 | | |
| | BtA_4 | 0.731 | | |
| | BtA_5 | 0.664 | | |
| | BtA_6 | 0.728 | | |
| | BtA_7 | 0.810 | | |
| | BtA_8 | 0.886 | | |
| | BtA_9 | 0.679 | | |
| | BtA_10 | 0.755 | | |
| | BtA_11 | 0.750 | | |
| Performance | OP_1 | 0.704 | 0.925 | 0.586 |
| | OP_2 | 0.805 | | |
| | OP_3 | 0.780 | | |
| | OP_4 | 0.772 | | |
| | OP_5 | 0.587 | | |
| | OP_6 | 0.820 | | |
| | OP_7 | 0.800 | | |
| | OP_8 | 0.764 | | |
| | OP_9 | 0.737 | | |
| | OP_10 | 0.836 | | |

Structural Model

To proceed with the structural model, the Higher-Order Component Model (Reflective-Formative) in Figure 2 was utilised to evaluate the structural model and path coefficient.

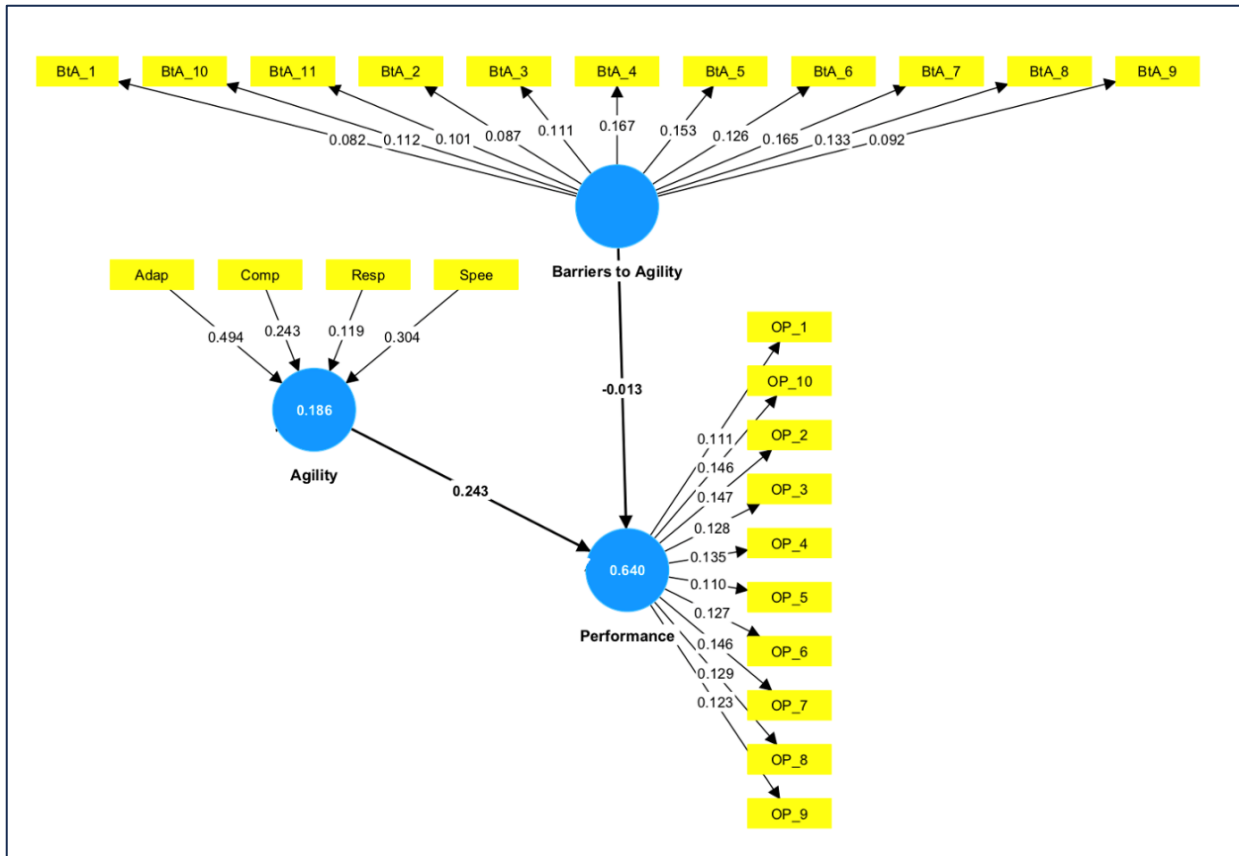


Figure 2: Higher Order Component Model (Reflective-Formative) - Two-Stage Approach and PLS-SEM Result

Source: Authors' work

Assessment of Structural Model

Variance inflation factor (VIF) values must be used to solve the lateral collinearity concerns in the first phase of the structural model assessment. Collinearity problems can also arise at the lower level of VIF, between 3 and 5, while VIF values above 5 suggest a likely problem with collinearity among predictor constructs (Becker et al., 2015). The VIF value between agility and organisational performance is 1.468, while the VIF value for barriers to agility and organisational performance is 1.255. Thus, collinearity is not a concern.

Assessment of Path-Coefficient

The assessment of the path coefficient illustrates the structural model relationships, representing the hypothesised connections among the constructs. Table 2 shows that all the relationships were found to be significant. The path coefficient values for hypothesis 1 show a positive relationship between variables, while hypothesis 2 shows a negative relationship between variables. A direct impact that considerably explains the diversity in organisational performance was found in the relationship between agility and performance. The second hypothesis posits that barriers to agility have an impact on the performance of organisations and that these barriers will have an impact on the oil palm plantations in Malaysia. Hence, it can be concluded that both hypotheses are significant, with a 5% probability of error.

Table 2

Path Coefficient Assessment (Direct Effect)

| Research Hypothesis | Path coefficients | Standard error | T Statistics | P Value | Result | Decision |
|---|-------------------|----------------|--------------|---------|-------------|-----------|
| H ₁ : Agility has a positive impact on organisational performance | 0.243 | 0.084 | 2.885 | 0.004 | Significant | Supported |
| H ₂ : Barriers to agility have an impact on organisational performance | -0.013 | 0.081 | 2.257 | 0.005 | Significant | Supported |

In general, agility makes it possible for an organisation to react to opportunities, problems, and changes in the external environment quickly and effectively. In turn, it influences organisational performance by enabling the ability to control internal activities, improve workers' satisfaction with management, increase ROI, and increase productivity. Agility has a positive impact on organisational performance, according to the research model ($\beta = 0.243$). This result showed that agility might be used to improve the performance of Malaysian oil palm plantations. From the perspective of the Resource-Based View (RBV), which highlights the significance of resources and capabilities in attaining sustainable competitive advantage, it is possible to examine the impact of agility on the performance of Malaysian oil palm plantations. According to the Resource-Based View (RBV), a company's distinct and valued resources and competencies are the source of its competitive advantage.

In Malaysian oil palm plantations, agility can be considered a valuable organisational capability. If the plantation has established a sustainable competitive advantage through agility, it will be difficult for competitors to match its performance, leading to long-term success. In conclusion, from the RBV perspective, agility is a valuable, rare, and potentially inimitable organisational capability for Malaysian oil palm plantations. Its impact on organisational performance lies in the ability to respond quickly and effectively to market changes, optimise production and secure a sustainable competitive advantage in the industry. By viewing agility as a critical resource and capability, plantations can position themselves for success in a dynamic and competitive market.

The path strength of the impact of barriers to agility on organisational performance was ($\beta = -0.013$). The results of this study are corroborated by Kwarteng et al (2023); Laurett et al (2021); and Mukherjee et al (2015), who show that organisational performance is impacted by barriers to agility, particularly in the agricultural fields. The β -coefficient of -0.013 indicates

that organisational performance and barriers to agility have a negative relationship. In this case, since the coefficient is negative, it suggests that organisational performance is expected to decrease by 0.013 units when barriers to agility increase by one unit. Conversely, if barriers to agility decreased by one-unit, organisational performance is expected to increase by 0.013 units. The Contingency Theory provides insight into the relationship between organisational performance and barriers to agility. The idea contends that some internal and external variables, such as the environment in which an organisation functions, affect how effective an organization's practices and strategies are. The oil palm plantation industry serves as the context in this instance, and agility and its barriers are the focus of the strategies and practices. The presence of barriers to agility can significantly negatively impact the plantation's performance. Suppose the organisation is not agile and flexible in responding to market changes or environmental shifts. In that case, it may face difficulties optimising production, meeting customer demands, and adapting to emerging opportunities. Barriers to agility can lead to delays in decision-making, reduced responsiveness, increased production costs, and missed opportunities, all of which can impact the overall performance and competitiveness of the plantation.

Moderation Analysis

The indirect effect of moderation analysis on the barriers to agility has a negative path coefficient value (-0.230). It suggests that barriers to agility have a significant moderating effect on the relationship between agility and organisational performance. These bias-corrected confidence intervals (CI) for the indirect effect are UL = 0.181, LL = 0.021, and 95%. The moderating effect is supported since the results did not straddle a zero in between. These findings thus supported a moderating role of barriers to agility between agility and organisational performance. In this instance, it demonstrates how the existence of barriers to agility reduces the impact of agility on organisational performance. Barriers to agility are a moderator that the organisation should take into consideration because their existence could reduce the benefits of agility on organisational performance.

Oil palm plantations facing low barriers to agility are likely to experience an enhanced ability to adapt quickly and respond to market changes. It can increase crop yield and cost savings and improve customer satisfaction, resulting in higher organisational performance. Meanwhile, the oil palm plantation faces high barriers to agility, and despite having the potential for agility, it may struggle to respond promptly to market dynamics or changing conditions. The presence of barriers can hinder the implementation of agile practices and prevent the plantation from fully leveraging its potential for agility. Consequently, organisational performance may be limited or compromised due to the challenges posed by the barriers. The moderating effect of barriers to agility emphasises how critical it is to recognise and resolve such barriers to fully experience the benefits of agility and its impact on organisational performance. The organisation can strengthen its agility and enhance performance by reducing barriers, such as improving decision-making processes, fostering innovation, providing adequate resources, and investing in technology. In conclusion, barriers to agility moderate the relationship between agility and organisational performance. The presence of barriers can influence how effectively agility translates into improved performance outcomes. In the dynamic and competitive world of oil palm plantations, overcoming these barriers is essential for plantations to maximise their agility potential and reach better performance levels.

Conclusion

This study explores the impact of agility and barriers to agility on organisational performance, thereby addressing a significant gap in the literature and contributing to a better understanding of the variables influencing performance. Furthermore, the study's findings showed that while barriers to agility have negative impacts on organisational performance, agility itself has a positive impact on that performance. Additionally, the findings demonstrated that organisational performance has been impacted by the moderating effect of barriers to agility. The results of the study have relevance to the plantation industry since they shed light on the relationship between organisational performance and agility. This information can guide the plantations' top management, policymakers and government agencies to enhance oil palm plantation performance.

This study opens the possibility for additional research on oil palm plantation management by introducing the concept of agility and the impact of barriers to agility on organisational performance. It offers a framework for further research to deepen and improve knowledge of the established connections between organisational performance, barriers to agility, and agility. Additionally, the analysis of relationships involving the moderator role can be done more sophisticatedly by using Partial Least Square-Structural Equation Modelling (PLS-SEM). The complex relationship between agility, barriers to agility, and organisational performance can be explained well by providing deeper insights into these relationships, which have not been extensively explored, making this study contribute to its novelty.

The study's findings have important contributions for academicians, industry practitioners, and policymakers by highlighting the role of agility and barriers to agility in improving Malaysian oil palm plantation performance. Theoretically, the study emphasises how agility as a dynamic capability enables plantations to adapt to change and improve performance, while barriers can hinder this process. Managerially, fostering a culture of adaptability and responsiveness is crucial for maintaining competitiveness, and managers should invest in flexible work practices, ongoing training, and technology. Policy-wise, creating frameworks that encourage adaptability and support agile practices is essential, benefiting agencies like the Ministry of Plantation and Commodities (MPC) and the Malaysian Palm Oil Industry (MPOI). Practical strategies include adopting agile management, continuous evaluation, and data-driven decision-making to improve plantation performance while aligning with sustainability goals. Hence, collaboration between government, industry, and research institutions is encouraged to address challenges and enhance resilience in the sector.

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