


*Original Research*

# Earnings Management and MD&A Readability: Does Business Strategy Matter? Evidence in Indonesia

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## Abstract

This study aims to examine the role of business strategy in the relationship between earnings management and MD&A readability. Previous research has shown inconsistency of results in testing the effect of earnings management on MD&A readability. This inconsistency can be caused by the fact that the business strategy variable has not been included as a contextual basis for the implementation of operational activities. Earnings management in this study is measured by real earnings management, because previous studies have used accrual earnings management. The hypotheses are tested with the multiple linear regression. The results show on 189 cross-sectional data on publicly traded consumer goods companies show that: (1) real earnings management reduces MD&A readability in defender and prospector companies; (2) analyzer companies perform real earnings management – discretionary expenses reduce the readability of MD&A; (3) firm size as a control variable in this study has no effect on the readability of MD&A. The results of this study imply that (1) strategy is a contextual factor that affects operational activities and ultimately on the readability of MD&A, (2) earnings management through discretionary expense activities reduces the readability of MD&A, regardless of the business strategy adopted by the company.

**Keywords:** MD&A readability, Real earnings management, Strategy.

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## Introduction

Narrative information on management discussion and analysis (MD&A) has been a concern of academics since the 1980s. At that time, the issue was the method of measuring MD&A readability (Balata, 2005). Content analysis is the most popular method used to measure MD&A readability. Several studies identified 8 topics in MD&A, namely: (i) environmental quality control and factory modernization; (ii) increased profits and sales; (iii) operational changes to increase profits and strengthen the company; (iv) company growth through capital expenditure and expansion; (v) maintenance of operational programs to deal with strikes and imported goods; (vi) substantial operational success in the 4th quarter; (vii) inventory management; (viii) management improvements due to strikes by workers, imported products, and factory modernization cost (Balata, 2005; Scott, 2015). The results of these studies show that there is no difference in the mean value between narrative information on MD&A and narrative information on the president director letter, so it can be concluded that the readability of narrative information on MD&A is sufficient. Previous research also used content analysis to measure the legibility of MD&A narrative information (Balata, 2005). His research proves that MD&A narrative information is an explanation of information in financial form. So, this narrative information provides an explanation to make it easier for external users to understand financial performance achievements. However, when financial performance is low, the narrative information becomes long and complex, making it difficult for external users to understand.

The readability of narrative information in accounting research aims to find a form of reporting so as to narrow the information asymmetry between internal and external parties. Information asymmetry has two types: adverse selection and moral hazard. Adverse selection is a type of information asymmetry in which management sorts out information that needs to be conveyed to external parties. Moral hazard is a type of information between the parties in the principal and agent relationship, where the agent understands the company's internal conditions better than the principal (Scott, 2015). This information asymmetry results in investment risk by external parties. Reducing information asymmetry can be done by mandatory and voluntary disclosure of narrative information. Academics have researched more voluntary disclosures than mandatory disclosures. Voluntary disclosure provides an opportunity for companies to convey more information than others, so as to narrow the information asymmetry. The high level of disclosure on MD&A gets a positive market response (Ongkoseputro, 2019). Narrative information on MD&A that contains complex and ambiguous sentences results in high cost of equity or investment risk (Rjiba, Saadi, Boubaker, & Ding, 2021). These studies conclude that MD&A narrative information reduces information asymmetry.

MD&A narrative information that has low readability is usually caused by management's opportunistic behavior which is known as earnings management. Earnings management is an effort to engineer earnings which is motivated by the management's desire to get bonuses, or to fulfill market expectations, or to fulfill the expectations of other parties such as creditors, or tax reductions (Scott, 2015). Previous studies have proven the effect of earnings management on MD&A readability. Several previous studies have shown that earnings management reduces the readability of MD&A (Ajina, Laouiti, & Msolli, 2016; Cheng, Zhao, Xu, & Gong, 2018; Lo, Ramos, & Rogo, 2017;

Suripto, 2013; Tarjo & Anggono, 2020). Several other studies have proven that earnings management has no effect on MD&A readability (Rahman & EDT, 2020; Yulivia, Rahman, & Yohana, 2021). These previous studies still show inconsistent results.

This study attempts to fill the gaps of previous studies by providing novelty, first, the use of business strategy as a contextual factor. The business strategy serves as a guide and direction in carrying out operational activities. The effectiveness of strategy implementation must be reported by management to shareholders. The preparation of financial statements as a form of accountability to shareholders will be influenced by management behavior. Not many previous studies have examined the role of business strategy in the relationship between earnings management and MD&A readability.

Previous studies have shown consistent results that companies with a prospector strategy have lower MD&A readability than companies with a defender strategy. The results of the study concluded that the level of readability of MD&A was not caused by the opportunistic behavior of management but the characteristics of its business strategy (Habib & Hasan, 2020; Lim, Chalmers, & Hanlon, 2018; Rahman & EDT, 2020). Companies with a prospector strategy have the main characteristic of making the market competitive through the launch of new products. This results in high research and development costs for companies with prospector strategies. And the return on research and development costs takes more than one year to assess its effectiveness. Therefore, companies with this strategy tend to make complex sentences on the MD&A narrative information compared to the defender strategy. Companies with a defender strategy have the characteristics of surviving and trying to reduce the level of uncertainty in the business environment due to the intensity of competition. This encourages the use of simple sentences in the MD&A. These studies only use two extreme strategy typologies: prospector and defender. This study uses an analyzer strategy, in addition to prospectors and defenders.

Second, this study investigates the role of business strategy as a contingent factor affecting operational activities. The choice of certain business strategies affects management in reporting earnings. The prospector strategy has a tendency to carry out earnings management on an accrual basis compared to defenders (Pinheiro de Sá, Rodrigues, & Gomes, 2021). The new products produced by the company with the prospector strategy take time to generate profits. Companies with this strategy have a tendency to perform accrual earnings management. Meanwhile, companies with a defender strategy have a tendency to perform real earnings management compared to prospectors (Widyasari, Harindahyani, & Rudiawarni, 2017; Wu, Gao, & Gu, 2015). Real earnings management is profit manipulation through non-accrual operational activities such as: operating cash flow, production costs, and operating expenses. Management manipulates these accounts in order to meet certain profit targets. Efficient management of operational activities is the company's keyword with a defender strategy. This is what underlies the argument that companies with a defender strategy have a tendency to do real earnings management. However, (Purba, Fransisca, & Joshi, 2021) proved the opposite results from previous studies. Companies with a defender strategy (prospector) tend to carry out accrual (real) earnings management. Therefore, this study seeks to develop a model that can prove that the choice of strategy is a condition where management behaves

in engineering its earnings reporting so that the readability of MD&A narrative information is low.

Third, the use of real earnings management as a measurement of earnings management. Previous research using real earnings management is still limited (Lo et al., 2017; Tarjo & Anggono, 2020). Previous studies on MD&A legibility tend to use accrual earnings management.

This study aims to examine the role of business strategy in the relational relationship between earnings management and MD&A readability. Earnings management that occurs depends on the choice of business strategy by the company. This is what makes MD&A readability easy or difficult. The results showed that the level of MD&A readability was high in the companies: (i) defenders and prospectors who performed real earnings management – abnormal operating cash flow, production costs and discretionary expenses, (ii) discretionary expenses have been used by the companies to manage earnings to low the MD&A readability regardless of the adoption of strategy.

This study provides academic contributions, namely (i) the strategy analyzer is in a position between the defender and the prospector so that statistically it results in multicollinearity which causes F to be insignificant, (ii) the gunning fog index (GFI) obtained through the use of the website: <http://gunning-fog-index.com/> is more appropriate for MD&A in English than in Indonesian, (iii) real earnings management - discretionary expense is a strong proxy for real earnings management, and (iv) strategy analyzer should not be used in the model because of its measurement is in the middle position between defender and prospector. This research also makes a practical contribution for shareholders and potential shareholders to be careful in using MD&A. MD&A which contains long and complex sentences means that the company carries out real earnings management, especially at discretionary expenses.

## **Literature Review**

### *Agency Theory*

Agency theory defines a business organization as a nexus of contracts. Contracts in this organization give rise to differences of interest between the parties who make the contract (Hill & Jones, 1992; Pepper, 2019). In the context of this research, the parties who make the contract are shareholders and management. This separation of ownership and management functions occurs when the organization grows to be large. It is intended that business organizations can carry out their operational activities efficiently (Fama, 1980).

The manager only functions as the manager of the business organization and not the owner. This is what triggers conflicts between shareholders as principals and managers as agents. Managers reject the economic theory which states that the main goal of the company is to achieve maximum profit. This maximum profit is only to fulfill the interests of shareholders as owners. Therefore, managers behave opportunistically in managing the company. Its main objective is the fulfillment of its personal interests compared to shareholders. This opportunistic behavior incurs agency costs (F. E. Fama, 1980;

Schillemans & Bjurstorm, 2020). Agency costs can be reduced by incentive mechanisms that are considered fair by managers (Schillemans & Bjurstorm, 2020).

### *Information Asymmetry*

The separation of ownership and control functions is a factor that triggers information asymmetry. Managers have a role to control the company, but are not owners. This affects the management in managing the company optimally, because it will only fulfill the interests of shareholders as owners. In managing the company, management has greater information about the actual condition than shareholders (Scott, 2015).

Information publication is triggered by (i) adverse selection and (ii) moral hazard (Scott, 2015). Adverse selection is a type of information asymmetry where one party bound in a contract has an advantage in obtaining information compared to the other party. The party who benefits is the management as the manager of the company. Management can sort out which information needs to be conveyed to external parties or shareholders. Moral hazard is a type of information asymmetry where management has opportunistic behavior in conveying information to shareholders who do not have access.

### *MD&A Readability*

MD&A is part of the annual report which contains information (Keuangan, 2021): review of information per segment, comprehensive financial performance, ability to pay debts, collectability of accounts receivable, capital structure, capital expenditures, material information after the date of the accountant's report, business prospects, comparison of targets with realization financial statements, targets or projections for the coming year, marketing aspects, dividend policy, realization of the use of proceeds from public offerings, other material information, policy changes that have a significant effect on issuers, and changes in accounting policies. It can be concluded that the narrative information MD&A aims to explain the performance achievements and business prospects.

Performance and business prospects are the keywords needed by shareholders regarding the company's sustainability. Therefore, the narrative information MD&A should be easy for shareholders to understand (Schroeder & Gibson, 1990). The ease of understanding this narrative information depends on the use of sentences in the MD&A. Complex and long sentences make it difficult for shareholders and other external users to understand this narrative information.

Several methods are used by academics to identify MD&A readability, namely: content analysis, checklist, and gunning fox index. Content analysis uses keywords based on themes that must exist in the MD&A. This method counts the number of times the keyword appears on MD&A. The checklist uses a checklist containing what information should be disclosed in the MD&A. A score of 1 (0) is given to information that is (not) disclosed based on the checklist. The disclosure index is obtained from the total score of information disclosed in MD&A divided by the total score that should be disclosed based on the checklist. Content analysis and checklists produce an index or score that shows the



amount of information disclosure. A high (low) index or score indicates easy (difficult) MD&A readability.

Gunning fox index (GFI) was developed by Gunning in 1952 (Flory, Phillips, & Tassin, 1992). Conceptually, this method identifies the use of complex sentences in MD&A. The use of complex sentences which are usually long and multilevel indicates the difficulty of understanding the sentence (Flory et al., 1992). High (low) GFI indicates difficult (easy) MD&A readability (Rahman & EDT, 2020; Sahyda, Yurniawati, & Rahman, 2019).

### *Earnings Management*

Earnings management is management behavior that manipulates or manipulates earnings (Scott, 2015; Vitolla, Raimo, & Rubino, 2019). Earnings management action is motivated by various aspects, among others: first, bonuses expected by management. Bonuses as part of the management's compensation will be obtained if the management achieves certain profit targets. If achieving the profit target is difficult due to tight competition conditions or other external factors, management tends to manipulate earnings. It aims to get a bonus. Second, it reduces the cost of debt. The cost of debt referred to here is long-term debt. This debt is a contract between the company and creditors. The contract stipulates the provisions regarding the company's obligation to pay a certain interest rate, and other costs, among others, in the event of a debt contract default, as well as the potential to commit borrowing back in the future. Earnings management is a tool used by management so that there is no violation of debt contracts and guarantees to creditors related to the efficiency of operational activities by management. Third, earnings management is carried out to meet shareholder expectations. Profitability is the easiest indicator of management success for shareholders and potential shareholders. An increase in profit indicates an increase in cash flow to be received by shareholders. Fourth, earnings management is motivated by initial public offering (IPO). IPO is a company's effort to get funding from investors. Earnings management is a beauty contest tool used by IPO companies.

Earnings management or earnings engineering is still within the limits required by financial accounting standards. Accrual basis assumptions used by accounting standards provide an opportunity for management to exercise discretion. Several models have been developed to identify accrual earnings management, including: the Healy model in 1985, the DeAngelo model in 1986, the Jones model in 1991, and the modified Jones model in 1995 (Pinheiro de Sá et al., 2021; Suyono, 2017; Vagner, Valaskova, Durana, & Lazaroiu, 2021). This accrual earnings management has several weaknesses, including: (i) detection of inefficient accrual earnings management levels when associated with MD&A readability (Balata, 2005; Sun, Johnson, & Bradley, 2022), and (ii), accrual earnings manipulation does not have a direct cash flow impact (Ali & Kamardin, 2018; Roychowdhury, 2006; Sanad, Shiwakoti, & Kukreja, 2019; Sari et al., 2012).

Real earnings management is the manipulation of earnings from normal operating activities. This is motivated by management's desire to mislead stakeholders so that they believe in achieving profit targets derived from normal operating activities (Cohen & Lys, 2022; Kothari, Mizik, & Roychowdhury, 2016; Roychowdhury, 2006). The method used

to detect the existence of earnings management through variables: operating cash flow, discretionary operating expenses, and production costs. These three variables each indicate the existence of sales manipulation, reduced discretionary expenses, and overproduction or increased production to reduce COGS (Kothari et al., 2016).

Sales manipulation is done by giving massive discounts. This results in the recognition of sales in the next year being carried out in the current year. Another way to manipulate sales is to offer softer credit of terms. For example, consumers are charged 0% if the payment of receivables is done at the end of the fiscal year. This increase in sales volume and settlement of receivables causes a decrease in cash flow due to the discount.

Operational discretionary expenses such as: research and development, advertising, maintenance and others are usually charged at the time of the transaction. This will result in a decrease in profit. If management reduces discretionary expenses, management can achieve profit targets.

Production cost reduction is carried out by mass production to meet demand expectations. High production volume will reduce fixed costs which in turn lowers production costs per unit. Low production costs per unit result in decreased cost of goods sold (COGS).

### *Contingency Theory*

Contingency theory is an organizational theory that explains that the company's internal processes are determined by contextual factors. So, this theory seeks to explain organizational effectiveness is determined by the suitability of contextual factors with operational activities. This theory helps academics to understand the causes of things in organizations. Example: strategy as one of the contextual factors must be implemented to achieve performance. If the achievement of performance is low, then the company must look for the cause: whether the mechanisms and processes in the organization do not support the implementation of the strategy (Otley, 2016). Figure 1 below shows the relationship of strategy with organizational variables.

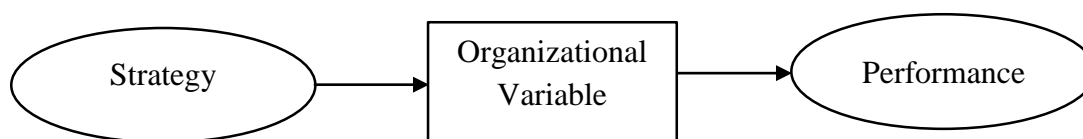


Figure 1. Model of Contingency Based Strategy  
 Sources: (Otley, 2016)

Figure 1 above shows that the implementation of strategy in the company affects organizational variables, resulting in performance. This research model was developed based on Figure 1 above. Strategy is a contextual factor that influences earnings management behavior as an organizational variable. This resulted in the use of sentences in the narrative information of reports to external parties. In other words, the level of readability is the performance of management in delivering information to external parties.

Contingency theory testing is statistically based on several methodologies: (i) selection, (ii) interaction, and (iii) systems (Otley, 2016; Otley, 1980). Selection is a contingency testing method to examine the effect of contextual factors on organizational variables. The statistical test used is correlation or regression. Interaction is a bivariate testing method between contextual factors and organizational variables, as well as their effect on performance. The statistical test is moderated regression analysis or MANOVA. System is a contingency test between many contextual factors on organizational variables, and their effect on performance. Statistical tests can use the deviation between the ideal and non-ideal groups.

This research uses interaction approach. This research model examines the differences in strategy adoption by companies affecting earnings management behavior. This results in the use of sentences in the narrative information of reports for external parties.

### *Business Strategy*

Business strategy is a guideline and direction for a business organization to carry out its vision and mission (Hitt, Ireland, & Hoskisson, 2017). Business strategies are adopted by companies to deal with competitive environmental conditions. The typology of business strategy is defender, prospector and analyzer (Hitt et al., 2017; Miles et al., 1978).

Defender is the right strategy to face the conditions of a stable business competition environment. Companies with this strategy have the following characteristics: serving certain market niches, producing not many types of products, preventing the entry of new competitors by achieving economies of scale.

Prospector is a pro-active strategy thereby increasing competition. Companies with this strategy have the characteristics: create new innovative products, seek new market opportunities, and become first movers in the market. True prospectors emphasize the importance of product innovations over profitability.

Analyzer is a strategy that lies between defender and prospector or a combination of both. Analyzer combines the strengths of defender and prospector. The main characteristic of this strategy is to minimize risk and increase profitability.

### *Firm Size*

Company size is the size of the company based on total assets. Company size affects the level of disclosure in annual and financial reporting. Large companies tend to carry out higher levels of disclosure than small companies. The readability of MD&A in large companies is easier to understand than small companies (Ajina et al., 2016; Sahyda et al., 2019).

## **Research Method**

Testing H1 – H3 using the equations below.



$$GFI_i = \beta_0 + \beta_1 REM\_CFO_i + \beta_2 REM\_PROD_i + \beta_3 REM\_DISCX_i + \beta_4 REM\_CFO_i * DF_i + \beta_5 REM\_CFO_i * PR_i + \beta_6 REM\_CFO_i * AN_i + \beta_7 SIZE_i + \varepsilon_i \quad (1)$$

$$GFI_i = \beta_0 + \beta_1 REM\_CFO_i + \beta_2 REM\_PROD_i + \beta_3 REM\_DISCX_i + \beta_4 REM\_PROD_i * DF_i + \beta_5 REM\_PROD_i * PR_i + \beta_6 REM\_PROD_i * AN_i + \beta_7 SIZE_i + \varepsilon_i \quad (2)$$

$$GFI_i = \beta_0 + \beta_1 REM\_CFO_i + \beta_2 REM\_PROD_i + \beta_3 REM\_DISCX_i + \beta_4 REM\_DISCX_i * DF_i + \beta_5 REM\_DISCX_i * PR_i + \beta_6 REM\_DISCX_i * AN_i + \beta_7 SIZE_i + \varepsilon_i \quad (3)$$

Where:

GFI	=	Gunning fog index
REM_CFO	=	Real earnings management – cash flow operations
REM_PROD	=	Real earnings management – production costs
REM_DISCX	=	Real earnings management – discretionary expense
DF	=	Defender
PR	=	Prospector
AN	=	Analyzer
REM_CFO*DF	=	Interactions of REM_CFO with defender strategy
REM_CFO*PR	=	Interactions of REM_CFO with prospector strategy
REM_CFO*AN	=	Interactions of REM_CFO with analyzer strategy
REM_PROD*DF	=	Interactions of REM_PROD with defender strategy
REM_PROD*PR	=	Interactions of REM_PROD with prospector strategy
REM_PROD*AN	=	Interactions of REM_PROD with analyzer strategy
REM_DISCX*DF	=	Interactions of REM_DISCX with defender strategy
REM_DISCX*PR	=	Interactions of REM_DISCX with prospector strategy
REM_DISCX*AN	=	Interactions of REM_DISCX with analyzer strategy
SIZE	=	Firm size
$\beta_0$	=	Constanta
$\beta_1 - \beta_7$	=	Beta/coefficient
$\varepsilon$	=	Error terms

H1 and H3 are supported when  $\beta_4$  and  $\beta_6$  significant and negative. H2 is proven when  $\beta_5$  significant and positive.

The dependent variable of the study was MD&A readability. Readability of MD&A is the informative ability of MD&A to be understood by external users. This variable was measured by the Gunning Fog Index (GFI). GFI uses formula [6], [10]:

$$GFI = 0.4 \times \left( \left( \frac{\text{word}}{\text{sentences}} \right) + 100 \times \left( \frac{\text{complex words}}{\text{words}} \right) \right)$$

The formula can be found by using the web-based application: <http://gunning-fog-index.com/>. The application is valid by using MD&A in English rather than Indonesian's language. Table 1 below shows the GFI scores and the interpretation.

Table 1. MD&A Readability

GFI	Readability Status
$\geq 18$	Hard to be read
14 - 18	Difficult
12 - 14	Ideal
10 - 12	Acceptable
8 - 10	Very easy

The independent variables of this study are real earnings management and business strategy. Real earnings management is earnings manipulation behavior through real activities (Kothari et al., 2016; Roychowdhury, 2006). Real earnings management is measured by 3 operational variables, namely: operating cash flow, production costs, and discretionary expenses. The following formula calculates the magnitude:

1. Abnormal cash flow (REM\_CFO)

$$\frac{\text{CFO}_{it}}{\text{Assets}_{i,t-1}} = k_1 \frac{1}{\text{Assets}_{i,t-1}} + k_2 \frac{\text{SALES}_{it}}{\text{Assets}_{i,t-1}} + k_3 \frac{\Delta \text{SALES}_{it}}{\text{Assets}_{i,t-1}} + \varepsilon_{it}$$

2. Abnormal production cost (REM\_PROD)

$$\frac{\text{PROD}_{it}}{\text{Assets}_{i,t-1}} = k_1 \frac{1}{\text{Assets}_{i,t-1}} + k_2 \frac{\text{SALES}_{it}}{\text{Assets}_{i,t-1}} + k_3 \frac{\Delta \text{SALES}_{it}}{\text{Assets}_{i,t-1}} + k_4 \frac{\Delta \text{SALES}_{i,t-1}}{\text{Assets}_{i,t-1}} + \varepsilon_{it}$$

3. Abnormal discretionary expense (REM\_DISCX)

$$\frac{\text{DISX}_{it}}{\text{Assets}_{i,t-1}} = k_1 \frac{1}{\text{Assets}_{i,t-1}} + k_2 \frac{\text{SALES}_{it}}{\text{Assets}_{i,t-1}} + \varepsilon_{it}$$

Abnormal cash flow, abnormal production cost, and abnormal discretionary expense are obtained at the residual value of each formula.

Business strategy is a guideline or direction for management in carrying out its operational activities to achieve the company's vision and mission (Hitt et al., 2017). The formula used to measure business strategy includes the following 4 ratios:

1. The employee to sales ratio is calculated from the number of employees divided by the average sales for the last three years in the observation period.

2. Changes in sales are obtained from changes in sales in year  $t$  minus  $t-1$  divided by the average sales for the last three years in the observation period.

3. Employee fluctuation is the standard deviation of the number of employees in the last three years in the observation period.

4. The capital intensity ratio is obtained from the average property, plant and equipment (PPE) in the last 3 years in the observation period.

Each ratio is divided into quintiles. A score of 1 is assigned to the lowest quintile to a score of 5 to the highest quintile. Except, for the capital intensity measure ratio, a score of 1 is assigned to the highest quintile up to a score of 5 is assigned to the lowest quintile. Then all scores are added up for each year (Rahman & EDT, 2020).

Table 2. Business Strategy

Score	Strategy
6 - 10	Defender
11 - 15	Analyzer
16 - 20	Prospector

Business strategy is measured by a dummy variable. Defender (DF): A score of 1 is given for the defender strategy, a score of 0 for the analyzer and prospector strategy. Analyzer (AN): Score 1 is given for strategy analyzer, score 0 for strategy defender and prospector. Prospector (PR): Score 1 is given for prospector strategy, score 0 for defender and analyzer strategy.

The control variable in this study is firm size (SIZE). Company size is the size of the company (Ajina et al., 2016). This variable is measured by Ln\_Total Assets.

The population of this study is manufacturing companies listed on the Indonesia Stock Exchange with an observation period of 2017-2019. The sampling technique used purposive sampling. Table 3 below shows the results of sampling.

Table 3. Sample Criteria

	Number
Manufacturing firms during 2017 - 2019	363
a. Incomplete data	(24)
b. Financial statements in foreign currency	(114)
Outlier	(36)
Firm years	189

Table 3 shows the data of this study as many as 189 firm years. The statistical tool used for testing is moderated regression analysis (MRA). The stages of testing carried out before testing the hypothesis are:

1. Normality test

2. Classical assumption test consists of heteroscedastic test and multicollinearity test
3. Goodness of fit test consists of coefficient determination test ( $R^2$ ) and F test.

The results of those tests can be found on Appendix.

### ***Hypotheses Development***

Companies with a defender strategy strive to carry out their operational activities efficiently. Efficiency is obtained through increasing production volume optimally. It aims to reduce the fixed costs of production. Efficiency is the key word for defender companies to set competitive selling prices, making it difficult for new competitors to enter. Competitive selling prices allow defender companies to increase their sales volume. Defender companies seek to reduce advertising expense, and seek to reduce research and development and other operational expenses. It aims to increase profitability.

Defender companies tend to do real earnings management (Widyasari et al., 2017; Wu et al., 2015) compared to prospector companies. Therefore, MD&A narrative information contains long and complex sentences, thereby reducing its readability.

**H<sub>1</sub>:** Real earnings management reduces the readability of MD&A in defender firms.

The prospector company has the main characteristics as an innovator company. This type of company focuses on product innovations because of the company's strategic position as a first mover. Therefore, profitability is difficult to achieve by the company in the short term. This encourages management behavior to exercise discretion in manipulating earnings on an accrual than real basis. Prospector companies have been empirically proven to perform accrual earnings management (Widyasari et al., 2017; Wu et al., 2015) compared to real earnings management. Therefore, MD&A narrative information is easier for external users to understand in prospector companies than other strategies.

**H<sub>2</sub>:** Real earnings management improves MD&A readability in prospector firms.

Analyzer companies have the characteristics of minimizing risk and increasing profitability. Analyzer companies seek to take advantage of market opportunities by launching new products with competitive selling prices. The analyzer company strives for cost efficiency so that it can set a competitive selling price. Cost efficiency is obtained through increasing sales volume, even though the profit margin is low. Another way is to achieve economies of scale in production to reduce fixed costs per unit. The analyzer company will use its discretion in charging research and development costs, in order to increase profitability. Therefore, analyzer companies tend to carry out real earnings management so that the readability of MD&A is low.

**H<sub>3</sub>:** Real earnings management lowers MD&A readability in analyzer firms.

## Results and Discussion

### *Descriptive Statistic*

Descriptive statistics for each variable are presented in Table 4 below.

Table 4. Descriptive Statistic

Variable	Min.	Max	Mean	Std. Deviation
GFI	8.65	18.47	13.46	2.19
REM_CFO	0.06	2.67	1.06	0.47
REM_PROD	0.07	2.30	0.80	0.42
REM_DISCX	0.00	0.70	0.17	0.15
SIZE	25.22	33.49	28.73	1.66

GFI = Gunning fox index  
REM\_CFO = Real earning management – cash flow  
REM\_PROD = Real earning management – production  
REM\_DISCX = Real earning management – discretionary  
SIZE = Firm size

Table 4 above shows the descriptive statistics of the dependent variable of this study, namely the Gunning Fox Index (GFI). The GFI used as a measurement of MD&A readability has a mean value of 13.46 with a standard deviation of 2.19. This means that the MD&A readability of the sample firms are ideal. The minimum GFI value of 8.65 is owned by PT. Asiaplast Industri, Tbk in 2018. This means that MD&A in 2018 is easily understood by external users. While the MD&A that cannot be read is PT. Astra International, Tbk in 2019 with the highest GFI score of 18.47.

The independent variable is real earnings management. Real earnings management is measured by 3 abnormal variables: operating cash flow, production costs, and discretionary expenses. Abnormal operating cash flow has a mean value of 1.06 with a standard deviation of 0.47. This indicates that earnings management through operational cash flow activities is quite high. The mean value tends to the maximum value of 2.67. This maximum value is owned by PT. Wilmar Cahaya Indonesia, Tbk in 2019. Meanwhile, the earnings management activity with the lowest cash flow is PT. Inti Agri Resources, Tbk in 2017.

Abnormal production costs have a mean value of 0.80 with a standard deviation of 0.42. This indicates that earnings management activities by sample companies through production costs are relatively low. This mean value is far from the maximum value of 2.30 and the minimum value of 0.07. Companies that have earnings management activities through the highest (lowest) production costs are PT. Wilmar Cahaya Indonesia, Tbk in 2019 (PT. Inti Agri Resources, Tbk in 2017).

Abnormal discretionary load has a mean value of 0.17 with a standard deviation of 0.15. This shows that earnings management activities through discretionary expenses are low. The minimum value of 0.00 is owned by PT. Bumi Teknokultura Unggul, Tbk in 2019. This means that the company does not carry out earnings management activities through discretionary expenses. While the maximum value of 0.7 is owned by PT.



Unilever, Tbk in 2017. This means that Unilever carried out earnings management activities through discretionary expenses in 2017.

The control variable in this study is firm size (SIZE). The mean value of this variable is 28.73 or Rp. 18.906 billion. This indicates that the average assets owned by the sample companies are IDR 18.906 billion. The maximum value of 33.49 is owned by PT. Astra International, Tbk with total assets of IDR 351,958 billion in 2019. While the smallest sample company is PT. Primarindo Asia Infrastructure, Tbk with total assets of IDR 89 billion in 2017.

The other independent variable in this study is business strategy. Figure 2 below shows the strategy adoption of the sample firms.

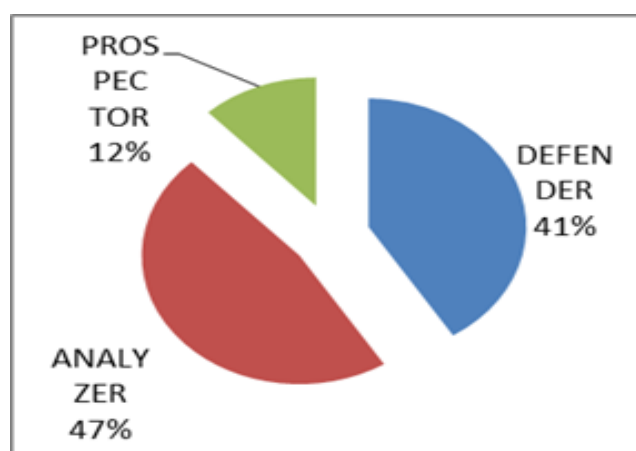


Figure 2. Business Strategy

Figure 2 above shows that the analyzer is the most chosen strategy by the sample companies at 47% or 89 firm's year. Defender is the second largest strategy at 41% or 78 firm's year. And prospector is a strategy with at least 12% or 22 firm's year.

### Findings

This study uses 3 research equations. The research equation (1) is:

$$GFI_i = \beta_0 + \beta_1 REM\_CFO_i + \beta_2 REM\_PROD_i + \beta_3 REM\_DISCX_i + (1) \\ \beta_4 REM\_CFO_i * DF_i + \beta_5 REM\_CFO_i * PR_i + \beta_6 REM\_CFO_i * AN_i + \beta_7 SIZE_i + \varepsilon_i$$

The results of the equation (1) test show that (i) there is multicollinearity between REM\_CFO and REM\_PROD so that REM\_PROD is removed from equation (1); and (ii) the analyzer strategy (AN) have caused F to be insignificant so that the statistical application program excludes the equation. The results of testing equation (1) are presented in Table 5 below.

Table 5. Results of Equation (1)

	Beta	p-value	
REM_CFO	-1,29	0.00***	Significant
REM_DISCX	4.40	0.00***	Significant
REM_CFO*DF	0.56	0.05**	H1 accepted
REM_CFO*PR	0.73	0.08*	H2 rejected
SIZE	0.08	0.40	Not significant

\*\*\* Significant at level of confidence 99%

\*\* Significant at level of confidence 95%

\* Significant at level of confidence 90%

Table 5 shows that REM\_CFO has a negative effect on GFI. REM\_DISCX has a positive effect on GFI. The interaction between REM\_CFO and DF have a positive effect on GFI. The interaction between REM\_CFO and PR on GFI is also significant and positive. This means that H1 is accepted while H2 is rejected. While, the control variable SIZE has no effect on GFI.

Research equation (2) in this study is:

$$GFI_i = \beta_0 + \beta_1 REM\_CFO_i + \beta_2 REM\_PROD_i + \beta_3 REM\_DISCX_i + \beta_4 REM\_PROD_i * DF_i + \beta_5 REM\_PROD_i * PR_i + \beta_6 REM\_PROD_i * AN_i + \beta_7 SIZE_i + \varepsilon_i \quad (2)$$

The test results of equation (2) show there is a multicollinearity between REM\_CFO and REM\_PROD\*DF and REM\_PROD\*PR. And there is multicollinearity between REM\_PROD\*DF, REM\_PROD\*PR and REM\_PROD\_AN. Therefore, REM\_CFO and REM\_PROD\*AN are removed from the equation by the statistical application program. The test results are shown in Table 6.

Table 6. Results of Equation (2)

	Beta	p-value	
REM_PROD	-1.25	0.00***	Significant
REM_DISCX	3.42	0.00***	Significant
REM_PROD*DF	0.82	0.03**	H1 accepted
REM_PROD*PR	0.92	0.07*	H2 rejected
SIZE	0.08	0.37	Not significant

\*\*\* Significant at level of confidence 99%

\*\* Significant at level of confidence 95%

\* Significant at level of confidence 90%

Table 6 above shows that REM\_PROD has a negative effect on GFI. REM\_DISCX has a positive effect on GFI. The interaction between REM\_PROD and DF has a positive effect on GFI. Likewise, the interaction of REM\_PROD with PR affects GFI. Meanwhile, SIZE has no effect on GFI. The results of equation (2) are consistent with the results of equation (1).

The research equation (3) is:

$$GFI_i = \beta_0 + \beta_1 REM\_CFO_i + \beta_2 REM\_PROD_i + \beta_3 REM\_DISCX_i + \beta_4 REM\_DISCX_i * DF_i + \beta_5 REM\_DISCX_i * PR_i + \beta_6 REM\_DISCX_i * AN_i + \beta_7 SIZE_i + \varepsilon_i \quad (3)$$

The results of the test of equation (3) also show that (i) there is multicollinearity between REM\_CFO and REM\_PROD, so that one must be removed from the equation, and (ii) REM\_DISCX is removed by the statistical application program from the model if it is run simultaneously with the respective interaction of REM\_DISCX with each strategy. Therefore, Table 7 shows the results of data processing separately between REM\_DISCX and its interaction variables for each variable.

Table 7. Results of Equation (3)

	Beta	p-value	Beta	p-value	
REM_PROD	-0.82	0.03**	-0.87	0.02**	Significant
REM_DISCX			3.36	0.00***	Significant
REM_DISCX*DF	3.66	0.01***			H1 accepted
REM_DISCX*PR	6.11	0.01***			H2 rejected
REM_DISCX*AN	2.61	0.04**			H3 accepted
SIZE	0.08	0.39	0.08	0.39	Not Significant

\*\*\* Significant at level of confidence 99%

\*\* Significant at level of confidence 95%

\* Significant at level of confidence 90%

Table 7 above shows results that are consistent with the results of equations (1) and (2). REM\_PROD has a negative effect on GFI. REM\_DISCX has a positive effect on GFI. All the results of the interaction between REM\_DISCX and each strategy have a positive effect on GFI. This means that H1 and H2 are rejected, while H3 is supported. SIZE also has no effect on GFI consistently.

### *Real earnings management on MD&A readability in defender firms*

The results of testing equations (1) to (3) show consistent results. Real earnings management decreases the MD&A readability of defender firms. Defender companies perform earnings management through real activities: operating abnormal cash flow, abnormal production costs, and abnormal discretionary expenses.

Table 8 below shows each real earnings management variable in defender firms.

Table 8. GFI and Real Earnings Management - Defender

	Min.	Max.	Mean	Std. Deviation
GFI	9.41	17.81	13.62	2.01
REM_CFO	0.06	2.67	0.98	0.49
REM_PROD	0.07	2.30	0.73	0.44
REM_DISCX	0.00	0.61	0.16	0.15

Table 8 above shows the minimum and maximum GFI, abnormal cash flow operational (REM\_CFO), abnormal production cost (REM\_PROD), and abnormal discretionary expenses (REM\_DISCX) values for the entire sample in Table 4 adopting the defender strategy. The mean value of GFI, abnormal cash flow operation, abnormal production, and abnormal discretionary expenses shown by Table 8 are lowest than the prospector and analyzer companies (Table 9 and Table 10).

Defender companies have the main characteristics of increasing profitability. This profitability is obtained through competitive selling prices. The competitive selling price at this defender company shows the giving of big discounts to increase sales volume. Increasing the profitability of defender companies is done by reducing fixed costs. Fixed costs of production can be reduced by increasing production volume by optimally utilizing production capacity. This is in accordance with Roy chowdhury's argument when developing a real earnings management model (Roychowdhury, 2006).

The minimum REM\_DISCX value of 0.00 in the entire sample (Table 4) adopts the defender strategy. Discretionary expenses such as research and development costs on defender companies are usually low. Another discretionary expense is selling expense. Defender companies are usually able to save on selling expenses because the market they serve is difficult for new players to enter.

Earnings management activities through the manipulation of operational activities in defender companies affect the preparation of MD&A reports. The Gunning Foq Index (GFI) as a proxy for MD&A readability in defender companies has mean value 13.62 with a standard deviation of 2.01. The GFI of defender companies is in the range of ideal (11.61) meanings the MD&A is difficult to read (15.63). This concludes that the readability of MD&A is relatively low.

This indicates that companies with a defender strategy have a tendency to manipulate operational activities in conducting earnings management. The results of this study support previous studies (Widyasari et al., 2017; Wu et al., 2015).

#### *Real earnings management on MD&A readability in prospector firms*

The results of testing equations (1) to (3) consistently prove that real earnings management reduces the readability of MD&A in prospector companies. Therefore, the H2 of this study is not empirically supported. Prospector companies also perform real earnings management as proxied by abnormal: operational cash flow, production costs, and discretionary expenses.

Table 9 below shows GFI and real earnings management variable in prospector companies.

Table 9. GFI and Real Earnings Management - Prospector

	Min.	Max.	Mean	Std. Deviation
GFI	10.77	17.56	14.07	1.61
REM_CFO	0.61	1.61	1.17	0.31
REM_PROD	0.13	1.32	0.85	0.36
REM_DISCX	0.06	0.42	0.20	0.11

Table 9 above shows that the descriptive statistic of prospector companies. The mean value of GFI and real earnings management variable in prospector companies is greater compare to the GFI and real earnings management variable in defender companies (Table 8). The readability level of MD&A in prospector companies has a mean value of 14.07 with a standard deviation of 1.61 or is in the range of 12.5 to 15.67. The prospector company's MD&A readability status is hard to read. The prospector companies manipulate their earnings management by using real activities. It is shown by the mean value of abnormal CFO, production, and discretionary expenses are higher than defender and analyzer companies (Table 8 and Table 10). This indicates that prospector companies manipulate operational activities more than defender companies.

The main characteristic of a prospector company is innovator, and not reap of the profitability in the short terms. This of course will not be of interest to shareholders. Shareholders want cash flow derived from profitability. Moreover, the operational activities have to be done efficiently. That's why management, morally hazard, will manipulate its operational activities. So that, they would please the shareholder.

Prospector companies carry out real earnings management to meet shareholder expectations. This affects the preparation of the MD&A report. The relatively low readability of MD&A is caused by real earnings management activities in prospector companies.

#### *Real earnings management on MD&A readability in analyzer firms*

Strategy analyzer combines the strengths of defenders and prospectors. This concept affects the measurement of the analyzer strategy which is in a position between the defender and the prospector. Statistically, this analyzer strategy resulted in the model being unfit to be used as a hypothesis test so that this variable was excluded from the model. Equations (1) and (2) cannot be used to test the role of the analyzer strategy in the relationship between abnormal operational cash flow and abnormal production costs on MD&A legibility. Only equation (3) can be used to test the strategy analyzer. The test results prove that real earnings management through abnormal discretionary expenses reduces the readability of MD&A in analyzer companies. However, this H3 proof must be interpreted with caution.

Table 10 below shows GFI and real earnings management variable in analyzer companies.



Table 10. GFI and Real Earnings Management - Analyzer

	Min.	Max.	Mean	Std. Deviation
GFI	8.65	18.47	13.17	2.43
REM_CFO	0.43	2.47	1.11	0.47
REM_PROD	0.31	1.94	0.86	0.40
REM_DISCX	0.02	0.70	0.16	0.15

Table 10 above shows that the mean value of GFI, abnormal cash flow operational (REM\_CFO), abnormal production cost (REM\_PROD), and abnormal discretionary expenses (REM\_DISCX) are between the defender and prospector companies (Table 8 and Table 9). GFI score has the minimum value 8.65 (very easy) and the maximum 18.47 (hard to read), mean value of GFI is 13.17 (ideal). It concludes that the analyzer companies have the ideal MD&A readability. The mean value of REM\_CFO, REM\_PROD, and REM\_DISCX are 1.11; 0.86; and 0.16 respectively. It means that the analyzer tends to manipulate the cash flow operational and production cost. The abnormal of discretionary expense is the lowest, so that, the analyzer less manipulate discretionary expense.

The analyzer companies are stuck in the middle of defender and prospector companies. The main characteristic of analyzer is the combination of the strength of defender and prospector. They practice operations activities efficiently and R&D activities. That's why they tend to manipulate earnings by using cash flow from operations activities, production cost, and discretionary expenses.

The result shows that the earnings management by discretionary expenses reduces the readability of MD&A. This indicates that the low level of MD&A readability is caused by the manipulation on discretionary expenses. The results of this study conclude that the strategy analyzer is not an appropriate proxy in this research model. The variable analyzer strategy shows results that tend to be the same as the defender strategy. Subsequent research should only use strategies that are indeed opposite, such as defenders and prospectors.

#### *Firms size on MD&A readability*

Equations (1) to (3) consistently prove that firm size does not affect the readability of MD&A. Small or large companies are not factors that encourage the use of long and complex sentences in MD&A.

This insignificant result can be caused by the amount of total assets owned by the sample companies are not much different. The mean value of Ln total assets is 28.73 with a standard deviation of 1.66. The minimum value of 25.49 is not much different from the maximum value of 33.49. This description indicates that the size of the company from the total assets owned by the sample companies is relatively the same.

#### *Additional test*

This additional test was conducted to ascertain the role of business strategy in the relationship between real earnings management and MD&A readability. Additional tests

were performed by regressing variables: abnormal cash flow operational, abnormal production costs, abnormal discretionary expenses, defender, prospector, analyzer and size. REM\_CFO and REM\_PROD is tested separately due to the multicollinearity. Likewise, with DF and AN, tested separately because of multicollinearity. Additional test results are presented in Table 11.

Table 11. Additional Test – Result  
Dependent variable: GFI

	Panel A		Panel B		Panel C		Panel D	
	Beta	Sig	Beta	Sig	Beta	Sig	Beta	Sig.
REM_CFO	-0.83	0.18	-0.83	0.18				
REM_PROD					-0.83	0.03	-0.83	0.03
REM_DISCX	4.31	0.00	4.31	0.00	3.27	0.00	3.27	0.00
DF	0.36	0.27			0.36	0.28		
PR	0.78	0.12	0.42	0.42	0.76	0.13	0.39	0.44
AN			-0.36	0.27			-0.36	0.27
SIZE	0.07	0.44	0.07	0.44	0.08	0.42	0.08	0.42

Table 11 shows that each strategy variable: defender (DF), prospector (PR), and analyzer (AN) is not significant to MD&A readability. However, when interacted with real earnings management variables as presented in Tables 6 – 8, the results are significant and positive. This means that strategy is a moderating variable or it can be concluded that strategy is a contingency factor. Strategy implementation will affect the company's operational activities. This has an impact on the preparation of the MD&A report.

Additional test results regarding the effect of each real earnings management variable on abnormal cash flow operational (REM\_CFO), abnormal production costs (REM\_PROD), and abnormal discretionary expenses (REM\_DISCX) on MD&A (GFI) readability are consistent with the results of equations (1) to (3).

Abnormal cash flow operational (REM\_CFO) has a negative effect on the readability of MD&A (GFI). This indicates that the high operating cash flows reported in the financial statements provide external users with sufficient information regarding expected operating cash flows. Thus, it is increasing the readability of MD&A.

Abnormal production costs (REM\_PROD) have a negative effect on readability of MD&A (GFI). This indicates that the suppression of fixed costs of production per unit through optimal use of production capacity reduces the cost of goods sold in the financial statements. This cost-efficiency information provides cash flow expectations for shareholders, so that the narrative information MD&A is easy to understand and is complementary to financial information.

The additional tests conclude that companies tend to manage their earnings by using discretionary expenses. It seems logic as discretionary expenses derived from discretionary activities such as employee trainings, advertising, employee scholarship, and so on. These activities could be postponed if the financial condition is not good, and

otherwise. So that, regardless of the business strategy, the earning management will be conducted by manage the discretionary expenses.

## Conclusions

The results of this study conclude that first, real earnings management proxied by abnormal: operational cash flow, production costs, and discretionary expenses reduce the readability of MD&A in defender and prospector companies. Second, business strategy is a contextual factor that affects operational activities. Defender and prospector companies tend to manipulate their operational activities so as to reduce the readability of MD&A. Third; companies tend to manipulate activities related to discretionary expenses, thereby reducing the readability of MD&A.

This research has practical implications, namely that companies tend to reduce the readability of MD&A to cover up their actions in carrying out earnings management. This earnings management action is carried out by the company regardless of its business strategy adoption. Therefore, investors must be careful in understanding the MD&A listed in the annual report. If the MD&A is difficult for investors to understand to predict the value of their investment, then investors must be careful in using financial information. This financial information can be manipulated by companies.

This study has limitations, there are: first, the results of the study cannot be generalized to the non-manufacturing sector. Further research can use other sectors, so that the results can be compared with the results of this study. Second, the analyzer strategy measurement has a tendency that is almost the same as the defender strategy. Future research should examine opposing strategies such as: defender and prospector.

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## Appendix

### Normality tests

	Sig. (> 0.05)			
	Eq. (1)	Eq. (2)	Eq. (3)a	Eq. (3)b
Kolmogorov-Smirnov test	0.85	0.81	0.92	0.89
Conclusion	Normal	Normal	Normal	Normal

### Heteroscedasticity test

	Sig. (> 0.05)			
	Eq. (1)	Eq. (2)	Eq. (3)a	Eq. (3)b
Harvey test	0.07	0.10	0.15	0.34
Conclusion	Homoscedasticity	Homoscedasticity	Homoscedasticity	Homoscedasticity

### Multicollinearity test



	VIF			
	Eq. (1)	Eq. (2)	Eq. (3)a	Eq. (3)b
REM_CFO	1.23			
REM_PROD		1.18	1.03	1.01
REM_DISCX	1.12	1.02		1.01
REM_CFO*DF	1.17			
REM_CFO*PR	1.12			
REM_PROD*DF		1.12		
REM_PROD*PR		1.20		
REM_DISCX*DF			1.21	
REM_DISCX*PR			1.11	
REM_DISCX*AN			1.19	
SIZE	1.01	1.02	1.01	1.01
Conclusion	No multicollinearity	No multicollinearity	No multicollinearity	No multicollinearity

### Determinations test ( $R^2$ )

	Eq. (1)	Eq. (2)	Eq. (3)a	Eq. (3)b
$R^2$	11.3%	11.6%	9.6%	8.4%

### Simultaneous test (F-test)

	Sig. (< 0.05)			
	Eq. (1)	Eq. (2)	Eq. (3)a	Eq. (3)b
F test	0.00	0.00	0.00	0.00
Conclusion	Fit	Fit	Fit	Fit

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