

Managerial Ability And Earnings Management: Moderating Role Of Risk-Taking Behavior

**Sulhendri^{1*}, Alex Johaness Simamora², Nicko Albart³, Sri Adella Fitri⁴, and
Listiana Sri Mulatsih⁵**

¹*Department of Accounting, Faculty of Economic and Business, Muhammadiyah University of Jakarta, South Tangerang, Indonesia*

²*Department of Accounting, Faculty of Economic, Tidar University, Magelang, Indonesia*

³*University Paramadina, Jakarta*

⁴*UIN Mahmud Yunus Batusangkar*

⁵*University Bung Hatta*

Email Address:

*sulhendri@umj.ac.id**, *alexjohanessimamora@untidar.ac.id*, *nicko.albart@paramadina.ac.id*,
sri.af@uinmybatusangkar.ac.id, *listiana@bunghatta.ac.id*

**Corresponding Author*

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Abstract: Examining how risk-taking behaviour affects managerial skills and earnings management is the goal of this study. The study's sample consists of 846 manufacturing companies listed on the Indonesian Stock Exchange between 2008 and 2018. Data envelopment analysis is a proxy for managerial skill. Accruals and actual earnings management are two aspects of earnings management. The firm fixed-effect regression is used in data analysis. The influence of managerial skills on earnings management is mitigated by risk-taking behaviour. Capable managers are more likely to use their propensity for risk-taking to manipulate earnings. Capable managers respond to earnings volatility resulting from risk-taking by implementing earnings management strategies. This study closes the gap left by earlier research and offers fresh proof of risk-taking behaviour that helps identify situations where managers use their expertise to control profits.

Keywords: Managerial Ability; Accruals Earnings Management; Real Earnings Management, Risk-Taking Behavior.

Abstrak: Penelitian ini bertujuan untuk menguji peran pemoderasi perilaku pengambilan risiko antara pengaruh kecakapan manajerial terhadap manajemen laba. Sampel penelitian yaitu 846 tahun-perusahaan manufaktur yang terdaftar di Bursa Efek Indonesia 2008-2018. Kecakapan manajerial diukur dengan data envelopment analysis. Manajemen laba diukur dengan manajemen laba akrual dan riil. Analisis data menggunakan regresi fixed-effect. Perilaku pengambilan risiko memoderasi pengaruh kecakapan manajerial terhadap manajemen laba. Manajer yang cakap cenderung menggunakan kemampuannya untuk melakukan manajemen laba jika manajer memiliki perilaku pengambilan risiko tinggi. Manajemen laba merupakan respon manajer untuk menghadapi volatilitas laba sebagai konsekuensi pengambilan risiko tinggi. Penelitian ini berkontribusi untuk menjawab gap penelitian terdahulu dan memberikan bukti baru bahwa pengambilan risiko menentukan apakah manajer yang cakap menggunakan kemampuannya untuk melakukan manajemen laba.

Kata Kunci: Kecakapan Manajerial, Manajemen Laba Akrual, Manajemen Laba Riil, Perilaku Pengambilan Risiko.

INTRODUCTION

Earnings management is triggered by the importance of earnings information for financial statement users to evaluate managers' performance. The importance of earnings



information leads managers to manage reported earnings, especially when managers' performance evaluation involves earnings-based compensation. Managers can use two types of earnings management: accrual earnings management (from now on referred to as AEM) and natural earnings management (from now on referred to as REM). AEM allows managers to manage earnings by utilising GAAP weaknesses, while REM allows managers to manage earnings by deviating from business activities (Simamora, 2019).

Earnings management becomes an essential issue in accounting as it can affect the quality of financial statement information (Menicucci, 2020). (Iriyadi, 2019) explains that earnings management can mislead stakeholders to assess the actual condition of the firms. The known scandal of Enron shows that misappropriation of accounting judgment to markup reported earnings leads to a stock price fall as it misleads shareholders. In the Enron case, earnings markup leads to Enron's bankruptcy. There is a case of Indonesian Accounting Standard misappropriation by *PT in Indonesia Garuda Indonesia* in 2018. After financial restatement that the Indonesian Stock Exchange, *PT, requests Garuda Indonesia* experiences losses of USD 175 million. Before financial restatement, *PT Garuda Indonesia* earns up to USD 809 thousand by recognising the long-term project contract value as current revenue (Christian et al., 2021).

Based on the upper echelons theory, managerial characteristics are essential to determining a business strategy, including the decision to manage earnings. Managers are the main actors when firm management engages in earnings management. In this case, managerial characteristics such as managerial ability can determine whether managers manage earnings. (Demerjian et al., 2020) suggest that managerial ability is essential to determining a critical decision in many business activities. (Demerjian et al., 2020) also suggest that managers' managerial ability can be used in financial reporting strategy and affect information quality, including reported earnings quality.

On the one hand, prior studies (Baik et al., 2020; Demerjian et al., 2020; Imeni et al., 2021; Majid et al., 2020) demonstrate that managerial skill increases earnings management, including AEM and REM. Managers with higher managerial talents are more equipped to understand the business and industry of the company, including accounting policies, business knowledge, and skill tasks related to managing earnings. According to agency theory, managers' and shareholders' information asymmetry and agency conflict are the root causes of earnings management behaviour. In this instance, the manager takes advantage of the information gap between shareholders and managers to become more active in managing earnings. Higher-ability managers are incentivised to use their skills to manage earnings more because they can get paid more (Majid et al., 2020) or face greater pressure if they do not meet profit targets (X. Huang & Sun, 2017).

On the other hand, previous research shows that managerial ability has a negative effect on earnings management, including AEM and REM (X. Huang & Sun, 2017; La'bi et al., 2018; Majid et al., 2020; Skousen et al., 2019). Higher managerial ability allows managers to have higher knowledge and skills about the company's business and industry to increase company profitability without carrying out earnings management (X. Huang & Sun, 2017). Based on stewardship theory, managers tend to achieve their goals by fulfilling the interests of shareholders because achieving managers' own goals requires expensive costs (Chrisman, 2019). In conditions where earnings management provides misleading information for shareholders, managers with higher abilities will be more likely to reduce earnings management and fulfil the interests of shareholders by providing higher-quality earnings information (Nusantara, 2018).



Previous studies provide conflicting results between managerial ability and earnings management. It comes from the need for previous studies considering the risk preference of how managers run the business. Managers have an important role in formulating and executing the business strategy, including a risky strategy. Yung and Chen (2018) explain that capable managers can be risk-takers or risk-averse depending on their preferences regarding firms' businesses and industries. Higher-ability managers take higher risks when they assess that a risky strategy can bring innovation and the potential for better performance in the future. However, higher-ability managers can also engage less in a risky strategy as it brings uncertainty, especially when higher-ability managers use their ability more to protect their interests (Yung & Chen, 2018).

Both risk-taking behaviour and managerial ability affect earnings management behaviour. Risk-taking behaviour leads managers to take a risky strategy. A risky strategy comes with a higher uncertainty where the potential of higher profits and more considerable losses are equal (Alharbi et al., 2021). Higher uncertainty leads to higher earnings volatility. (Demerjian *et al.*, 2020) explain that higher performance volatility, including earnings volatility, pushes managers to manage earnings. (Alharbi *et al.*, 2021) find that risk-taking behaviour increases REM. (Billings *et al.*, 2020) also find that risk-taking behaviour increases REM to achieve an option-based compensation target. (Mayberry *et al.*, 2021) find that managerial incentive leads risk-taker managers to engage in AEM.

Higher earnings volatility shows managers fail to manage risk (Phua et al., 2021). Earnings management also results from ineffective risk management (Busru et al., 2022). Weak risk management can be a problem that might lead to earnings management behaviour.

If capable managers have risk-taker preferences to run the business, they will employ their skills to manage reported earnings as a risky strategy brings higher earnings uncertainty. Based on agency theory, higher agency conflict comes from weaker governance mechanisms and ineffective risk management (Dewanta & Arifin, 2020). In this case, higher agency conflict leads managers to have risk-taking behaviour without managing the uncertainty that comes after (Dewanta & Arifin, 2020). It allows higher-ability managers with risk-taker preferences to engage more in earnings management. Conversely, higher-ability managers with risk-averse preferences to run the business tend to use their ability to improve performance efficiently without engaging in earnings management. Stewardship theory assumes that interest alignment between managers and shareholders comes from an effective monitoring mechanism (Chrisman, 2019). The monitoring function can reduce risk-taking behaviour by managers as it is also costly for shareholders because the profitability uncertainty can lead to loss potential. Based on an explanation of managerial ability, earnings management, and risk-taking behaviour, this research examines the moderating role of risk-taking behaviour on managerial ability and earnings management.

This research has made some contributions. **First**, as noted by (Baik et al., 2020), (Demerjian et al., 2020), (Huang & Sun, 2017), (Imeni et al., 2021), (La'bi et al., 2018), (Majid et al., 2020), and (Skousen et al., 2019), this research resolves the discrepancy between managerial skill and earnings management. This study offers a new perspective on an issue that other research should have addressed: whether or not high-ability managers manipulate earnings. Risk-taking behaviour was examined in this study to



ascertain the tendency of risk-taking managers with a strong managerial aptitude to manipulate earnings.

Second, this research provides new evidence on the role of risk-taking behaviour in explaining whether managers use their skills to manage the business efficiently and achieve better performance without carrying out earnings management or whether they tend to use their knowledge and skills to become more involved in earnings management. The results of risk-taking behaviour as a moderating variable between managerial ability and earnings management are a new addition to the literature on the relationship between managerial ability and earnings management. This research brings novelty to the literature where risk-taking behaviour determines that agency theory better explains the relationship between risk-taking managers and earnings management. In contrast, stewardship theory explains more about the relationship between risk-averse managers and earnings management.

Third, based on additional analysis, this research also finds new evidence that not all risk-taking behaviour leads higher-ability managers to manage earnings. This research gives novelty of under what conditions risk-taking behaviour leads high-ability managers to engage in earnings management. Only risk-taking behaviour is related to efficient strategy implementation (defender and analyser firms) and managers with overconfidence, leading higher-ability managers to engage in earnings management.

Fourth, this research is the first in Indonesia to involve risk-taking behaviour by higher-ability managers in determining earnings management. New findings on risk-taking behaviour, managerial ability, and earnings management become evidence of novelty.

THEORETICAL REVIEW

Agency Theory. The link between managers and shareholders is explained by agency theory (Simamora, 2019). This relationship's agency conflict demonstrates how managers frequently use earnings management to further their own goals rather than the interests of shareholders. When it comes to managerial ability, managers employ their aptitude by using their expertise in business and the industry to manipulate reported results by taking advantage of GAAP loopholes or by diverting from regular business operations. Managers must participate more in AEM and REM due to the information imbalance between them and shareholders.

Agency theory assumes agency conflict results from weak monitoring and controlling functions and weaker governance mechanisms. Dewanta and Arifin (2020) explain that monitoring and controlling functions in governance mechanisms can reduce firms' risk and tend to choose risk-averse preferences to run the business. Agency conflict leads to higher risk-taking behaviour due to a lack of monitoring and controlling functions (Dewanta & Arifin, 2020; Mathew et al., 2018).

Stewardship Theory. According to stewardship theory, managers look out for shareholders. To maximise their interests and ensure that shareholders' wealth is realised, managers prioritise the needs of their shareholders (Chrisman, 2019). It is less common for managers to manipulate earnings in a way that could deceive investors. Regarding managerial aptitude, managers use their business and industry expertise to run profitable operations effectively without manipulating earnings.

Additionally, managers take advantage of their capacity to give investors better information. According to the stewardship theory, efficient governance implementation



aligns managers' and shareholders' interests (Chrisman, 2019). When governance is established correctly, managers typically decide to operate the company using a lower-risk approach (Mathew et al., 2018).

Upper Echelons Theory. The upper-echelon theory explains that an organisation's strategy selection and decision-making process depend on managerial characteristics (Abatecola & Cristofaro, 2018). Managerial characteristics determine how managers interpret business information and problems and consider them for a specific strategy. In this case, managerial characteristics, such as managerial ability, determine managers' risk preferences and financial reporting strategy. Managerial ability refers to a manager's knowledge, skill, expertise, and experience (Sukriani et al., 2023). Managerial ability can determine whether managers will execute a business strategy and a certain level of risk (Yung & Chen, 2018).

Managerial Ability and Earnings Management. The terms AEM and REM refer to earnings management. Initially, AEM stands for earnings management, which uses estimating and various accounting techniques. Second, earnings management by deviation from regular business operations is referred to as REM. Managers can use both REM and AEM to control earnings. Using accounting techniques like the depreciation method, inventory value method, sales recognition method, or estimating allowance for doubtful debt, managers participate in AEM (Scott & O'Brien, 2019). In order to lower the cost of a good sale, managers engage in over-sales with price discounts and lean credit policies. They also reduce discretionary expenses to lower costs associated with sales, general, administration, advertising, and research and development (Rokhaniyah et al., 2023).

(Huang & Sun, 2017) identified three perspectives on the relationship between managerial competence and earnings management: a positive relationship, a negative relationship, and no relationship. First, managing earnings is positively impacted by managerial skills. There is pressure on all managers to surpass earnings expectations. Higher-ability managers are more likely to experience pressure if they fail to meet earnings targets since they are more likely to reach a particular profitability level (X. Huang & Sun, 2017). In this scenario, managers with greater managerial aptitude will apply their expertise to manage earnings more. Higher-ability managers can match their abilities to financial reporting strategies (X. Huang & Sun, 2017) by performing business activities above normal levels to engage in REM or selecting a specific accounting method and estimation to engage in AEM. They possess greater knowledge and skill (Demerjian et al., 2020). Higher-ability managers have been found to participate more in AEM (Majid et al., 2020), REM (X. Huang & Sun, 2017), classification shifting (Imeni et al., 2021), and income smoothing (Baik et al., 2020; Demerjian et al., 2020) among other earnings management tactics.

Secondly, there is a negative correlation between managerial ability and earnings management. Without resorting to profit management, managers with more competence can produce more revenue from a given set of resources (Demerjian et al., 2020). Higher-ability managers are also conscious of the negative effects of earnings management on a company's ability to create value and perform poorly in the future (Simamora, 2019). Higher-ability managers spend more of their abilities on effective business operations than on controlling earnings by taking advantage of GAAP loopholes or diverting from regular business operations since they have more skill and knowledge than lower-ability managers. However, they also have limited time and effort. As managerial ability is also linear to managers' reputation (Demerjian et al., 2020), it will be costly for higher-ability



managers to engage in unethical behaviour such as earnings management. Previous studies show that higher-ability managers engage less in some earnings management strategies such as AEM (La'bi et al., 2018), REM (X. Huang & Sun, 2017; Majid et al., 2020), and classification shifting (Skousen et al., 2019).

Third, managerial ability is independent of earnings management. All managers are equal, whereas higher and lower-ability managers get similar pressure to beat earnings targets (X. Huang & Sun, 2017). Managerial ability is irrelevant in explaining the variation of earnings management as earnings management behaviour is determined more by managerial ethics than ability factors. In this case, supervisory and monitoring are needed to ensure managers' ethical behaviour is more relevant to determining the earnings management level (Romadhon & Kusuma, 2020). This research uses the role of risk-taking behaviour to determine the effect of managerial ability on earnings management.

Risk-Taking Behavior and Earnings Management. Risk-taking behaviour is the propensity to take a risky strategy (Yung & Chen, 2018). Risk preferences by managers determine risk-taking behaviour. When managers use a risky strategy, there is a higher uncertainty where higher risk can offer higher profits, but at the same time, higher risk can also bring bigger losses. Uncertainty leads managers to make an adjustment when uncertainty leads to higher costs and reduces revenue (Rigamonti et al., 2024). Profits-losses uncertainty can lead to higher earnings volatility. Managers will adjust earnings volatility by engaging in earnings management. Previous studies find that risk-taking behaviour leads managers to engage more in the REM (Alharbi et al., 2021; Billings et al., 2020) and AEM (Mayberry et al., 2021).

Managerial Ability and Risk-Taking Behavior. Managers determine how the business will be run and decide the selection strategy based on their risk preferences. Risk-taker managers will choose a risky strategy, while risk-averse managers will choose a lower-risk strategy. As risk-taking behaviour depends on managerial characteristics, managerial ability can affect managers' risk preferences.

Higher-ability managers can engage in a risky strategy or a lower-risk one. Some arguments show that higher-ability managers tend to be risk-takers. Managerial ability relates to firms' innovation (Ting et al., 2021), while innovation is close to risk-taking (Widianingsih et al., 2023). Higher-ability managers also have higher knowledge and skills in investment risk and return (Chen et al., 2021). In this case, higher managerial ability facilitates higher-ability managers to be risk-takers and engage more in risky business strategies. (Yung & Chen, 2018) find that higher-ability managers take more risks than lower-ability ones. (Chen et al., 2021) also find that skilful and reputable managers tend to choose a risky investment project.

There is also the argument that suggests higher-ability managers are risk-averse. (Alzugaiby, 2022) argues that higher-ability managers will use a lower-risk strategy to protect their reputation if a risky strategy can lead firms to losses and harm their reputation. (Zhang et al., 2022) find managers with higher intelligence and education tend to avoid risk.

Hypothesis. On the one hand, high-ability managers use their knowledge and skills to engage in AEM and REM. Based on agency theory, competent managers take the opportunity to exploit conditions of information asymmetry between managers and shareholders to fulfil their interests compared to the interests of shareholders. By engaging in earnings management, highly skilled managers will use their knowledge of the company's accounting policies to manage the accrual component of earnings and align



their capabilities with AEM. (Majid *et al.*, 2020) found that managerial ability positively affects AEM. Managers with higher capabilities can also use their knowledge of the company's business to deviate from standard operating activity levels and align their capabilities with REM. (Putra *et al.*, 2021) found that managerial ability also positively affects REM.

On the other hand, high-ability managers tend to use their knowledge and skills to carry out efficient business processes to achieve optimal profitability without engaging in AEM or REM. Based on stewardship theory, managers with higher abilities will use their abilities to provide higher-quality information to shareholders because managers can achieve their interests if they can fulfil them. In the context of higher earnings management causing lower earnings quality (Menicucci, 2020), managers with higher abilities will provide higher earnings-quality information by avoiding earnings management behaviour.

The risk preferences of managers will determine how managers with greater ability will use their abilities. Managers of higher ability who have a predisposition for taking risks will make greater use of their abilities to manage earnings. First, risk-taking behaviour results from higher earnings volatility (Yung & Chen, 2018). In this case, higher-ability managers engage more in earnings management to reduce volatility. Second, earnings management itself has a risk of information (Dewi *et al.*, 2020) where earnings information does not reflect the actual condition of firms' performance (H.-L. Huang *et al.*, 2021) and potential of litigation risk where there will be a potential by financial information users to sue the firms or managers as earnings management can generate incorrect economic decision (Liao & Ouyang, 2019). As earnings management also contains a risk, higher-ability managers with higher risk-taking behaviour will take the risk to fulfil their interests, such as managerial compensation. Third, agency theory suggests that higher agency conflict leads to higher risk-taking behaviour. Good governance as the mechanism to reduce risk must be implemented as it fails to reduce agency conflict (Dewanta & Arifin, 2020; Mathew *et al.*, 2018). In this case, higher-ability managers with higher risk-taking behaviour are in a situation where there is a higher agency cost, leading managers to engage in earnings management.

Higher-ability managers with risk-averse preferences will use their ability to implement an efficient business rather than engage in earnings management. First, lower risk-taking provides lower earnings volatility. In this case, higher-ability managers with lower risk-taking do not need to reduce earnings volatility using earnings management. Second, earnings management, once again, leads to a higher risk of information (Dewi *et al.*, 2020) and litigation (Liao & Ouyang, 2019). Higher-ability managers with lower risk-taking behaviour will avoid any higher risk component, including information risk, and focus more on efficient business processes. Third, stewardship theory suggests that interest alignment leads to lower risk-taking behaviour. Interest alignment is an indicator of effective governance. Effective governance can also be a mechanism to reduce risk (Dewanta & Arifin, 2020; Mathew *et al.*, 2018). Here, managers who possess greater competence but exhibit less risk-taking behaviour find themselves in a position where the interests of shareholders and managers coincide, discouraging managers from managing firms' income. Based on the explanation that different risk preferences lead higher-ability managers to make different decisions regarding earnings management, risk-taking behaviour can take a moderating role in determining whether managerial ability will increase or reduce earnings management.



(Alharbi *et al.*, 2021) find that risk-taker managers perform REM. (Billings *et al.*, 2020) find that option-based compensation motivates risk-taker managers to engage in REM. (Mayberry *et al.*, 2021) also found a similar result: Option-based compensation motivates risk-taker managers to engage in AEM. Based on hypothesis development and previous studies, the research hypothesis is as follows.

Ha: Risk-taking behaviour moderates the effect of managerial ability on earnings management.

METHODS

Data and Sample. This research uses financial statement data from 2003-2022, as the oldest historical data it can get is from 2003. The data are accessed from firms' websites listed on the Indonesian Stock Exchange 2003-2022 and the database of The Indonesia Capital Market Institute. However, for variable estimation purposes, this research uses data from the period of t minus 5 to the period of t plus 4 (Demerjian *et al.*, 2020), so the research period will be from 2008 to 2018.

Manufacturing companies listed on the Indonesian Stock Exchange represent the research sample. There are some considerations that sample selection leads to manufacturing firms. First, this research limits the different accounting and operating activities in different industries. In this case, accounting and operating activities in the manufacturing industry lead to a different level of earnings management compared to other industries. Second, this research examines both AEM and REM, where REM activities include over-production. (Rokhaniyah *et al.*, 2023) explain that the non-manufacturing industry is irrelevant to over-production as the production process relates to the manufacturing business. Third, most earnings volatility cases happen in the manufacturing industry as distributors constantly adjust prices to manufacturing firms based on end-customer demand (Ridloah *et al.*, 2022). The research sample must also be in a sub-sector with more than one firm for managerial ability estimation purposes. There are 846 manufacturing firms-year as in **Table 1**.

Table 1. Sample

Sample	Firm	No. of Observation 2008 to 2018
Manufacturing firms listed on the Indonesian Stock Exchange from 2003 to 2022	99	1,089
Only one firm in one sub-sector	(1)	(11)
Missing data	(4)	(44)
Net Sample	94	1,034

Earnings Management Measurement. The intervention of managers to control the reported earnings is referred to as earnings management (Scott & O'Brien, 2019). This research uses earnings management of AEM and REM. Discretionary accruals estimate AEM. This research uses a model of Modified Jones to estimate discretionary accruals. Discretionary accruals are estimated in 2003-2020 by considering the available data in this



research and the estimation period of other variables of managerial ability and risk-taking behaviour. Estimation of discretionary accruals as in equations of 1 to 3.

$$DAC_t = \frac{TAC_t}{Assets_{t-1}} - NDA_t \dots\dots\dots (1)$$

$$NDA_t = \hat{\alpha} + \hat{\beta}_1 \frac{1}{Assets_{t-1}} + \hat{\beta}_2 \frac{\Delta REV_t - \Delta REC_t}{Assets_{t-1}} + \hat{\beta}_3 \frac{PPE_t}{Assets_{t-1}} \dots\dots\dots (2)$$

$$\frac{TAC_t}{Assets_{t-1}} = \alpha + \beta_1 \frac{1}{Assets_{t-1}} + \beta_2 \frac{\Delta REV_t}{Assets_{t-1}} + \beta_3 \frac{PPE_t}{Assets_{t-1}} \dots\dots\dots (3)$$

DAC_t denotes the discretionary accruals period of t. The total accruals period (TAC_t) is t. The entire assets period of t minus 1 is equal to assets-1. The non-discretionary accruals period of t is known as NDA_t. The revenue period of t is represented by ΔREV_t. ΔREC_t represents a shift in the receivable period of t. PPE_t stands for the period of t gross value of fixed assets. The values of α̂, β̂₁, β̂₂, and β̂₃ are the estimated values of α, β₁, β₂, and β₃ using the equation of 3. The absolute value of discretionary accruals is used to calculate AEM. The higher absolute value of discretionary accruals shows a higher level of AEM.

REM includes activities of over-sales, over-production, and discretionary expense cutting. Over-sales is measured by abnormal operating cash flow estimated using the equation of 4. Over-production is measured by abnormal production estimated using the equation of 5. Discretionary expense cutting is measured by abnormal discretionary expenses estimated using the equation of 6. REM is calculated using the aggregate of abnormal activities as in equation 7. Abnormal activities are also estimated from 2003 to 2020 by considering the available data in this research and the estimation period of other variables of managerial ability and risk-taking behaviour. Abnormal activities estimation (Pinitkan & Wisitpongphan, 2020) and aggregate of REM calculation (Adeneye & Kammoun, 2022) can be seen in equations 4 to 7.

$$\frac{CFO_t}{Assets_{t-1}} = a + b_1 \frac{1}{Assets_{t-1}} + b_2 \frac{Sales_t}{Assets_{t-1}} + b_3 \frac{\Delta Sales_t}{Assets_{t-1}} + e_t \dots\dots\dots (4)$$

$$\frac{PROD_t}{Assets_{t-1}} = a + b_1 \frac{1}{Assets_{t-1}} + b_2 \frac{Sales_t}{Assets_{t-1}} + b_3 \frac{\Delta Sales_t}{Assets_{t-1}} + b_4 \frac{\Delta Sales_{t-1}}{Assets_{t-1}} + e_t \dots\dots\dots (5)$$

$$\frac{DISC_t}{Assets_{t-1}} = a + b_1 \frac{1}{Assets_{t-1}} + b_2 \frac{Sales_{t-1}}{Assets_{t-1}} + e_t \dots\dots\dots (6)$$

$$REM = -abnormal\ operating\ cash\ flow + abnormal\ production + abnormal\ discretionary\ expenses \dots\dots\dots (7)$$

During the cash flow period of t, CFO_t operates. PROD_t, or the production cost period of t, is computed by adding the cost of the good-sold period of t to the change in inventory period of t. DISC_t is discretionary expenses, including advertising, general administration, sales, and research and development. The whole assets period of t-1 is represented by assets-1. Sales is the total amount of sales for t. The whole sales period of t minus one is known as sales-1. Sales represent a shift in the sales period. Sales_{t-1} changes the sales period of t-1.



A negative abnormal operating cash flow value indicates managers participate in REM through over-sales activities. Its value in equation 4 is an indicator of abnormal operating cash flow. The value in Equation 5 indicates abnormal production and a positive value of abnormal production indicates that managers participate in REM by engaging in over-production. The value in equation 6 indicates atypical discretionary spending, and the negative value of discretionary spending demonstrates that managers engage in REM by reducing discretionary expenses.

This research concludes that REM's positive value indicates that managers are engaged in REM to increase earnings. In contrast, a negative value of REM indicates that managers do not engage in REM. REM aims to avoid losses or beat earnings targets by increasing reported earnings (Tran & Duong, 2020). A larger value of REM in Equation 7 indicates a higher amount of REM.

Managerial Ability Measurement. As Demerjian *et al.* (2020), this research uses data envelopment analysis to calculate total firms' efficiency and make a regression of firm-specific efficiency on total firms' efficiency to estimate manager-specific efficiency into managerial ability measurement. Data envelopment analysis is performed for firms with similar output and inputs by grouping the firms in the same sub-sector in three digits of industry code, as (Demerjian *et al.*, 2020) suggested based on the Jakarta Stock Industrial Classification (JASICA). In this case, at least two firms must be in a sub-sector. Total firms' efficiency is calculated using data envelopment analysis in equation 8, and manager-specific efficiency is estimated in equation 9 (Demerjian *et al.*, 2020).

$$Firm\ Efficiency = \frac{Sales}{v1COGS+v2SGA+v3PPE+v4OpsLease+v5RD+v6Goodwill+v7OtherIntan} \dots (8)$$

$$Firm\ Efficiency = a + b1 \ln(total\ assets) + b2market\ share + b3free\ cash\ flow + b4 \ln(age) + b5business\ segment\ concentration + b6foreign\ currency\ indicator + \sum SubSector_{Effect} + \sum Year_{Effect} + e \dots (9)$$

COGS refers to the cost of goods sold. *SGA* refers to sales, general, and administrative expenses. *PPE* refers to net properties, plants, and equipment. *OpsLease* refers to lease expenses capitalised in period *t* minus 5 to *t* minus 1. *RD* refers to research and development capitalised in period *t* to *t* plus 4. *Goodwill* refers to the net goodwill. *OtherIntan* refers to net other intangible assets besides goodwill. Total assets refer to the value of assets. Market share refers to the proportion of firms' sales to the sub-sector sales level. Operating cash flow less capital expenditure is referred to as free cash flow. The score is 1 in the case of positive free cash flow and 0 in the case of negative free cash flow. Age refers to the companies' listing duration on the Indonesian Stock Exchange. The average product and geographic segment concentration value is called business segment concentration (Atika *et al.*, 2022). The foreign currency indicator is a dummy variable that receives a score of 0 if the company reports no foreign currency adjustment and a score of 1 if it does. The sub-sector effect regulates the efficiency of the firms, which is determined by the sub-sector. The year effect regulates the *ln* (age) variable. To avoid outliers data, the managerial ability is the decile rank of *e* in equation 3 for each sub-sector (Demerjian *et al.*, 2020).

Risk-Taking Behavior Measurement. The risk-taking measurement related to managers' behaviour is earnings volatility (García-Alcober *et al.*, 2020). As managerial



ability relates to managers and earnings management relates to managers' behaviour and earnings information, this research uses earnings volatility as a risk-taking behaviour measurement. When engaging in risky projects and investments, earnings volatility indicates uncertainty in managers' behaviour (Yung & Chen, 2018). Earnings volatility is measured by the standard deviation of return on assets in the last five years (period of t-4 to the period of t) (Yung & Chen, 2018).

Control Variables. Firm size, market-to-assets value, and profitability are treated as control variables. (Simamora, 2019) suggests that firm size, market-to-assets value, and profitability aim to control whether an unusual change in reported earnings comes from earnings management behaviour or business condition and firm growth. Bigger firm sizes reduce earnings management as more prominent firms have more resources to generate higher profitability without engaging in earnings management (Pangesti, 2019). The log nature of total assets calculates firm size. Market to assets value has a negative effect on earnings management as firms' earnings management will be assessed negatively by the market and have a lower market value (Muslim, 2020). Market to assets value is measured by the market value of the firm share (the number of shares is multiplied by market price) at the end of the year divided by total assets. Firms with higher profitability tend to engage less in earnings management as they have already achieved higher performance (Muslim, 2020). Profitability is measured by the return on assets at the end of the previous year, as previous earnings are usually used as a benchmark for earnings management (Simamora, 2019).

Data Analysis. This research uses firm fixed-effect regression to examine the hypothesis. First, firm fixed-effect aims to control each firm, which has different characteristics that lead to different strategy implementation and risk tolerance to the strategy formulation. Second, this research uses the Chow Test and Hausman Test as model selection analysis, and the result is significant at 0.050. It suggests that the common-effect and random-effect models are inferior to the fixed-effect model. This research also runs normality, heteroscedasticity, autocorrelation, and multicollinearity as feasibility tests to ensure the regression model is unbiased. The empirical model is as in equations 10 and 11.

$$AEM = a + b_1MA + b_2MA \times RISK + b_3RISK + b_4SIZE + b_5MVA + b_6ROA + e$$

..... (10)

$$REM = a + b_1MA + b_2MA \times RISK + b_3RISK + b_4SIZE + b_5MVA + b_6ROA + e$$

..... (11)

AEM stands for accrual earnings management, *REM* for real earnings management, *MA* for managerial ability, *RISK* for risk-taking behaviour, *SIZE* for firm size, *MVA* for the market-to-asset value, and *ROA* for the previous year. The hypothesis is accepted if the coefficient of *b*₂ in equations 10 and 11 is positive and significant.

RESULTS

The result section provides descriptive statistics, feasibility tests, main regression results, and alternative results of managerial overconfidence and business strategy. Descriptive statistics capture the descriptive of interest variables. Feasibility test provides



normality, heteroscedasticity, autocorrelation, and multicollinearity results. The main regression result provides the regression of earnings management, managerial ability, and risk-taking behaviour. The alternative result of managerial overconfidence is the regression of earnings management, managerial ability, and risk-taking behaviour in the case of managerial overconfidence. The alternative result of business strategy is the regression of earnings management, managerial ability, and risk-taking behaviour in the case of different business strategies.

Table 2. Descriptive Statistics

Variable	Mean	Maximum	Minimum	Std. Dev.
AEM	0.076	2.288	0.000	0.124
REM	-0.004	1.231	-1.173	0.167
MA	5.336	10.000	1.000	3.250
RISK	0.048	1.055	0.002	0.086
SIZE	28.163	33.199	24.850	1.618
MVA	1.004	17.947	0.011	1.843
ROA	0.057	2.655	-0.546	0.141

Descriptive Statistics. The descriptive statistics of the relevant variables for 846 firm-years are displayed in **Table 2**. AEM has a maximum level of 2.288 and a minimum level of 0.000. AEM has a mean value of 0.076 and a variation of 0.124. On average, every sample firm uses AEM at a level of 0.076 to raise or lower reported earnings. REM has a maximum level of 1.231 and a minimum level of -1.173. REM has a mean value of -0.004 and a deviation of 0.167. On average, sample firms tend to engage less in REM as the mean of REM has a negative value. The highest managerial ability (MA) is 10, while the lowest is 1. Since managerial ability falls within the decile rank range of manager-specific efficiency, managers in each sample firm typically have average managerial ability ranging from 5.336 to 3.251. Managers' risk-taking behaviour (RISK) ranges from 0.002 to 1.055, with 1.055 being the highest. Within each sample firm, managers' average level of risk-taking behaviour is 0.048, with a 0.086 deviation.

Table 3. Feasibility Test

Test	AEM Model	REM Model
		Result
Jarque-Bera	0.515*	0.453*
White Test	1.117*	1.303*
Serial Correlation LM Test	0.479*	0.2680*
VIF	VIF below 10	VIF below 10

*insignificant

Feasibility Test. **Table 3** shows the feasibility test results, including normality, heteroscedasticity, autocorrelation, and multicollinearity tests for AEM and REM models. The values of Jarque-Bera for the AEM and REM models, respectively, are 0.515 (insignificant in level 0.050) and 0.453 (insignificant in level 0.050), indicating that this research is free from normality problems. The f-Statistic of the White Test for the AEM and REM models, respectively, are 1.117 (insignificant in level 0.050) and 1.303



(insignificant in level 0.050), which indicates this research is free from heteroscedasticity problems. The f-Statistic of the Serial Correlation LM Test for the AEM and REM models are 0.479 (insignificant in level 0.050) and 0.268 (insignificant in level 0.050), indicating this research is free from autocorrelation problems. The values of VIF of independent variables in AEM and REM models are below 10, which indicates that this research is free from multicollinearity problems.

Table 4. Main Result

Dependent Variable	AEM		REM	
	(1)	(2)	(1)	(2)
Independent Variable				
MA	0.000	0.002	-0.002	0.000
<i>MA x RISK</i>			-1.356	0.102
			0.061	0.041
			4.892***	2.027**
RISK			0.237	0.317
			3.058***	2.510**
SIZE	-0.005	0.006	-0.002	0.005
	-1.969**	1.634	-0.704	1.492
MVA	-0.015	-0.003	-0.009	-0.002
	-6.459***	-0.866	-4.202***	-0.599
ROA	-0.407	-0.114	-0.219	-0.144
	-13.399***	-2.546**	-6.683***	-2.710***
Constant	0.202	-0.171	0.099	-0.139
Adjusted R ²	0.177	0.011	0.327	0.016
F-Stat	46.562***	3.313***	69.537***	3.373***
Firm Fixed-Effect	Yes	Yes	Yes	Yes

***significant in 0.010, **significant in 0.050,
 (1) before involving risk-taking behaviour,
 (2) after involving risk-taking behaviour

Main Result. Table 4 provides a fixed-effect regression result of managerial ability (MA) on earnings management (AEM and REM) with risk-taking behaviour (RISK) as a moderating variable. It is controlled by firm size (SIZE), market value to assets (MVA), and previous return on assets (ROA). Table 4 also provides the result of managerial ability (MA) on earnings management (AEM and REM) before involving risk-taking behaviour as a moderating variable to compare whether managerial ability affects earnings management. In model AEM and model REM (before involving risk-taking behaviour as a moderating variable), respectively, managerial ability (MA) has coefficient values of 0.000 and 0.002 with t-statistic values of 0.290 (insignificant) and 1.370 (insignificant). It indicates that managerial ability does not affect AEM and REM without considering the risk-taking behaviour of managers.

The moderating effect of risk-taking behaviour (MA x RISK) in model AEM has a coefficient value of 0.061 with a t-statistic of 4.892 (significant in 0.010) after including risk-taking behaviour as a moderating variable. It suggests that those with greater aptitude and a propensity for taking risks participate in AEM more. The moderating effect of risk-taking behaviour (MA x RISK) in model REM has a coefficient value of 0.041 with a t-statistic of 2.027 (significant in 0.050), following the inclusion of risk-taking behaviour as



a moderating variable. It suggests that those with greater aptitude and a propensity for risk-taking participate in REM more.

Alternative Test (Managerial Overconfidence). This research performs an alternative test by adjusting the main result with the condition of managerial overconfidence. There are claims that managers who exhibit greater levels of managerial overconfidence also tend to be more risk-takers. Managerial overconfidence refers to a managerial characteristic where managers tend to be confident about a problematic situation, which leads managers to have higher excitement and enthusiasm toward risks and challenges (Qiao et al., 2023). (Sutrisno *et al.*, 2023) find that managers with higher overconfidence tend to overinvestment and higher risk-taking. (Alharbi *et al.*, 2021) also explain that managers with higher overconfidence tend to overvalue negative return projects and eliminate feedback values. (Qiao et al., 2023) find that overconfidence increases earnings management as managers have an optimistic bias about future performance that leads to misreporting behaviour. (Alharbi *et al.*, 2021) also find that overconfidence drives risk-taker managers to engage more in earnings management. Based on the explanation, this research suggests that the moderating role of risk-taking behaviour on the effect of managerial ability on earnings management is more pronounced when managers also have higher managerial overconfidence. According to (Sumunar & Djakman, 2020), managerial overconfidence is measured by the residual value of regression of assets growth (change of total assets) on sales growth (change of total sales). Higher managerial overconfidence occurs when the residual value of the firms is above the industry median. In comparison, lower managerial overconfidence occurs when the residual value of the firms is below the industry (Sumunar & Djakman, 2020). The result of the alternative test with managerial overconfidence adjustment can be seen in **Table 5**.

Table 5. Earnings Management, Managerial Ability, and Risk-Taking Behavior (Case of Managerial Overconfidence)

Dependent Variable	AEM	REM	AEM	REM
	Coefficient t-Statistic			
Independent Variable	(1)	(1)	(2)	(2)
MA	-0.003	-0.003	0.002	0.002
	-1.468	-0.914	1.220	0.500
<i>MA x RISK</i>	<i>0.045</i>	<i>0.087</i>	<i>0.012</i>	<i>-0.013</i>
	2.458**	3.012***	0.545	-0.329
RISK	0.122	0.603	0.339	-0.255
	0.956	2.952***	3.805***	-1.540
SIZE	-0.007	-0.002	0.003	0.080
	-2.174**	-0.351	0.891	1.445
MVA	-0.017	-0.005	-0.006	0.002
	-6.0704***	-0.9900	-1.860***	0.336
ROA	-0.468	-0.062	-0.196	-0.240
	-10.917***	-0.905	-4.107***	-2.700***
Constant	0.252	0.096	-0.028	-0.224
Adjusted R ²	0.538	0.021	0.120	0.017
F-Stat	83.037***	2.508**	10.562***	2.224**
Firm Fixed-Effect	Yes	Yes	Yes	Yes



***significant in 0.010, **significant in 0.050,

(1) Sample with Higher Managerial Overconfidence (423 samples),

(2) Sample with Lower Managerial Overconfidence (423 sample)

Table 5 shows that both sample groups of higher managerial overconfidence and lower managerial overconfidence consist of 423 firm-years. The moderating effect of risk-taking behaviour (MA x RISK) has a coefficient value of 0.045 with a t-statistic of 2.458 (significant in 0.050) for the AEM model in the higher management overconfidence sample groups. The moderating effect of risk-taking behaviour (MA x RISK) has a coefficient value of 0.087 with a t-statistic of 3.012 (significant in 0.010) for the REM model in the higher management overconfidence sample groups. Risk-taking behaviour attenuates the influence of managing competence on earnings management in the sample groups with higher levels of managerial overconfidence.

In the sample groups of lower managerial overconfidence, the moderating effect of risk-taking behaviour (MA x RISK) has a coefficient value of 0.012 with a t-statistic of 0.545 (insignificant) for the AEM model. In the sample groups of lower managerial overconfidence, the moderating effect of risk-taking behaviour (MA x RISK) has a coefficient value of -0.013 with a t-statistic of -0.329 (insignificant) for the REM model. In the sample groups of lower managerial overconfidence, risk-taking behaviour does not moderate the effect of managerial ability on earnings management. As expected, the result in the groups of higher managerial overconfidence is consistent with the main result. In comparison, the result in the groups of lower managerial overconfidence is inconsistent with the main result. It indicates that the moderating role of risk-taking behaviour is more pronounced when managers have higher managerial overconfidence.

Alternative Test (Business Strategy). This research also performs another alternative test by adjusting the main result with business strategy. Risk-taking preferences depend on business strategy. (Handoyo *et al.*, 2023) explain that types of business strategy include prospector, defender, and analyser. Prospector-type is a strategy implementation that focuses on innovation and new market opportunities (Habib & Hasan, 2021). In this case, the prospector is used to risk-taking consequences. Besides uncertainty conditions (Rigamonti *et al.*, 2024), risk-taking behaviour can also bring innovation that leads to an opportunity to create new products, markets, and technology (Hossain *et al.*, 2022). It is common for prospector firms to face uncertainty. Instead of current profitability and earnings volatility, prospector firms focus more on innovation and future performance. In this case, prospector firms with higher risk-taking behaviour engage less in earnings management. Defender-type is a strategy implementation that focuses on efficiency (Handoyo *et al.*, 2023). It leads defender firms to give more attention to current performance. As defender firms are not used to risk-taking consequences, they will face uncertainty by engaging more in earnings management (Widyasari *et al.*, 2017). On the other hand, the analyser type is a mixed strategy between defender and prospector (Habib & Hasan, 2021).

Defender and analyser firms that possess risky strategies are concerned about facing earnings volatility by engaging in earnings management. As risk-avoiders, prospector firms are more concerned about facing future innovation than current performance volatility. Further, they need to engage more in earnings management. This research proposes that capable managers who are risk-takers in defender and analyser firms will employ their skills and capabilities to be more involved in earnings management than in prospector firms. By following (Habib & Hasan, 2021), this research measures business



strategy by scoring six elements, including the ratio of research and development to sales, the ratio of employees to sales, the standard deviation of total employees, sales growth, the ratio of sales, general, and administration expenses to sales, and the ratio of net fixed asset to total assets. Each element is converted to quintile rank in each two-digit industry code based on JASICA, where the highest quintile has a score of 5 and the lowest quintile has a score of 1. (Habib & Hasan, 2021) categorise prospector firms with a score of 24 to 30, analyser firms with a score of 13 to 23, and defender firms with a score of 6 to 12. The result of the alternative test with business strategy adjustment can be seen in **Table 6**.

Table 6. Earnings Management, Managerial Ability, and Risk-Taking Behavior (Case of Different Business Strategy)

Dependent Variable	AEM	REM	AEM	REM	AEM	REM
	(1)	(1)	(2)	(2)	(3)	(3)
Independent Variable	Coefficient t-Statistic					
MA	0.004	-0.000	-0.002	-0.001	0.013	0.018
	1.196	-0.020	-1.434	-0.536	1.987*	1.3180
MA x RISK	-0.012	0.010	0.069	0.039	0.393	0.990
	-0.280	0.148	4.948***	1.783*	2.217**	2.557**
RISK	0.617	-0.169	0.210	0.317	2.692	6.749
	2.198**	-0.376	2.501**	2.407**	1.889*	2.168**
SIZE	0.002	-0.002	-0.002	-0.009	-0.006	-0.020
	0.280	-0.267	-0.646	-2.179**	-0.692	-1.029
MVA	-0.022	-0.002	-0.008	-0.003	-0.029	0.061
	-2.114**	-0.103	-3.488***	-0.740	-1.664	1.593
ROA	-0.257	-0.464	-0.207	-0.131	-0.471	-1.078
	-2.439**	-3.196***	-5.608***	-2.259**	-2.728***	-2.861***
Constant	-0.021	0.101	0.105	-0.233	0.323	0.717
Adjusted R ²	0.144	0.083	0.366	0.019	0.126	0.145
F-Stat	4.077***	2.663**	6.392***	3.072***	2.889**	3.229***
Firm Fixed-Effect	Yes	Yes	Yes	Yes	Yes	Yes

***significant in 0.010, **significant in 0.050, *significant in 0.100,

(1) Prospector Firms (111 sample),

(2) Analyzer Firms (655 samples),

(3) Defender Firms (80 sample)

Table 6 shows sample groups of prospector firms consisting of 111 firm-years. Sample groups of analyser firms consist of 655 firm-years. Sample groups of prospector firms consist of 80 firm-years. The moderating effect of risk-taking behaviour (MA x RISK) in the prospector company sample groups has a coefficient value of -0.012 and a t-statistic of -0.280 (insignificant) for the AEM model. The moderating effect of risk-taking behaviour (MA x RISK) in the prospector company sample groups has a coefficient value of 0.010 and a t-statistic of 0.148 (insignificant) for the REM model. Risk-taking behaviour does not mitigate the impact of managerial competence on earnings management in the prospector firm sample groups.

The moderating effect of risk-taking behaviour (MA x RISK) in the analyser firms' sample groups has a coefficient value of 0.069 and a t-statistic of 4.948 (significant in



0.010) for the AEM model. The moderating effect of risk-taking behaviour (MA x RISK) in the analyser firms' sample groups has a coefficient value of 0.069 and a t-statistic of 1.783 (significant in 0.100) for the REM model. Risk-taking behaviour in the analyser firms' sample groups moderates the impact of managerial competence on earnings management.

The moderating effect of risk-taking behaviour (MA x RISK) in the sample groups of defensive firms has a t-statistic of 2.217 (significant in 0.050) and a coefficient value of 0.393 for the AEM model. The moderating effect of risk-taking behaviour (MA x RISK) in the sample groups of defensive firms has a t-statistic of 2.557 (significant in 0.050) and a coefficient value of 0.990 for the REM model. Risk-taking behaviour in the defence firm sample groups modifies the impact of managerial competence on earnings management. The outcome in the prospector firm groups differs from the main result. However, the outcome in the analyser and defender firm groups is in line with the main result as anticipated. It suggests risk-taking behaviour has a stronger moderating effect in the defender and analyser firms.

DISCUSSION

Examining the moderating effect of risk-taking behaviour on managerial competence and earnings management is the primary goal of this study. This study fills a vacuum in the literature on managerial ability and earnings management by looking at the moderating role of risk-taking behaviour (Baik et al., 2020; Demerjian et al., 2020; X. Huang & Sun, 2017; Imeni et al., 2021; La'bi et al., 2018; Majid et al., 2020; Skousen et al., 2019). Additionally, this study adds to the body of knowledge by shedding light on risk-taking behaviour, which helps identify instances where high-ability managers manage earnings.

Data analysis shows that the interaction variable between managerial ability and risk-taking positively affects AEM and REM. It indicates that the research hypothesis is accepted. Risk-taking behaviour moderates the effect of managerial ability on earnings management. The result is consistent with (Alharbi *et al.*, 2021), (Billings *et al.*, 2020), and (Mayberry *et al.*, 2021), who find that risk-taker managers tend to engage more in earnings management. The result also confirms the concept of agency theory and stewardship theory that explain managers' behaviour towards risk and earnings management.

On the one hand, agency theory explains that higher agency conflict can lead managers to take higher risks; managers can also utilise information asymmetry to engage in earnings management. On the other hand, stewardship theory explains lower risk-taking when managers' and shareholders' interests are aligned. Further, managers also fulfil shareholders' interest in higher-quality information by avoiding earnings management.

In this case, risk-taking behaviour is measured by earnings volatility, while AEM and REM measure earnings management. In the context of AEM, this research finds that high-ability managers who face high earnings volatility tend to use accounting estimation and methods. High ability to use fixed assets depreciation methods or doubtful receivable estimations to reduce earnings volatility. This finding implies that firms should monitor high-ability managers to use their ability to reduce earnings volatility without managing earnings by using accounting estimation and methods.

In the context of REM, this research finds that high-ability managers who face high earnings volatility tend to deviate from business activities. The knowledge gained by high-



ability managers is used to increase lean credit or discount prices to boost sales, reduce research and development to decrease discretionary expenses or boost production to reduce fixed costs per unit, which leads to low earnings volatility. This finding implies that firms should monitor high-ability managers to use their ability to reduce earnings volatility without deviating from business activities by using lean credit, discount price, research and development reduction, or fixed costs per unit.

Risk-taking behaviour determines managers' risk preferences. When managers formulate and execute a risky strategy, they face uncertainty due to risk-taking. A risky strategy proposes big profits and, at the same time, also great losses. Uncertainty conditions will be reflected in earnings volatility. To face higher earnings volatility, managers tend to manage reported earnings. Capable managers have better knowledge and skills to manage earnings than lower-ability managers. For example, managers with higher knowledge of firms' accounting policies will use their ability to choose specific accounting methods or estimations to manage reported earnings. Managers with higher knowledge and skill about firms' operational activities can deviate business activities from normal levels easier than managers with lower knowledge and skill about firms' operational activities. In this case, higher-ability managers with higher risk-taking behaviour tend to use their ability to manage earnings to respond to higher earnings volatility. As risk-taker managers love risk, and earnings management also contains information risk and litigation risk, higher-ability managers with higher risk-taking behaviour are motivated to engage in earnings management for their interests, such as managerial compensation. Higher-ability managers with lower risk-taking behaviour will avoid earnings management as they do not face higher earnings volatility or do not want to take risks of information and litigation as earnings management consequences.

The moderating role of risk-taking behaviour between managerial ability and earnings management occurs more when managers have higher managerial overconfidence. Higher-ability managers with risk-taker characteristics tend to manage earnings as higher risk-taking behaviour comes from managers' overconfidence, which leads to taking a risky strategy. The moderating role of risk-taking behaviour between managerial ability and earnings management is also more pronounced when managers are in firms with analyser and defender types of strategy. Defender firms focus more on efficiency and current performance than prospector ones that focus on innovation and future opportunities. As an analyser is a mix of defender and prospector strategy types, analyser firms also have concerns about current performance. When analyser and defender firms have higher ability managers to take a risky strategy, they will focus on volatile current performance rather than new opportunities to generate better future performance. Further, higher-ability managers, once again, use their ability to engage in earnings management to respond to current performance volatility.

Firms can use this research to improve governance mechanisms to reduce agency conflict and decrease firms' risk so managers use their ability to manage earnings by AEM or REM. Managers can also use this research to improve risk management when they tend to take a risk to avoid earnings volatility problems that lead to earnings management. The result only covers earnings management behaviour in the context of AEM (both to increase or decrease earnings) and REM (to increase earnings). Future research is expected to provide evidence in other scopes of earnings management, such as REM (to decrease earnings), classification shifting, or income smoothing (intentional). Future research is also



expected to examine managers' demographic characteristics to determine the managerial ability or risk preference.

CONCLUSION

This study investigates how risk-taking behaviour modifies the relationship between managerial skills and earnings management. According to firm fixed-effect regression analysis, risk-taking behaviour moderates the effect of managerial ability on earnings management. When managers have higher levels of managerial overconfidence and work for analyser and defender organisations, risk-taking behaviour plays a more pronounced moderating impact on the effect of managerial skill on earnings management.

This research implies that firms formulate stronger governance mechanisms and effective controlling and monitoring functions to mitigate agency conflict, which can lead to higher risk-taking behaviour and earnings management. This research also implies that managers ensure risk management is run effectively when they take a risky strategy, so they refrain from using earnings management to face higher earnings volatility.

This research has some limitations. First, this research measures managerial ability using financial data and does not use qualitative data to complete the measurement as the competencies of managers are multi-angle and unobservable. Second, this research only examines AEM (both to increase or to decrease earnings) and REM (to increase earnings) as REM (to decrease earnings), income smoothing (intentional), or classification shifting can be applied to specific cases. Third, this research only focuses on risk-taking behaviour based on financial aspects, such as earnings volatility.

Subsequent research looks forward to investigating managerial ability comprehensively by combining financial data measurements and qualitative data, such as data from interviews, questionnaires, or managers' demographic characteristics. Next, research is also expected to examine other types of earnings management. Subsequent research can examine REM (to decrease earnings) in exceptional cases of share repurchase, management buyouts, and CEO option awards or classification shifting in a particular case of discontinued operations or intentional income smoothing. Subsequent research is also expected to use a comprehensive risk-taking behaviour measurement by combining financial data and managers' risk preferences from interviews or questionnaires.

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