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Does Managerial Ability Affect Segment Disclosure? Evidence From Indonesia

Atika Atika[1]*, Evy Rahman Utami[2] and Alex Johanes Simamora[1]

AFFILIATION:
[1] Department of Accounting, Faculty of Economy, Universitas Tidar, Central Jawa, Indonesia

[2] Department of Accounting, Faculty of Economics and Business, Universitas Muhammadiyah Yogyakarta, Special Region of Yogyakarta, Indonesia

***CORRESPONDENCE:**
atika@untidar.ac.id

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Abstract
Research aims: While prior study around segment disclosure has mainly focused on firm characteristics, there is little study on whether managerial characteristics are associated with segment disclosure. This study, therefore, aims to examine the effect of managerial ability on the level of segment disclosure.
Design/Methodology/Approach: This study used panel data regression with 556 firm-year observations of Indonesian manufacturing firms during 2017-2020. This study employed the checklist based on PSAK 5 (2015 edition) and adopted a content analysis approach. To measure managerial ability, this study utilized the managerial ability score developed by Demerjian, Lev, & McVay (2012) for Indonesian firms.
Research findings: The results of this study revealed that managerial ability significantly and positively affected the level of segment disclosure. Higher-ability managers also tended to disclose their segment information more extensively.
Theoretical contribution/Originality: This study contributes to the managerial ability literature and the disclosure literature (specifically for segment disclosure). This study is also the first to provide empirical evidence about the effect of managerial ability on the level of segment disclosure.
Practitioner/Policy implication: This study results can be used by the Financial Accounting Standards Board of the Institute of Indonesia Chartered Accountants regarding the effectiveness of management approach implementation in Indonesia. Furthermore, the result of this study suggests that managers need to improve their capabilities to accommodate a dynamic business environment.
Research limitation/Implication: This study used content analysis to measure segment disclosure, including subjectivity. Nevertheless, this study only investigated manufacturing firms. Further research may expand the industry sample to get a better understanding.
Keywords: Managerial Ability; Corporate Reporting; Segment Disclosure

Introduction

This study aims to examine the effect of managerial ability on the level of segment disclosure. In this regard, visions of Indonesia in 2025 are independent, progressive, fair, and prosperous by becoming a country with high revenues, advance development, and a top five economic (Bappenas, 2019). Recently, Indonesian Ministry of National Design and Development (*Kementerian PPN/Bappenas*) and Asian Development Bank (ADB) have issued the report of “Policies to Support the Development of Indonesia’s Manufacturing Sector during 2020–2024.” It reports that

Indonesian economic development can be achieved by implementing diversification and improving manufacturing sector (Asian Development Bank, 2019).

Business diversification gives consequences to financial reporting, such as segment disclosure. Segment disclosure gives financial report users the ability to evaluate the financial nature and consequences of business lines and the economic environment (Ikatan Akuntan Indonesia, 2018). Based on a survey by CFA Institute in 2018, 75% of portfolio managers and analysts suggested that segment information is essential in firms' performance analysis, while 0.4% of them perceived that it was not (CFA Institute, 2018). Segment information also plays a vital role since it has high predictive ability, increasing investors' confidence and analysts' forecast accuracy (Aboud et al., 2018; Cereola et al., 2018; Heo & Doo, 2018). Furthermore, segment information can reduce information asymmetry and give relevant value to investors (Kajüter & Nienhaus, 2017). Based on the literature, segment information disclosure can reduce the cost of equity and cost of debt (Abbas & Pontoh, 2015; Blanco et al., 2015; Chen & Liao, 2015; Khomsatun et al., 2018; Lenormand & Touchais, 2017; Saini & Herrmann, 2013). Therefore, firms need to disclose segment information to stakeholders (including investors and creditors) to evaluate firms' performance accurately.

Globally, segment disclosure is regulated by IFRS 8. Furthermore, IFRS 8 is the regulators' first standard for post-implementation review (Moldovan, 2014). In Indonesia, segment disclosure is regulated in Statement of Financial Accounting Standards (*Pernyataan Standar Akuntansi Keuangan* - PSAK) 5 of Operating Segment. PSAK 5, which is linear with IFRS 8, uses a management approach to disclose the firm's segment information (Ikatan Akuntan Indonesia, 2018). The management approach refers to segment disclosure based on management policy and perspective. The management approach also allows financial information users to assess a firm's performance from the management point of view, increasing the consistency of segment information and other disclosures of the annual report, such as management discussion and providing various segment performance evaluations (Nichols et al., 2013). However, the management approach receives criticism from practitioners and academicians because it reduces comparability between firms. Further, since the main focus of the management approach is management judgment and estimation, there is a possibility that vital information is not disclosed because of the absence of operational judgment (Nichols et al., 2013).

The previous study on the segment disclosure determinants has focused chiefly on the firm-level characteristics factors (Amado et al., 2018; Cereola & Dynowska, 2022; Kobbi-Fakhfakh et al., 2020; Leung & Verriest, 2015; Lucchese & Di Carlo, 2016; Obradovic et al., 2021; Suttipun & Pratoomsri, 2019; Tran et al., 2021). However, evidence on whether top managers' characteristics are associated with disclosure is still limited (Anggraini & Sholihin, 2021; Plöckinger et al., 2016), especially on segment information. Thus, this study extends the current literature by examining whether top managers' characteristics, specifically managerial ability, are correlated with the extent of segment disclosure in an emerging market (Indonesia). Demerjian, Lev, and McVay (2012) stated that managerial ability is the CEO or top management team's ability to transform corporate resources into revenue, profit efficiently, or firm value relative to its industry peers. In this case, upper

echelon theory suggests that differences in managers' values and cognitive styles lead to different decisions, including disclosure of information (Bertrand & Schoar, 2003; Demerjian et al., 2013; Hambrick & Mason, 1982). Previous studies have found that higher-ability managers produced more informative earnings, less financial reporting fraud, higher quality of information environment, and higher firm performance (Baik et al., 2018, 2020a; García-Meca & García-Sánchez, 2018; Herianti et al., 2021; Huang & Sun, 2017; Park et al., 2016; Wang et al., 2017; Yung & Chen, 2018). Furthermore, managers with high ability also tend to produce a higher quality information environment, including disclosure (Abernathy et al., 2018; Daradkeh et al., 2022; García-Sánchez et al., 2020; Hasan, 2020; Yan et al., 2021). Since segment information is essential, high-ability managers may comprehensively disclose their operating segment information to signal their firm's performance to stakeholders. Nevertheless, some studies uncovered that higher-ability managers are associated with higher levels of financial statement fraud, including earnings manipulations (Ahmad et al., 2022; Herawaty & Solihah, 2019). Therefore, it is crucial to examine the effect of managerial ability on disclosure, especially segment disclosure, which has never been studied before.

This study has several contributions. Firstly, this study contributes to managerial ability and segment disclosure literature in several ways. First, it is the first study to examine the effect of managerial ability on the level of segment disclosure, so this study adds to the extant literature. Second, this study provides a better understanding of how managerial ability affects the level of disclosure in an emerging economy context. Third, segment disclosure is crucial to market participants as it shows a firm's transparency level on the segment level. Hence, this study informs market participants in Indonesia's capital market about the role of top managers' characteristics in segment disclosure. Secondly, this study contributes to the practical aspect where the DSAK-IAI can use this study's result to evaluate the effectiveness of the management approach in PSAK 5 (2015 edition). Then, the remainder of this study is organized as follows: literature review and hypotheses development, research method, results and discussion, and conclusion.

Literature Review and Hypotheses Development

Upper Echelon Theory

Upper echelon theory premises that managerial background characteristics predict organizational outcomes. In the context of firms' reporting, a financial report (in this case, disclosure) is the output of the financial reporting process; meanwhile, the financial reporting outcome is the financial reporting quality (Call et al., 2017). Based on the upper echelon theory, the financial reporting quality level depends on managerial characteristics, such as managerial ability. To achieve higher reporting quality, managers have some strategy formulations, such as improving the segment disclosure level. Alwardat (2019) suggested that disclosure improvement can increase financial reporting quality. In this case, to achieve higher financial reporting quality, managers can improve segment disclosure.

Hambrick and Mason (1982, 1984) synthesize that top management characteristics can be associated with managerial knowledge, values and perceptions and thus can be used to predict organizational outcomes (profitability, growth, diversification, and risk-taking). Based on this view, the organizational outcomes indirectly reflect the values and perceptions of powerful organizational actors, where their values and perceptions are influenced by the organization's past strategy, performance, and environment. Related to that, upper echelon theory states that top management experiences, values, and personalities considerably affect their interpretation of situations they face and, in turn, will affect their choices and action (Hambrick, 2007). Choi et al. (2015) have documented that individual CEO characteristics affect the firm, especially regarding financial reporting choices. In the context of segment disclosure, there are choices for managers to disclose the items of segment information. Based on PSAK 5 (2015 edition), managers are mandated to disclose the earnings of each segment; however, managers can choose whether to disclose the asset and liabilities of each segment or not and so for other information (Ikatan Akuntan Indonesia, 2016). In this case, higher-ability managers understand that disclosure of assets and liabilities of each segment can reduce information asymmetry by helping financial statement users to assess the resources (assets) and funding (liabilities) owned by each segment.

In this regard, managerial characteristic focuses on managerial ability. Demerjian, Lev, and McVay (2012) suggested that managerial ability contributed significantly to the firms' outcomes, such as performance, strategy, and reporting process. Besides, Anggraini and Sholihin (2021) conducted a systematic literature review on managerial ability studies, including 120 papers. It was concluded that managerial ability had been related to some topics, such as performance, capital market, reporting quality, and others. In other words, managers with high ability are associated with increased firm performance (Bose et al., 2017; Park et al., 2016; Yung & Chen, 2018). In the capital market, managers with the high ability also tend to maintain and improve their companies' information environment, reducing analyst forecast error (Baik et al., 2018; Chen & Chen, 2020). Further, as a consequence of reporting quality, the literature showed mixed results. In particular, higher-ability managers might improve firms reporting quality, and meanwhile, on the other side, they could worsen it. On the one side, the manager with high ability has high earnings quality, less financial reporting fraud, and extensive disclosure (Baik et al., 2018, 2020b; Demerjian et al., 2013; García-Meca & García-Sánchez, 2018; Huang & Sun, 2017; Wang et al., 2017). On the contrary, some studies have found that high-ability managers might take advantage of their competence, which can harm many parties. For example, they can engage in financial statement fraud, such as earnings manipulations (Ahmad et al., 2022; Herawaty & Solihah, 2019). For this reason, this study focuses on the effect of managerial ability on segment disclosure since segment information is essential in firms' performance analysis. Furthermore, the segment disclosure standard, PSAK 5 (2015 edition) of Operating Segment, is based on a managerial approach; thus, it is vital to examine how managerial ability contributes to firms' segment disclosure.

Segment Disclosure Settings in Indonesia

On January 1, 1995, PSAK 5 (1994 edition), "*Financial Information Reporting by Segment,*" was effectively enacted. PSAK 5 (1994 edition) regulates firms and their subsidiaries to disclose their segment information based on business segment grouping or categorization (Ikatan Akuntan Indonesia, 1994). In 2000, the Financial Accounting Standards Board of the Institute of Indonesia Chartered Accountants (*Dewan Standar Akuntansi Keuangan Ikatan Akuntan Indonesia* – DSAK IAI) updated PSAK 5 (1994 edition) with PSAK 5 (2000 edition) "*Segment Reporting*." The regulation of PSAK 5 (2000 edition) suggests information segment is disclosed in two forms, which are primary and secondary parts (Ikatan Akuntan Indonesia, 2000). In addition, the regulation of PSAK 5 (2000 edition) adopts a risk and rewards approach, where firms are obligated to disclose segment information based on business and geographic lines in which activities with similar risk and return are categorized into the same segment (Franzen & Weißenberger, 2018).

In 2009, IFRS convergence involved the PSAK 5 to be converged with IFRS 8 of the Operating Segment. The convergence generated the Operating Segment's PSAK 5 (2009 edition). Here, a component of an entity is considered an operating segment if it meets two criteria, such as (a) it engages in business activities from which it may generate revenues and incur expenses (including revenues and expenses related to transactions with other components of the same entity), (b) the decision maker regularly reviews the operating outcomes to allocate resources to the segment and evaluate its performance, and (c) separable financial information is available (Ikatan Akuntan Indonesia, 2016). The regulation of PSAK 5 (2009 edition) also implements a managerial approach, where firms are obligated to identify operating segments based on internal reporting, which is reviewed regularly by the chief operating decision maker (CODM). CODM refers to a function rather than a manager with a particular title. This function manages resource allocation and evaluates the operation of the entity's operating segments. The CODM is also frequently a chief executive officer or chief operating officer.

The PSAK 5 (2009 edition) became effective on January 1, 2011. The PSAK 5 is one of the standards that became an adjustment object by the Indonesian Standard Board. The last updated PSAK 5 was in 2015, based on the annual improvements to IFRSs 2010-2012 Cycle. The PSAK 5 (2015 edition) also modifies several provisions for disclosing segment information from the PSAK 5 (2009 edition). This modification includes paragraph 23, which only requires businesses to report the size of their total assets and liabilities if that information is regularly provided to CODM (Ikatan Akuntan Indonesia, 2016) (Ikatan Akuntan Indonesia, 2018). This statement is opposed to the PSAK 5 (2009 edition), which states that disclosing the total assets of each segment is mandatory; meanwhile, liabilities should only be reported if the CODM reviews that information regularly.

Managerial Ability and Segment Disclosure

The upper echelon theory proposes that top management characteristics affect a firm's outcomes (Hambrick, 2007; Hambrick & Mason, 1982, 1984). The overall firm outcomes are generated from managerial decisions, including operations, finance, marketing, and

strategy (De Franco et al., 2017). From the point of firms' financial reporting, one of the outputs of financial reporting is disclosure, affecting the firm's reporting outcome, which is the reporting quality (Call et al., 2017). Based on the upper-echelon theory, enhancing disclosure transparency may improve firms' financial reporting quality (Alwardat, 2019).

Nevertheless, different managers' personalities result in different firms' performance, decisions, and policies, including the firm's investment, finance, and strategy (Bertrand & Schoar, 2003). High-ability managers are more knowledgeable than poor ones, improving their capabilities to organize the company better. High-ability managers also tend to use the firm's resources efficiently. They will produce higher revenue with a certain level of resources or minimize the resources used to attain a specific revenue (Gul et al., 2018). As a result, high-ability managers are associated with lesser subsequent restatement, higher earnings and accrual persistence, lower errors in the bad debt provision, and higher quality accrual estimations (Demerjian et al., 2013). Huang and Sun (2017) have documented that high-ability managers engage in less real earnings management. This situation indicates that high-ability managers are correlated with a better quality of financial reporting.

In other words, managerial abilities play a significant role in the firms' quantity and quality of financial reporting. Previous literature has suggested that firms with high-ability managers have more informative earnings (Baik et al., 2020a), are less likely to manage earnings opportunistically (García-Meca & García-Sánchez, 2018), and turn out to less financial reporting fraud (Wang et al., 2017) and higher quality of information environment (Baik et al., 2018). High-ability managers are also more likely to be transparent because they are more knowledgeable about their business, industry, and economy, which will help them to generate superior firm performance (Bertrand & Schoar, 2003). Since high-ability managers serve as valuable inputs in the firms to maximize revenue, they should have natural incentives to be more forthcoming by issuing more readable disclosures (Hasan, 2020). In addition, previous literature has revealed a positive relationship between managerial ability and disclosure. High-ability managers are more likely to make a higher level of climate change disclosure (Daradkeh et al., 2022). They are also more willing to disclose comparable and useful corporate social responsibility information favoring stakeholder engagement (García-Sánchez et al., 2020). High-ability managers also tend to produce more timely financial disclosures (Abernathy et al., 2018). Meanwhile, low-ability managers tend to inflate the disclosure (tone, numerical intensity, and readability) to positively influence the labor market's perceptions about their ability, which will cause a lower stock price reaction (Yan et al., 2021). Low-ability managers are also willing to opportunistically manipulate the content of corporate disclosure to improve market perception and their reputation.

Further, this study predicts that high-ability managers are associated with higher segment disclosure based on the following arguments. First, high-ability managers can generate higher revenue from a set of resources owned by the firm. Second, high-ability managers are more aware of and understand the importance of segmenting information for their stakeholders. Third, they will strive to meet the stakeholders' information needs about the firm at the business unit level to make better decisions.

H_1**:** *Managerial ability is positively associated with the level of segment disclosure.*

Figure 1 shows the conceptual framework of this study.

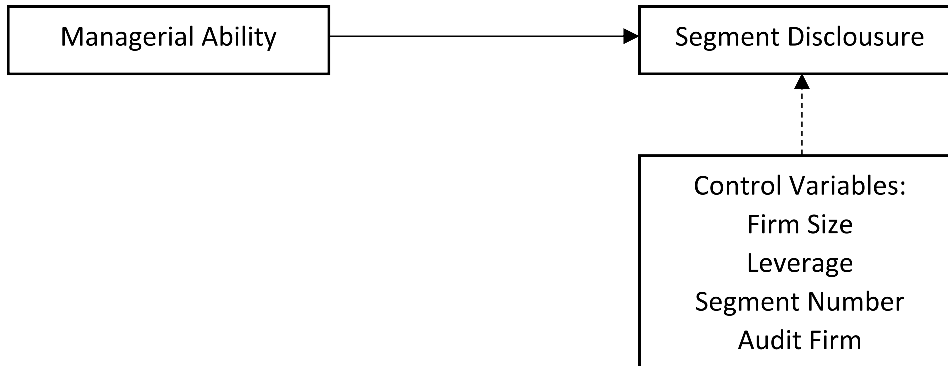

Figure 1 Conceptual Framework

Research Method

Population, Samples, and Data

The population comprised Indonesian manufacturing firms listed on the Indonesian Stock Exchange (IDX) from 2017 to 2020. This study considered manufacturing firms since the report "Policies to Support the Development of Indonesia's Manufacturing Sector during 2020–2024" suggests that economic development can be achieved through diversification and manufacturing improvement (Asian Development Bank, 2019). Then, all the required data were gathered from the annual report. This study also took into consideration manufacturing firms to avoid industry bias since managerial ability was estimated based on specific industry characteristics (Demerjian et al., 2013). The researchers also excluded firm years with missing data required for running the research model. The final sample consisted of 556 firm-year observations from 139 firms. Table 1 presents the sampling procedure of this study.

Table 1 Sample Selection Procedure

Criteria	Firm	Firm-Year Observations
Manufacturing firms listed on the IDX 2017-2020	145	580
Missing data	(6)	(24)
Final sample	139	556

Research Model and Variables

This research is a quantitative study. The dependent variable of this study was segment disclosure based on the Operating Segment's PSAK 5 (2015 edition). The operating segment is a component of an entity that engages in business activities for which revenues

and expenses are generated and whose operating results are regularly reviewed by CODM (Ikatan Akuntan Indonesia, 2016). Meanwhile, segment disclosure is the segment information disclosure based on the total number of items reported in the segmental notes (Aboud et al., 2018). Following previous studies, the researchers used the content analysis approach to measure the extent of segment disclosure. The level of segment disclosure was measured by the number of accounting information items disclosed by the company in each segment (Aboud et al., 2018; Chen & Liao, 2015; Heo & Doo, 2018; Pardal et al., 2015) based on the PSAK 5 (2015 edition) of Operating Segment. The researchers then read through the annual report (including a note to the financial statements) and manually extracted the scores of firms' segment disclosure (1 if the firm discloses each item of the checklist, 0 otherwise).

Meanwhile, the independent variable of this study was managerial ability. Managerial ability is defined as the ability of the CEO or top management team to convert firm resources into revenue efficiently, profit, or firm value relative to its industry competitors (Demerjian et al., 2012). To measure managerial ability, the researchers employed the approach of Demerjian et al. (2012). Previous studies have also measured managerial ability using data envelopment analysis (DEA). Thus, in the first step, the researchers estimated total firm efficiency by solving an optimization model, where sales are the output coming from seven input variables: (1) cost of goods sold; (2) selling, general, and administrative expenses; (3) property, plant, and equipment; (4) operating lease; (5) research and development costs; (6) purchased goodwill; (7) other intangible assets (see Equation 1).

$$Max\ \theta = \frac{Sales}{v1COGS + v2SGA + v3PPE + v4OpLease + v5RD + v6Goodwill + v7OtherIntan} \dots (1)$$

Where *Max Θ* is firm efficiency. *Sales* are the single output, as the primary firm's objective is to generate sales (generate maximum sales with the lowest cost). *COGS* is the cost of goods sold in period *t*. *SGA* is the selling, general, and administration expenses for period *t*. *PPE* is a net fixed asset for period *t-1*. *OpLease* is a capitalized lease expense from period *t-1* to period *t+4*. *RD* is capitalized net research and development expenses from period *t-4* to period *t*. *Goodwill* is the value of firms' goodwill for period *t-1*. *OtherIntan* is the value of firms' intangible assets, excluding the goodwill value for period *t-1*.

As this equation reflects both firm-specific and manager-specific driver factors, the researchers followed Demerjian et al. (2012) method by estimating for each industry a regression of firm efficiency on six firm characteristics affecting firm efficiency: (1) firm size; (2) firm market share; (3) cash availability; (4) firm age; (5) business segment concentration; (6) foreign operations (see Equation 2).

$$Max\ \theta = \alpha + \beta_1 SIZE + \beta_2 MarketShare + \beta_3 CashAvail + \beta_4 Age + \beta_5 BusSegCon + \beta_6 FO + \sum Industry_{Effect} + \sum Year_{Effect} + \epsilon \dots (2)$$

Where *Max Θ* is firm efficiency. *SIZE* is firm size, determined by the natural logarithm of total assets. *MarketShare* is firm market share measured by firm sales to total sales in each sub-sector industry. *CashAvail* is cash availability calculated by free cash flow. *Age* is

firm age, which denotes the number of years firms are listed on the IDX. *BusSegCon* is business segment concentration measured by the average product value and geographical segment concentration. *FO* is foreign operations gauged by a dummy variable (score one if the firm reports a non-zero value for foreign currency adjustment and 0 if otherwise). The residual value (ϵ) of the regression is used as a managerial ability measurement.

In the robustness tests, the researchers used CEO tenure and CEO accounting and financial expertise of managerial ability sources as an alternative measure of managerial ability. Demerjian, Lev, and McVay (2012) have considered CEO tenure as one of the indicators of managerial ability since longer tenure leads to higher specific knowledge and experience by the CEO within the particular firm. Hence, this study considered CEO accounting, and financial expertise since segment disclosure needs accounting and financial knowledge.

Moreover, this study employed some control variables. This study's control variables included firm size, leverage, segment number, and audit firm. The natural logarithm of total assets measured firm size (Kobbi-Fakhfakh et al., 2020; Leung & Verriest, 2015; Lucchese & Di Carlo, 2016; Suttipun & Pratoomsri, 2019). Meanwhile, leverage was determined by the debt-to-assets ratio (Kobbi-Fakhfakh et al., 2020; Leung & Verriest, 2015). Then, the segment number counted the number of firms' segments (Aboud et al., 2018). Finally, the audit firm was gauged using a dummy variable, where a score of 1 is given if the big four auditor audits the firm and a score of 0 if otherwise (Suttipun & Pratoomsri, 2019; Tran et al., 2021). Table 2 presents the definitions for variables used in this study.

To test the hypothesis, the researchers utilized panel data analysis. The study hypothesis was tested using the following industry and firm effect regression model (see Equation 3):

$$SegDisc = \alpha + \beta_1 MA_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 SEGNUM_{it} + \beta_5 AUDIT_{it} + \sum Industry_{Effect} + \sum Firm_{Effect} + \epsilon_{it} \ldots (3)$$

The dependent variable was segment disclosure (SegDisc), the measure of the level of segment disclosure of the firm. The main variable of interest was managerial ability (MA), as captured by the managerial ability score. The researchers also controlled several determinants of segment disclosure, including firm size (SIZE), leverage (LEV), segment number (SEGNUM), and audit firm (AUDIT). In this case, the industry effect aims to control the managerial ability estimation that requires a similar industry with similar inputs and outputs of efficiency score. The firm effect also seeks to control that different firm has different business segment.

Table 2 Variables Definitions and Measurement

Variable acronym	Measure	Source
Dependent variable		
Segment Disclosure (SegDisc)	Number of accounting information items disclosed by the company on each segment based on the PSAK 5 (2015 edition) (Aboud et al., 2018; Chen & Liao, 2015; Heo & Doo, 2018; Pardal et al., 2015)	Annual reports (AR)
Independent variable		
Managerial Ability (MA)	Managerial ability score from Demerjian et al. (2012)	AR
Control variable		
Firm Size (SIZE)	Natural logarithm of total assets (Kobbi-Fakhfakh et al., 2020; Leung & Verriest, 2015; Lucchese & Di Carlo, 2016; Suttipun & Pratoomsri, 2019)	AR
Leverage (LEV)	Debt to assets ratio (Kobbi-Fakhfakh et al., 2020; Leung & Verriest, 2015)	AR
Segment Number (SEGNUM)	Number of firms' segments (Aboud et al., 2018)	AR
Audit Firm (AUDIT)	Dummy variable, where it is 1 if a big four auditor audits the firm and 0 if otherwise (Suttipun & Pratoomsri, 2019; Tran et al., 2021)	AR
Additional variables of managerial ability		
MA-CEO Tenure (MA-CEOTEN)	Number of years the person held the CEO position since first appointment/reappointment (Demerjian et al., 2012)	AR
MA-CEO Accounting and Financial Expertise (MA-CEOAFE)	Dummy variable, where it is 1 if CEO had accounting and financial expertise/background and 0 if otherwise	AR

Results and Discussion

Descriptive Statistics

Table 3 presents the descriptive statistics of this study. The mean of segment disclosure was 3.81, between 0 and 13. This finding demonstrates that segment information was not extensively disclosed in the firms' annual reports. Furthermore, some firms still did not disclose their segment information.

Table 3 Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Dev.
SegDisc	556	0.00	13.00	3.81	3.97
MA	556	0.10	1.00	0.54	0.31
SIZE	556	25.31	33.49	28.64	1.57
LEV	556	0.07	5.17	0.56	0.56
SEGNUM	556	1.00	7.00	2.37	1.40
AUDIT	556	0	1	0.38	0.49

Note(s): This table presents the summary statistics of variables used in the main analysis. See Table 2 for variable definitions.

Meanwhile, the mean value of managerial ability was 0.54, between 0.10 and 1.00. Regarding the control variables, the mean value of firm size and leverage were 28.64 and 0.56, respectively. Furthermore, the mean segment number was 2.37, with the minimum and the maximum number of firms' segments being 1.00 and 7.00, respectively.

Feasibility Test

Table 4 presents the feasibility test to ensure that the regression model was not biased. The significance value of Kolmogorov-Smirnov (before winsorizing) was below 0.05, indicating that the data were not distributed normally. This study then solved the normality problem by winsorizing. The significance value of Kolmogorov-Smirnov (after winsorizing) was above 0.05, denoting that the data were distributed normally. In addition, the significance value of Glejser was above 0.05, signifying that this study was free of heteroscedasticity problems. The significance value of the Run Test was also above 0.05, which indicates that this research was free of autocorrelation problems. Then, the value of VIF was below 10, demonstrating that this study was free of multicollinearity problems.

Table 4 Feasibility Test

Test	Result	Notes
Kolmogorov-Smirnov (before winsorizing)	Sig. < 0.05	Data are not distributed normally.
Kolmogorov-Smirnov (after winsorizing)	Sig. > 0.05	Data are distributed normally.
Glejser	Sig. > 0.05	Free of heteroscedasticity problem
Run	Sig. > 0.05	Free of autocorrelation problem
VIF	VIF < 10	Free of a multicollinearity problem

Regression Results

Table 5 presents the relationship between managerial ability and segment disclosure. The results showed that managerial ability was significantly and positively associated with segment disclosure (coefficient of 0.847 with a *t*-statistic of 1.795). This finding suggests that managerial ability significantly improved segment disclosure. In addition, high-ability managers tended to disclose segment information extensively. Thus, H1, stating that managerial ability is positively associated with the extent of segment disclosure, was supported.

Regarding the control variables, the researchers uncovered that firm size was positively associated with segment disclosure (coefficient of 0.203, with a *t*-statistic of 1.875). Furthermore, segment number and audit firm were significantly and positively associated with segment disclosure (coefficient of 1.456, with *t*-statistic 13.979 for segment number; coefficient of 1.070, with *t*-statistic 3.365 for audit firm). Unfortunately, there was no significant association between leverage and segment disclosure.

Table 5 Regression Results

Variable	Coefficient	*t*-Statistic
Independent variable		
MA	0.847	1.795*
Control variables		
SIZE	0.203	1.875*
LEV	0.360	1.450
SEGNUM	1.456	13.979***
AUDIT	1.070	3.365***
Industry effects	Yes	
Firm effects	Yes	
Observations	556	
Constant	-6.508	
F-Statistic	57.755***	
Adjusted R Squared	0.338	

Note(s): This table presents the relationship between managerial ability and segment disclosure results. See Table 2 for variable definitions.
***, **, * Significant at *p*-levels of 0.01, 0.05, and 0.10, respectively.

Robustness Test

The researchers carried out the robustness test to achieve robust results. Table 6 presents the robustness test results. Table 6 also shows that CEO tenure, accounting, and financial expertise were significantly and positively associated with segment disclosure. The result in Table 6 is consistent with the main result in Table 5.

Table 6 Robustness Test

Variable	Model 1		Model 2	
	Coefficient	*t*-Statistic	Coefficient	*t*-Statistic
Independent variable (Alternative)				
MA-CEOTEN	0.025	1.857*		
MA-CEOAFE			0.860	2.2269**
Control variables				
SIZE	0.172	1.663*	0.123	1.209
LEV	0.290	1.175	0.255	1.032
SEGNUM	1.471	14.163***	1.477	14.232***
AUDIT	1.067	3.357***	1.022	3.217***
Industry effects	Yes		Yes	
Firm effects	Yes		Yes	
Observations	556		556	
Constant	-5.480		-3.893	
F-Statistic	57.824***		58.339***	
Adjusted R Squared	0.339		0.341	

Note(s): This table presents the relationship between managerial ability and segment disclosure results. See Table 2 for variable definitions.
***, **, * Significant at *p*-levels of 0.01, 0.05, and 0.10, respectively.

A robustness test was conducted using an alternative measurement of managerial ability. In this study, the researchers used (1) CEO tenure and (2) CEO accounting and financial

expertise as the alternative measurement of managerial ability. Demerjian, Lev, & McVay (2012) have considered CEO tenure as one of the indicators of managerial ability since longer tenure leads to higher specific knowledge and experience by the CEO within the particular firm. In addition, this study considered CEO accounting and financial expertise since segment disclosure needs accounting and financial knowledge.

Discussion

This study examines the relationship between managerial ability and the level of segment disclosure. Since the prior study in segment disclosure has mainly focused on firm characteristics, this study is essential. At the same time, there is little study on whether managerial characteristics are associated with segment disclosure. Therefore, this study gives new evidence of managerial ability and segment disclosure and evaluates the effectiveness of the management approach in PSAK 5 (2015 edition).

The finding of this study also revealed that managerial ability significantly improved segment disclosure. Further, in the robustness test, CEO tenure, accounting, and financial expertise also improved segment disclosure. The findings in this study strengthen previous literature, stating that high-ability managers produce high earnings quality, less financial reporting fraud, and extensive disclosure (Baik et al., 2018, 2020b; Demerjian et al., 2013; García-Meca & García-Sánchez, 2018; Huang & Sun, 2017; Wang et al., 2017). The result of this study is also consistent with previous studies, which found that managerial ability could improve firms' reporting and disclosure (Baik et al., 2018), such as climate change disclosure (Daradkeh et al., 2022), corporate social responsibility (García-Sánchez et al., 2020), timeliness of financial disclosure (Abernathy et al., 2018), and disclosure quality (Yan et al., 2021).

Moreover, the result also confirms the upper echelon theory, where the characteristic of managerial ability can determine the disclosure strategy of the business segment. Managers with higher managerial ability have higher knowledge of firms' business activities, including the complexity of the business segment. In this case, managers with higher managerial ability can provide better information on business complexity in informative segment disclosure in the financial statement. In the context of Indonesia, the higher managerial ability also helps managers understand the implementation of PSAK 5 and improve segment disclosure.

Further, this study implies that companies, especially managers, to improve their managerial ability to provide better segment disclosure. In addition, nowadays, the business environment is changing rapidly, so managers are required to behave dynamically to keep up with current business issues. Hence, various business issues that occur can be accommodated by managers by participating in training programs to improve their competencies. Furthermore, this study implies regulators improve accounting standards, especially PSAK 5, so it integrates with managerial ability indicators.

Conclusion

This study examines the relationship between managerial ability and the level of segment disclosure. Based on data analysis, the result revealed that managerial ability had a significant positive effect on segment disclosure. In other words, the higher managerial ability helps managers to have a higher knowledge to understand firms' business segments and learn PSAK 5 of Business Segment. Further, this study implies that managers to improve their managerial ability to provide better segment disclosure. This study also suggests that regulators should improve accounting standards, especially PSAK 5, so it integrates with managerial ability indicators.

This study has some limitations. First, this study only measured segment disclosure by business lines without considering the method of review and evaluation by the chief operating decision maker (CODM). Since the management approach suggests the review process of business segment disclosure by the chief operating decision maker (CODM), future study is expected to consider the method of review and evaluation by the chief operating decision maker (CODM). Future studies can also design questionaries and interview the chief operating decision-maker (CODM). Second, Demerjian et al. (2012) have suggested that managerial ability is a complex measurement with multidimensional indicators. However, this study limited managerial ability based only on financial statement information. As such, future research is expected to measure managerial ability through non-financial information, such as questionaries and interviews.

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