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# The Impact of a Male CEO's Facial Masculinity on Leverage

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## ABSTRACT

**Purpose:** The purpose of this study is to obtain empirical proof of the influence of male CEOs' facial masculinity on leverage, to identify the influence of male CEOs' facial masculinity on leverage, and to find evidence that the influence of male facial masculinity variables on leverage variables is consistent.

**Design/Methodology/Approach:** The study used a quantitative method with population and research samples taken from companies listed on the Indonesia Stock Exchange from 2014 to 2018. The study analyzed data from the Indonesia Stock Exchange website and company websites, as well as Google searches, to collect figures of faces identified as male CEOs from 2016 to 2021. The Stata version 14.2 software is one of the regression completion processes with a high degree of flexibility in research that connects theories to data on variables.

**Funding:** The findings suggest that the higher the value of male CEOs' facial masculinity, the greater the effect on reducing corporate leverage, and vice versa, the lower the value of male CEOs' facial masculinity, the greater the impact on increasing corporate leverage value.

**Research implications:** The practical implications of this study can help the Indonesian Association of Accountants in developing accounting in Indonesia. As for the policy implications of this study, it could provide empirical evidence that male CEOs' masculinity undermines corporate leverage.

**Originality/value:** To date, researchers in Indonesia have not identified significant research on the topic of masculinity of male CEOs in relation with leverage, or the characteristic role of male CEOs in influencing leverage policy. This study contrasts previous findings of a study , that was conducted in the United States from 1993 to 2008.

**Keywords:** CEO Male, fWHR, Masculinity, leverage, Stata
**JEL Classification:** G02, G32, G34, M1, Z1

## 1. INTRODUCTION

In Agency Theory (Jensen & Meckling, 1976) address the correlation between shareholders and the characteristics of male CEOs as agents. Shareholders are using a male CEO as an agent to carry out the tasks and interests of the shareholders, including transferring decision-making power from shareholders to male CEOs as agents (Mahiswari & Nugroho, 2014). In companies listed on the Indonesia Stock Exchange whose capital consists of stocks, shareholders function as principal while the characteristics of male CEOs act as an agent. Meanwhile, the theory of behavioral consistency

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(Epstein, 1979) suggests that the facial masculinity of male CEOs correlates with testosterone, aggressiveness, and social status impacts leverage. Based on the characteristic role of male CEOs in decision-making, structuring and building leverage policies, substantial research on the function of male CEOs' features in various corporate strategic decisions has been conducted. This study compares previous research conducted in the USA (Kamiya et al., 2018) explaining that male CEOs' facial masculinity has a positive effect on corporate leverage, whereas agency theory (Jensen & Meckling, 1976) describes that male CEOs' characteristics affect policy and leverage determination. Male CEOs as company managers have more access to data about the company's current situation and future prospects than shareholders do, enabling the findings provide empirical evidence in the field of accounting for behavior.

The facial masculinity is a concept of male aggression that has implications for aggressive nature, has a tough character, and tends to be emotional when performing acts (Jewitt, 1997). The facial masculinity of male CEOs was related to testosterone, aggressiveness, while social status affects leverage (Kamiya et al., 2018). Factors affecting a male CEO's performance in managing a company can be found in the facial masculinity (Tanjaya & Santoso, 2020). According to (Kamiya et al., (2018), male CEOs with masculine looks have traits that affect the company's management process. The facial masculinity is a personal trait that a person is born with. The facial masculinity that occurs in men predicts masculine behavior habits and is connected with aggressive behavior, according to (Kamiya et al., (2018) in the neuroendocrinology literature. High level of male CEO masculinity is associated with more aggressive management (Tanjaya & Santoso, 2020). Leverage is boosted by the mascyline appearance of male CEOs. According to (Kamiya et al., (2018), financing decisions are based on leverage. A company's liabilities might grow as a result of high leverage (Hamada, 1972; Kamiya et al., 2018). Characteristics of male CEOs affect leverage (Cronqvist et al., 2012; Huang et al., 2013; Malmendier et al, 2011; Chava et al., 2010).

According to (Bertrand& Schoar, 2003), the characteristics of male CEOs affect the company's decision-making process. Male CEOs have a confident attitude and usually decide the company's leverage policy. The excessive confidence of male CEOs' masculinity often does leverage. (Graham, Harvey, dan Puri, 2013; Kamiya et al., 2018; Malmendier & Tate, 2005), Acquisition (Doukas & Petmezas, 2007; Kim, 2013; Kamiya et al., 2018), Innovation (Hirshleifer, Low, & Teoh, 2012; Kamiya et al., 2018)

Leverage is positively affected by male CEO characteristics (Kamiya et al., 2018; Gomulya, Wong, Ormiston, & Boeker, 2017; Jia et al,. 2014) Accordiing to neuroendocrinology research, a man's face affects his aggressive behavior. While (Carré & McCormick, 2008; Christiansen & Winkler, 1992) explain that the a male's facial masculinity influences a person's aggressive behavior. Campbell., et al (2011) argue how facial masculinity affects men's behavior, while (Wong et al., 2011) explain that male CEOs have such a tendecny to negotiate for personal gain. Thus, (Stirrat & Perrett, 2010) explain that men with a manly face are considered to be trustworthy. Therefore, (Kamiya et al., 2018; Kamiya, & Park, 2017; Wong et al., 2011) provide empirical evidence that the characteristics of male CEOs with a higher facial masculinity show better work performance than male CEOs with such a lower facial masculinity. Leverage is influenced by the facial masculinity of male CEOs (Kamiya et al., 2018).

This research proposes clear and focused limitations. This study emphasizes on the importance of male CEOs' masculinity as a root cause of leverage, and this is restricted to companies listed on the Indonesia Stock Exchange between 2016 to 2021. The research focuses on the facial structure of male CEOs' masculinity, leverage, size, and profitability (ROA). ImageJ software was used to measure subjective masculinity facial variables of a male CEOs.

## 2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### 2.1 Agency Theory

Agency theory is defined as a consequence of the differentiation of control characteristics of male CEOs as agents having direct access to company information data as compared to shareholders. The relationship between the characteristics of a male CEOs as an agent and shareholders delegating authority to the characteristics of a male CEO as an agent to manage the company is explained in

(Jensen & Meckling, 1976). A male CEO's as an agent should have the same objective as shareholders do, which is to improve the company through shareholder prosperity, but male CEOs as agents may have their own thoughts that are contrary to what shareholders think (Mayangsari, 2001). As a conclusion, agency theory offers an important solution to male CEOs' decision-making characteristics in the face of corporate leverage.

Jensen & Meckling, (1976) define agency costs in three categories: monitoring, bonding, and residual. Eisenhardt, (1989) The agency theory consists of three human nature assumptions, namely: (1) humans are generally selfish, (2) humans have limited thinking power in terms of future perceptions, and (3) humans avoid risk at all costs. From the concept of human nature, it can be seen that the usual role of male CEOs affects the company's leverage.

## 2.2 Behavior Consistency Theory

Epstein, (1979) explains that the facial masculinity of male CEOs correlates with testosterone, aggressive, and  social status affects leverage, seen from the perspective of behavioral consistency theory. He also discusses how behavioral consistency could be used to predict a majority of people within a given time span. The theory of behavioral consistency is assumed to be the opinion of a person's ability to affect issues that trigger emotions to emerge; consistency of behavior can be shown as a particularly selected subject; consistency of behavior is described in the study with the title: "The Stability of Behaviour: I. Predicting Most of the People Much the Time".

## 2.3 Face, Testosterone, and Behavior

Previous research has provided empirical evidence of a link between testosterone and masculine behavior. A CEO's face may be the basis for male facial linkages to topics in this study. (Jia et al., 2014) explains that a man's face can predict masculine behavior. Based on laboratory evidence, (Carré & McCormick, 2008; Christiansen & Winkler, 1992) claim that a man's face predicts aggressive traits. Men's faces affect masculine behavior (Eisenegger, Naef, Snozzi, Heinrichs, & Fehr, 2010; Jia et al., 2014). Jia et al., (2014) explain that the relationship between testosterone and male CEOs' behavior affects the brain both before birth and during growth. A group of nerve cells plays a role in the processing of memories and emotional reactions as mediators between testosterone in brain regions to evaluate social interactions (Bos et al., 2012; Jia et al., 2014).

Testosterone regulates adolescent spurt (Johnston et al., 2001). Adolescents' development is affected by testosterone (Verdonck et al., 1999; Jia et al., 2014). Previous research indicates that male and female growth differs in the bizygomatic (the area between the left and right cheeks), however, there is no difference in the growth period for upper facial height (Jia et al., 2014). The findings provide empirical evidence that testosterone does affect the development of the male face (Folstad & Karter, 1992). Meanwhile, according to (Jia et al., 2014; Alrajih & Ward, 2014) men's looks affect masculine behavior during their growth. Further, the findings of (Lefevre et al., (2013) provide empirical evidence that there is indeed a connection between testosterone and the ratio of male facial width. Some other studies suggest that the ratio of a man's face width to testosterone has a beneficial link. In addition, testosterone has a positive relationship with the face, as suggested by previous research (Lefevre et al., (2013). Higher or lower testosterone in men affects the facial masculinity, according to (Jia et al., 2014; Pound, Penton-Voak, & Surridge, 2009).

## 2.4 The Masculinity Of Male CEOs And Leverage

The characteristics of male CEOs affect leverage, according to (Bertrand & Schoar 2003; Cain & McKeon, 2016; Kamiya et al., 2018). Meanwhile, (Bernile, Bhagwat, & Rau, 2015; Kamiya et al., 2018; Malmendier, Tate, & Yan, 2011) offer empirical evidence that the experience of male CEOs' characteristic affects leverage. In addition, (Kamiya et al., 2018; Kim, Kamiya, & Park, 2017) contend that Male CEOs' facial masculinity has a positive effect in leverage.

Several previous research reveal that the facial masculinity of male CEOs is related to testosterone, aggressiveness, and social status affects leverage, as seen through the perspective of behavioral consistency theory (Epstein, 1979). Male CEOs' masculinity has a positive impact on leverage (Kamiya et al., (2018) found out that financing decisions are primarily based on leverage policies. A company's liabilities can be improved by using high leverage. The masculinity of male CEOs has a positive effect on leverage, according to (Kamiya et al., (2018). Similarly, (Cronqvist et

al., (2012; Huang et al., 2013; Malmendier et al, 2011; Chava et al., 2010) also reveal that Male CEO characteristics have a positive effect on leverage.

**2.5 Conceptual Framework of Research**

A conceptual framework is used to explain the effect of independent variables on dependent, and control variable used in this study. The conceptual framework of this study can be seen in the figures below, which position the masculinity of male CEOs as an independent variable, leverage as a dependent variable, and size and profitability (ROA) as a control variable:
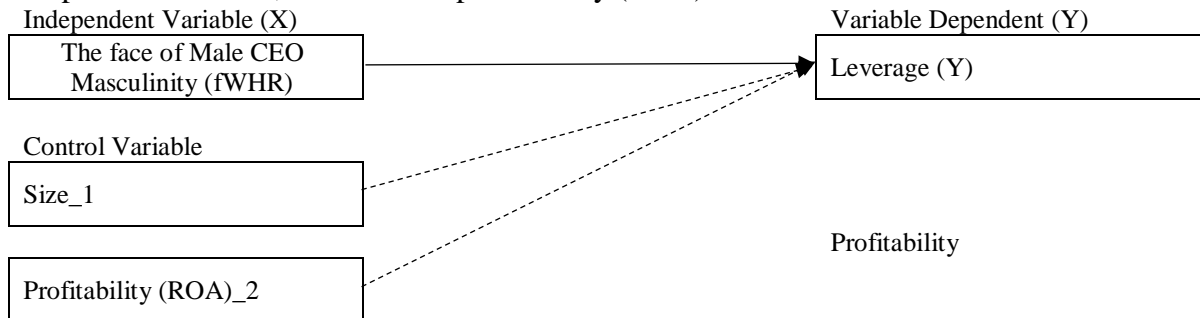
Independent Variable (X)                           Variable Dependent (Y)

| The face of Male CEO Masculinity (fWHR) | → | Leverage (Y) |

Control Variable

| Size_1 |

Profitability

| Profitability (ROA)_2 |

**Figure 2-1: Conceptual Framework of Research**

**2.6 Research Hypothesis**

The study aimed to test as well as to evaluate how the masculinity of male CEOs impacted leverage.

**The Facial Masculinity of Male CEOs Affects Leverage**

According to (Jensen & Meckling, (1976), an agency relationship arises when shareholders hire male CEO characteristics as agents to provide services and then transfer the decision-making power. In practice, characterstictics of male CEOs as a company manager know more about internal current information and prospects of the company than shareholders do. As a consequence, the characteristics of a male CEOs as an agent must provide information about the company's condition to shareholders, but the information conveyed by the characteristics of a male CEOs as an agent is sometimes not by the actual conditions of the company (Jensen & Meckling, (1976)

From the perspective of behavioral consistency theory (Epstein, (1979), the facial masculinity of male CEOs correlates with testosterone, aggressiveness, and confidence influences leverage (1979). Male CEOs' masculinity has a positive influence on leverage. As suggested by (Kamiya et al., (2018), the facial masculinity of male CEOs has a positive effect on leverage. Meanwhile, (Cronqvist et al.,2012; Huang et al., 2013; Malmendier et al, 2011) provide empirical evidence that male CEO characteristics have a positive effect on leverage. According to (Chava et al., (2010) the characteristics of male CEOs are connected with leverage. By combining all the above arguments, the following hypothesis is proposed in this study:

*H₁: The Facial Masculinity of Male CEOs Positively Affects Leverage*

**3. Research Methods**

**3.1 Types and Approaches to Research**

This research uses a quantitative approach to give meaning to the interpretation of statistical figures (Aliyyah, Siswomihardjo, et al., 2021; Prasetio et al., 2021). The research aimed to provide empirical evidence of the effect of male CEO masculinity on leverage. Explanatory research is used in the design process (Endarto, Taufiqurrahman, Kurniawan, et al., 2021; Indrawati et al., 2021). Companies listed on the Indonesia Stock Exchange from 2014 to 2018 were used in the population and research samples. The researchers collected data from the Indonesia Stock Exchange website and company websites, as well as Google searches, to obtain figures of faces identified as male CEOs within a period between 2014 and 2018. Ordinary least square regression (OLS) with Stata Software version 14.2 was used to analyze the data in this study. One of the regression completion procedures, Stata version 14.2, has a high degree of flexibility in research that connects theories, concepts, and data that can be done on variables in research..

### 3.2 .Operational Definition and Measurement

Male CEOs' masculinity is the independent variable, leverage is the dependent variable, and the variable of size and profitability (ROA) is the control variable.

### 3.2.1 Variable Independent (fWHR)

Independent variable is a variable that can affect other variables (Abadi et al., 2021; Aliyyah, Prasetyo, et al., 2021) This study used male CEO masculinity facial variables as the independent variable. The facial masculinity is a concept of masculine behavior that exists in men having implications on aggressive behavior, having a tough character, having a tendency to be emotional in carrying out their actions (Jewitt, 1997).  ImageJ software was used to measure male CEOs' facial masculinity variables, this study changed the male CEO's face figure to a gray-scale figure with a height of 8 bits (Kamiya et al., 2018).

For the face of each male CEO inside the ImageJ software, the researchers selected a location in the face figure and dragged the mouse to another location to measure the distance, the vertical line size represents the distance between the upper lip and the highest point of the eyelid. The horizontal line represents the maximum distance between the left and right cheeks, while the vertical line represents the minimum length (Kamiya et al., (2018). Therefore, the study independently provided photo quality scores from zero to three based on the following guidelines:

0: Poor posture in which (1) only one ear is visible due to the person's sideways posture; or (2) the photographer photographed the face figure from below or above, causing face height measurement problematic.

1: One ear seems to be perfect, but because the person is facing to the side, only half of the other ear is visible.

2: The person looks straight ahead and both ears are visible with roots on the face.

3: Perfect posture, with both ears clearly visible to the roots, and the person is looking straight ahead.

Based on the criteria of (Kamiya et al., 2018), the study used quality scores of two and three. The measurement scale of this study used the percentage ratio scale which can be seen in the following figure:
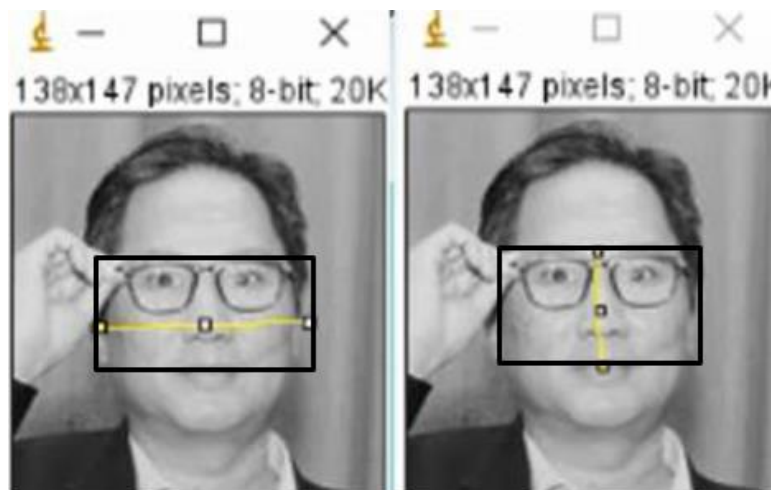


**Figure 3-1: Male CEO Masculinity Face Measurements (fWHR)**

Description

| | | |
|---|---|---|
| Horizontal line | : | Represents the maximum distance between the left and right cheeks. |
| Vertical Line | : | Represents the distance between the upper lip to the highest point of the eyelid |

### 3.2.2 Dependent Variable (Y)

Dependent variable is a variable whose value cannot be affected by other variables (Kalbuana, Prasetyo, et al., 2021; Kalbuana, Suryati, et al., 2021). The dependent variable in this study is leverage. Leverage illustrates the division of total liabilities by total assets. This financial ratio explains the amount of assets owned by companies financed by liabilities. The greater the value of

the liability, the bigger the impact felt by investors in receiving the profits (Kamiya et al., 2018). Leverage measurement is the result of the division of total liabilities by total assets (Kamiya et al., 2018). This research measurement scale uses a percentage ratio scale with the following formula:

$$\text{Leverage} = \frac{\text{Total Liability}}{\text{Total asset}}$$

Description:

Leverage$_{i,t}$  =  Leverage i in the year to t
Total Liabilitas$_{i,t}$  =  Total liabilities of the company i in the year to t
Total Assets$_{,t}$  =  Total assets of the company i in the year to t

### 3.2.3 Control Variable (K)

Control variable is a variable used to control causal relationships to better obtain a more complete and better empirical model (Kalbuana, Prasetyo, et al., 2021; Kalbuana, Suryati, et al., 2021). As a result, variables can affect the indications that are being studied. The control variable used in this study is size and profitability (ROA).

**Size**

Size is a value that can classify a company into large or small types that are sourced on total assets, and log size. Larger total asset indicates a larger the size. The larger the size, the more complete the transactions being carried out. (Luwihono et al., 2021; Prabowo et al., 2020). (Shabbir et al., 2021; Susanto et al., 2021) describe the size measurement scale using firm size with the following formula:

SIZE = Ln total asset

**Profitability (ROA)**

Profitability is a tool that can be used to evaluate if investments that have been invested by investors are able to provide profits as expected. The measurement of profitability used Return on assets (ROA) which describes the division of net profit divided by total assets (Juanamasta et al., 2019; Rusdiyanto, Agustia, et al., 2020; Rusdiyanto, Hidayat, et al., 2020). The measurement scale uses a percentage ratio scale, with the following formula:

$$\text{Return on asset} = \frac{\text{net profit}}{\text{Total asset}}$$

Description:

Return on assets$_{,t}$  =  Return on company assets i in the year to t
Net Profit$_{,t}$  =  Net profit of company i in the year to t
Total assets$_{,t}$  =  Total assets of the company i in the year to t

### 3.3 Data Analysis Techniques

Data analysis is part of the data testing process after the selection and collection stage of research data. Data analysis is interpreted as estimating or determining the magnitude of the quantitative influence of the change of an event on something else, as well as predicting or estimating other events (Sudaryanto et al., 2022; Utari, Sudaryanto, et al., 2021).

### 3.3.1. Descriptive Statistics

Descriptive statistics are statistics that can illustrate the research object through analytical data, without doing analysis (Prasetyo, Aliyyah, Rusdiyanto, Utari, et al., 2021; Utari, Iswoyo, et al., 2021) from the data of male CEO facial masculinity variable, leverage variable, size variable, and profitability variable (ROA).

### 3.3.2. Pearson Correlation Test

Pearson correlation testing is used to look at the relationship between an independent variable and a dependent variable by assuming the Pearson correlation of the data is normally distributed (Prasetyo, Aliyyah, Rusdiyanto, Nartasari, et al., 2021; Rusdiyanto et al., 2021). Correlation testing produces positive (+) and negative (-) numbers. If the correlation value is positive, it means that the variables move in the same direction, meaning that when the independent variable is large, the dependent variable is also getting bigger. If the value is negative, it means that the variables move in the opposite directions, meaning that if the value of the independent variable is large, then the dependent variable is getting smaller. Correlation numbers range from 0-1 (Endarto, Taufiqurrahman,

Suhartono, et al., 2021; Prasetyo, Aliyyah, Rusdiyanto, Kalbuana, et al., 2021). Pearsonr correlation formulation is as follows:

$$r_{xy} = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{\{n\sum X^2 - (\sum X)^2\}\{n\sum Y^2 - (\sum Y)^2\}}}$$

Description:

r     =    Correlation value
X    =    Variable X
Y    =    Variable Y

### 3.3.3 Research Regression Model

Regression analysis is used to find out how close the relationship between one variable and another variable is. The regression analysis has a function to predict the value of independent variable (Y) if the dependent variable (X) is changed (Prasetyo, Aliyyah, Rusdiyanto, Nartasari, et al., 2021; Rusdiyanto et al., 2021). The method used in this study was panel data regression analysis. Panel data is also called pool data, longitudinal data, and micro panel data. The panel data regression analysis was used to examine the influence of male CEOs' facial masculinity (fWHR) on leverage (Y). Based on the independent variables and dependent variables that have been described, an equation model is obtained that will be used as follows:

The facial masculinity of male CEOs affects leverage:

$$LEV_{i,t} = \beta_0 + \beta_1\, fWHR_{i,t} + \beta_2\, Size_{i,t} + \beta_3\, ROA_{i,t} + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

To explain the model of the facial masculinity of male CEOs, variables of leverage, size, and profitability (ROA) can be explained as follows:

**Table 3-1: Variable Description**

| Information | | Description |
|---|---|---|
| i | = | Company cross-section data |
| t | = | Company time-series data |
| fWHR | = | The Facial Masculinity of a Male CEO |
| Size | = | Company Size _1 |
| ROA | = | Profitability _2 |
| LEV | = | Leverage |
| $\alpha$ | = | Constanta |
| $\beta_1, \beta_2, \beta_3$ | = | Coefisien regresion variable LEV, fWHR, control, Size, ROA |
| $\varepsilon$ | = | Error |

## 4. RESEARCH AND DISCUSSION RESULTS

### 4.1 Descriptive Statistics of Variables

The results of descriptive statistics can be presented with minimum, maximum, mean, and standard deviation of the variables studied from the sample companies. In addition to presenting based on a sample of all companies listed on the Indonesia Stock Exchange from 2016 to 2021, the figure also shows the testing of this sample based on the company:
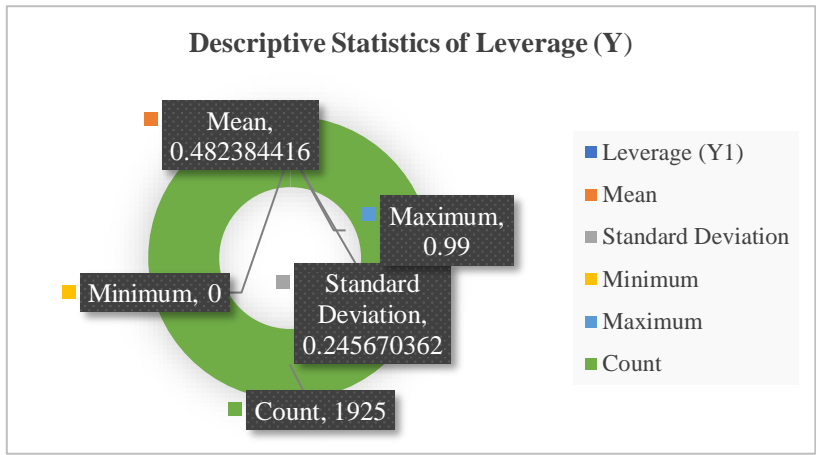
**Figure 4-1: Descriptive Statistics of Leverage_Y1**

The output figure above shows the number of observations (N) was 1925. From these 1925 observations, the leverage value (minimum) was .0, and the leverage value (maximum) was 0.99. The average value of 1925 observations or the mean was of 0.4823844 with a standard deviation of 0.2456704.
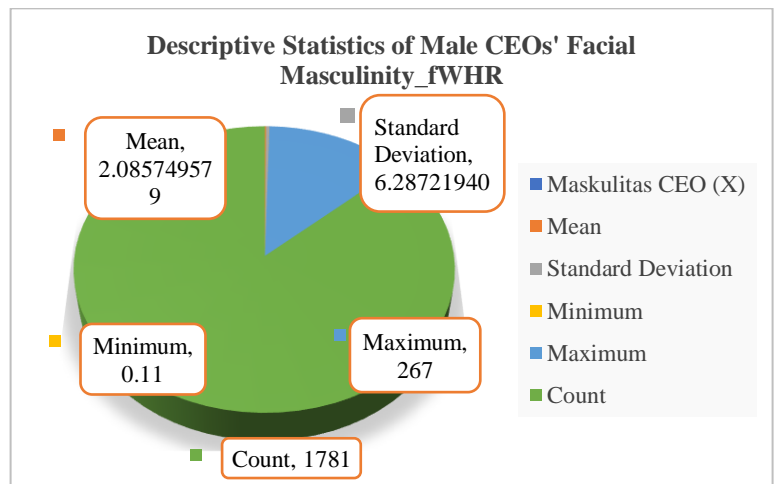


**Figure 4-2: Descriptive Statistics of Male CEOs' Facial Masculinity_fWHR**

The figure above shows the number of observations (N) was 1781. From these 1781 observations, the value of male CEOs' facial masculinity (minimum) was 0.11, and the value of male CEOs' facial masculinity (maximum) was 267. The average value of 1781 observations or the mean was of 2.08575 with a standard deviation of 6.287219.
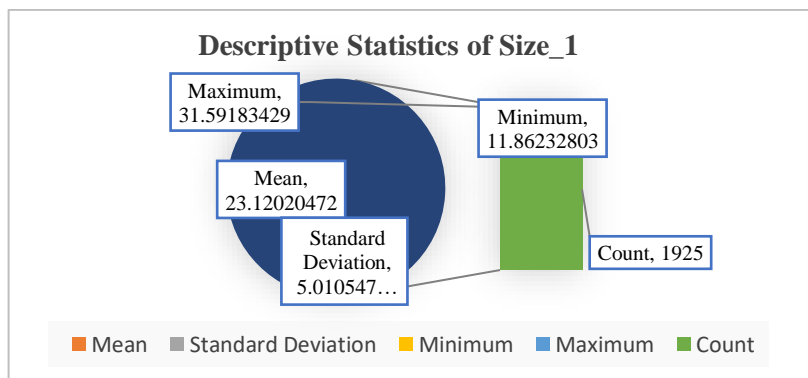


**Figure 4-3: Descriptive Statistics of Size_1**

The figure above shows the number of observations (N) was 1925. From these 1925 observations, the size value (minimum) was 11.86233, and the size value (maximum) was 31.59183.

The average value of 1925 observations or the mean was of 23.1202 with a standard deviation of 5.010547.
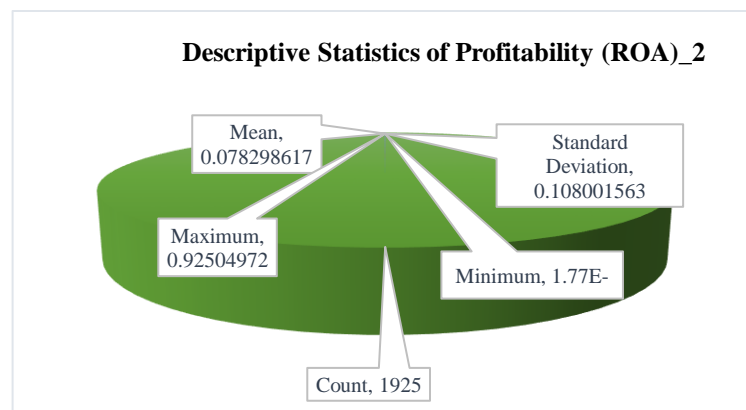


**Figure 4-4: Descriptive Statistics of Profitability (ROA)_2**

Based on the figure above, it can be seen that the number of observations (N) was 1925. From thse 1925 observations, the profitability value (ROA) (minimum) was 1.77e-08, and the profitability value (ROA) (maximum) was 0.9250497. The average value of 1925 observations or the mean was of 0.0782986 with a standard deviation of 0.108001563.

## 4.2 Pearson Correlation Test

Pearson's correlation test was done to see how strong or how weak the relationship between the facial masculinity of male CEOs and leverage. In this test, if the Pearson correlation value (r) is above 0.05 (5%), it means that there is a strong relationship between the facial masculinity of male CEOs to leverage, but if the Pearson correlation value is below 0.05 (5%), then it means that the relationship between the facial masculinity of male CEOs and leverage is said to be weak.

**Table 4-1: Pearson Correlation Test**

| Variables | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| (1) Leverage | 1.000 | | | |
| (2) fWHR | 0.006 | 1.000 | | |
| | (0.809) | | | |
| (3) Size_1 | -0.189 | -0.038 | 1.000 | |
| | (0.000) | (0.104) | | |
| (4) ROA_2 | -0.147 | 0.001 | -0.077 | 1.000 |
| | (0.000) | (0.953) | (0.001) | |

| Variables | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| (1) Leverage | 1.000 | | | |
| (2) fWHR | 0.006 | 1.000 | | |
| (3) Size_1 | -0.189* | -0.038 | 1.000 | |
| (4) ROA_2 | -0.147* | 0.001 | -0.077* | 1.000 |

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Based on the table above, it can be interpreted that the leverage variable, the facial masculinity of male CEOs, size, and Profitability (ROA) have a value above 0.05 (5%). Thus, it explains that all variables are declared to be valid to be used in model testing. The reliability test results above explain the value of above 0.05 (5%). This proves that all variables used are reliable and produce the same results when tested.

## 4.3 Goodness of Fit Model Testing

Hypothesis testing in research is very important, it can determine whether the research

conducted is scientific enough or not. To find out the feasibility of the model scientifically, based on the results of three tests that have been tested Chow-test, Lagrange multiple test, and Hausman test, the model that fits the hypothesis proposed is the estimated pooled least square (PLS) model with the following output results:

**Table 4-2: Goodness of Fit Model Testing**

| VARIABLES | (1) PLS Leverage | (2) PLS Leverage | (3) PLS Leverage |
|---|---|---|---|
| fWHR | 0.0002** | -0.0000 | -0.0003** |
| | [0.000] | [0.000] | [0.000] |
| Size_1 | | -0.0090*** | -0.0087*** |
| | | | [0.001] |
| ROA_2 | | | -0.3626*** |
| | | [0.070] | [0.070] |
| Constant | 0.4871*** | 0.7235*** | 0.7085*** |
| | [0.006] | [0.027] | [0.027] |
| Observations | 1,781 | 1,781 | 1,781 |
| R-squared | 0.000 | 0.059 | 0.069 |

*** p<0.01, ** p<0.05, * p<0.1

## 4.4 Discussion of Research Results

The probability result of Prob>F was 0,000 0.05 (5%), showing that if taken together, the value of regression coefficient is significant, which means that the facial masculinity of male CEOs affects leverage. The $R^2$ value was 0.0687, indicating that the male CEO's masculinity on the leverage had a determination level of 0.0687. This means that the facial masculinity of male CEOs can be explained by the 0.0687 of variability of leverage. The discussion of the research findings is an analysis of the suitability of previous theories, opinions, or research that has been put forward by the findings of past research to overcome phenomena in this study. The followings are the main parts that can be discussed in the analysis of the findings of this study:

**Findings: The Facial Masculinity of Male CEOs Negatively Affects Leverage**

The facial masculinity of the male CEOs shows that the estimated negative coefficient is not in accordance with the initial hypothesis. The results of the $t_{test}$ explain that the facial maskculinity of male CEOs had a negative and significant effect on leverage at the significance level of p-value 0.000 ≤ 0.05 (5%). Furthermore, regarding the magnitude of the influence of male CEOs' masculinity on leverage, it can be seen from the regression coefficient value of male CEOs' masculinity of -.0002702. This explains that when the male CEOs' facial masculinity increases by 1 percent, leverage will decrease by -.0002702.

The findings of empirical testing indicate that higher level of male CEOs' facial masculinity affect the decrease of the leverage, and vice versa, lower facial masculinity of male CEOs has an impact on the increase of leverage. Hence, the empirical findings do not support **the proposed hypothesis that the facial masculinity of male CEOs has a positive effect on leverage, the Accepted Hypothesis is (p-value 0.000 ≤ 0.01 (1%), 0.05 (5 % ).**

The initial hypothesis was submitted based on previous research findings that lead to positive result (Jia et al., 2014; Kamiya et al., 2018). The empirical findings contradict the initial hypothesis because the coefficient results of the male CEOs' facial masculinity in Indonesia and the coefficient those of the male CEOs' facial masculinity in the United States are in the opposite dirrections. The coefficient of determination's negative result suggests that the masculinity of Indonesia's male CEOs is in the opposite direction of the masculinity of male CEOs in the United States. The difference in the findings of these scientific investigations will have an impact on masculine behavior, influencing the masculinity of male CEOs in policy making.

The findings of this empirical study are different from the findings of previous studies (Kamiya et al., 2018). The results of a study conducted in the United States from 1993 to 2008 revealed that the facial masculinityof male CEOs has a positive effect on leverage, meaning that the higher the facial masculinity of male CEOs, the higher the leverage is, and vice versa, the lower the facial

masculinity of male CEOs, the lower the leverage is. Meanwhile, an empirical study in Indonesia for the sampling period of 2014-2018 reveals that the facial masculinity of male CEOs negatively affects the leverage, suggesting that the higher the facial masculinity of male CEOs the lower the leverage is, and vice versa, the lower the facial masculinity of male CEOs, the higher the leverage is.

The findings are backed by a behavioral consistency theory that explains how the facial masculinity of male CEOs is related to testosterone, aggressiveness, and social status affects leverage, seen through the perspective of behavioral consistency theory (Epstein, 1979). While agency theory mainly is concerned with the form of agreement between shareholders in combination with the characteristics of a male CEO as an agent in managing the firm, the characteristics of a male CEO as an agent bear a significant amount of responsibility for the company's success. Shareholders hire male CEOs as agents to provide services and then delegate authority to them in decision-making, according to (Jensen & Meckling, (1976). In practice, a male CEO's characteristics as an agent as in managing the company know much more internal information and future company's prospects than shareholders do. As a consequence, the characteristics of male CEOs as agents have a responsibility to give shareholders relevant information about the company's condition

According to (Kamiya et al., 2018), higher facial masculinity of male CEOs has an impact on increasing leverage, and lower facial masculinity of male CEOs has an impact on decreasing leverage. Financing decisions are focused on leverage policies, and high leverage can increase company's liabilities. Male CEOs with such a higher characteristic value have higher leverage, whereas male CEOs with such a lower characteristic value have lower leverage (Cronqvist et al., 2012; Huang et al., 2013; Malmendier et al, 2011; Chava et al., 2010).

## 5. CONCLUSION

The higher the value of male CEOs' facial masculinity, the lower the value of leverage is, and vice versa, the lower the value of male CEOs' facial masculinity, the higher the value of leverage is. Behavioral consistency theory argues that facial masculinity of male CEOs affects leverage. While agency theory explains the role of male CEO characteristics in policymaking on leverage. Meanwhile, ImageJ software supports empirical findings that the facial masculinity of male CEOs affects leverage, and the existence of male CEOs' characteristics is supported by agency theory and behavioral consistency theory.

The face represents the unique characteristics of a male CEO's leverage policymaking style, also supported by agency theory and behavioral consistency theory. The theory of behavioral consistency supports the idea that the style of male CEOs can influence masculine behavior and testoterone. The theory of behavioral consistency supports the idea that the facial masculinity in biology and psychology explains a person's masculine behavior. Lastly, agency theory and behavioral consistency theory support the notion that the facial masculinity in accounting explains how the facial masculinity of male CEOs affects leverage.

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## 2. Revisi 1 24 Agustus 2022
### Coment Collins G. Ntim, PhD Senior Editor Cogent Business & Management



**Coment Reviewer 9:**

Title, Abstract and Introduction – overall evaluation
Reviewer 9: Sound with minor or moderate revisions

Methodology / Materials and Methods – overall evaluation
Reviewer 9: Outstanding

Objective / Hypothesis – overall evaluation
Reviewer 9: Outstanding

Figures and Tables – overall evaluation
Reviewer 9: Sound

Results / Data Analysis – overall evaluation
Reviewer 9: Sound

Interpretation / Discussion – overall evaluation
Reviewer 9: Sound

Conclusions – overall evaluation
Reviewer 9: Sound with minor or moderate revisions

References – overall evaluation
Reviewer 9: Outstanding

Compliance with Ethical Standards – overall evaluation
Reviewer 9: Sound

References – overall evaluation
Reviewer 9: Outstanding

Compliance with Ethical Standards – overall evaluation
Reviewer 9: Sound

Writing – overall evaluation
Reviewer 9: Sound

Supplemental Information and Data – overall evaluation
Reviewer 9: Sound

Comments to the author
Reviewer 9: 1) In the introduction section, the authors need to add the importance of the study
2) In the literature review, I think the authors need to describe the theory first and after that just correlate the theory with the topic.
3) In the conclusion section, should be there some notes i.e the limitation of the study and what is the next gap, also authors need to add the the beneficial of the study, practically and theoretically.

Do you want to get recognition for this review on <a href="https://publons.com/publisher/24/taylor-francis"
target="_blank">Publons</a>?</p><p><i> Don't let your reviewing work go unnoticed! Researchers the world over use Publons to effortlessly track their valuable peer review contributions for any journal. If you opt in, your Publons profile will automatically be updated to show a verified record of this review in full compliance with the journal's review policy. If you don't have a Publons
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**Coment Reviewer 10**
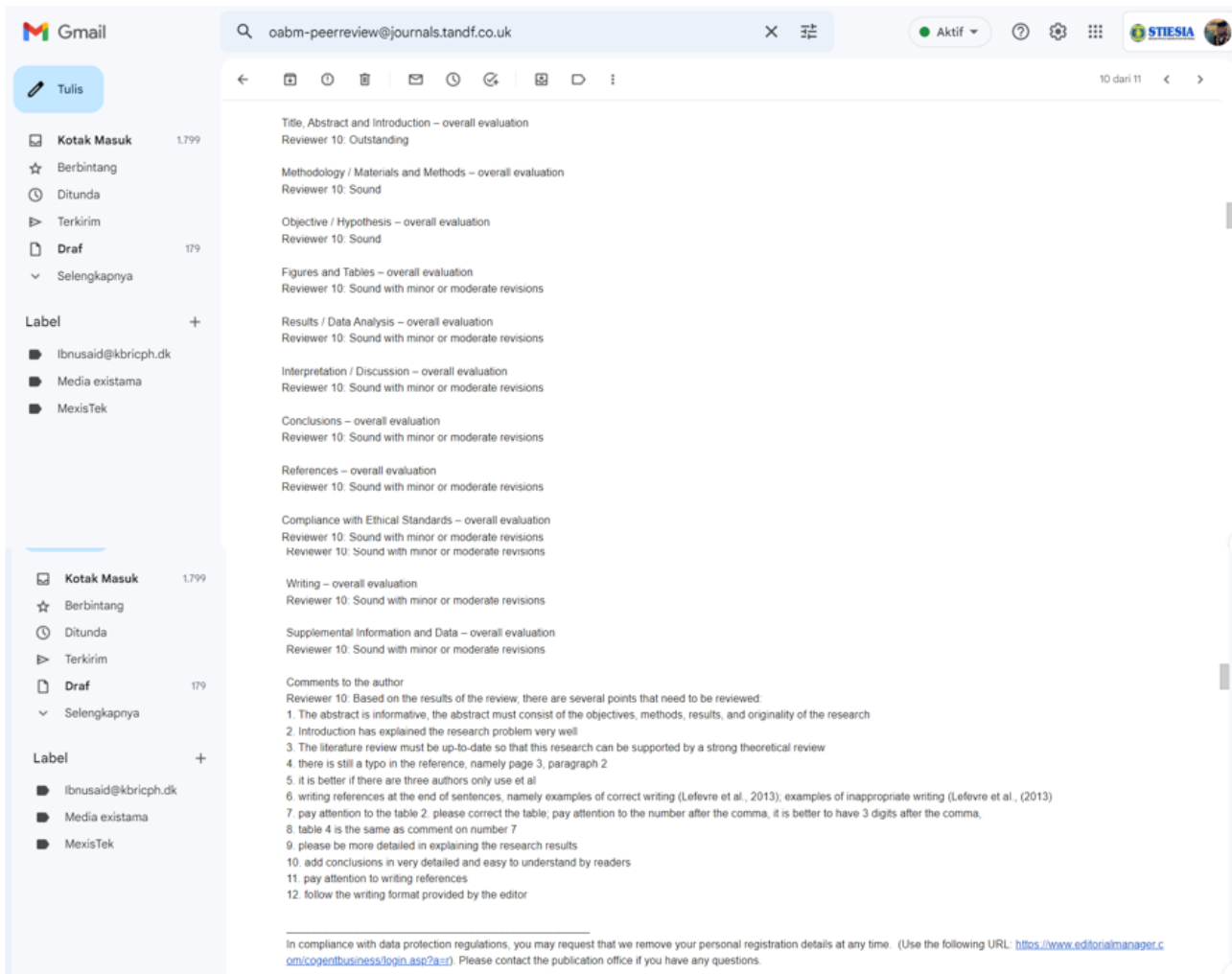
**Reviewer's Correction Ref: COGENTBUSINESS-2022-1212., 228530290**
**The Impact of a Male CEO's Facial Masculinity on Leverage, Cogent Business & Management**
Herewith I attach the details of the corrections from the reviwer in detail

| No | Senior Editor Collins G. Ntim, PhD | Author improvements |
|---|---|---|
| 1 | Public interest statement - a description of your paper of NO MORE THAN 150 words suitable for a non-specialist reader, highlighting/ explaining anything which will be of interest to the general public | Previous research conducted in the United States was conducted by (Jia, et al, 2014) with the findings explaining that the face of male CEO masculinity has a positive effect on earnings management, while (Kamiya, et al, 2018) the findings empirically explain that the face of CEO masculinity has a positive effect. against leverage. While the empirical findings in Indonesia have a different direction, the face of CEO masculinity has a negative effect on leverage, meaning that the higher the masculinity of the male CEO's face has an impact on the decrease in leverage, and conversely the lower the masculinity of the male CEO has an impact on the increase in leverage. The empirical findings have implications for regulators and corporate governance policy makers regarding male face size as a determinant of leverage policy. |
| 2 | About the author - a short summary of NO MORE THAN 150 WORDS, detailing either your own or your group's key research activities, | Associate Professor Dr. Nur Fadjrih Asyik, S.E., M.Si., Ak., CA. is the Chairperson of the Indonesian School of Economics (STIESIA) |

| | including a note on how the research reported in this paper relates to wider projects or issuess | Surabaya Indonesia, an Assessor of BAN PT and an independent researcher. He obtained his Bachelor's degree in Accounting from Indonesia School of Economics (STIESIA) Surabaya indonesia with a degree (S.E), Master of Accounting Postgraduate Program from Gadjah Mada University with a degree (M.Si), Postgraduate Program in Accounting Science with his (Dr.) Degree research interests include financial accounting, corporate finance, corporate governance, behavioral accounting, management accounting and corporate social responsibility. |
|---|---|---|
| 3 | Photo of the author(s), including details of who is in the photograph - please note that we can only publish one photo | **Dr. Nur Fadjrih Asyik, S.E., M.Si., Ak., CA**<br> |
| | **Reviewer 9** | |
| 1 | In the introduction section, the authors need to add the importance of the study | The role of the male CEO in the company is very important to determine the success of the company he leads. Male CEOs have an important role for the company's success from the performance of its leaders. The CEO in carrying out his leadership in making policies used for the company, the CEO is the manager of the company. |
| 2 | In the literature review, I think the authors need to describe the theory first and after that just correlate the theory with the topic. | Agency theory is defined the principal can limit the difference from its interests by setting appropriate incentives for agents and by incurring monitoring costs designed to limit deviant agent activities. Furthermore, in some situations, the principal may pay agents to expend resources for guarantee that the agent will not take any action that could harm the principal (Jensen & Meckling, 1976) |
| 3 | In the conclusion section, should be there some notes i.e the limitation of the study and what is the next gap, also authors need to add the the beneficial of the study, practically and theoretically. | The higher the masculinity value of the male CEO's face, the lower the leverage value, and conversely the lower the masculinity value of the male CEO's face, the higher the leverage value. Behavioral consistency theory argues that the masculinity of the male CEO's face affects leverage. Meanwhile, agency theory explains the role of male CEO characteristics in making policies regarding leverage. Meanwhile, ImageJ software supports empirical findings that male CEO facial masculinity affects leverage, and the presence of male CEO characteristics is supported by agency theory and behavioral consistency theory.<br><br>This study has limitations that are unavoidable, the disclosure of limitations has the aim of filling |

| | | the empty space of the limitations of this study: The elements in conducting content analysis determine the measurement of the masculinity face value of male CEOs using imageJ software cannot distinguish modified male CEO images, taking pictures of male CEOs was obtained from the company's annual report in the 2016-2021 period and the use of male CEO image searches on Google. The sample in this study was limited to taking pictures of male CEOs found in the company's annual report in the 2016-2021 period and using male CEO image searches Googled, researchers could not distinguish the image of a male CEO that had gone through modifications.<br><br>These empirical findings have implications for company management as policy-making regarding the face of male masculinity has an impact on leverage policy, so that the empirical findings can be used by company management and the government as leverage policy makers. These findings provide empirical evidence in the field of behavioral accounting by looking at the face of masculinity as a determinant of corporate leverage. Furthermore, it enriches empirical findings in the field of behavioral accounting and becomes a reference for conducting future research |
|---|---|---|
| | **Reviewer 10: Based on the results of the review, there are several points that need to be reviewed:** | |
| 1 | The abstract is informative, the abstract must consist of the objectives, methods, results, and originality of the research | **Purpose:** The purpose of this study is to obtain empirical proof of the influence of male CEOs' facial masculinity on leverage, to identify the influence of male CEOs' facial masculinity on leverage, and to find evidence that the influence of male facial masculinity variables on leverage variables is consistent.<br><br>**Design/Methodology/Approach:** This study uses a quantitative approach with a population and research sample using companies on the Indonesia Stock Exchange in 2016-2021. The study collected images of faces identified as male CEOs from data from the Indonesia Stock Exchange website and company websites and using Google searches. The panel data analysis method in this study uses Regression Ordinary Least Square (OLS) with Stata Software which connects theories, concepts and data that can be carried out on research variables.<br><br>**Funding:** The findings suggest that the higher the value of male CEOs' facial masculinity, the greater the effect on reducing corporate |

| | | leverage, and vice versa, the lower the value of male CEOs' facial masculinity, the greater the impact on increasing corporate leverage value. |
|---|---|---|
| | | **Research implications:** The practical implications of this study can help the Indonesian Association of Accountants in developing accounting in Indonesia. Meanwhile, the theoretical implications of this study can explain agency theory and behavioral consistency theory. As for the policy implications of this study, it could provide empirical evidence that male CEOs' masculinity undermines corporate leverage. |
| | | **Originality/value**: To date, researchers in Indonesia have not identified significant research on the topic of masculinity of male CEOs in relation with leverage, or the characteristic role of male CEOs in influencing leverage policy. This study contrasts previous findings of a study (Kamiya et al., 2018), that was conducted in the United States from 1993 to 2008. Meanwhile, the sampling period for this study was from 2016 to 2021 and was conducted in Indonesia. |
| 2 | Introduction has explained the research problem very well | Thanks for the correction, the fix file is attached |
| 3 | The literature review must be up-to-date so that this research can be supported by a strong theoretical review | thanks for the suggestion, related to the topic of CEO masculinity there are only two journals indexed by Scopus |
| 4 | there is still a typo in the reference, namely page 3, paragraph 2 | Thanks for the correction |
| 5 | l it is better if there are three authors only use et al | Thanks for the correction, the fix file is attached |
| 6 | writing references at the end of sentences, namely examples of correct writing (Lefevre et al., 2013); examples of inappropriate writing (Lefevre et al., (2013) | Thanks for the correction, the fix file is attached |
| 7 | pay attention to the table 2. please correct the table; pay attention to the number after the comma, it is better to have 3 digits after the comma | Thanks for the correction, the fix file is attached |
| 8 | table 4 is the same as comment on number 7 | Thanks for the correction, the fix file is attached |
| 9 | please be more detailed in explaining the research results | Thanks for the correction, the fix file is attached |
| 10 | add conclusions in very detailed and easy to understand by readers | The higher the masculinity value of the male CEO's face, the lower the leverage value, and conversely the lower the masculinity value of the male CEO's face, the higher the leverage value. Behavioral consistency theory argues that the masculinity of the male CEO's face affects leverage. Meanwhile, agency theory explains the role of male CEO characteristics in making policies regarding leverage. Meanwhile, ImageJ |

| | | software supports empirical findings that male CEO facial masculinity affects leverage, and the presence of male CEO characteristics is supported by agency theory and behavioral consistency theory. |
|---|---|---|
| | | This study has limitations that are unavoidable, the disclosure of limitations has the aim of filling the empty space of the limitations of this study: The elements in conducting content analysis determine the measurement of the masculinity face value of male CEOs using imageJ software cannot distinguish modified male CEO images, taking pictures of male CEOs was obtained from the company's annual report in the 2016-2021 period and the use of male CEO image searches on Google. The sample in this study was limited to taking pictures of male CEOs found in the company's annual report in the 2016-2021 period and using male CEO image searches Googled, researchers could not distinguish the image of a male CEO that had gone through modifications. |
| | | These empirical findings have implications for company management as policy-making regarding the face of male masculinity has an impact on leverage policy, so that the empirical findings can be used by company management and the government as leverage policy makers. These findings provide empirical evidence in the field of behavioral accounting by looking at the face of masculinity as a determinant of corporate leverage. Furthermore, it enriches empirical findings in the field of behavioral accounting and becomes a reference for conducting future research |
| 11 | pay attention to writing references | Thanks for the correction, the fix file is attached |
| 12 | follow the writing format provided by the editor | Thanks for the correction, the fix file is attached |

Thank you for your attention and cooperation,
Best regards,

**Dr. Nur Fadjrih Asyik, S.E., M.Si., Ak., CA**
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**Bukti Berkas Jurnal revisi**
# The Impact of a Male CEO's Facial Masculinity on Leverage

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**Abstract**

**Purpose:** The purpose of this study was to obtain empirical evidence of the effect of male CEO's facial masculinity on leverage, to identify the effect of male CEO's facial masculinity on leverage.

**Design/Methodology/Approach:** This study uses a quantitative approach with a population and research sample using companies on the Indonesia Stock Exchange in 2016-2021. The study collected images of faces identified as male CEOs from data from the Indonesia Stock Exchange website and company websites and using Google searches. The panel data analysis method in this study uses Regression Ordinary Least Square (OLS) with Stata Software which connects theories, concepts and data that can be carried out on research variables.

**Funding:** The findings suggest that the higher the value of male CEOs' facial masculinity, the greater the effect on reducing corporate leverage, and vice versa, the lower the value of male CEOs' facial masculinity, the greater the impact on increasing corporate leverage value.

**Research implications:** The practical implications of this study can help the Indonesian Association of Accountants in developing accounting in Indonesia. Meanwhile, the theoretical implications of this study can explain agency theory and behavioral consistency theory. As for the policy implications of this study, it could provide empirical evidence that male CEOs' masculinity undermines corporate leverage.

**Originality/value:** To date, researchers in Indonesia have not identified significant research on the topic of masculinity of male CEOs in relation with leverage, or the characteristic role of male CEOs in influencing leverage policy. This study contrasts previous findings of a study (Kamiya et al., 2018) that was conducted in the United States from 1993 to 2008. Meanwhile, the sampling period for this study was from 2016 to 2021 and was conducted in Indonesia.

**Keywords:** CEO Male, Masculinity, leverage, Stata
**JEL Classification:** G02, G32, G34, M1, Z1

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corporate finance, corporate governance, behavioral accounting, management accounting and corporate social responsibility.

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Dr. Nur Fadjrih Asyik, S.E., M.Si., Ak., CA**

**PUBLIC INTEREST STATEMENT**

Previous research conducted in the United States was conducted by (Jia, et al, 2014) with the findings explaining that the face of male CEO masculinity has a positive effect on earnings management, while (Kamiya, et al, 2018) the findings empirically explain that the face of CEO masculinity has a positive effect. against leverage. While the empirical findings in Indonesia have a different direction, the face of CEO masculinity has a negative effect on leverage, meaning that the higher the masculinity of the male CEO's face has an impact on the decrease in leverage, and conversely the lower the masculinity of the male CEO has an impact on the increase in leverage. The empirical findings have implications for regulators and corporate governance policy makers regarding male face size as a determinant of leverage policy.

## 1. Introduction

The role of the male CEO in the company is very important to determine the success of the company he leads. Male CEOs have an important role for the company's success from the performance of its leaders. The CEO in carrying out his leadership in making policies used for the company, the CEO is the manager of the company. In Agency Theory (Jensen & Meckling, 1976) address the correlation between shareholders and the characteristics of male CEOs as agents. Shareholders are using a male CEO as an agent to carry out the tasks and interests of the shareholders, including transferring decision-making power from shareholders to male CEOs as agents (Mahiswari & Nugroho, 2014). In companies listed on the Indonesia Stock Exchange whose capital consists of stocks, shareholders function as principal while the characteristics of male CEOs act as an agent. Meanwhile, the theory of behavioral consistency (Epstein, 1979) suggests that the facial masculinity of male CEOs correlates with testosterone, aggressiveness, and social status impacts leverage. Based on the characteristic role of male CEOs in decision-making, structuring and building leverage policies, substantial research on the function of male CEOs' features in various corporate strategic decisions has been conducted. This study compares previous research conducted in the United States of America (Kamiya et al., 2018) explaining that male CEOs' facial masculinity has a positive effect on corporate leverage, whereas agency theory (Jensen & Meckling, 1976) describes that male CEOs' characteristics affect policy and leverage determination. Male CEOs as company managers have more access to data about the company's current situation and future prospects than shareholders do, enabling the findings provide empirical evidence in the field of accounting for behavior.

The facial masculinity is a concept of male aggression that has implications for aggressive nature, has a tough character, and tends to be emotional when performing acts (Jewitt, 1997). The facial masculinity of male CEOs was related to testosterone, aggressiveness, while social status affects leverage (Kamiya et al., 2018). Factors affecting a male CEO's performance in managing a

company can be found in the facial masculinity (Tanjaya & Santoso, 2020). According to (Kamiya et al., 2018), male CEOs with masculine looks have traits that affect the company's management process. The facial masculinity is a personal trait that a person is born with. The facial masculinity that occurs in men predicts masculine behavior habits and is connected with aggressive behavior, according to (Kamiya et al., 2018) in the neuroendocrinology literature. High level of male CEO masculinity is associated with more aggressive management (Tanjaya & Santoso, 2020). Leverage is boosted by the mascyline appearance of male CEOs. According to (Kamiya et al., 2018) financing decisions are based on leverage. A company's liabilities might grow as a result of high leverage (Hamada, 1972; Kamiya et al., 2018). Characteristics of male CEOs affect leverage (Cronqvist et al., 2012; Huang et al., 2013; Malmendier et al, 2011; Chava et al., 2010).

According to (Bertrand& Schoar, 2003), the characteristics of male CEOs affect the company's decision-making process. Male CEOs have a confident attitude and usually decide the company's leverage policy. The excessive confidence of male CEOs' masculinity often does leverage (Graham, Harvey, dan Puri, 2013; Kamiya et al., 2018; Malmendier & Tate, 2005), Acquisition (Doukas & Petmezas, 2007; Kim, 2013; Kamiya et al., 2018), Innovation (Hirshleifer, Low, & Teoh, 2012; Kamiya et al., 2018).

Leverage is positively affected by male CEO characteristics (Kamiya et al., 2018; Gomulya, Wong, Ormiston, & Boeker, 2017; Jia et al,. 2014) Accordinging to neuroendocrinology research, a man's face affects his aggressive behavior. While (Carré & McCormick, 2008; Christiansen & Winkler, 1992) explain that the a male's facial masculinity influences a person's aggressive behavior. (Campbell., et al 2011) argue how facial masculinity affects men's behavior, while (Wong et al., 2011) explain that male CEOs have such a tendecny to negotiate for personal gain. Thus (Stirrat & Perrett, 2010) explain that men with a manly face are considered to be trustworthy. Therefore (Kamiya et al., 2018; Kamiya, & Park, 2017; Wong et al., 2011) provide empirical evidence that the characteristics of male CEOs with a higher facial masculinity show better work performance than male CEOs with such a lower facial masculinity. Leverage is influenced by the facial masculinity of male CEOs (Kamiya et al., 2018).

This research proposes clear and focused limitations. This study emphasizes on the importance of male CEOs' masculinity as a root cause of leverage, and this is restricted to companies listed on the Indonesia Stock Exchange between 2016 to 2021. The research focuses on the facial structure of male CEOs' masculinity, leverage, size, profitability, earnings management, research & development. ImageJ software was used to measure subjective masculinity facial variables of a male CEOs.

## 3. Literature Review And Hypothesis Development

## 2.1 Agency Theory

Agency theory is defined the principal can limit the difference from its interests by setting appropriate incentives for agents and by incurring monitoring costs designed to limit deviant agent activities. Furthermore, in some situations, the principal may pay agents to expend resources for guarantee that the agent will not take any action that could harm the principal (Jensen & Meckling, 1976). A male CEO's as an agent should have the same objective as shareholders do, which is to improve the company through shareholder prosperity, but male CEOs as agents may have their own thoughts that are contrary to what shareholders think (Mayangsari, 2001). As a conclusion, agency theory offers an important solution to male CEOs' decision-making characteristics in the face of corporate leverage. According to (Jensen & Meckling, 1976) define agency costs in three categories: monitoring, bonding, and residual. Eisenhardt, (1989) The agency theory consists of three human nature assumptions, namely: (1) humans are generally selfish, (2) humans have limited thinking

power in terms of future perceptions, and (3) humans avoid risk at all costs. From the concept of human nature, it can be seen that the usual role of male CEOs affects the company's leverage.

## 2.2 Behavior Consistency Theory

According to (Epstein, 1979) explains that the facial masculinity of male CEOs correlates with testosterone, aggressive, and social status affects leverage, seen from the perspective of behavioral consistency theory. He also discusses how behavioral consistency could be used to predict a majority of people within a given time span. The theory of behavioral consistency is assumed to be the opinion of a person's ability to affect issues that trigger emotions to emerge; consistency of behavior can be shown as a particularly selected subject; consistency of behavior is described in the study with the title: "The Stability of Behaviour: I. Predicting Most of the People Much the Time".

## 2.3 Face, Testosterone, and Behavior

Previous research has provided empirical evidence of a link between testosterone and masculine behavior. A CEO's face may be the basis for male facial linkages to topics in this study. (Jia et al., 2014) explains that a man's face can predict masculine behavior. Based on laboratory evidence, (Carré & McCormick, 2008; Christiansen & Winkler, 1992) claim that a man's face predicts aggressive traits. Men's faces affect masculine behavior (Eisenegger, Naef, Snozzi, Heinrichs, & Fehr, 2010; Jia et al., 2014). According to (Jia et al., 2014) explain that the relationship between testosterone and male CEOs' behavior affects the brain both before birth and during growth. A group of nerve cells plays a role in the processing of memories and emotional reactions as mediators between testosterone in brain regions to evaluate social interactions (Bos et al., 2012; Jia et al., 2014).

Testosterone regulates adolescent spurt (Johnston et al., 2001). Adolescents' development is affected by testosterone (Verdonck et al., 1999; Jia et al., 2014). Previous research indicates that male and female growth differs in the bizygomatic (the area between the left and right cheeks), however, there is no difference in the growth period for upper facial height (Jia et al., 2014). The findings provide empirical evidence that testosterone does affect the development of the male face (Folstad & Karter, 1992). Meanwhile, according to (Jia et al., 2014; Alrajih & Ward, 2014), men's looks affect masculine behavior during their growth. Further, the findings of (Lefevre et al., 2013) provide empirical evidence that there is indeed a connection between testosterone and the ratio of male facial width. Some other studies suggest that the ratio of a man's face width to testosterone has a beneficial link. In addition, testosterone has a positive relationship with the face, as suggested by previous research (Lefevre et al., 2013). Higher or lower testosterone in men affects the facial masculinity, according to (Jia et al., 2014; Pound, Penton-Voak, & Surridge, 2009).

## 2.4 The Masculinity Of Male CEOs and Leverage

The characteristics of male CEOs affect leverage, according to (Bertrand & Schoar 2003; Cain & McKeon, 2016; Kamiya et al., 2018). Meanwhile, (Bernile, Bhagwat, & Rau, 2015; Kamiya et al., 2018; Malmendier, Tate, & Yan, 2011) offer empirical evidence that the experience of male CEOs' characteristic affects leverage. In addition (Kamiya et al., 2018; Kim, Kamiya, & Park, 2017) contend that Male CEOs' facial masculinity has a positive effect in leverage. Several previous research reveal that the facial masculinity of male CEOs is related to testosterone, aggressiveness, and social status affects leverage, as seen through the perspective of behavioral consistency theory (Epstein, 1979). Male CEOs' masculinity has a positive impact on leverage. According to (Kamiya et al., (2018) found out that financing decisions are primarily based on leverage policies. A company's liabilities can be improved by using high leverage. The masculinity of male CEOs has a positive effect on leverage, according to (Kamiya et al., 2018). Similarly (Cronqvist et al., 2012; Huang et al., 2013; Malmendier et al, 2011; Chava et al., 2010) also reveal that Male CEO characteristics have a positive effect on leverage.

## 3.5 Conceptual Framework of Research

A conceptual framework is used to explain the effect of independent variables on dependent, and control variable used in this study. The conceptual framework of this study can be seen in the figures below, which position the masculinity of male CEOs as an independent variable, leverage as a dependent variable, and size profitability, earnings management and research & development, as a control variable:
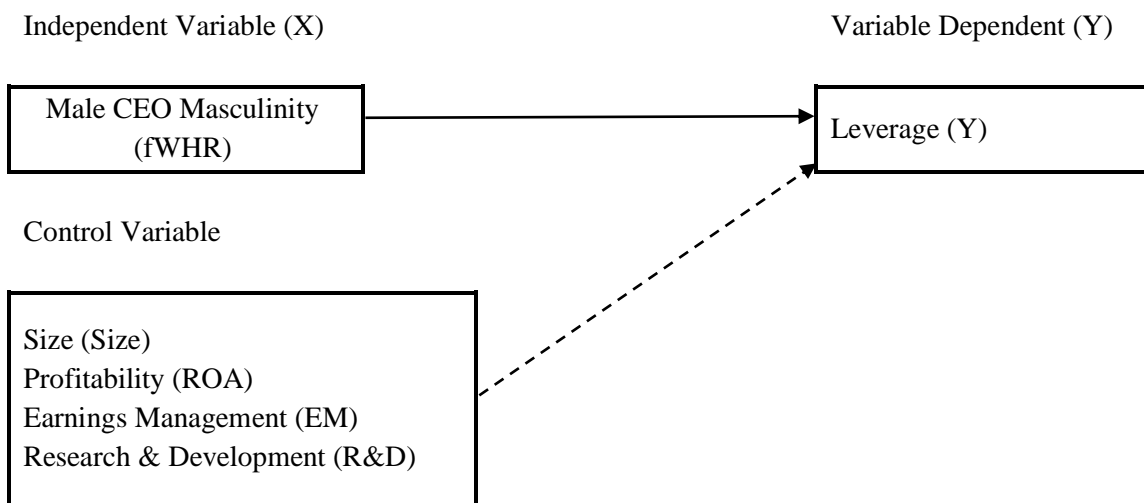
Independent Variable (X)                                   Variable Dependent (Y)

| Male CEO Masculinity (fWHR) | → | Leverage (Y) |

Control Variable

| Size (Size)
Profitability (ROA)
Earnings Management (EM)
Research & Development (R&D) |

**Figure 1: Conceptual Framework of Research**

## 3.6 Research Hypothesis

### 2.6.1 The Facial Masculinity of Male CEOs Affects Leverage

According to (Jensen & Meckling, 1976) an agency relationship arises when shareholders hire male CEO characteristics as agents to provide services and then transfer the decision-making power. In practice, characteristictics of male CEOs as a company manager know more about internal current information and prospects of the company than shareholders do. As a consequence, the characteristics of a male CEOs as an agent must provide information about the company's condition to shareholders, but the information conveyed by the characteristics of a male CEOs as an agent is sometimes not by the actual conditions of the company (Jensen & Meckling, (1976)

From the perspective of behavioral consistency theory (Epstein, (1979), the facial masculinity of male CEOs correlates with testosterone, aggressiveness, and confidence influences leverage. Male CEOs' masculinity has a positive influence on leverage. As suggested by (Kamiya et al., 2018), the facial masculinity of male CEOs has a positive effect on leverage. Meanwhile, (Cronqvist et al.,2012; Huang et al., 2013; Malmendier et al, 2011) provide empirical evidence that male CEO characteristics have a positive effect on leverage. According to (Chava et al., (2010) the characteristics of male CEOs are connected with leverage. By combining all the above arguments, the following hypothesis is proposed in this study:

*H$_1$: The Facial Masculinity of Male CEOs Positively Affects Leverage*

## 3. Methodology

### 3.1 Types and Approaches to Research

This research uses a quantitative approach to give meaning to the interpretation of statistical figures (Aliyyah, Siswomihardjo, et al., 2021; Prasetio et al., 2021). The research aimed to provide empirical evidence of the effect of male CEO masculinity on leverage. Explanatory research is used in the design process (Endarto, Taufiqurrahman, Kurniawan, et al., 2021; Indrawati et al., 2021). Companies listed on the Indonesia Stock Exchange from 2016 to 2021 were used in the population and research samples. The researchers collected data from the Indonesia Stock Exchange website and company websites, as well as Google searches, to obtain figures of faces identified as male CEOs

within a period between 2016 and 2021. Regression ordinary least square (OLS) with Stata Software was used to analyze the data in this study. One of the regression completion procedures, Stata has a high degree of flexibility in research that connects theories, concepts, and data that can be done on variables in research.

## 3.3 Operational Definition and Measurement

Male CEOs' masculinity is the independent variable, leverage is the dependent variable, and the variable of size, profitability, earnings management and research & development is the control variable.

## 3.2.1 Variable Independent (fWHR)

Independent variable is a variable that can affect other variables (Abadi et al., 2021; Aliyyah, Prasetyo, et al., 2021) This study used male CEO masculinity facial variables as the independent variable. The facial masculinity is a concept of masculine behavior that exists in men having implications on aggressive behavior, having a tough character, having a tendency to be emotional in carrying out their actions (Jewitt, 1997). ImageJ software was used to measure male CEOs' facial masculinity variables, this study changed the male CEO's face figure to a gray-scale figure with a height of 8 bits (Kamiya et al., 2018).

For the face of each male CEO inside the ImageJ software, the researchers selected a location in the face figure and dragged the mouse to another location to measure the distance, the vertical line size represents the distance between the upper lip and the highest point of the eyelid. The horizontal line represents the maximum distance between the left and right cheeks, while the vertical line represents the minimum length (Kamiya et al., (2018). Therefore, the study independently provided photo quality scores from zero to three based on the following guidelines:

0: Poor posture in which (1) only one ear is visible due to the person's sideways posture; or (2) the photographer photographed the face figure from below or above, causing face height measurement problematic.

1: One ear seems to be perfect, but because the person is facing to the side, only half of the other ear is visible.

2: The person looks straight ahead and both ears are visible with roots on the face.

3: Perfect posture, with both ears clearly visible to the roots, and the person is looking straight ahead.

Based on the criteria of (Kamiya et al., 2018), the study used quality scores of two and three. The measurement scale of this study used the percentage ratio scale which can be seen in the following figure:



**Figure 2: Male CEO Masculinity Face Measurements (fWHR)**

Description

| | | |
|---|---|---|
| Horizontal line | : | Represents the maximum distance between the left and right cheeks. |
| Vertical Line | : | Represents the distance between the upper lip to the highest point of the eyelid |

### 3.2.2 Dependent Variable (Y)

Dependent variable is a variable whose value cannot be affected by other variables (Kalbuana, Prasetyo, et al., 2021; Kalbuana, Suryati, et al., 2021). The dependent variable in this study is leverage. Leverage illustrates the division of total liabilities by total assets. This financial ratio explains the amount of assets owned by companies financed by liabilities. The greater the value of the liability, the bigger the impact felt by investors in receiving the profits (Kamiya et al., 2018). Leverage measurement is the result of the division of total liabilities by total assets (Kamiya et al., 2018). This research measurement scale uses a percentage ratio scale with the following formula:

$$\text{Leverage} = \frac{\text{Total Liability}}{\text{Total asset}}$$

Description:

| | | |
|---|---|---|
| Leverage$_{i,t}$ | = | Leverage i in the year to t |
| Total Liabilitas$_{i,t}$ | = | Total liabilities of the company i in the year to t |
| Total Assets$_{,t}$ | = | Total assets of the company i in the year to t |

### 3.2.4  Control Variable

Control variable is a variable used to control causal relationships to better obtain a more complete and better empirical model (Kalbuana, Prasetyo, et al., 2021; Kalbuana, Suryati, et al., 2021). As a result, variables can affect the indications that are being studied. The control variable used in this study is size, profitability, earnings management and .

### 3.2.3.1 Size (Size)

Size is a value that can classify a company into large or small types that are sourced on total assets, and log size. Larger total asset indicates a larger the size. The larger the size, the more complete the transactions being carried out. (Luwihono et al., 2021; Prabowo et al., 2020). (Shabbir et al., 2021; Susanto et al., 2021) describe the size measurement scale using firm size with the following formula:

SIZE = Ln total asset

### 3.2.3.2 Profitability (ROA)

Profitability is a tool that can be used to evaluate if investments that have been invested by investors are able to provide profits as expected. The measurement of profitability used Return on assets (ROA) which describes the division of net profit divided by total assets (Juanamasta et al., 2019; Rusdiyanto, Agustia, et al., 2020; Rusdiyanto, Hidayat, et al., 2020). The measurement scale uses a percentage ratio scale, with the following formula:

$$\text{Return on asset} = \frac{\text{net profit}}{\text{Total asset}}$$

Description:

| | | |
|---|---|---|
| Return on assets$_{,t}$ | = | Return on company assets i in the year to t |
| Net Profit$_{,t}$ | = | Net profit of company i in the year to t |
| Total assets$_{,t}$ | = | Total assets of the company i in the year to t |

### 3.2.3.3 Earnings Management (EM)

Earnings Management on research using model measurement (Kothari et al., 2005) refinement of the model (Jones, 1991) by including return on assets, this model adds return on assets in the calculation of discretionary accruals, so as to be able to measure Earnings Management more

accurately. The measurement scale of this study uses a percentage ratio scale. Here's the model equation (Kothari et al., 2005) with the following formula:

(1) Calculating TA (total accrual) i.e. net profit for year t less operating cash flow for year t with the following formula:

$$TAC = NI_{it} - CFO_{it}$$

The following is an estimate of total accrual (TA) using the Ordinary Least Square method:

$$\frac{TA_{it}}{A_{it-1}} = \beta_1 \left(\frac{1}{A_{it-1}}\right) + \beta_2 \left(\frac{\Delta REV_{it}}{A_{it-1}}\right) + \beta_3 \left(\frac{PPE}{A_{it-1}}\right) + \varepsilon$$

(2) The NDA (non-discretionary accruals) are calculated using the formula above, which includes the regression coefficient.:

$$NDA_{it} = \beta_1 \left(\frac{1}{A_{it-1}}\right) + \beta_2 \left(-\frac{\Delta REV_{it}}{A_{it-1}} - \frac{\Delta REC_{it}}{A_{it-1}}\right) + \beta_3 \left(\frac{PPE}{A_{it-1}}\right) + \beta_4 \left(\frac{ROA_{it}}{A_{it-1}}\right) + \varepsilon$$

(3) Finally, the formula for determining DA (discretionary accruals) as a metric of Earnings Management is as follows:

$$DA_{it} = \frac{TA_{it}}{A_{it-1}} - NDA_{it}$$

Description:

| | | |
|---|---|---|
| $NDA_{it}$ | = | Non Discretionary Accruals of the corporation i in the period of years t |
| $TAC_{it}$ | = | Total accruals of the corporation i in the time/period t |
| $NI_{it}$ | = | Net profit of the corporation i in the time/period of years t |
| $CFO_{it}$ | = | Corporation's operating cash flow in year t |
| $A_{it-1}$ | = | Total assets of corporation i in the time/period t-1 |
| $\Delta Rev_{it}$ | = | The revenue of the corporation i in year t is reduced by the revenue company I in year t-1 |
| $PPE_{it}$ | = | Fixed assets of the corporation i in the time/period t |
| $DA_{it}$ | = | Discretionary accruals of the corporation i in the time/period to t |
| $\Delta Rec_{it}$ | = | Accounts receivable of the corporation i in year t minus the income of the corporation i in year t-1 |
| $ROA_{it}$ | = | Return on assets of the corporation i in the time/period d to t |
| $\varepsilon$ | = | Error |

### 3.2.3.4 Research & Development (R&D)

Research & development are an investment made by the company on a new science basis, to produce more efficient products based on existing resources (Tuna et al., 2015). Research & development are measured using the research & development cost intensity ratio (Padgett & Galan, 2010; Arifian & Yuyetta, 2012) with the following formula:

$$R\&D = \frac{Total\ Research\ \&\ Development\ Expenditure}{Sales}$$

Description:

| | | |
|---|---|---|
| Research & Development$_{i,t}$ | = | Research & Development i in year t |
| Total Research & Development Expenditure$_{i,t}$ | = | Total Research & Development Expenditure i in year t |
| Sales$_{i,t}$ | = | Sales i in year ke t |

### 3.3 Data Analysis Techniques

Data analysis is part of the data testing process after the selection and collection stage of research data. Data analysis is interpreted as estimating or determining the magnitude of the quantitative influence of the change of an event on something else, as well as predicting or estimating other events (Sudaryanto et al., 2022; Utari, Sudaryanto, et al., 2021).

### 3.3.1. Descriptive Statistics

Descriptive statistics are statistics that can illustrate the research object through analytical data, without doing analysis (Prasetyo, Aliyyah, Rusdiyanto, Utari, et al., 2021; Utari, Iswoyo, et al., 2021) from the data of male CEO facial masculinity variable, leverage variable, size variable, profitability variable (ROA), earnings management variable and Research & Development variable.

### 3.3.2. Pearson Correlation Test

Parson correlation testing is used to look at the relationship between an independent variable and a dependent variable by assuming the Pearson correlation of the data is normally distributed (Prasetyo, Aliyyah, Rusdiyanto, Nartasari, et al., 2021; Rusdiyanto et al., 2021). Correlation testing produces positive (+) and negative (-) numbers. If the correlation value is positive, it means that the variables move in the same direction, meaning that when the independent variable is large, the dependent variable is also getting bigger. If the value is negative, it means that the variables move in the opposite directions, meaning that if the value of the independent variable is large, then the dependent variable is getting smaller. Correlation numbers range from 0-1 (Endarto, Taufiqurrahman, Suhartono, et al., 2021; Prasetyo, Aliyyah, Rusdiyanto, Kalbuana, et al., 2021). Pearsonr correlation formulation is as follows:

$$r_{xy} = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{\{n\sum X^2 - (\sum X)^2\}\{n\sum Y^2 - (\sum Y)^2\}}}$$

Description:

| | | |
|---|---|---|
| r | = | Correlation value |
| X | = | Variable X |
| Y | = | Variable Y |

### 3.3.3 Research Regression Model

Regression analysis is used to find out how close the relationship between one variable and another variable is. The regression analysis has a function to predict the value of independent variable (Y) if the dependent variable (fWHR) is changed (Prasetyo, Aliyyah, Rusdiyanto, Nartasari, et al., 2021; Rusdiyanto et al., 2021). The method used in this study was panel data regression analysis. Panel data is also called pool data, longitudinal data, and micro panel data. The panel data regression analysis was used to examine the influence of male CEOs' facial masculinity (fWHR) on leverage (Y). Based on the independent variables and dependent variables that have been described, an equation model is obtained that will be used as follows:

$$\text{LEV}_{i,t} = \beta_0 + \beta_1\,\text{fWHR}_{i,t,} + \beta_2\,\text{Size}_{i,t} + \beta_3\,\text{ROA}_{i,t,} + \beta_4\,\text{EM}_{i,t} + \beta_5\,\text{R\&D}_{i,t,} + \varepsilon \dots\dots\dots\dots\dots\dots(1)$$

To explain the model of the facial masculinity of male CEOs, variables of leverage, size, profitability, earnings management and research & development can be explained as follows:

**Table 1: Variable Description**

| Information | | Description |
|---|---|---|
| i | = | Company cross-section data |
| t | = | Company time-series data |
| LEV | = | Leverage |
| fWHR | = | The Facial Masculinity of a Male CEO |
| Size | = | Company Size |
| ROA | = | Profitability |
| EM | = | Earnings Management |
| R&D | = | Research & Development |
| α | = | Constanta |

| Information | | Description |
|---|---|---|
| β₁, β₂, β₃ | = | Coefisien regresion variable LEV, fWHR, control, Size, ROA, EM, R&D |
| ε | = | Error |

## 4. Research and Discussion Results

### 4.1 Descriptive Statistics of Variables

The results of descriptive statistics can be presented with minimum, maximum, mean, and standard deviation of the variables studied from the sample companies. In addition to presenting based on a sample of all companies listed on the Indonesia Stock Exchange from 2016 to 2021, the figure also shows the testing of this sample based on the company:

**Table 2: Descriptive Statistics**

| Variables Dependent | Obs | Mean | Std. Dev. | Min | Max | p1 | p99 | Skew. | Kurt. |
|---|---|---|---|---|---|---|---|---|---|
| Leverage | 1925 | .482 | .246 | 000 | .990 | .010 | .930 | -.041 | 2.107 |
| **Variables Independent** | **Obs** | **Mean** | **Std. Dev.** | **Min** | **Max** | **p1** | **p99** | **Skew.** | **Kurt.** |
| fWHR | 1781 | 2.086 | 6.287 | .110 | 267 | 1.340 | 2.790 | 42.038 | 1771.784 |
| **Variables Control** | **Obs** | **Mean** | **Std. Dev.** | **Min** | **Max** | **p1** | **p99** | **Skew.** | **Kurt.** |
| Size | 1925 | 23.120 | 5.011 | 11.862 | 31.592 | 12.927 | 30.952 | -.269 | 1.746 |
| ROA | 1925 | .078 | .108 | 000 | .925 | .001 | .528 | 3.626 | 20.785 |
| Earnings Management | 1925 | .003 | .007 | 000 | .046 | 000 | .036 | 3.132 | 12.117 |
| R&D | 170 | 15.234 | 2.549 | 6.234 | 21.802 | 6.491 | 21.797 | -.190 | 4.575 |

The table output variables dependent stata above shows the number of observations (N) was 1925. From these 1925 observations, the leverage value minimum was .000, and the leverage value maximum was 0.990. The mean value of 1925 observations or the mean was of 0.482 with a standard deviation of 0.245. The table variables independent output stata above shows the number of observations (N) was 1781. From these 1781 observations, the value of male CEOs' facial masculinity minimum was 0.110, and the value of male CEOs' facial masculinity maximum was .267. The mean value of 1781 observations or the mean was of 2.086 with a standard deviation of 6.287. The table variables control output stata above shows the number of observations (N) was 1925. From these 1925 observations, the size value (minimum) was 11.862, and the size value (maximum) was 31.592, The average value of 1925 observations or the mean was of 23.120 with a standard deviation of 5.011, Based on the table output stata above, it can be seen that the number of observations (N) was 1925. From thse 1925 observations, the profitability value (ROA) minimum was .000, and the profitability value (ROA) maximum was 0.925, the average value of 1925 observations or the mean was of 0.078 with a standard deviation of 0.108, Based on the table output stata above, it can be seen that the number of observations (N) was 1925. From thse 1925 observations, the Earnings management minimum was .000, and the Earnings management maximum was 0.046, the average value of 1925 observations or the mean was of 0.003 with a standard deviation of 0.007, Based on the table output stata above, it can be seen that the number of observations (N) was 170. From thse 170 observations, the research & development minimum was 5.234, and the research & development maximum was 21.502, the average value of 170 observations or the mean was of 15.234 with a standard deviation of 2.549.

### 4.2 Pearson Correlation Test

Pearson's correlation test was done to see how strong or how weak the relationship between the facial masculinity of male CEOs and leverage. In this test, if the Pearson correlation value (r) is above 0.05 (5%), it means that there is a strong relationship between the facial masculinity of male CEOs

to leverage, but if the Pearson correlation value is below 0.05 (5%), then it means that the relationship between the facial masculinity of male CEOs and leverage is said to be weak.

**Table 3: Pearson Correlation Test**

| Variables | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| (1) Leverage | 1.000 | | | | | |
| (2) CEO masculinity (fWHR) | 0.006 | 1.000 | | | | |
| | (0.809) | | | | | |
| (3) Size | -0.189 | -0.038 | 1.000 | | | |
| | (0.000) | (0.104) | | | | |
| (4) Profitability (ROA) | -0.147 | 0.001 | -0.077 | 1.000 | | |
| | (0.000) | (0.953) | (0.001) | | | |
| (5) Earnings Management | 0.111 | 0.059 | -0.055 | -0.042 | 1.000 | |
| | (0.000) | (0.013) | (0.016) | (0.068) | | |
| (6) Research & development | 0.151 | -0.086 | -0.206 | 0.246 | 0.001 | 1.000 |
| | (0.049) | (0.278) | (0.007) | (0.001) | (0.985) | |

| Variables | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| (1) Leverage | 1.000 | | | | | |
| (2) CEO masculinity (fWHR) | 0.006 | 1.000 | | | | |
| (3) Size | -0.189* | -0.038 | 1.000 | | | |
| (4) Profitability (ROA) | -0.147* | 0.001 | -0.077* | 1.000 | | |
| (5) Earnings Management | 0.111* | 0.059 | -0.055 | -0.042 | 1.000 | |
| (6) Research & development | 0.151 | -0.086 | -0.206* | 0.246* | 0.001 | 1.000 |

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Based on the table above, it can be interpreted that the leverage variable, the facial masculinity of male CEOs, size, Profitability (ROA), earnings management and Research & development have a value above 0.05 (5%). Thus, it explains that all variables are declared to be valid to be used in model testing. The reliability test results above explain the value of above 0.05 (5%). This proves that all variables used are reliable and produce the same results when tested.

**4.3 Goodness of Fit Model Testing**

Hypothesis testing in research is very important, it can determine whether the research conducted is scientific enough or not. To find out the feasibility of the model scientifically, based on the results of three tests that have been tested Chow-test, Lagrange multiple test, and Hausman test, the model that fits the hypothesis proposed is the estimated pooled least square (PLS) model with the following output results:

**Table 4: Goodness of Fit Model Testing**

| VARIABLES | (1) OLS Leverage | (2) OLS Leverage | (3) OLS Leverage |
|---|---|---|---|
| CEO masculinity (fWHR) | 0.002** | -0.000** | -0.003** |
| | [0.000] | [0.000] | [0.000] |
| Size (Size) | | -0.009*** | -0.009*** |
| | | | [0.001] |
| Profitability (ROA) | | | -0.363*** |
| | | [0.070] | [0.070] |
| Earnings management (EM) | | | 5.160* |
| | | | (2.820) |
| Research & development (R&D) | | | 0.020*** |
| | | | (0.010) |
| Constant | 0.487*** | 0.724*** | 0.709*** |
| | [0.006] | [0.027] | [0.027] |
| Observations | 1,781 | 1,781 | 1,781 |
| R-squared | 0.000 | 0.059 | 0.069 |

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

## 4.4 Discussion of Research Results

The probability result of Prob>F was 0,000 ≤ 0.05 (5%), showing that if taken together, the value of regression coefficient is significant, which means that the facial masculinity of male CEOs affects leverage. The $R^2$ value was 0.069, indicating that the male CEO's masculinity on the leverage had a determination level of 0.069. This means that the facial masculinity of male CEOs can be explained by the 0.0687 of variability of leverage. The discussion of the research findings is an analysis of the suitability of previous theories, opinions, or research that has been put forward by the findings of past research to overcome phenomena in this study. The followings are the main parts that can be discussed in the analysis of the findings of this study:

### 4.4.1 Findings: The Facial Masculinity of Male CEOs Negatively Affects Leverage

The facial masculinity of the male CEOs shows that the estimated negative coefficient is not in accordance with the initial hypothesis. The results of the t-test explain that the facial maskculinity of male CEOs had a negative and significant effect on leverage at the significance level of p-value 0.000 ≤ 0.05 (5%). Furthermore, regarding the magnitude of the influence of male CEOs' masculinity on leverage, it can be seen from the regression coefficient value of male CEOs' masculinity of -.002. This explains that when the male CEOs' facial masculinity increases by 1 percent, leverage will decrease by -.002.

The findings of empirical testing indicate that higher level of male CEOs' facial masculinity affect the decrease of the leverage, and vice versa, lower facial masculinity of male CEOs has an impact on the increase of leverage. Hence, the empirical findings do not support **the proposed hypothesis that the facial masculinity of male CEOs has a positive effect on leverage, the Accepted Hypothesis is (p-value 0.000 ≤ 0.05 (5 % ).** The initial hypothesis was submitted based on previous research findings that lead to positive result (Jia et al., 2014; Kamiya et al., 2018). The empirical findings contradict the initial hypothesis because the coefficient results of the male CEOs' facial masculinity in Indonesia and the coefficient those of the male CEOs' facial masculinity in the United States are in the opposite dirrections. The coefficient of determination's negative result suggests that the masculinity of Indonesia's male CEOs is in the opposite direction of the masculinity of male CEOs in the United States. The difference in the findings of these scientific investigations

will have an impact on masculine behavior, influencing the masculinity of male CEOs in policy making.

The findings of this empirical study are different from the findings of previous studies (Kamiya et al., 2018). The results of a study conducted in the United States from 1993 to 2008 revealed that the facial masculinityof male CEOs has a positive effect on leverage, meaning that the higher the facial masculinity of male CEOs, the higher the leverage is, and vice versa, the lower the facial masculinity of male CEOs, the lower the leverage is Meanwhile, an empirical study in Indonesia for the sampling period of 2016-2021 reveals that the facial masculinity of male CEOs negatively affects the leverage, suggesting that the higher the facial masculinity of male CEOs the lower the leverage is, and vice versa, the lower the facial masculinity of male CEOs, the higher the leverage is.

The findings are backed by a behavioral consistency theory that explains how the facial masculinity of male CEOs is related to testosterone, aggressiveness, and social status affects leverage, seen through the perspective of behavioral consistency theory (Epstein, 1979). While agency theory mainly is concerned with the form of agreement between shareholders in combination with the characteristics of a male CEO as an agent in managing the firm, the characteristics of a male CEO as an agent bear a significant amount of responsibility for the company's success. Shareholders hire male CEOs as agents to provide services and then delegate authority to them in decision-making, according to (Jensen & Meckling, (1976). In practice, a male CEO's characteristics as an agent as in managing the company know much more internal information and future company's prospects than shareholders do. As a consequence, the characteristics of male CEOs as agents have a responsibility to give shareholders relevant information about the company's condition

According to (Kamiya et al., 2018) higher facial masculinity of male CEOs has an impact on increasing leverage, and lower facial masculinity of male CEOs has an impact on decreasing leverage. Financing decisions are focused on leverage policies, and high leverage can increase company's liabilities. Male CEOs with such a higher characteristic value have higher leverage, whereas male CEOs with such a lower characteristic value have lower leverage (Cronqvist et al., 2012; Huang et al., 2013; Malmendier et al, 2011; Chava et al., 2010).

## 5. Conclusion

The higher the masculinity value of the male CEO's face, the lower the leverage value, and conversely the lower the masculinity value of the male CEO's face, the higher the leverage value. Behavioral consistency theory argues that the masculinity of the male CEO's face affects leverage. Meanwhile, agency theory explains the role of male CEO characteristics in making policies regarding leverage. Meanwhile, ImageJ software supports empirical findings that male CEO facial masculinity affects leverage, and the presence of male CEO characteristics is supported by agency theory and behavioral consistency theory.

This study has limitations that are unavoidable, the disclosure of limitations has the aim of filling the empty space of the limitations of this study: The elements in conducting content analysis determine the measurement of the masculinity face value of male CEOs using imageJ software cannot distinguish modified male CEO images, taking pictures of male CEOs was obtained from the company's annual report in the 2016-2021 period and the use of male CEO image searches on Google. The sample in this study was limited to taking pictures of male CEOs found in the company's annual report in the 2016-2021 period and using male CEO image searches Googled, researchers could not distinguish the image of a male CEO that had gone through modifications.

These empirical findings have implications for company management as policy-making regarding the face of male masculinity has an impact on leverage policy, so that the empirical findings can be used by company management and the government as leverage policy makers. These findings

## 5.1 Author Contributions:

Conceptualization, N.F.A and R.; investigation, M. and R.; writing—preparation of origi-nal draft, I.K.B; writing—reviews and editing, R. and M.; supervision, I.K.B.; project ad-ministration, N.F.A.; fund acquisition, N.F.A, and I.K.B All authors have read and ap-proved the published version of the manuscript.

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## 5.3 Data Availability Statement:

The study did not involve any data sets and the articles collected were sourced from https://www.scopus.com/home.uri, accessed on 2022 and https://scholar.google.com/, ac-cessed on 2022.

## 5.4 Declaration of Conflicting Interests:

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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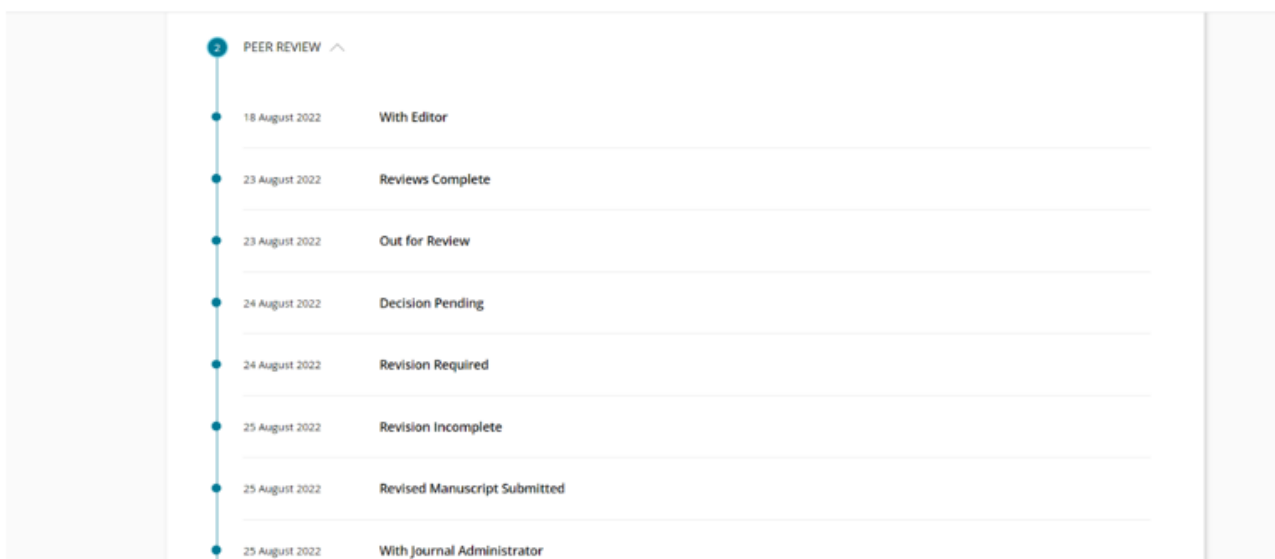


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Accounting, Corporate Governance & Business Ethics

**Research article**

## The impact of a male CEO'S facial masculinity on leverage

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**Abstract**

The purpose of this study was to obtain empirical evidence of the effect of male CEO's facial masculinity on leverage, to identify the effect of male CEO's facial masculinity on leverage. This study uses a quantitative approach with a population and research sample using companies on the Indonesia Stock Exchange in 2016–2021. The study collected images of faces identified as male CEOs from data from the Indonesia Stock Exchange website and company websites and using Google searches. The panel data analysis method in this study uses Regression Ordinary Least Square (OLS) with Stata Software which connects theories, concepts and data that can be carried out on research variables. The findings suggest that the higher the value of male CEOs' facial masculinity, the greater the effect on reducing corporate leverage, and vice versa, the lower the value of male CEOs' facial masculinity, the greater the impact on increasing corporate leverage value. The practical implications of this study can help the Indonesian Association of Accountants in developing accounting in Indonesia. Meanwhile, the theoretical implications of this study can explain agency theory and behavioral consistency theory. As for the policy implications of this study, it could provide empirical evidence that male CEOs' masculinity undermines corporate leverage. To date, researchers in Indonesia have not identified significant

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role of male CEOs in influencing leverage policy. This study contrasts previous findings of a studyAQ4 that was conducted in the United States from 1993 to 2008. Meanwhile, the sampling period for this study was from 2016 to 2021 and was conducted in Indonesia.

**Keywords**

CEO male ✕  masculinity ✕  leverage ✕  Stata ✕

**Subjects**

G02 ✕  G32 ✕  G34 ✕  M1 ✕  Z1 ✕

## PUBLIC INTEREST STATEMENT

Previous research conducted in the United States was conducted by (Yuping Jia et al., **2014**) with the findings explaining that the face of male CEO masculinity has a positive effect on earnings management, while (Kamiya, et al, 2018) the findings empirically explain that the face of CEO masculinity has a positive effect. Against leverage. While the empirical findings in Indonesia have a different direction, the face of CEO masculinity has a negative effect on leverage, meaning that the higher the masculinity of the male CEO's face has an impact on the decrease in leverage, and conversely the lower the masculinity of the male CEO has an impact on the increase in leverage. The empirical findings have implications for regulators and corporate governance policy makers regarding male face size as a determinant of leverage policy.

## 1. Introduction

**Table 1.**AQ5 Variable Description

| Information | | Description |
|---|---|---|
| i | = | Company cross-section data |
| t | = | Company time-series data |
| LEV | = | Leverage |
| fWHR | = | The Facial Masculinity of a Male CEO |
| Size | = | Company Size |
| ROA | = | Profitability |
| EM | = | Earnings Management |
| R&D | = | Research & Development |
| α | = | Constanta |
| β1, β2, β3 | = | Coefisien regresion variable LEV, fWHR, control, Size, ROA, EM, R&D |
| ε | = | Error |

**Table 2.**AQ6 Descriptive Statistics

| Variables Dependent | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Leverage | 1925 | .482 | .246 | 000 | .990 |
| Variables Independent | Obs | Mean | Std. Dev. | Min | Max |
| CEO masculinity (fWHR) | 1781 | 2.086 | 6.287 | .110 | 267 |
| Variables Control | Obs | Mean | Std. Dev. | Min | Max |
| Size | 1925 | 23.120 | 5.011 | 11.862 | 31.592 |
| Probality (ROA) | 1925 | .078 | .108 | 000 | .925 |
| Earnings Management | 1925 | .003 | .007 | 000 | .046 |
| Research & Development | 170 | 15.234 | 2.549 | 6.234 | 21.802 |

**Table 3.**AQ7 Pearson Correlation Test

| Variables | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| (1) Leverage | 1.000 | | | | |
| (2) CEO masculinity (fWHR) | 0.006 | 1.000 | | | |
| | (0.809) | | | | |
| (3) Size | −0.189 | −0.038 | 1.000 | | |
| | (0.000) | (0.104) | | | |
| (4) Profitability (ROA) | −0.147 | 0.001 | −0.077 | 1.000 | |
| | (0.000) | (0.953) | (0.001) | | |
| (5) Earnings Management | 0.111 | 0.059 | −0.055 | −0.042 | 1.000 |
| | (0.000) | (0.013) | (0.016) | (0.068) | |
| (6) Research & development | 0.151 | −0.086 | −0.206 | 0.246 | 0.001 |
| | (0.049) | (0.278) | (0.007) | (0.001) | (0.985) |
| (1) Leverage | 1.000 | | | | |
| (2) CEO | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| (3) Size | −0.189* | −0.038 | 1.000 | | |
| (4) Profitability (ROA) | −0.147* | 0.001 | −0.077* | 1.000 | |
| (5) Earnings Management | 0.111* | 0.059 | −0.055 | −0.042 | 1.000 |
| (6) Research & development | 0.151 | −0.086 | −0.206* | 0.246* | 0.001 |

$*** p < 0.01, ** p < 0.05, * p < 0.1$

Table 4. AQ8 Goodness of Fit Model Testing

| | (1) | (2) | (3) |
|---|---|---|---|
| | OLS | OLS | OLS |
| VARIABLES | Leverage | Leverage | Leverage |
| CEO masculinity (fWHR) | 0.002** | −0.000** | −0.003** |
| | [0.000] | [0.000] | [0.000] |
| Size (Size) | | −0.009*** | −0.009*** |
| | | | [0.001] |
| Profitability (ROA) | | | −0.363*** |
| Earnings management (EM) | | | 5.160* |
| | | | (2.820) |
| Research & development (R&D) | | | 0.020*** |
| | | | (0.010) |
| Constant | 0.487*** | 0.724*** | 0.709*** |
| | [0.006] | [0.027] | [0.027] |
| Observations | 1,781 | 1,781 | 1,781 |
| R-squared | 0.000 | 0.059 | 0.069 |

Standard errors in parentheses *** p < 0.01, ** p < 0.05, * p < 0.1

The role of the male CEO in the company is very important to determine the success of the company he leads. Male CEOs have an important role for the company's success from the performance of its leaders. The CEO in carrying out his leadership in making policies used for the company, the CEO is the manager of the company. In Agency Theory (Jensen & Meckling, 1976) address the correlation between shareholders and the characteristics of male CEOs as agents. Shareholders are using a male CEO as an agent to carry out the tasks and interests of the shareholders, including transferring decision-making power from shareholders to male CEOs as agents (Mahiswari & Nugroho, 2014). In companies listed on the Indonesia Stock Exchange whose capital consists of stocks, shareholders function as principal while the characteristics of male CEOs act as an agent. Meanwhile, the theory of behavioral consistency (Epstein, 1979 AQ9) suggests that the facial masculinity of male CEOs correlates with testosterone, aggressiveness, and social status impacts leverage. Based on the characteristic role of male CEOs in decision-making, structuring and building leverage policies, substantial research on the function of male CEOs' features in various corporate strategic decisions has been conducted. This study compares previous research conducted in the United States of America (Kamiya et al., 2018a) explaining that male CEOs' facial masculinity has a positive effect on corporate leverage, whereas agency theory (Jensen & Meckling, 1976) describes that male CEOs' characteristics affect policy and leverage determination. Male CEOs as company managers have more access to data about the company's current situation and future prospects than shareholders do, enabling the findings provide empirical evidence in the field of accounting for behavior.

The facial masculinity is a concept of male aggression that has implications for aggressive nature, has a tough character, and tends to be emotional when performing acts (Jewitt, 1997). The facial masculinity of male CEOs was related to testosterone, aggressiveness, while social status affects leverage (Kamiya et al., 2018a). Factors affecting a male CEO's performance in managing a company can be found in the facial masculinity (Tanjaya & Santoso, 2020). According to (Kamiya et al., 2018a), male CEOs with masculine looks have traits that affect the company's management process. The facial masculinity is a personal trait that a person is born with. The facial masculinity that occurs in men predicts masculine behavior habits and is connected with aggressive behavior, according to (Kamiya et al., 2018a) in the neuroendocrinology literature. High level of male CEO masculinity is associated with more aggressive management (Tanjaya & Santoso, 2020). Leverage is boosted by the masculine appearance of male CEOs. According to (Kamiya et al., 2018a) financing decisions are based on leverage. A company's liabilities might grow as a result of high leverage (Hamada, 1972; Kamiya et al., 2018a). Characteristics of male CEOs affect leverage (Chava & Purnanandam, 2010; Cronqvist et al., 2012; Huang & Kisgen, 2013; Malmendier et al., 2011).

According to (Bertrand & Schoar, 2003), the characteristics of male CEOs affect the company's decision-making process. Male CEOs have a confident attitude and usually decide the company's leverage policy. The excessive confidence of male CEOs' masculinity often does leverage (Benmelech & Frydman, 2013; Kamiya et al., 2018a; Malmendier & Tate, 2005), Acquisition (Doukas & Petmezas, 2007; Kamiya et al., 2018a; Kim & (Andy), 2013), Innovation (Hirshleifer et al., 2012; Kamiya et al., 2018a).

Leverage is positively affected by male CEO characteristics (Gomulya et al., 2017; Kamiya et al., 2018a; Yuping Jia et al., 2014) Accordingly to neuroendocrinology research, a man's face affects his aggressive behavior. While (Carré & McCormick, 2008; Christiansen & Winkler, 1992) explain that the a male's facial masculinity influences a person's aggressive behavior. (Campbell et al., 2011)

men with a manly face are considered to be trustworthy. Therefore (Kamiya et al., 2018a; Kim et al., 2017; Wong et al., 2011) provide empirical evidence that the characteristics of male CEOs with a higher facial masculinity show better work performance than male CEOs with such a lower facial masculinity. Leverage is influenced by the facial masculinity of male CEOs (Kamiya et al., 2018a).

This research proposes clear and focused limitations. This study emphasizes on the importance of male CEOs' masculinity as a root cause of leverage, and this is restricted to companies listed on the Indonesia Stock Exchange between 2016 to 2021. The research focuses on the facial structure of male CEOs' masculinity, leverage, size, profitability, earnings management, research & development. ImageJ software was used to measure subjective masculinity facial variables of a male CEOs.

## 2. Literature review and hypothesis development

### 2.1. Agency theory

Agency theory is defined the principal can limit the difference from its interests by setting appropriate incentives for agents and by incurring monitoring costs designed to limit deviant agent activities. Furthermore, in some situations, the principal may pay agents to expend resources for guarantee that the agent will not take any action that could harm the principal (Jensen & Meckling, 1976). A male CEO's as an agent should have the same objective as shareholders do, which is to improve the company through shareholder prosperity, but male CEOs as agents may have their own thoughts that are contrary to what shareholders think (MAYANGSARI, 2001). As a conclusion, face of corporate leverage. According to (Jensen & Meckling, 1976) define agency costs in three categories: monitoring, bonding, and residual. Eisenhardt (1989) The agency theory consists of three human nature assumptions, namely: (1) humans are generally selfish, (2) humans have limited thinking power in terms of future perceptions, and (3) humans avoid risk at all costs. From the concept of human nature, it can be seen that the usual role of male CEOs affects the company's leverage.

### 2.2. Behavior consistency theory

According to (Epstein, 1979 AQ10) explains that the facial masculinity of male CEOs correlates with testosterone, aggressive, and social status affects leverage, seen from the perspective of behavioral consistency theory. He also discusses how behavioral consistency could be used to predict a majority of people within a given time span. The theory of behavioral consistency is assumed to be the opinion of a person's ability to affect issues that trigger emotions to emerge; consistency of behavior can be shown as a particularly selected subject; consistency of behavior is described in the study with the title: "The Stability of Behaviour: I. Predicting Most of the People Much the Time".

### 2.3. Face, testosterone, and behavior

Previous research has provided empirical evidence of a link between testosterone and masculine behavior. A CEO's face may be the basis for male facial linkages to topics in this study. (Jia et al., 2014 AQ11) explains that a man's face can predict masculine behavior. Based on laboratory

AQ12 According to (Jia et al., 2014 AQ13) explain that the relationship between testosterone and male CEOs' behavior affects the brain both before birth and during growth. A group of nerve cells plays a role in the processing of memories and emotional reactions as mediators between testosterone in brain regions to evaluate social interactions (Bos et al., 2012; Jia et al., 2014). AQ14

Testosterone regulates adolescent spurt (Johnston et al., 2001). Adolescents' development is affected by testosterone (Verdonck et al., 1999; Jia et al., 2014). AQ15 Previous research indicates that male and female growth differs in the bizygomatic (the area between the left and right cheeks), however, there is no difference in the growth period for upper facial height (Jia et al., 2014). AQ16 The findings provide empirical evidence that testosterone does affect the development of the male face (Folstad & Karter, 1992). Meanwhile, according to (Jia et al., 2014 AQ17; Alrajih & Ward, 2014), men's looks affect masculine behavior during their growth. Further, the findings of (Lefevre et al., 2013) provide empirical evidence that there is indeed a connection between testosterone and the ratio of male facial width. Some other studies suggest that the ratio of a man's face width to testosterone has a beneficial link. In addition, testosterone has a positive relationship with the face, as suggested by previous research (Lefevre et al., 2013). Higher or lower testosterone in men affects the facial masculinity, according to (Jia et al., 2014 AQ18; Pound et al., 2009).

### 2.4. The masculinity of male CEOs and leverage

The characteristics of male CEOs affect leverage, according to (Bertrand & Schoar, 2003; Cain & McKeon, 2016; Kamiya et al., 2018a). Meanwhile, (Bernile et al., 2015; Kamiya et al., 2018a; Malmendier et al., 2011) offer empirical evidence that the experience of male CEOs' characteristic affects leverage. In addition (Kamiya et al., 2018a; Kim; Kim et al., 2017) contend that Male CEOs' facial masculinity has a positive effect in leverage. Several previous research reveal that the facial masculinity of male CEOs is related to testosterone, aggressiveness, and social status affects leverage, as seen through the perspective of behavioral consistency theory (Epstein, 1979). Male CEOs' masculinity has a positive impact on leverage. According to (Kamiya et al., 2018a AQ19) found out that financing decisions are primarily based on leverage policies. A company's liabilities can be improved by using high leverage. The masculinity of male CEOs has a positive effect on leverage, according to (Kamiya et al., 2018a). Similarly (Chava & Purnanandam, 2010; Cronqvist et al., 2012; Huang & Kisgen, 2013; Malmendier et al., 2011) also reveal that Male CEO characteristics have a positive effect on leverage.

### 2.5. Conceptual framework of research

A conceptual framework is used to explain the effect of independent variables on dependent, and control variable used in this study. The conceptual framework of this study can be seen in the figures below, which position the masculinity of male CEOs as an independent variable, leverage as a dependent variable, and size profitability, earnings management and research & development, as a control variable:
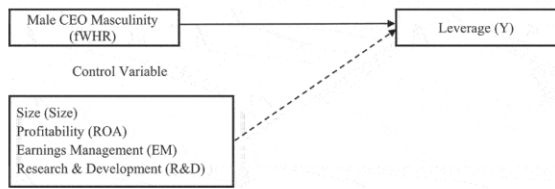
Figure 1.AQ20 Conceptual framework of research.

## 2.6. Research hypothesis

### 2.6.1. The facial masculinity of male CEOs affects leverage

According to (Jensen & Meckling, 1976) an agency relationship arises when shareholders hire male CEO characteristics as agents to provide services and then transfer the decision-making power. In practice, characteristics of male CEOs as a company manager know more about internal current information and prospects of the company than shareholders do. As a consequence, the characteristics of a male CEOs as an agent must provide information about the company's condition to shareholders, but the information conveyed by the characteristics of a male CEOs as an agent is sometimes not by the actual conditions of the company (Jensen and Meckling (1976)

From the perspective of behavioral consistency theory (Epstein, (1979), the facial masculinity of male CEOs correlates with testosterone, aggressiveness, and confidence influences leverage. Male CEOs' masculinity has a positive influence on leverage. As suggested by (Kamiya et al., 2018a), the facial masculinity of male CEOs has a positive effect on leverage. Meanwhile, (Cronqvist et al., 2012; Huang & Kisgen, 2013; Malmendier et al., 2011) provide empirical evidence that male CEO characteristics have a positive effect on leverage. According to (Chava and Purnanandam (2010) the characteristics of male CEOs are connected with leverage. By combining all the above arguments, the following hypothesis is proposed in this study:

H1: The Facial Masculinity of Male CEOs Positively Affects Leverage

## 3. Methodology

### 3.1. Types and approaches to research

This research uses a quantitative approach to give meaning to the interpretation of statistical figures (Aliyyah, Siswomihardjo et al., 2021; Prasetio et al., 2021). The research aimed to provide empirical evidence of the effect of male CEO masculinity on leverage. Explanatory research is used 2010 and 2021. Regression ordinary least square (OLS) with Stata software was used to analyze the data in this study. One of the regression completion procedures, Stata has a high degree of flexibility in research that connects theories, concepts, and data that can be done on variables in research.

### 3.2. Operational definition and measurement

Male CEOs' masculinity is the independent variable, leverage is the dependent variable, and the variable of size, profitability, earnings management and research & development is the control variable.

### 3.2.1. Variable independent (fWHR)

Independent variable is a variable that can affect other variables (Abadi et al., 2021; Aliyyah, Prasetyo et al., 2021AQ21) This study used male CEO masculinity facial variables as the independent variable. The facial masculinity is a concept of masculine behavior that exists in men having implications on aggressive behavior, having a tough character, having a tendency to be emotional in carrying out their actions (Jewitt, 1997). ImageJ software was used to measure male CEOs' facial masculinity variables, this study changed the male CEO's face figure to a gray-scale figure with a height of 8 bits (Kamiya et al., 2018a).

For the face of each male CEO inside the ImageJ software, the researchers selected a location in the face figure and dragged the mouse to another location to measure the distance, the vertical line size represents the distance between the upper lip and the highest point of the eyelid. The vertical line represents the minimum length (Kamiya et al., 2018a). AQ22 Therefore, the study independently provided photo quality scores from zero to three based on the following guidelines:

0: Poor posture in which (1) only one ear is visible due to the person's sideways posture; or (2) the photographer photographed the face figure from below or above, causing face height measurement problematic.

1: One ear seems to be perfect, but because the person is facing to the side, only half of the other ear is visible.

2: The person looks straight ahead and both ears are visible with roots on the face.

3: Perfect posture, with both ears clearly visible to the roots, and the person is looking straight ahead.

straight ahead.

Based on the criteria of (Kamiya et al., 2018a), the study used quality scores of two and three. The measurement scale of this study used the percentage ratio scale which can be seen in the following figure:
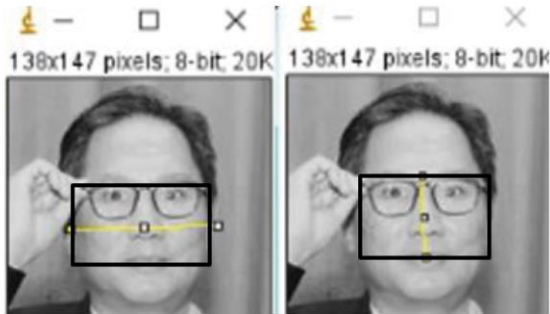


Figure 2. AQ23 Male CEO Masculinity Face Measurements (fWHR).

| Description: | | |
|---|---|---|
| Horizontal line | : | Represents the maximum distance between the left and right cheeks. |
| Vertical Line | : | Represents the distance between the upper lip to the highest point of the eyelid |

### 3.2.2. Dependent variable (Y)

Dependent variable is a variable whose value cannot be affected by other variables (Kalbuana, Prasetyo et al., 2021; Kalbuana, Suryati et al., 2021). The dependent variable in this study is leverage. Leverage illustrates the division of total liabilities by total assets. This financial ratio explains the amount of assets owned by companies financed by liabilities. The greater the value of the liability, the bigger the impact felt by investors in receiving the profits (Kamiya et al., 2018a). Leverage measurement is the result of the division of total liabilities by total assets (Kamiya et al., 2018a). This research measurement scale uses a percentage ratio scale with the following formula:

$$\text{Leverage} = \frac{\text{Total Liability}}{\text{Total asset}}$$

| Description: | | |
|---|---|---|
| $\text{Leverage}_{it}$ | = | Leverage i in the year to t |
| $\text{Total Liabilitas}_{it}$ | = | Total liabilities of the company i in the year to t |
| $\text{Total Assets}_{it}$ | = | Total assets of the company i in the year to t |

### 3.2.3. Control variable

Control variable is a variable used to control causal relationships to better obtain a more complete and better empirical model (Kalbuana, Prasetyo et al., 2021; Kalbuana, Suryati et al., 2021). As a result, variables can affect the indications that are being studied. The control variable used in this study is size, profitability, earnings management and .

#### 3.2.3.1. Size (size)

Size is a value that can classify a company into large or small types that are sourced on total assets, and log size. Larger total asset indicates a larger size. The larger the size, the more complete the

$\text{SIZE} = \text{Ln total asset}$

#### 3.2.3.2. Profitability (ROA)

Profitability is a tool that can be used to evaluate if investments that have been invested by investors are able to provide profits as expected. The measurement of profitability used Return on assets (ROA) which describes the division of net profit divided by total assets (Agustia Rusdiyanto et al., 2020; Juanamasta et al., 2019; Rusdiyanto et al., 2020). The measurement scale uses a percentage ratio scale, with the following formula:

$$\text{Return on asset} = \frac{\text{net profit}}{\text{Total asset}}$$

| Description: | | |
|---|---|---|
| $\text{Return on assets}_{it}$ | = | Return on company assets i in the year to t |
| $\text{Net Profit}_{it}$ | = | Net profit of company i in the year to t |
| $\text{Total assets}_{it}$ | = | Total assets of the company i in the year to t |

### 3.2.3.3. Earnings Management (EM)

Earnings Management on research using model measurement (Kothari et al., 2005 AQ24) refinement of the model (Jones, 1991 AQ25) by including return on assets, this model adds return on assets in the calculation of discretionary accruals, so as to be able to measure Earnings Management more accurately. The measurement scale of this study uses a percentage ratio scale. Here's the model equation (Kothari et al., 2005) with the following formula:

(1) Calculating TA (total accrual) i.e. net profit for year t less operating cash flow for year t with the following formula:

$$TAC = NI_{it} - CFO_{it}$$

The following is an estimate of total accrual (TA) using the Ordinary Least Square method:

$$\frac{TA_{it}}{A_{it-1}} = \beta 1 \left(\frac{1}{A_{it-1}}\right) + \beta 2 \left(\frac{\Delta REV_{it}}{A_{it-1}}\right) + \beta 3 \left(\frac{PPE}{A_{it-1}}\right) + \varepsilon$$

(2) The NDA (non-discretionary accruals) are calculated using the formula above, which includes the regression coefficient:

$$NDA_{it} = \beta 1 \left(\frac{1}{A_{it-1}}\right) + \beta 2 \left(-\frac{\Delta REV_{it}}{A_{it-1}} - \frac{\Delta REC_{it}}{A_{it-1}}\right) + \beta 3 \left(\frac{PPE}{A_{it-1}}\right) + \beta 4$$

(3) Finally, the formula for determining DA (discretionary accruals) as a metric of Earnings Management is as follows:

$$DA_{it} = \frac{TA_{it}}{A_{it-1}} - NDA_{it}$$

| Description: | | |
|---|---|---|
| NDAit | = | Non Discretionary Accruals of the corporation i in the period of years t |
| TACit | = | Total accruals of the corporation i in the time/period t |
| NIit | = | Net profit of the corporation i in the time/period of years t |
| CFOit | = | Corporation's operating cash flow in year t |
| Ait-1 | = | Total assets of corporation i in the time/period t-1 |
| ΔRecit | = | Accounts receivable of the corporation i in year t minus the income of the corporation i in year t-1 |
| ROAit | = | Return on assets of the corporation i in the time/period d to t |
| ε | = | Error |

### 3.2.3.4. Research & development (R&D)

Research & development are an investment made by the company on a new science basis, to produce more efficient products based on existing resources (Tuna et al., 2015). AQ26 Research & development are measured using the research & development cost intensity ratio (Padgett & Galan, 2010 AQ27; Arifian & Yuyetta, 2012 AQ28) with the following formula:

$$R \& D = \frac{\text{Total Research \& Development Expenditure}}{\text{Sales}}$$

| Description: | | |
|---|---|---|
| Research & Developmenti,t | = | Research & Development i in year t |
| Total Research & Development Expenditurei,t | = | Total Research & Development Expenditure i in year t |
| Salesi,t | = | Sales i in year ke t |

## 3.3. Data analysis techniques

Data analysis is part of the data testing process after the selection and collection stage of research data. Data analysis is interpreted as estimating or determining the magnitude of the quantitative influence of the change of an event on something else, as well as predicting or estimating other events (Sudaryanto et al., 2022; Utari; Utari, Sudaryanto et al., 2021).

### 3.3.1. Descriptive statistics

Descriptive statistics are statistics that can illustrate the research object through analytical data, without doing analysis (Prasetyo, Aliyyah, Rusdiyanto, Utari, et al., 2021 AQ29; Utari, Iswoyo et al., 2021) from the data of male CEO facial masculinity variable, leverage variable, size variable, profitability variable (ROA), earnings management variable and Research & Development variable.

### 3.3.2. Pearson correlation test

Parson correlation testing is used to look at the relationship between an independent variable and a dependent variable by assuming the Pearson correlation of the data is normally distributed (Prasetyo, Aliyyah, Rusdiyanto, Suprapti et al., 2021; Rusdiyanto et al., 2021). Correlation testing

dependent variable by assuming the Pearson correlation of the data is normally distributed (Prasetyo, Aliyyah, Rusdiyanto, Suprapti et al., 2021; Rusdiyanto et al., 2021). Correlation testing produces positive (+) and negative (-) numbers. If the correlation value is positive, it means that the variables move in the same direction, meaning that when the independent variable is large, the dependent variable is also getting bigger. If the value is negative, it means that the variables move in the opposite directions, meaning that if the value of the independent variable is large, then the dependent variable is getting smaller. Correlation numbers range from 0–1 (Endarto, Taufiqurrahman, Indriastuty et al., 2021; Prasetyo, Aliyyah, Rusdiyanto, Kalbuana, et al., 2021). AQ30Pearsonr correlation formulation is as follows:

$$r_{xy} = \frac{n \sum XY - (\sum X)(\sum Y)}{\sqrt{\{n \sum X^2 - (\sum X)^2\}\{n \sum Y^2 - (\sum Y)^2\}}}$$

| r | = | Correlation value |
|---|---|---|
| X | = | Variable X |
| Y | = | Variable Y |

### 3.3.3. Research regression model

Regression analysis is used to find out how close the relationship between one variable and another variable is. The regression analysis has a function to predict the value of independent variable (Y) if the dependent variable (fWHR) is changed (Prasetyo, Aliyyah, Rusdiyanto, Suprapti et al., 2021; Rusdiyanto et al., 2021). The method used in this study was panel data regression analysis. Panel data is also called pool data, longitudinal data, and micro panel data. The panel data regression analysis was used to examine the influence of male CEOs' facial masculinity (fWHR) on leverage (Y). Based on the independent variables and dependent variables that have been described, an equation model is obtained that will be used as follows:

$$\text{LEVi}, t = \beta 0 + \beta 1 \text{fWHRi}, t, + \beta 2 \text{Sizei}, t + \beta 3 \text{ROAi}, t, + \beta 4 \text{EMi}, t + \beta 5 \text{R\&Di}, t, + \quad (1)$$

To explain the model of the facial masculinity of male CEOs, variables of leverage, size, profitability, earnings management and research & development can be explained as follows:

## 4. Research and discussion results

### 4.1. Descriptive statistics of variables

The results of descriptive statistics can be presented with minimum, maximum, mean, and standard deviation of the variables studied from the sample companies. In addition to presenting based on a shows the testing of this sample based on the company.

The table output variables dependent stata above shows the number of observations (N) was 1925. From these 1925 observations, the leverage value minimum was .000, and the leverage value maximum was 0.990. The mean value of 1925 observations or the mean was of 0.482 with a standard deviation of 0.245. The table variables independent output stata above shows the number of observations (N) was 1781. From these 1781 observations, the value of male CEOs' facial masculinity minimum was 0.110, and the value of male CEOs' facial masculinity maximum was .267. The mean value of 1781 observations or the mean was of 2.086 with a standard deviation of 6.287. The table variables control output stata above shows the number of observations (N) was 1925. From these 1925 observations, the size value (minimum) was 11.862, and the size value (maximum) was 31.592, The average value of 1925 observations or the mean was of 23.120 with a standard deviation of 5.011, Based on the table output stata above, it can be seen that the number of observations (N) was 1925. From thse 1925 observations, the profitability value (ROA) minimum was .000, and the profitability value (ROA) maximum was 0.925, the average value of 1925 observations or the mean was of 0.078 with a standard deviation of 0.108, Based on the table output stata above, it can be seen that the number of observations (N) was 1925. From these 1925 observations, the Earnings management minimum was .000, and the Earnings management maximum was 0.046, the average value of 1925 observations or the mean was of 0.003 with a standard deviation of 0.007, Based on the table output stata above, it can be seen that the number of observations (N) was 170. From these 170 observations, the research & development minimum was 5.234, and the research & development maximum was 21.502, the average value of 170 observations or the mean was of

### 4.2. Pearson correlation test

Pearson's correlation test was done to see how strong or how weak the relationship between the facial masculinity of male CEOs and leverage. In this test, if the Pearson correlation value (r) is above 0.05 (5%), it means that there is a strong relationship between the facial masculinity of male CEOs to leverage, but if the Pearson correlation value is below 0.05 (5%), then it means that the relationship between the facial masculinity of male CEOs and leverage is said to be weak.

Based on the table above, it can be interpreted that the leverage variable, the facial masculinity of male CEOs, size, Profitability (ROA), earnings management and Research & development have a value above 0.05 (5%). Thus, it explains that all variables are declared to be valid to be used in model testing. The reliability test results above explain the value of above 0.05 (5%). This proves that all variables used are reliable and produce the same results when tested.

### 4.3. Goodness of fit model testing

Hypothesis testing in research is very important, it can determine whether the research conducted is scientific enough or not. To find out the feasibility of the model scientifically, based on the results of three tests that have been tested Chow-test, Lagrange multiple test, and Hausman test, the model that fits the hypothesis proposed is the estimated pooled least square (PLS) model with the following output results:

model that fits the hypothesis proposed is the estimated pooled least square (PLS) model with the following output results:

### 4.4. Discussion of research results

The probability result of Prob>F was 0,000 ≤ 0.05 (5%), showing that if taken together, the value of regression coefficient is significant, which means that the facial masculinity of male CEOs affects leverage. The $R^2$ value was 0.069, indicating that the male CEO's masculinity on the leverage had a determination level of 0.069. This means that the facial masculinity of male CEOs can be explained by the 0.0687 of variability of leverage. The discussion of the research findings is an analysis of the suitability of previous theories, opinions, or research that has been put forward by the findings of past research to overcome phenomena in this study. The followings are the main parts that can be discussed in the analysis of the findings of this study:

#### 4.4.1. Findings: the facial masculinity of male CEOs negatively affects leverage

The facial masculinity of the male CEOs shows that the estimated negative coefficient is not in accordance with the initial hypothesis. The results of the t-test explain that the facial masculinity of male CEOs had a negative and significant effect on leverage at the significance level of p-value 0.000 ≤ 0.05 (5%). Furthermore, regarding the magnitude of the influence of male CEOs' masculinity on leverage, it can be seen from the regression coefficient value of male CEOs' masculinity of −.002. This explains that when the male CEOs' facial masculinity increases by 1 percent, leverage will decrease by −.002.

This explains that when the male CEOs' facial masculinity increases by 1 percent, leverage will decrease by −.002.

The findings of empirical testing indicate that higher level of male CEOs' facial masculinity affect the decrease of the leverage, and vice versa, lower facial masculinity of male CEOs has an impact on the increase of leverage. Hence, the empirical findings do not support the proposed hypothesis that the facial masculinity of male CEOs has a positive effect on leverage, the Accepted Hypothesis is (p-value 0.000 ≤ 0.05 (5 %). The initial hypothesis was submitted based on previous research findings that lead to positive result (Jia et al., 2014AQ31; Kamiya et al., 2018a). The empirical findings contradict the initial hypothesis because the coefficient results of the male CEOs' facial masculinity in Indonesia and the coefficient those of the male CEOs' facial masculinity in the United States are in the opposite directions. The coefficient of determination's negative result suggests that the masculinity of Indonesia's male CEOs is in the opposite direction of the masculinity of male CEOs in the United States. The difference in the findings of these scientific investigations will have an impact on masculine behavior, influencing the masculinity of male CEOs in policy making.

The findings of this empirical study are different from the findings of previous studies (Kamiya et al., 2018a). The results of a study conducted in the United States from 1993 to 2008 revealed that the facial masculinity of male CEOs has a positive effect on leverage, meaning that the higher the facial masculinity of male CEOs, the higher the leverage is, and vice versa, the lower the facial masculinity of male CEOs, the lower the leverage is Meanwhile, an empirical study in Indonesia for the sampling period of 2016–2021 reveals that the facial masculinity of male CEOs negatively affects the leverage, versa, the lower the facial masculinity of male CEOs, the higher the leverage is.

The findings are backed by a behavioral consistency theory that explains how the facial masculinity of male CEOs is related to testosterone, aggressiveness, and social status affects leverage, seen through the perspective of behavioral consistency theory (Epstein, 1979). While agency theory mainly is concerned with the form of agreement between shareholders in combination with the characteristics of a male CEO as an agent in managing the firm, the characteristics of a male CEO as an agent bear a significant amount of responsibility for the company's success. Shareholders hire male CEOs as agents to provide services and then delegate authority to them in decision-making, according to (Jensen and Meckling (1976). In practice, a male CEO's characteristics as an agent as in managing the company know much more internal information and future company's prospects than shareholders do. As a consequence, the characteristics of male CEOs as agents have a responsibility to give shareholders relevant information about the company's condition

According to (Kamiya et al., 2018a) higher facial masculinity of male CEOs has an impact on increasing leverage, and lower facial masculinity of male CEOs has an impact on decreasing leverage. Financing decisions are focused on leverage policies, and high leverage can increase company's liabilities. Male CEOs with such a higher characteristic value have higher leverage, whereas male CEOs with such a lower characteristic value have lower leverage (Chava & Purnanandam, 2010; Cronqvist et al., 2012; Huang & Kisgen, 2013; Malmendier et al., 2011).

## 5. Conclusion

The higher the masculinity value of the male CEO's face, the lower the leverage value, and conversely the lower the masculinity value of the male CEO's face, the higher the leverage value. Behavioral consistency theory argues that the masculinity of the male CEO's face affects leverage. Meanwhile, agency theory explains the role of male CEO characteristics in making policies regarding leverage. Meanwhile, ImageJ software supports empirical findings that male CEO facial masculinity affects leverage, and the presence of male CEO characteristics is supported by agency theory and behavioral consistency theory.

This study has limitations that are unavoidable, the disclosure of limitations has the aim of filling the empty space of the limitations of this study: The elements in conducting content analysis determine the measurement of the masculinity face value of male CEOs using imageJ software cannot distinguish modified male CEO images, taking pictures of male CEOs was obtained from the company's annual report in the 2016–2021 period and the use of male CEO image searches on Google. The sample in this study was limited to taking pictures of male CEOs found in the company's annual report in the 2016–2021 period and using male CEO image searches Googled, researchers could not distinguish the image of a male CEO that had gone through modifications.

These empirical findings have implications for company management as policy-making regarding the face of male masculinity has an impact on leverage policy, so that the empirical findings can be used by company management and the government as leverage policy makers. These findings

masculinity as a determinant of corporate leverage. Furthermore, it enriches empirical findings in the field of behavioral accounting and becomes a reference for conducting future research

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## Author contributions

Conceptualization, N.F.A and R.; investigation, M. and R.; writing—preparation of origi-nal draft, I.K.B; writing—reviews and editing, R. and M.; supervision, I.K.B.; project ad-ministration, N.F.A.; fund acquisition, N.F.A, and I.K.B All authors have read and ap-proved the published version of the manuscript.

## Data availability statement

The study did not involve any data sets and the articles collected were sourced from https://www.scopus.com/home.uri, accessed on 2022 and https://scholar.google.com/, accessed on

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The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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**Troubleshooting**

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**Reader help:** http://helpx.adobe.com/reader.html

Please note that full user guides for earlier versions of these programs are available from the Adobe Help pages by clicking on the link "Previous versions" under the "Help and tutorials" heading from the relevant link above. Commenting functionality is available from Adobe Reader 8.0 onwards and from Adobe Acrobat 7.0 onwards.

**Firefox users:** Firefox's inbuilt PDF Viewer is set to the default; please see the following for instructions on how to use this and download the PDF to your hard drive:
http://support.mozilla.org/en-US/kb/view-pdf-files-firefox-without-downloading-them#w_using-a-pdf-reader-plugin

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# The impact of a male CEO'S facial masculinity on leverage

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**Abstract:** The purpose of this study was to obtain empirical evidence of the effect of male CEO's facial masculinity on leverage, to identify the effect of male CEO's facial masculinity on leverage. This study uses a quantitative approach with a population and research sample using companies on the Indonesia Stock Exchange in 2016–2021. The study collected images of faces identified as male CEOs from data from the Indonesia Stock Exchange website and company websites and using Google searches. The panel data analysis method in this study uses Regression Ordinary Least Square (OLS) with Stata Software which connects theories, concepts and data that can be carried out on research variables. The findings suggest that the higher the value of male CEOs' facial masculinity, the greater the effect on reducing corporate leverage, and vice versa, the lower the value of male CEOs' facial masculinity, the greater the impact on increasing corporate leverage value. The practical implications of this study can help the Indonesian Association of Accountants in developing accounting in Indonesia. Meanwhile, the theoretical implications of this study can explain agency theory and behavioral consistency theory. As for the policy implications of this study, it could provide empirical evidence that male CEOs' masculinity undermines corporate leverage. To date, researchers in Indonesia have not identified significant research on the topic of masculinity of male CEOs in relation with leverage, or the characteristic role of male CEOs in influencing leverage policy. This study contrasts previous findings of a study

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Associate Professor Dr. Nur Fadjrih Asyik, S.E., M. Si., Ak., CA. is the Chairperson of the Indonesian School of Economics (STIESIA) Surabaya Indonesia, an Assessor of BAN PT and an independent researcher. He obtained his Bachelor's degree in Accounting from Indonesia School of Economics (STIESIA) Surabaya Indonesia with a degree (S.E), Master of Accounting Postgraduate Program from Gadjah Mada University with a degree (M.Si), Postgraduate Program in Accounting Science with his (Dr.) Degree research interests include financial accounting, corporate finance, corporate governance, behavioral accounting, management accounting and corporate social responsibility.

## PUBLIC INTEREST STATEMENT

Previous research conducted in the United States was conducted by (Yuping Jia et al., 2014) with the findings explaining that the face of male CEO masculinity has a positive effect on earnings management, while (Kamiya, et al, 2018) the findings empirically explain that the face of CEO masculinity has a positive effect. Against leverage. While the empirical findings in Indonesia have a different direction, the face of CEO masculinity has a negative effect on leverage, meaning that the higher the masculinity of the male CEO's face has an impact on the decrease in leverage, and conversely the lower the masculinity of the male CEO has an impact on the increase in leverage. The empirical findings have implications for regulators and corporate governance policy makers regarding male face size as a determinant of leverage policy.

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that was conducted in the United States from 1993 to 2008. Meanwhile, the sampling period for this study was from 2016 to 2021 and was conducted in Indonesia.

## 1. Introduction

The role of the male CEO in the company is very important to determine the success of the company he leads. Male CEOs have an important role for the company's success from the performance of its leaders. The CEO in carrying out his leadership in making policies used for the company, the CEO is the manager of the company. In Agency Theory (Jensen & Meckling, 1976) address the correlation between shareholders and the characteristics of male CEOs as agents. Shareholders are using a male CEO as an agent to carry out the tasks and interests of the shareholders, including transferring decision-making power from shareholders to male CEOs as agents (Mahiswari & Nugroho, 2014). In companies listed on the Indonesia Stock Exchange whose capital consists of stocks, shareholders function as principal while the characteristics of male CEOs act as an agent. Meanwhile, the theory of behavioral consistency (Epstein, 1979) suggests that the facial masculinity of male CEOs correlates with testosterone, aggressiveness, and social status impacts leverage. Based on the characteristic role of male CEOs in decision-making, structuring and building leverage policies, substantial research on the function of male CEOs' features in various corporate strategic decisions has been conducted. This study compares previous research conducted in the United States of America (Kamiya et al., 2018a) explaining that male CEOs' facial masculinity has a positive effect on corporate leverage, whereas agency theory (Jensen & Meckling, 1976) describes that male CEOs' characteristics affect policy and leverage determination. Male CEOs as company managers have more access to data about the company's current situation and future prospects than shareholders do, enabling the findings provide empirical evidence in the field of accounting for behavior.

The facial masculinity is a concept of male aggression that has implications for aggressive nature, has a tough character, and tends to be emotional when performing acts (Jewitt, 1997). The facial masculinity of male CEOs was related to testosterone, aggressiveness, while social status affects leverage (Kamiya et al., 2018a). Factors affecting a male CEO's performance in managing a company can be found in the facial masculinity (Tanjaya & Santoso, 2020). According to (Kamiya et al., 2018a), male CEOs with masculine looks have traits that affect the company's management process. The facial masculinity is a personal trait that a person is born with. The facial masculinity that occurs in men predicts masculine behavior habits and is connected with aggressive behavior, according to (Kamiya et al., 2018a) in the neuroendocrinology literature. High level of male CEO masculinity is associated with more aggressive management (Tanjaya & Santoso, 2020). Leverage is boosted by the mascyline appearance of male CEOs. According to (Kamiya et al., 2018a) financing decisions are based on leverage. A company's liabilities might grow as a result of high leverage (Hamada, 1972; Kamiya et al., 2018a). Characteristics of male CEOs affect leverage (Chava & Purnanandam, 2010; Cronqvist et al., 2012; Huang & Kisgen, 2013; Malmendier et al., 2011).

According to (Bertrand & Schoar, 2003), the characteristics of male CEOs affect the company's decision-making process. Male CEOs have a confident attitude and usually decide the company's leverage policy. The excessive confidence of male CEOs' masculinity often does leverage (Benmelech & Frydman, 2013; Kamiya et al., 2018a; Malmendier & Tate, 2005), Acquisition

(Doukas & Petmezas, 2007; Kamiya et al., 2018a; Kim & (Andy), 2013), Innovation (Hirshleifer et al., 2012; Kamiya et al., 2018a).

Leverage is positively affected by male CEO characteristics (Gomulya et al., 2017; Kamiya et al., 2018a; Yuping Jia et al., 2014) According to neuroendocrinology research, a man's face affects his aggressive behavior. While (Carré & McCormick, 2008; Christiansen & Winkler, 1992) explain that the a male's facial masculinity influences a person's aggressive behavior. (Campbell et al., 2011) argue how facial masculinity affects men's behavior, while (Wong et al., 2011) explain that male CEOs have such a tendecny to negotiate for personal gain. Thus (Stirrat & Perrett, 2010) explain that men with a manly face are considered to be trustworthy. Therefore (Kamiya et al., 2018a; Kim et al., 2017; Wong et al., 2011) provide empirical evidence that the characteristics of male CEOs with a higher facial masculinity show better work performance than male CEOs with such a lower facial masculinity. Leverage is influenced by the facial masculinity of male CEOs (Kamiya et al., 2018a).

This research proposes clear and focused limitations. This study emphasizes on the importance of male CEOs' masculinity as a root cause of leverage, and this is restricted to companies listed on the Indonesia Stock Exchange between 2016 to 2021. The research focuses on the facial structure of male CEOs' masculinity, leverage, size, profitability, earnings management, research & development. ImageJ software was used to measure subjective masculinity facial variables of a male CEOs.

## 2. Literature review and hypothesis development

### 2.1. Agency theory

Agency theory is defined the principal can limit the difference from its interests by setting appropriate incentives for agents and by incurring monitoring costs designed to limit deviant agent activities. Furthermore, in some situations, the principal may pay agents to expend resources for guarantee that the agent will not take any action that could harm the principal (Jensen & Meckling, 1976). A male CEO's as an agent should have the same objective as shareholders do, which is to improve the company through shareholder prosperity, but male CEOs as agents may have their own thoughts that are contrary to what shareholders think (MAYANGSARI, 2001). As a conclusion, agency theory offers an important solution to male CEOs' decision-making characteristics in the face of corporate leverage. According to (Jensen & Meckling, 1976) define agency costs in three categories: monitoring, bonding, and residual. Eisenhardt (1989) The agency theory consists of three human nature assumptions, namely: (1) humans are generally selfish, (2) humans have limited thinking power in terms of future perceptions, and (3) humans avoid risk at all costs. From the concept of human nature, it can be seen that the usual role of male CEOs affects the company's leverage.

### 2.2. Behavior consistency theory

According to (Epstein, 1979) explains that the facial masculinity of male CEOs correlates with testosterone, aggressive, and social status affects leverage, seen from the perspective of behavioral consistency theory. He also discusses how behavioral consistency could be used to predict a majority of people within a given time span. The theory of behavioral consistency is assumed to be the opinion of a person's ability to affect issues that trigger emotions to emerge; consistency of behavior can be shown as a particularly selected subject; consistency of behavior is described in the study with the title: "The Stability of Behaviour: I. Predicting Most of the People Much the Time".

### 2.3. Face, testosterone, and behavior

Previous research has provided empirical evidence of a link between testosterone and masculine behavior. A CEO's face may be the basis for male facial linkages to topics in this study. (Jia et al., 2014) explains that a man's face can predict masculine behavior. Based on laboratory evidence, (Carré & McCormick, 2008; Christiansen & Winkler, 1992) claim that a man's face predicts aggressive traits. Men's faces affect masculine behavior (Eisenegger et al., 2010; Jia et al., 2014). According to (Jia et al., 2014) explain that the relationship between testosterone and male CEOs'

behavior affects the brain both before birth and during growth. A group of nerve cells plays a role in the processing of memories and emotional reactions as mediators between testosterone in brain regions to evaluate social interactions (Bos et al., 2012; Jia et al., 2014). AQ14

Testosterone regulates adolescent spurt (Johnston et al., 2001). Adolescents' development is affected by testosterone (Verdonck et al., 1999; Jia et al., 2014). Previous research indicates that male and female growth differs in the bizygomatic (the area between the left and right cheeks), however, there is no difference in the growth period for upper facial height (Jia et al., 2014). The findings provide empirical evidence that testosterone does affect the development of the male face (Folstad & Karter, 1992). Meanwhile, according to (Jia et al., 2014; Alrajih & Ward, 2014), men's looks affect masculine behavior during their growth. Further, the findings of (Lefevre et al., 2013) provide empirical evidence that there is indeed a connection between testosterone and the ratio of male facial width. Some other studies suggest that the ratio of a man's face width to testosterone has a beneficial link. In addition, testosterone has a positive relationship with the face, as suggested by previous research (Lefevre et al., 2013). Higher or lower testosterone in men affects the facial masculinity, according to (Jia et al., 2014; Pound et al., 2009). AQ15 AQ16 AQ17 130 AQ18

### 2.4. The masculinity of male CEOs and leverage

The characteristics of male CEOs affect leverage, according to (Bertrand & Schoar, 2003; Cain & McKeon, 2016; Kamiya et al., 2018a). Meanwhile, (Bernile et al., 2015; Kamiya et al., 2018a; Malmendier et al., 2011) offer empirical evidence that the experience of male CEOs' characteristic affects leverage. In addition (Kamiya et al., 2018a; Kim; Kim et al., 2017) contend that Male CEOs' facial masculinity has a positive effect in leverage. Several previous research reveal that the facial masculinity of male CEOs is related to testosterone, aggressiveness, and social status affects leverage, as seen through the perspective of behavioral consistency theory (Epstein, 1979). Male CEOs' masculinity has a positive impact on leverage. According to (Kamiya et al., 2018a) found out that financing decisions are primarily based on leverage policies. A company's liabilities can be improved by using high leverage. The masculinity of male CEOs has a positive effect on leverage, according to (Kamiya et al., 2018a). Similarly (Chava & Purnanandam, 2010; Cronqvist et al., 2012; Huang & Kisgen, 2013; Malmendier et al., 2011) also reveal that Male CEO characteristics have a positive effect on leverage. 140 AQ19 145

### 2.5. Conceptual framework of research

A conceptual framework is used to explain the effect of independent variables on dependent, and control variable used in this study. The conceptual framework of this study can be seen in the figures below, which position the masculinity of male CEOs as an independent variable, leverage as a dependent variable, and size profitability, earnings management and research & development, as a control variable: 150 155

### 2.6. Research hypothesis

#### 2.6.1. The facial masculinity of male CEOs affects leverage

According to (Jensen & Meckling, 1976) an agency relationship arises when shareholders hire male CEO characteristics as agents to provide services and then transfer the decision-making power. In practice, characteristics of male CEOs as a company manager know more about internal current information and prospects of the company than shareholders do. As a consequence, the characteristics of a male CEOs as an agent must provide information about the company's condition to shareholders, but the information conveyed by the characteristics of a male CEOs as an agent is sometimes not by the actual conditions of the company (Jensen and Meckling (1976) 160

From the perspective of behavioral consistency theory (Epstein, (1979), the facial masculinity of male CEOs correlates with testosterone, aggressiveness, and confidence influences leverage. Male CEOs' masculinity has a positive influence on leverage. As suggested by (Kamiya et al., 2018a), the facial masculinity of male CEOs has a positive effect on leverage. Meanwhile, 165

(Cronqvist et al., 2012; Huang & Kisgen, 2013; Malmendier et al., 2011) provide empirical evidence that male CEO characteristics have a positive effect on leverage. According to (Chava and Purnanandam (2010) the characteristics of male CEOs are connected with leverage. By combining all the above arguments, the following hypothesis is proposed in this study:

H1: The Facial Masculinity of Male CEOs Positively Affects Leverage

## 3. Methodology

### 3.1. Types and approaches to research

This research uses a quantitative approach to give meaning to the interpretation of statistical figures (Aliyyah, Siswomihardjo et al., 2021; Prasetio et al., 2021). The research aimed to provide empirical evidence of the effect of male CEO masculinity on leverage. Explanatory research is used in the design process (Abadi et al., 2021; Indrawati et al., 2021). Companies listed on the Indonesia Stock Exchange from 2016 to 2021 were used in the population and research samples. The researchers collected data from the Indonesia Stock Exchange website and company websites, as well as Google searches, to obtain figures of faces identified as male CEOs within a period between 2016 and 2021. Regression ordinary least square (OLS) with Stata Software was used to analyze the data in this study. One of the regression completion procedures, Stata has a high degree of flexibility in research that connects theories, concepts, and data that can be done on variables in research.

### 3.2. Operational definition and measurement

Male CEOs' masculinity is the independent variable, leverage is the dependent variable, and the variable of size, profitability, earnings management and research & development is the control variable.

AQ20 **Figure 1. Conceptual framework of research.**



AQ23 **Figure 2. Male CEO Masculinity Face Measurements (fWHR).**
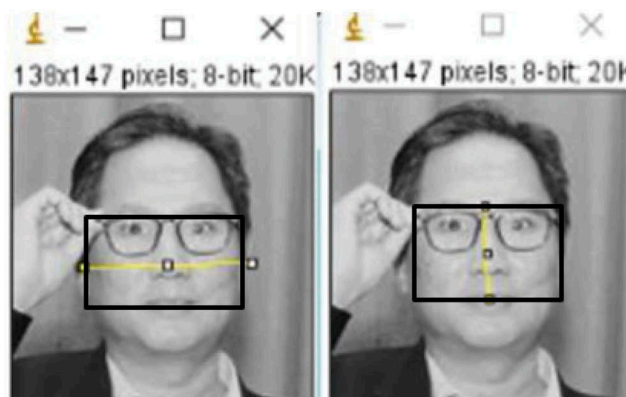
### 3.2.1. Variable independent (fWHR)

Independent variable is a variable that can affect other variables (Abadi et al., 2021; Aliyyah, Prasetyo et al., 2021) This study used male CEO masculinity facial variables as the independent variable. The facial masculinity is a concept of masculine behavior that exists in men having implications on aggressive behavior, having a tough character, having a tendency to be emotional in carrying out their actions (Jewitt, 1997). ImageJ software was used to measure male CEOs' facial masculinity variables, this study changed the male CEO's face figure to a gray-scale figure with a height of 8 bits (Kamiya et al., 2018a).

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For the face of each male CEO inside the ImageJ software, the researchers selected a location in the face figure and dragged the mouse to another location to measure the distance, the vertical line size represents the distance between the upper lip and the highest point of the eyelid. The horizontal line represents the maximum distance between the left and right cheeks, while the vertical line represents the minimum length (Kamiya et al., 2018a). Therefore, the study independently provided photo quality scores from zero to three based on the following guidelines:

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0: Poor posture in which (1) only one ear is visible due to the person's sideways posture; or (2) the photographer photographed the face figure from below or above, causing face height measurement problematic.

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1: One ear seems to be perfect, but because the person is facing to the side, only half of the other ear is visible.

2: The person looks straight ahead and both ears are visible with roots on the face.

3: Perfect posture, with both ears clearly visible to the roots, and the person is looking straight ahead.

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Based on the criteria of (Kamiya et al., 2018a), the study used quality scores of two and three. The measurement scale of this study used the percentage ratio scale which can be seen in the following figure:

| Description: | | |
|---|---|---|
| Horizontal line | : | Represents the maximum distance between the left and right cheeks. |
| Vertical Line | : | Represents the distance between the upper lip to the highest point of the eyelid |

### 3.2.2. Dependent variable (Y)

Dependent variable is a variable whose value cannot be affected by other variables (Kalbuana, Prasetyo et al., 2021; Kalbuana, Suryati et al., 2021). The dependent variable in this study is leverage. Leverage illustrates the division of total liabilities by total assets. This financial ratio explains the amount of assets owned by companies financed by liabilities. The greater the value of the liability, the bigger the impact felt by investors in receiving the profits (Kamiya et al., 2018a). Leverage measurement is the result of the division of total liabilities by total assets (Kamiya et al., 2018a). This research measurement scale uses a percentage ratio scale with the following formula:

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$$\text{Leverage} = \frac{\text{Total Liability}}{\text{Total asset}}$$

| Description: | | |
|---|---|---|
| Leverage$_{i,t}$ | = | Leverage i in the year to t |
| Total Liabilitas$_{i,t}$ | = | Total liabilities of the company i in the year to t |
| Total Assets$_{,t}$ | = | Total assets of the company i in the year to t |

### 3.2.3. Control variable

Control variable is a variable used to control causal relationships to better obtain a more complete and better empirical model (Kalbuana, Prasetyo et al., 2021; Kalbuana, Suryati et al., 2021). As a result, variables can affect the indications that are being studied. The control variable used in this study is size, profitability, earnings management and .

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### 3.2.3.1. Size (size). **Size is a value that can classify a company into large or small types that are sourced on total assets, and log size. Larger total asset indicates a larger the size. The larger the size, the more complete the transactions being carried out. (**Luwihono et al., 2021; Prabowo et al., 2020). (Shabbir et al., 2021; Susanto et al., 2021**) describe the size measurement scale using firm size with the following formula**:

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SIZE = Ln total asset

### 3.2.3.2. Profitability (ROA). **Profitability is a tool that can be used to evaluate if investments that have been invested by investors are able to provide profits as expected. The measurement of profitability used Return on assets (ROA) which describes the division of net profit divided by total assets (**Agustia Rusdiyanto et al., 2020; Juanamasta et al., 2019; Rusdiyanto et al., 2020**). The measurement scale uses a percentage ratio scale, with the following formula**:

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$$\text{Return on asset} = \frac{\text{net profit}}{\text{Total asset}}$$

| Description: | | |
|---|---|---|
| Return on assets$_{,t}$ | = | Return on company assets i in the year to t |
| Net Profit$_{,t}$ | = | Net profit of company i in the year to t |
| Total assets$_{,t}$ | = | Total assets of the company i in the year to t |

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### 3.2.3.3. Earnings Management (EM). **Earnings Management on research using model measurement (Kothari** et al.*,* **2005) refinement of the model (Jones, 1991) by including return on assets, this model adds return on assets in the calculation of discretionary accruals, so as to be able to measure Earnings Management more accurately. The measurement scale of this study uses a percentage ratio scale. Here's the model equation (Kothari** et al.*,* **2005) with the following formula**:

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(1) Calculating TA (total accrual) i.e. net profit for year t less operating cash flow for year t with the following formula:

TAC = NIit − CFOit

The following is an estimate of total accrual (TA) using the Ordinary Least Square method:

$$\frac{TAit}{Ait-1} = \beta1 \left(\frac{1}{Ait-1}\right) + \beta2 \left(\frac{\Delta REVit}{Ait-1}\right) + \beta3 \left(\frac{PPE}{Ait-1}\right) + \varepsilon$$

(2) The NDA (non-discretionary accruals) are calculated using the formula above, which includes the regression coefficient.:

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$$NDAit = \beta1 \left(\frac{1}{Ait-1}\right) + \beta2 \left(-\frac{\Delta REVit}{Ait-1} - \frac{\Delta RECit}{Ait-1}\right) + \beta3 \left(\frac{PPE}{Ait-1}\right) + \beta4 \left(\frac{ROAit}{Ait-1}\right) + \varepsilon$$

(3) Finally, the formula for determining DA (discretionary accruals) as a metric of Earnings Management is as follows:

$$DAit = \frac{TAit}{Ait-1} - NDAit$$

| Description: | | |
|---|---|---|
| NDAit | = | Non Discretionary Accruals of the corporation i in the period of years t |
| TACit | = | Total accruals of the corporation i in the time/period t |
| NIit | = | Net profit of the corporation i in the time/period of years t |
| CFOit | = | Corporation's operating cash flow in year t |
| Ait-1 | = | Total assets of corporation i in the time/period t-1 |
| ΔRevit | = | The revenue of the corporation i in year t is reduced by the revenue company I in year t-1 |
| PPEit | = | Fixed assets of the corporation i in the time/period t |
| DAit | = | Discretionary accruals of the corporation i in the time/period to t |
| ΔRecit | = | Accounts receivable of the corporation i in year t minus the income of the corporation i in year t-1 |
| ROAit | = | Return on assets of the corporation i in the time/period d to t |
| ε | = | Error |

*3.2.3.4. Research & development (R&D).* **Research & development are an investment made by the company on a new science basis, to produce more efficient products based on existing resources (Tuna** et al., **2015). Research & development are measured using the research & development cost intensity ratio (Padgett & Galan, 2010; Arifian & Yuyetta, 2012) with the following formula**:

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$$R \& D = \frac{Total\ Research\ \&\ Development\ Expenditure}{Sales}$$

| Description: | | |
|---|---|---|
| Research & Development$_{i,t}$ | = | Research & Development i in year t |
| Total Research & Development Expenditure$_{i,t}$ | = | Total Research & Development Expenditure i in year t |
| Sales$_{i,t}$ | = | Sales i in year ke t |

### 3.3. Data analysis techniques

Data analysis is part of the data testing process after the selection and collection stage of research data. Data analysis is interpreted as estimating or determining the magnitude of the quantitative influence of the change of an event on something else, as well as predicting or estimating other events (Sudaryanto et al., 2022; Utari; Utari, Sudaryanto et al., 2021).

#### 3.3.1. Descriptive statistics

Descriptive statistics are statistics that can illustrate the research object through analytical data, without doing analysis (Prasetyo, Aliyyah, Rusdiyanto, Utari, et al., 2021; Utari, Iswoyo et al., 2021) AQ29 from the data of male CEO facial masculinity variable, leverage variable, size variable, profitability variable (ROA), earnings management variable and Research & Development variable.

#### 3.3.2. Pearson correlation test

Parson correlation testing is used to look at the relationship between an independent variable and a dependent variable by assuming the Pearson correlation of the data is normally distributed (Prasetyo, Aliyyah, Rusdiyanto, Suprapti et al., 2021; Rusdiyanto et al., 2021). Correlation testing produces positive (+) and negative (-) numbers. If the correlation value is positive, it means that the variables move in the same direction, meaning that when the independent variable is large, the dependent variable is also getting bigger. If the value is negative, it means that the variables move in the opposite directions, meaning that if the value of the independent variable is large, then the dependent variable is getting smaller. Correlation numbers range from 0–1 (Endarto, Taufiqurrahman, Indriastuty et al., 2021; Prasetyo, Aliyyah, Rusdiyanto, Kalbuana, et al., 2021). AQ30 Pearsonr correlation formulation is as follows:

$$r_{xy} = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{\{n\sum X^2 - (\sum X)^2\}\{n\sum Y^2 - (\sum Y)^2\}}}$$

| r | = | Correlation value |
|---|---|---|
| X | = | Variable X |
| Y | = | Variable Y |

#### 3.3.3. Research regression model

Regression analysis is used to find out how close the relationship between one variable and another variable is. The regression analysis has a function to predict the value of independent variable (Y) if the dependent variable (fWHR) is changed (Prasetyo, Aliyyah, Rusdiyanto, Suprapti et al., 2021; Rusdiyanto et al., 2021). The method used in this study was panel data regression analysis. Panel data is also called pool data, longitudinal data, and micro panel data. The panel data regression analysis was used to examine the influence of male CEOs' facial masculinity

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| Table 1. Variable Description | | |
|---|---|---|
| **Information** | | **Description** |
| i | = | Company cross-section data |
| t | = | Company time-series data |
| LEV | = | Leverage |
| fWHR | = | The Facial Masculinity of a Male CEO |
| Size | = | Company Size |
| ROA | = | Profitability |
| EM | = | Earnings Management |
| R&D | = | Research & Development |
| α | = | Constanta |
| β1, β2, β3 | = | Coefisien regresion variable LEV, fWHR, control, Size, ROA, EM, R&D |
| ε | = | Error |

(fWHR) on leverage (Y). Based on the independent variables and dependent variables that have been described, an equation model is obtained that will be used as follows:

$$LEVi, t = \beta 0 + \beta 1 fWHRi, t, + \beta 2 Sizei, t + \beta 3 ROAi, t, + \beta 4 EMi, t + \beta 5 R\&Di, t, + \varepsilon \qquad (1)$$

To explain the model of the facial masculinity of male CEOs, variables of leverage, size, profitability, earnings management and research & development can be explained as follows:

## 4. Research and discussion results

### 4.1. Descriptive statistics of variables

The results of descriptive statistics can be presented with minimum, maximum, mean, and standard deviation of the variables studied from the sample companies. In addition to presenting based on a sample of all companies listed on the Indonesia Stock Exchange from 2016 to 2021, the figure also shows the testing of this sample based on the company:

The table output variables dependent stata above shows the number of observations (N) was 1925. From these 1925 observations, the leverage value minimum was .000, and the leverage value maximum was 0.990. The mean value of 1925 observations or the mean was of 0.482 with a standard deviation of 0.245. The table variables independent output stata above shows the number of observations (N) was 1781. From these 1781 observations, the value of male CEOs' facial masculinity minimum was 0.110, and the value of male CEOs' facial masculinity maximum was .267. The mean value of 1781 observations or the mean was of 2.086 with a standard deviation of 6.287. The table variables control output stata above shows the number of observations (N) was 1925. From these 1925 observations, the size value (minimum) was 11.862, and the size value (maximum) was 31.592, The average value of 1925 observations or the mean was of 23.120 with a standard deviation of 5.011, Based on the table output stata above, it can be seen that the number of observations (N) was 1925. From thse 1925 observations, the profitability value (ROA) minimum was .000, and the profitability value (ROA) maximum was 0.925, the average value of 1925 observations or the mean was of 0.078 with a standard deviation of 0.108, Based on the table output stata above, it can be seen that the number of observations (N) was 1925. From these 1925 observations, the Earnings management minimum was .000, and the Earnings management maximum was 0.046, the average value of 1925 observations or the mean was of 0.003 with a standard deviation of 0.007, Based on the table output stata above, it can be seen that the number of observations (N) was 170. From these 170 observations, the research & development

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**Table 2. Descriptive Statistics**

| Variables Dependent | Obs | Mean | Std. Dev. | Min | Max | p1 | p99 | Skew. | Kurt. |
|---|---|---|---|---|---|---|---|---|---|
| Leverage | 1925 | .482 | .246 | 000 | .990 | .010 | .930 | -.041 | 2.107 |
| Variables Independent | Obs | Mean | Std. Dev. | Min | Max | p1 | p99 | Skew. | Kurt. |
| CEO masculinity (fWHR) | 1781 | 2.086 | 6.287 | .110 | 267 | 1.340 | 2.790 | 42.038 | 1771.784 |
| Variables Control | Obs | Mean | Std. Dev. | Min | Max | p1 | p99 | Skew. | Kurt. |
| Size | 1925 | 23.120 | 5.011 | 11.862 | 31.592 | 12.927 | 30.952 | -.269 | 1.746 |
| Probality (ROA) | 1925 | .078 | .108 | 000 | .925 | .001 | .528 | 3.626 | 20.785 |
| Earnings Management | 1925 | .003 | .007 | 000 | .046 | 000 | .036 | 3.132 | 12.117 |
| Research & Development | 170 | 15.234 | 2.549 | 6.234 | 21.802 | 6.491 | 21.797 | -.190 | 4.575 |

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**Table 3. Pearson Correlation Test**

| Variables | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| (1) Leverage | 1.000 | | | | | |
| (2) CEO masculinity (fWHR) | 0.006 | 1.000 | | | | |
| | (0.809) | | | | | |
| (3) Size | −0.189 | −0.038 | 1.000 | | | |
| | (0.000) | (0.104) | | | | |
| (4) Profitability (ROA) | −0.147 | 0.001 | −0.077 | 1.000 | | |
| | (0.000) | (0.953) | (0.001) | | | |
| (5) Earnings Management | 0.111 | 0.059 | −0.055 | −0.042 | 1.000 | |
| | (0.000) | (0.013) | (0.016) | (0.068) | | |
| (6) Research & development | 0.151 | −0.086 | −0.206 | 0.246 | 0.001 | 1.000 |
| | (0.049) | (0.278) | (0.007) | (0.001) | (0.985) | |
| (1) Leverage | 1.000 | | | | | |
| (2) CEO masculinity (fWHR) | 0.006 | 1.000 | | | | |
| (3) Size | −0.189* | −0.038 | 1.000 | | | |
| (4) Profitability (ROA) | −0.147* | 0.001 | −0.077* | 1.000 | | |
| (5) Earnings Management | 0.111* | 0.059 | −0.055 | −0.042 | 1.000 | |
| (6) Research & development | 0.151 | −0.086 | −0.206* | 0.246* | 0.001 | 1.000 |

*** p < 0.01, ** p < 0.05, * p < 0.1

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| Table 4. Goodness of Fit Model Testing | | | |
|---|---|---|---|
| | **(1)** | **(2)** | **(3)** |
| | OLS | OLS | OLS |
| **VARIABLES** | **Leverage** | **Leverage** | **Leverage** |
| CEO masculinity (fWHR) | 0.002** | −0.000** | −0.003** |
| | [0.000] | [0.000] | [0.000] |
| Size (Size) | | −0.009*** | −0.009*** |
| | | | [0.001] |
| Profitability (ROA) | | | −0.363*** |
| | | [0.070] | [0.070] |
| Earnings management (EM) | | | 5.160* |
| | | | (2.820) |
| Research & development (R&D) | | | 0.020*** |
| | | | (0.010) |
| Constant | 0.487*** | 0.724*** | 0.709*** |
| | [0.006] | [0.027] | [0.027] |
| Observations | 1,781 | 1,781 | 1,781 |
| R-squared | 0.000 | 0.059 | 0.069 |

Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

minimum was 5.234, and the research & development maximum was 21.502, the average value of 170 observations or the mean was of 15.234 with a standard deviation of 2.549.

### 4.2. Pearson correlation test

Pearson's correlation test was done to see how strong or how weak the relationship between the facial masculinity of male CEOs and leverage. In this test, if the Pearson correlation value (r) is above 0.05 (5%), it means that there is a strong relationship between the facial masculinity of male CEOs to leverage, but if the Pearson correlation value is below 0.05 (5%), then it means that the relationship between the facial masculinity of male CEOs and leverage is said to be weak.

Based on the table above, it can be interpreted that the leverage variable, the facial masculinity of male CEOs, size, Profitability (ROA), earnings management and Research & development have a value above 0.05 (5%). Thus, it explains that all variables are declared to be valid to be used in model testing. The reliability test results above explain the value of above 0.05 (5%). This proves that all variables used are reliable and produce the same results when tested.

### 4.3. Goodness of fit model testing

Hypothesis testing in research is very important, it can determine whether the research conducted is scientific enough or not. To find out the feasibility of the model scientifically, based on the results of three tests that have been tested Chow-test, Lagrange multiple test, and Hausman test, the model that fits the hypothesis proposed is the estimated pooled least square (PLS) model with the following output results:

### 4.4. Discussion of research results

The probability result of Prob>F was 0,000 ≤ 0.05 (5%), showing that if taken together, the value of regression coefficient is significant, which means that the facial masculinity of male CEOs affects leverage. The $R^2$ value was 0.069, indicating that the male CEO's masculinity on the leverage had a determination level of 0.069. This means that the facial masculinity of male CEOs can be

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explained by the 0.0687 of variability of leverage. The discussion of the research findings is an analysis of the suitability of previous theories, opinions, or research that has been put forward by the findings of past research to overcome phenomena in this study. The followings are the main parts that can be discussed in the analysis of the findings of this study:

### 4.4.1. Findings: the facial masculinity of male CEOs negatively affects leverage

The facial masculinity of the male CEOs shows that the estimated negative coefficient is not in accordance with the initial hypothesis. The results of the t-test explain that the facial masculinity of male CEOs had a negative and significant effect on leverage at the significance level of p-value $0.000 \leq 0.05$ (5%). Furthermore, regarding the magnitude of the influence of male CEOs' masculinity on leverage, it can be seen from the regression coefficient value of male CEOs' masculinity of −.002. This explains that when the male CEOs' facial masculinity increases by 1 percent, leverage will decrease by −.002.

The findings of empirical testing indicate that higher level of male CEOs' facial masculinity affect the decrease of the leverage, and vice versa, lower facial masculinity of male CEOs has an impact on the increase of leverage. Hence, the empirical findings do not support the proposed hypothesis that the facial masculinity of male CEOs has a positive effect on leverage, the Accepted Hypothesis is (p-value $0.000 \leq 0.05$ (5 %). The initial hypothesis was submitted based on previous research findings that lead to positive result (Jia et al., 2014; Kamiya et al., 2018a). The empirical findings contradict the initial hypothesis because the coefficient results of the male CEOs' facial masculinity in Indonesia and the coefficient those of the male CEOs' facial masculinity in the United States are in the opposite dirrections. The coefficient of determination's negative result suggests that the masculinity of Indonesia's male CEOs is in the opposite direction of the masculinity of male CEOs in the United States. The difference in the findings of these scientific investigations will have an impact on masculine behavior, influencing the masculinity of male CEOs in policy making.

The findings of this empirical study are different from the findings of previous studies (Kamiya et al., 2018a). The results of a study conducted in the United States from 1993 to 2008 revealed that the facial masculinity of male CEOs has a positive effect on leverage, meaning that the higher the facial masculinity of male CEOs, the higher the leverage is, and vice versa, the lower the facial masculinity of male CEOs, the lower the leverage is Meanwhile, an empirical study in Indonesia for the sampling period of 2016–2021 reveals that the facial masculinity of male CEOs negatively affects the leverage, suggesting that the higher the facial masculinity of male CEOs the lower the leverage is, and vice versa, the lower the facial masculinity of male CEOs, the higher the leverage is.

The findings are backed by a behavioral consistency theory that explains how the facial masculinity of male CEOs is related to testosterone, aggressiveness, and social status affects leverage, seen through the perspective of behavioral consistency theory (Epstein, 1979). While agency theory mainly is concerned with the form of agreement between shareholders in combination with the characteristics of a male CEO as an agent in managing the firm, the characteristics of a male CEO as an agent bear a significant amount of responsibility for the company's success. Shareholders hire male CEOs as agents to provide services and then delegate authority to them in decision-making, according to (Jensen and Meckling (1976). In practice, a male CEO's characteristics as an agent as in managing the company know much more internal information and future company's prospects than shareholders do. As a consequence, the characteristics of male CEOs as agents have a responsibility to give shareholders relevant information about the company's condition

According to (Kamiya et al., 2018a) higher facial masculinity of male CEOs has an impact on increasing leverage, and lower facial masculinity of male CEOs has an impact on decreasing leverage. Financing decisions are focused on leverage policies, and high leverage can increase company's liabilities. Male CEOs with such a higher characteristic value have higher leverage, whereas male CEOs with such a lower characteristic value have lower leverage (Chava & Purnanandam, 2010; Cronqvist et al., 2012; Huang & Kisgen, 2013; Malmendier et al., 2011).

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## 5. Conclusion

The higher the masculinity value of the male CEO's face, the lower the leverage value, and conversely the lower the masculinity value of the male CEO's face, the higher the leverage value. Behavioral consistency theory argues that the masculinity of the male CEO's face affects leverage. Meanwhile, agency theory explains the role of male CEO characteristics in making policies regarding leverage. Meanwhile, ImageJ software supports empirical findings that male CEO facial masculinity affects leverage, and the presence of male CEO characteristics is supported by agency theory and behavioral consistency theory.

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This study has limitations that are unavoidable, the disclosure of limitations has the aim of filling the empty space of the limitations of this study: The elements in conducting content analysis determine the measurement of the masculinity face value of male CEOs using imageJ software cannot distinguish modified male CEO images, taking pictures of male CEOs was obtained from the company's annual report in the 2016–2021 period and the use of male CEO image searches on Google. The sample in this study was limited to taking pictures of male CEOs found in the company's annual report in the 2016–2021 period and using male CEO image searches Googled, researchers could not distinguish the image of a male CEO that had gone through modifications.

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These empirical findings have implications for company management as policy-making regarding the face of male masculinity has an impact on leverage policy, so that the empirical findings can be used by company management and the government as leverage policy makers. These findings provide empirical evidence in the field of behavioral accounting by looking at the face of masculinity as a determinant of corporate leverage. Furthermore, it enriches empirical findings in the field of behavioral accounting and becomes a reference for conducting future research

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**Data availability statement**
The study did not involve any data sets and the articles collected were sourced from https://www.scopus.com/home.uri, accessed on 2022 and https://scholar.google.com/, accessed on 2022.

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# The impact of a male CEO'S facial masculinity on leverage

Nur Fadjrih Asyik, Muchlis Muchlis, Ikhsan Budi Riharjo & Rusdiyanto Rusdiyanto

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## ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

# The impact of a male CEO'S facial masculinity on leverage

Nur Fadjrih Asyik[1*], Muchlis Muchlis[2], Ikhsan Budi Riharjo[1] and Rusdiyanto Rusdiyanto[3]

**Abstract:** The purpose of this study was to obtain empirical evidence of the effect of male CEO's facial masculinity on leverage, to identify the effect of male CEO's facial masculinity on leverage. This study uses a quantitative approach with a population and research sample using companies on the Indonesia Stock Exchange in 2016–2021. The study collected images of faces identified as male CEOs from data from the Indonesia Stock Exchange website and company websites and using Google searches. The panel data analysis method in this study uses Regression Ordinary Least Square (OLS) with Stata Software which connects theories, concepts and data that can be carried out on research variables. The findings suggest that the higher the value of male CEOs' facial masculinity, the greater the effect on reducing corporate leverage, and vice versa, the lower the value of male CEOs' facial masculinity, the greater the impact on increasing corporate leverage value. The practical implications of this study can help the Indonesian Association of Accountants in developing accounting in Indonesia. Meanwhile, the theoretical implications of this study can explain agency theory and behavioral consistency theory. As for the policy implications of this study, it could provide empirical evidence that male CEOs' masculinity undermines corporate leverage. To date, researchers in Indonesia have not identified significant research on the topic of masculinity of male CEOs in relation with leverage, or the characteristic role of male CEOs in influencing leverage policy. This study contrasts previous findings of a study

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Nur Fadjrih Asyik

## PUBLIC INTEREST STATEMENT

Previous research conducted in the United States was conducted by (Yuping Jia et al., 2014) with the findings explaining that the face of male CEO masculinity has a positive effect on earnings management, while (Kamiya, et al, 2018) the findings empirically explain that the face of CEO masculinity has a positive effect. Against leverage. While the empirical findings in Indonesia have a different direction, the face of CEO masculinity has a negative effect on leverage, meaning that the higher the masculinity of the male CEO's face has an impact on the decrease in leverage, and conversely the lower the masculinity of the male CEO has an impact on the increase in leverage. The empirical findings have implications for regulators and corporate governance policy makers regarding male face size as a determinant of leverage policy.

that was conducted in the United States from 1993 to 2008. Meanwhile, the sampling period for this study was from 2016 to 2021 and was conducted in Indonesia.

## 1. Introduction

The role of the male CEO in the company is very important to determine the success of the company he leads. Male CEOs have an important role for the company's success from the performance of its leaders. The CEO in carrying out his leadership in making policies used for the company, the CEO is the manager of the company. In Agency Theory (Jensen & Meckling, 1976) address the correlation between shareholders and the characteristics of male CEOs as agents. Shareholders are using a male CEO as an agent to carry out the tasks and interests of the shareholders, including transferring decision-making power from shareholders to male CEOs as agents (Mahiswari & Nugroho, 2014). In companies listed on the Indonesia Stock Exchange whose capital consists of stocks, shareholders function as principal while the characteristics of male CEOs act as an agent. Meanwhile, the theory of behavioral consistency (Epstein, 1979) suggests that the facial masculinity of male CEOs correlates with testosterone, aggressiveness, and social status impacts leverage. Based on the characteristic role of male CEOs in decision-making, structuring and building leverage policies, substantial research on the function of male CEOs' features in various corporate strategic decisions has been conducted. This study compares previous research conducted in the United States of America (Kamiya et al., 2018) explaining that male CEOs' facial masculinity has a positive effect on corporate leverage, whereas agency theory (Jensen & Meckling, 1976) describes that male CEOs' characteristics affect policy and leverage determination. Male CEOs as company managers have more access to data about the company's current situation and future prospects than shareholders do, enabling the findings provide empirical evidence in the field of accounting for behavior.

The facial masculinity is a concept of male aggression that has implications for aggressive nature, has a tough character, and tends to be emotional when performing acts (Jewitt, 1997). The facial masculinity of male CEOs was related to testosterone, aggressiveness, while social status affects leverage (Kamiya et al., 2018). Factors affecting a male CEO's performance in managing a company can be found in the facial masculinity (Tanjaya & Santoso, 2020). According to (Kamiya et al., 2018), male CEOs with masculine looks have traits that affect the company's management process. The facial masculinity is a personal trait that a person is born with. The facial masculinity that occurs in men predicts masculine behavior habits and is connected with aggressive behavior, according to (Kamiya et al., 2018) in the neuroendocrinology literature. High level of male CEO masculinity is associated with more aggressive management (Tanjaya & Santoso, 2020). Leverage is boosted by the mascyline appearance of male CEOs. According to (Kamiya et al., 2018) financing decisions are based on leverage. A company's liabilities might grow as a result of high leverage (Hamada, 1972; Kamiya et al., 2018). Characteristics of male CEOs affect leverage (Chava & Purnanandam, 2010; Cronqvist et al., 2012; Huang & Kisgen, 2013; Malmendier et al., 2011).

According to (Bertrand & Schoar, 2003), the characteristics of male CEOs affect the company's decision-making process. Male CEOs have a confident attitude and usually decide the company's leverage policy. The excessive confidence of male CEOs' masculinity often does leverage (Benmelech & Frydman, 2013; Kamiya et al., 2018; Malmendier & Tate, 2005), Acquisition

(Doukas & Petmezas, 2007; Kamiya et al., 2018; Kim & (Andy), 2013), Innovation (Hirshleifer et al., 2012; Kamiya et al., 2018).

Leverage is positively affected by male CEO characteristics (Gomulya et al., 2017; Kamiya et al., 2018; Yuping Jia et al., 2014) Accordinging to neuroendocrinology research, a man's face affects his aggressive behavior. While (Carré & McCormick, 2008; Christiansen & Winkler, 1992) explain that the a male's facial masculinity influences a person's aggressive behavior. (Campbell et al., 2011) argue how facial masculinity affects men's behavior, while (Wong et al., 2011) explain that male CEOs have such a tendecny to negotiate for personal gain. Thus (Stirrat & Perrett, 2010) explain that men with a manly face are considered to be trustworthy. Therefore (Kamiya et al., 2018; Kim et al., 2017; Wong et al., 2011) provide empirical evidence that the characteristics of male CEOs with a higher facial masculinity show better work performance than male CEOs with such a lower facial masculinity. Leverage is influenced by the facial masculinity of male CEOs (Kamiya et al., 2018).

This research proposes clear and focused limitations. This study emphasizes on the importance of male CEOs' masculinity as a root cause of leverage, and this is restricted to companies listed on the Indonesia Stock Exchange between 2016 to 2021. The research focuses on the facial structure of male CEOs' masculinity, leverage, size, profitability, earnings management, research & development. ImageJ software was used to measure subjective masculinity facial variables of a male CEOs.

## 2. Literature review and hypothesis development

### 2.1. Agency theory
Agency theory is defined the principal can limit the difference from its interests by setting appropriate incentives for agents and by incurring monitoring costs designed to limit deviant agent activities. Furthermore, in some situations, the principal may pay agents to expend resources for guarantee that the agent will not take any action that could harm the principal (Jensen & Meckling, 1976). A male CEO's as an agent should have the same objective as shareholders do, which is to improve the company through shareholder prosperity, but male CEOs as agents may have their own thoughts that are contrary to what shareholders think (MAYANGSARI, 2001). As a conclusion, agency theory offers an important solution to male CEOs' decision-making characteristics in the face of corporate leverage. According to (Jensen & Meckling, 1976) define agency costs in three categories: monitoring, bonding, and residual. Eisenhardt (1989) The agency theory consists of three human nature assumptions, namely: (1) humans are generally selfish, (2) humans have limited thinking power in terms of future perceptions, and (3) humans avoid risk at all costs. From the concept of human nature, it can be seen that the usual role of male CEOs affects the company's leverage.

### 2.2. Behavior consistency theory
According to (Epstein, 1979) explains that the facial masculinity of male CEOs correlates with testosterone, aggressive, and social status affects leverage, seen from the perspective of behavioral consistency theory. He also discusses how behavioral consistency could be used to predict a majority of people within a given time span. The theory of behavioral consistency is assumed to be the opinion of a person's ability to affect issues that trigger emotions to emerge; consistency of behavior can be shown as a particularly selected subject; consistency of behavior is described in the study with the title: "The Stability of Behaviour: I. Predicting Most of the People Much the Time".

### 2.3. Face, testosterone, and behavior
Previous research has provided empirical evidence of a link between testosterone and masculine behavior. A CEO's face may be the basis for male facial linkages to topics in this study. (Jia et al., 2014) explains that a man's face can predict masculine behavior. Based on laboratory evidence, (Carré & McCormick, 2008; Christiansen & Winkler, 1992) claim that a man's face predicts aggressive traits. Men's faces affect masculine behavior (Eisenegger et al., 2010; Jia et al., 2014). According to (Jia et al., 2014) explain that the relationship between testosterone and male CEOs'

behavior affects the brain both before birth and during growth. A group of nerve cells plays a role in the processing of memories and emotional reactions as mediators between testosterone in brain regions to evaluate social interactions (Bos et al., 2012; Jia et al., 2014).

Testosterone regulates adolescent spurt (Johnston et al., 2001). Adolescents' development is affected by testosterone (Verdonck et al., 1999; Jia et al., 2014). Previous research indicates that male and female growth differs in the bizygomatic (the area between the left and right cheeks), however, there is no difference in the growth period for upper facial height (Jia et al., 2014). The findings provide empirical evidence that testosterone does affect the development of the male face (Folstad & Karter, 1992). Meanwhile, according to (Jia et al., 2014; Alrajih & Ward, 2014), men's looks affect masculine behavior during their growth. Further, the findings of (Lefevre et al., 2013) provide empirical evidence that there is indeed a connection between testosterone and the ratio of male facial width. Some other studies suggest that the ratio of a man's face width to testosterone has a beneficial link. In addition, testosterone has a positive relationship with the face, as suggested by previous research (Lefevre et al., 2013). Higher or lower testosterone in men affects the facial masculinity, according to (Jia et al., 2014; Pound et al., 2009).

### 2.4. The masculinity of male CEOs and leverage
The characteristics of male CEOs affect leverage, according to (Bertrand & Schoar, 2003; Cain & McKeon, 2016; Kamiya et al., 2018). Meanwhile, (Bernile et al., 2015; Kamiya et al., 2018; Malmendier et al., 2011) offer empirical evidence that the experience of male CEOs' characteristic affects leverage. In addition (Kamiya et al., 2018; Kim; Kim et al., 2017) contend that Male CEOs' facial masculinity has a positive effect in leverage. Several previous research reveal that the facial masculinity of male CEOs is related to testosterone, aggressiveness, and social status affects leverage, as seen through the perspective of behavioral consistency theory (Epstein, 1979). Male CEOs' masculinity has a positive impact on leverage. According to (Kamiya et al., 2018) found out that financing decisions are primarily based on leverage policies. A company's liabilities can be improved by using high leverage. The masculinity of male CEOs has a positive effect on leverage, according to (Kamiya et al., 2018). Similarly (Chava & Purnanandam, 2010; Cronqvist et al., 2012; Huang & Kisgen, 2013; Malmendier et al., 2011) also reveal that Male CEO characteristics have a positive effect on leverage.

### 2.5. Conceptual framework of research
A conceptual framework is used to explain the effect of independent variables on dependent, and control variable used in this study. The conceptual framework of this study can be seen in the figures below (Figure 1), which position the masculinity of male CEOs as an independent variable, leverage as a dependent variable, and size profitability, earnings management and research & development, as a control variable:

### 2.6. Research hypothesis

#### 2.6.1. The facial masculinity of male CEOs affects leverage
According to (Jensen & Meckling, 1976) an agency relationship arises when shareholders hire male CEO characteristics as agents to provide services and then transfer the decision-making power. In practice, characteristics of male CEOs as a company manager know more about internal current information and prospects of the company than shareholders do. As a consequence, the characteristics of a male CEOs as an agent must provide information about the company's condition to shareholders, but the information conveyed by the characteristics of a male CEOs as an agent is sometimes not by the actual conditions of the company (Jensen and Meckling (1976)

From the perspective of behavioral consistency theory (Epstein, (1979), the facial masculinity of male CEOs correlates with testosterone, aggressiveness, and confidence influences leverage. Male CEOs' masculinity has a positive influence on leverage. As suggested by (Kamiya et al., 2018), the facial masculinity of male CEOs has a positive effect on leverage. Meanwhile, (Cronqvist et al.,

2012; Huang & Kisgen, 2013; Malmendier et al., 2011) provide empirical evidence that male CEO characteristics have a positive effect on leverage. According to (Chava and Purnanandam (2010) the characteristics of male CEOs are connected with leverage. By combining all the above arguments, the following hypothesis is proposed in this study:

H1: The Facial Masculinity of Male CEOs Positively Affects Leverage

### 3. Methodology

#### 3.1. Types and approaches to research

This research uses a quantitative approach to give meaning to the interpretation of statistical figures (Aliyyah, Siswomihardjo et al., 2021; Prasetio et al., 2021). The research aimed to provide empirical evidence of the effect of male CEO masculinity on leverage. Explanatory research is used in the design process (Abadi et al., 2021; Indrawati et al., 2021). Companies listed on the Indonesia Stock Exchange from 2016 to 2021 were used in the population and research samples. The researchers collected data from the Indonesia Stock Exchange website and company websites, as well as Google searches, to obtain figures of faces identified as male CEOs (Figure 2) within a period between 2016 and 2021. Regression ordinary least square (OLS) with Stata Software was used to analyze the data in this study. One of the regression completion procedures, Stata has a high degree of flexibility in research that connects theories, concepts, and data that can be done on variables in research.

#### 3.2. Operational definition and measurement

Male CEOs' masculinity is the independent variable, leverage is the dependent variable, and the variable of size, profitability, earnings management and research & development is the control variable.
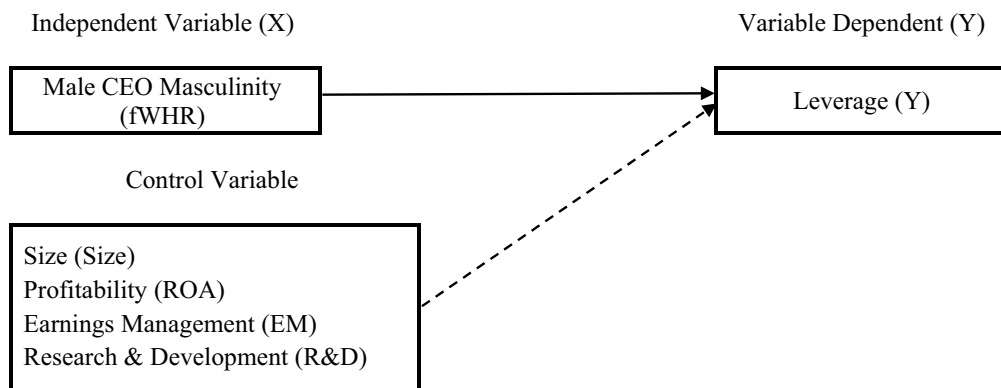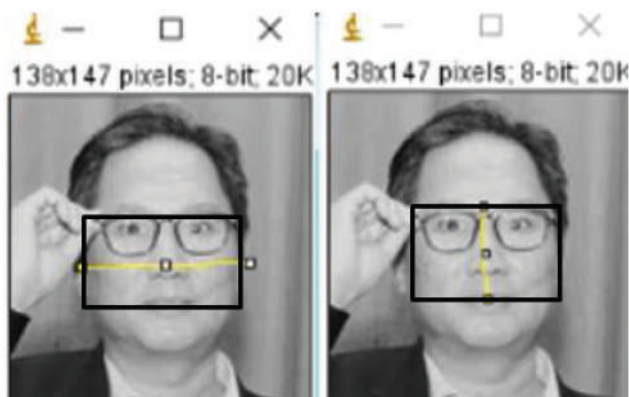
**Figure 1. Conceptual framework of research.**



**Figure 2. Male CEO Masculinity Face Measurements (fWHR).**

### 3.2.1. Variable independent (fWHR)

Independent variable is a variable that can affect other variables (Abadi et al., 2021; Aliyyah, Prasetyo et al., 2021) This study used male CEO masculinity facial variables as the independent variable. The facial masculinity is a concept of masculine behavior that exists in men having implications on aggressive behavior, having a tough character, having a tendency to be emotional in carrying out their actions (Jewitt, 1997). ImageJ software was used to measure male CEOs' facial masculinity variables, this study changed the male CEO's face figure to a gray-scale figure with a height of 8 bits (Kamiya et al., 2018).

For the face of each male CEO inside the ImageJ software, the researchers selected a location in the face figure and dragged the mouse to another location to measure the distance, the vertical line size represents the distance between the upper lip and the highest point of the eyelid. The horizontal line represents the maximum distance between the left and right cheeks, while the vertical line represents the minimum length (Kamiya et al., 2018). Therefore, the study independently provided photo quality scores from zero to three based on the following guidelines:

0: Poor posture in which (1) only one ear is visible due to the person's sideways posture; or (2) the photographer photographed the face figure from below or above, causing face height measurement problematic.

1: One ear seems to be perfect, but because the person is facing to the side, only half of the other ear is visible.

2: The person looks straight ahead and both ears are visible with roots on the face.

3: Perfect posture, with both ears clearly visible to the roots, and the person is looking straight ahead.

Based on the criteria of (Kamiya et al., 2018), the study used quality scores of two and three. The measurement scale of this study used the percentage ratio scale which can be seen in the following figure:

| Description: | | |
|---|---|---|
| Horizontal line | : | Represents the maximum distance between the left and right cheeks. |
| Vertical Line | : | Represents the distance between the upper lip to the highest point of the eyelid |

### 3.2.2. Dependent variable (Y)

Dependent variable is a variable whose value cannot be affected by other variables (Kalbuana, Prasetyo et al., 2021; Kalbuana, Suryati et al., 2021). The dependent variable in this study is leverage (Table 1). Leverage illustrates the division of total liabilities by total assets. This financial ratio explains the amount of assets owned by companies financed by liabilities. The greater the value of the liability, the bigger the impact felt by investors in receiving the profits (Kamiya et al., 2018). Leverage measurement is the result of the division of total liabilities by total assets (Kamiya et al., 2018). This research measurement scale uses a percentage ratio scale with the following formula:

$$\text{Leverage} = \frac{\text{Total Liability}}{\text{Total asset}}$$

| Description: | | |
|---|---|---|
| Leverage$_{i,t}$ | = | Leverage i in the year to t |
| Total Liabilitas$_{i,t}$ | = | Total liabilities of the company i in the year to t |
| Total Assets$_{,t}$ | = | Total assets of the company i in the year to t |

### 3.2.3. Control variable

Control variable is a variable used to control causal relationships to better obtain a more complete and better empirical model (Kalbuana, Prasetyo et al., 2021; Kalbuana, Suryati et al., 2021). As a result, variables can affect the indications that are being studied. The control variable used in this study is size, profitability, earnings management and .

#### 3.2.3.1. Size (size). **Size is a value that can classify a company into large or small types that are sourced on total assets, and log size. Larger total asset indicates a larger the size. The larger the size, the more complete the transactions being carried out. (**Luwihono et al., 2021; Prabowo et al., 2020). (Shabbir et al., 2021; Susanto et al., 2021**) describe the size measurement scale using firm size with the following formula**:

SIZE = Ln total asset

#### 3.2.3.2. Profitability (ROA). **Profitability is a tool that can be used to evaluate if investments that have been invested by investors are able to provide profits as expected. The measurement of profitability used Return on assets (ROA) which describes the division of net profit divided by total assets (**Agustia Rusdiyanto et al., 2020; Juanamasta et al., 2019; Rusdiyanto et al., 2020**). The measurement scale uses a percentage ratio scale, with the following formula**:

$$Return\ on\ asset = \frac{net\ profit}{Total\ asset}$$

| Description: | | |
|---|---|---|
| Return on assets$_{,t}$ | = | Return on company assets i in the year to t |
| Net Profit$_{,t}$ | = | Net profit of company i in the year to t |
| Total assets$_{,t}$ | = | Total assets of the company i in the year to t |

#### 3.2.3.3. Earnings Management (EM). **Earnings Management on research using model measurement (Kothari** et al., **2005) refinement of the model (Jones, 1991) by including return on assets, this model adds return on assets in the calculation of discretionary accruals, so as to be able to measure Earnings Management more accurately. The measurement scale of this study uses a percentage ratio scale. Here's the model equation (Kothari** et al., **2005) with the following formula:**

(1) Calculating TA (total accrual) i.e. net profit for year t less operating cash flow for year t with the following formula:

$TAC = NIit - CFOit$

The following is an estimate of total accrual (TA) using the Ordinary Least Square method:

$$\frac{TAit}{Ait-1} = \beta1\left(\frac{1}{Ait-1}\right) + \beta2\left(\frac{\Delta REVit}{Ait-1}\right) + \beta3\left(\frac{PPE}{Ait-1}\right) + \varepsilon$$

(2) The NDA (non-discretionary accruals) are calculated using the formula above, which includes the regression coefficient.:

$$NDAit = \beta1\left(\frac{1}{Ait-1}\right) + \beta2\left(-\frac{\Delta REVit}{Ait-1} - \frac{\Delta RECit}{Ait-1}\right) + \beta3\left(\frac{PPE}{Ait-1}\right) + \beta4\left(\frac{ROAit}{Ait-1}\right) + \varepsilon$$

(3) Finally, the formula for determining DA (discretionary accruals) as a metric of Earnings Management is as follows:

$$DAit = \frac{TAit}{Ait-1} - NDAit$$

| Description: | | |
|---|---|---|
| NDAit | = | Non Discretionary Accruals of the corporation i in the period of years t |
| TACit | = | Total accruals of the corporation i in the time/period t |
| NIit | = | Net profit of the corporation i in the time/period of years t |
| CFOit | = | Corporation's operating cash flow in year t |
| Ait-1 | = | Total assets of corporation i in the time/period t-1 |
| ΔRevit | = | The revenue of the corporation i in year t is reduced by the revenue company I in year t-1 |
| PPEit | = | Fixed assets of the corporation i in the time/period t |
| DAit | = | Discretionary accruals of the corporation i in the time/period to t |
| ΔRecit | = | Accounts receivable of the corporation i in year t minus the income of the corporation i in year t-1 |
| ROAit | = | Return on assets of the corporation i in the time/period d to t |
| ε | = | Error |

*3.2.3.4. Research & development (R&D).* **Research & development are an investment made by the company on a new science basis, to produce more efficient products based on existing resources (Tuna** et al., **2015). Research & development are measured using the research & development cost intensity ratio (Padgett & Galan, 2010; Arifian & Yuyetta, 2012) with the following formula**:

$$R \& D = \frac{\text{Total Research \& Development Expenditure}}{\text{Sales}}$$

**Description:**

| Research & Developmenti,t | = | Research & Development i in year t |
|---|---|---|
| Total Research & Development Expenditurei,t | = | Total Research & Development Expenditure i in year t |
| Salesi,t | = | Sales i in year ke t |

### 3.3. Data analysis techniques

Data analysis is part of the data testing process after the selection and collection stage of research data. Data analysis is interpreted as estimating or determining the magnitude of the quantitative influence of the change of an event on something else, as well as predicting or estimating other events (Sudaryanto et al., 2021, 2022; Utari; Utari, Sudaryanto et al., 2021).

#### 3.3.1. Descriptive statistics

Descriptive statistics are statistics that can illustrate the research object through analytical data, without doing analysis (Prasetyo, Aliyyah, Rusdiyanto, Utari, et al., 2021; Utari, Iswoyo et al., 2021) from the data of male CEO facial masculinity variable, leverage variable, size variable, profitability variable (ROA), earnings management variable and Research & Development variable.

#### 3.3.2. Pearson correlation test

Parson correlation testing is used to look at the relationship between an independent variable and a dependent variable by assuming the Pearson correlation of the data is normally distributed (Prasetyo, Aliyyah, Rusdiyanto, Suprapti et al., 2021; Rusdiyanto et al., 2021). Correlation testing produces positive (+) and negative (-) numbers. If the correlation value is positive, it means that the variables move in the same direction, meaning that when the independent variable is large, the dependent variable is also getting bigger. If the value is negative, it means that the variables move in the opposite directions, meaning that if the value of the independent variable is large, then the dependent variable is getting smaller. Correlation numbers range from 0–1 (Endarto, Taufiqurrahman, Indriastuty et al., 2021; Prasetyo, Aliyyah, Rusdiyanto, Kalbuana, et al., 2021). Pearsonr correlation formulation is as follows:

$$r_{xy} = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{\{n\sum X^2 - (\sum X)^2\}\{n\sum Y^2 - (\sum Y)^2\}}}$$

| r | = | Correlation value |
|---|---|---|
| X | = | Variable X |
| Y | = | Variable Y |

#### 3.3.3. Research regression model

Regression analysis is used to find out how close the relationship between one variable and another variable is. The regression analysis has a function to predict the value of independent variable (Y) if the dependent variable (fWHR) is changed (Prasetyo, Aliyyah, Rusdiyanto, Suprapti et al., 2021; Rusdiyanto et al., 2021). The method used in this study was panel data regression analysis. Panel data is also called pool data, longitudinal data, and micro panel data. The panel data regression analysis was used to examine the influence of male CEOs' facial masculinity

| Table 1. Variable Description | | |
|---|---|---|
| **Information** | | **Description** |
| i | = | Company cross-section data |
| t | = | Company time-series data |
| LEV | = | Leverage |
| fWHR | = | The Facial Masculinity of a Male CEO |
| Size | = | Company Size |
| ROA | = | Profitability |
| EM | = | Earnings Management |
| R&D | = | Research & Development |
| α | = | Constanta |
| β1, β2, β3 | = | Coefisien regresion variable LEV, fWHR, control, Size, ROA, EM, R&D |
| ϵ | = | Error |

(fWHR) on leverage (Y). Based on the independent variables and dependent variables that have been described, an equation model is obtained that will be used as follows:

$$LEV_{i,t} = \beta_0 + \beta_1 fWHR_{i,t}, + \beta_2 Size_{i,t} + \beta_3 ROA_{i,t}, + \beta_4 EM_{i,t} + \beta_5 R\&D_{i,t}, + \varepsilon \qquad (1)$$

To explain the model of the facial masculinity of male CEOs, variables of leverage, size, profitability, earnings management and research & development can be explained as follows:

## 4. Research and discussion results

### 4.1. Descriptive statistics of variables
The results of descriptive statistics can be presented with minimum, maximum, mean, and standard deviation of the variables studied from the sample companies. In addition to presenting based on a sample of all companies listed on the Indonesia Stock Exchange from 2016 to 2021, the figure also shows the testing of this sample based on the company:

The table output variables dependent stata above shows the number of observations (N) was 1925. From these 1925 observations, the leverage value minimum was .000, and the leverage value maximum was 0.990. The mean value of 1925 observations or the mean was of 0.482 with a standard deviation of 0.245. The table variables independent output stata above shows the number of observations (N) was 1781. From these 1781 observations, the value of male CEOs' facial masculinity minimum was 0.110, and the value of male CEOs' facial masculinity maximum was .267. The mean value of 1781 observations or the mean was of 2.086 with a standard deviation of 6.287. The table variables control output stata above shows the number of observations (N) was 1925. From these 1925 observations, the size value (minimum) was 11.862, and the size value (maximum) was 31.592, The average value of 1925 observations or the mean was of 23.120 with a standard deviation of 5.011, Based on the table output stata above, it can be seen that the number of observations (N) was 1925. From thse 1925 observations, the profitability value (ROA) minimum was .000, and the profitability value (ROA) maximum was 0.925, the average value of 1925 observations or the mean was of 0.078 with a standard deviation of 0.108, Based on the table output stata above, it can be seen that the number of observations (N) was 1925. From these 1925 observations, the Earnings management minimum was .000, and the Earnings management maximum was 0.046, the average value of 1925 observations or the mean was of 0.003 with a standard deviation of 0.007, Based on the table output stata above, it can be seen that the number of observations (N) was 170. From these 170 observations, the research & development

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## Table 2. Descriptive Statistics

| Variables Dependent | Obs | Mean | Std. Dev. | Min | Max | p1 | p99 | Skew. | Kurt. |
|---|---|---|---|---|---|---|---|---|---|
| Leverage | 1925 | .482 | .246 | 000 | .990 | .010 | .930 | -.041 | 2.107 |
| Variables Independent | Obs | Mean | Std. Dev. | Min | Max | p1 | p99 | Skew. | Kurt. |
| CEO masculinity (fWHR) | 1781 | 2.086 | 6.287 | .110 | 267 | 1.340 | 2.790 | 42.038 | 1771.784 |
| Variables Control | Obs | Mean | Std. Dev. | Min | Max | p1 | p99 | Skew. | Kurt. |
| Size | 1925 | 23.120 | 5.011 | 11.862 | 31.592 | 12.927 | 30.952 | -.269 | 1.746 |
| Probality (ROA) | 1925 | .078 | .108 | 000 | .925 | .001 | .528 | 3.626 | 20.785 |
| Earnings Management | 1925 | .003 | .007 | 000 | .046 | 000 | .036 | 3.132 | 12.117 |
| Research & Development | 170 | 15.234 | 2.549 | 6.234 | 21.802 | 6.491 | 21.797 | -.190 | 4.575 |

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**Table 3. Pearson Correlation Test**

| Variables | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| (1) Leverage | 1.000 | | | | | |
| (2) CEO masculinity (fWHR) | 0.006 | 1.000 | | | | |
| | (0.809) | | | | | |
| (3) Size | −0.189 | −0.038 | 1.000 | | | |
| | (0.000) | (0.104) | | | | |
| (4) Profitability (ROA) | −0.147 | 0.001 | −0.077 | 1.000 | | |
| | (0.000) | (0.953) | (0.001) | | | |
| (5) Earnings Management | 0.111 | 0.059 | −0.055 | −0.042 | 1.000 | |
| | (0.000) | (0.013) | (0.016) | (0.068) | | |
| (6) Research & development | 0.151 | −0.086 | −0.206 | 0.246 | 0.001 | 1.000 |
| | (0.049) | (0.278) | (0.007) | (0.001) | (0.985) | |
| (1) Leverage | 1.000 | | | | | |
| (2) CEO masculinity (fWHR) | 0.006 | 1.000 | | | | |
| (3) Size | −0.189* | −0.038 | 1.000 | | | |
| (4) Profitability (ROA) | −0.147* | 0.001 | −0.077* | 1.000 | | |
| (5) Earnings Management | 0.111* | 0.059 | −0.055 | −0.042 | 1.000 | |
| (6) Research & development | 0.151 | −0.086 | −0.206* | 0.246* | 0.001 | 1.000 |

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

| Table 4. Goodness of Fit Model Testing | | | |
|---|---|---|---|
| | **(1)** | **(2)** | **(3)** |
| | **OLS** | **OLS** | **OLS** |
| **VARIABLES** | **Leverage** | **Leverage** | **Leverage** |
| CEO masculinity (fWHR) | 0.002** | −0.000** | −0.003** |
| | [0.000] | [0.000] | [0.000] |
| Size (Size) | | −0.009*** | −0.009*** |
| | | | [0.001] |
| Profitability (ROA) | | | −0.363*** |
| | | [0.070] | [0.070] |
| Earnings management (EM) | | | 5.160* |
| | | | (2.820) |
| Research & development (R&D) | | | 0.020*** |
| | | | (0.010) |
| Constant | 0.487*** | 0.724*** | 0.709*** |
| | [0.006] | [0.027] | [0.027] |
| Observations | 1,781 | 1,781 | 1,781 |
| R-squared | 0.000 | 0.059 | 0.069 |

Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

minimum was 5.234, and the research & development maximum was 21.502, the average value of 170 observations or the mean was of 15.234 with a standard deviation of 2.549 (Table 2).

### 4.2. Pearson correlation test
Pearson's correlation test was done to see how strong or how weak the relationship between the facial masculinity of male CEOs and leverage. In this test, if the Pearson correlation value (r) is above 0.05 (5%), it means that there is a strong relationship between the facial masculinity of male CEOs to leverage, but if the Pearson correlation value is below 0.05 (5%), then it means that the relationship between the facial masculinity of male CEOs and leverage is said to be weak.

Based on the table above, it can be interpreted that the leverage variable, the facial masculinity of male CEOs, size, Profitability (ROA), earnings management and Research & development have a value above 0.05 (5%). Thus, it explains that all variables are declared to be valid to be used in model testing. The reliability test results above explain the value of above 0.05 (5%). This proves that all variables used are reliable and produce the same results when tested (Table 3).

### 4.3. Goodness of fit model testing
Hypothesis testing in research is very important, it can determine whether the research conducted is scientific enough or not. To find out the feasibility of the model scientifically, based on the results of three tests that have been tested Chow-test, Lagrange multiple test, and Hausman test, the model that fits the hypothesis proposed is the estimated pooled least square (PLS) model with the following output results (Table 4):

### 4.4. Discussion of research results
The probability result of Prob>F was 0,000 ≤ 0.05 (5%), showing that if taken together, the value of regression coefficient is significant, which means that the facial masculinity of male CEOs affects leverage. The R2 value was 0.069, indicating that the male CEO's masculinity on the leverage had a determination level of 0.069. This means that the facial masculinity of male CEOs can be

explained by the 0.0687 of variability of leverage. The discussion of the research findings is an analysis of the suitability of previous theories, opinions, or research that has been put forward by the findings of past research to overcome phenomena in this study. The followings are the main parts that can be discussed in the analysis of the findings of this study:

*4.4.1. Findings: the facial masculinity of male CEOs negatively affects leverage*
The facial masculinity of the male CEOs shows that the estimated negative coefficient is not in accordance with the initial hypothesis. The results of the t-test explain that the facial masculinity of male CEOs had a negative and significant effect on leverage at the significance level of p-value $0.000 \leq 0.05$ (5%). Furthermore, regarding the magnitude of the influence of male CEOs' masculinity on leverage, it can be seen from the regression coefficient value of male CEOs' masculinity of −.002. This explains that when the male CEOs' facial masculinity increases by 1 percent, leverage will decrease by −.002.

The findings of empirical testing indicate that higher level of male CEOs' facial masculinity affect the decrease of the leverage, and vice versa, lower facial masculinity of male CEOs has an impact on the increase of leverage. Hence, the empirical findings do not support the proposed hypothesis that the facial masculinity of male CEOs has a positive effect on leverage, the Accepted Hypothesis is (p-value $0.000 \leq 0.05$ (5 %). The initial hypothesis was submitted based on previous research findings that lead to positive result (Jia et al., 2014; Kamiya et al., 2018). The empirical findings contradict the initial hypothesis because the coefficient results of the male CEOs' facial masculinity in Indonesia and the coefficient those of the male CEOs' facial masculinity in the United States are in the opposite dirrections. The coefficient of determination's negative result suggests that the masculinity of Indonesia's male CEOs is in the opposite direction of the masculinity of male CEOs in the United States. The difference in the findings of these scientific investigations will have an impact on masculine behavior, influencing the masculinity of male CEOs in policy making.

The findings of this empirical study are different from the findings of previous studies (Kamiya et al., 2018a). The results of a study conducted in the United States from 1993 to 2008 revealed that the facial masculinity of male CEOs has a positive effect on leverage, meaning that the higher the facial masculinity of male CEOs, the higher the leverage is, and vice versa, the lower the facial masculinity of male CEOs, the lower the leverage is Meanwhile, an empirical study in Indonesia for the sampling period of 2016–2021 reveals that the facial masculinity of male CEOs negatively affects the leverage, suggesting that the higher the facial masculinity of male CEOs the lower the leverage is, and vice versa, the lower the facial masculinity of male CEOs, the higher the leverage is.

The findings are backed by a behavioral consistency theory that explains how the facial masculinity of male CEOs is related to testosterone, aggressiveness, and social status affects leverage, seen through the perspective of behavioral consistency theory (Epstein, 1979). While agency theory mainly is concerned with the form of agreement between shareholders in combination with the characteristics of a male CEO as an agent in managing the firm, the characteristics of a male CEO as an agent bear a significant amount of responsibility for the company's success. Shareholders hire male CEOs as agents to provide services and then delegate authority to them in decision-making, according to (Jensen and Meckling (1976). In practice, a male CEO's characteristics as an agent as in managing the company know much more internal information and future company's prospects than shareholders do. As a consequence, the characteristics of male CEOs as agents have a responsibility to give shareholders relevant information about the company's condition

According to (Kamiya et al., 2018) higher facial masculinity of male CEOs has an impact on increasing leverage, and lower facial masculinity of male CEOs has an impact on decreasing leverage. Financing decisions are focused on leverage policies, and high leverage can increase company's liabilities. Male CEOs with such a higher characteristic value have higher leverage, whereas male CEOs with such a lower characteristic value have lower leverage (Chava & Purnanandam, 2010; Cronqvist et al., 2012; Huang & Kisgen, 2013; Malmendier et al., 2011).

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## 5. Conclusion

The higher the masculinity value of the male CEO's face, the lower the leverage value, and conversely the lower the masculinity value of the male CEO's face, the higher the leverage value. Behavioral consistency theory argues that the masculinity of the male CEO's face affects leverage. Meanwhile, agency theory explains the role of male CEO characteristics in making policies regarding leverage. Meanwhile, ImageJ software supports empirical findings that male CEO facial masculinity affects leverage, and the presence of male CEO characteristics is supported by agency theory and behavioral consistency theory.

This study has limitations that are unavoidable, the disclosure of limitations has the aim of filling the empty space of the limitations of this study: The elements in conducting content analysis determine the measurement of the masculinity face value of male CEOs using imageJ software cannot distinguish modified male CEO images, taking pictures of male CEOs was obtained from the company's annual report in the 2016–2021 period and the use of male CEO image searches on Google. The sample in this study was limited to taking pictures of male CEOs found in the company's annual report in the 2016–2021 period and using male CEO image searches Googled, researchers could not distinguish the image of a male CEO that had gone through modifications.

These empirical findings have implications for company management as policy-making regarding the face of male masculinity has an impact on leverage policy, so that the empirical findings can be used by company management and the government as leverage policy makers. These findings provide empirical evidence in the field of behavioral accounting by looking at the face of masculinity as a determinant of corporate leverage. Furthermore, it enriches empirical findings in the field of behavioral accounting and becomes a reference for conducting future research

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### Disclosure statement
No potential conflict of interest was reported by the author(s).

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Conceptualization, N.F.A and R.; investigation, M. and R.; writing—preparation of origi-nal draft, I.K.B; writing—reviews and editing, R. and M.; supervision, I.K.B.; project ad-ministration, N.F.A.; fund acquisition, N.F.A, and I.K.B All authors have read and ap-proved the published ver-sion of the manuscript.

### Data availability statement
The study did not involve any data sets and the articles collected were sourced from https://www.scopus.com/home.uri, accessed on 2022 and https://scholar.google.com/, accessed on 2022.

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The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publica-tion of this article.

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