THE EFFECT OF BOD GENDER AND LEVERAGE TOWARDS FIRM PERFORMANCE

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Abstract

This research aims to investigate the effect leverage has towards firm performance when moderated by board of director's gender. Net profit margin is used as the firm performance measure, both DAR and DER measures are used as leverage measure, and the as for BOD gender, dummy and proportion approach will be used. The research uses 69 out of 100 companies listed on Kompas100 on the year 2018 using purposive sampling method and the data is collected via Market Intelligence platform and inputted it to statistic software SPSS. The output shows that leverage has a negative impact towards firm performance and BOD gender weakens their negative relationship. This means that too much borrowing isn't always necessarily good for a firm and females on the BOD can neutralize this effect.

Keywords: BOD, firm performance, gender, leverage

PENGARUH *BOD GENDER* DAN *LEVERAGE* TERHADAP KINERJA PERUSAHAAN

Abstrak

Penelitian ini bertujuan untuk menguji pengaruh leverage terhadap kinerja perusahaan jika dimoderatori oleh *gender* dewan direksi. *Net Profit Margin* digunakan sebagai ukuran kinerja perusahaan, sedangkan ukuran DAR dan DER digunakan sebagai ukuran *leverag*e, dan untuk pendekatan *gender* menggunakan dummy dan proporsi BOD. Penelitian ini menggunakan 69 dari 100 perusahaan yang terdaftar di Kompas100 pada tahun 2018 menggunakan metode purposive sampling dan data dikumpulkan melalui *database Market Intelligence* dan menggunakan perangkat lunak statistik SPSS. Hasil pengujian menunjukkan bahwa *leverage* memiliki pengaruh negatif terhadap kinerja perusahaan dan *gender* BOD melemahkan hubungan negatif mereka. Ini berarti bahwa terlalu banyak pinjaman tidak selalu baik untuk perusahaan dan adanya wanita di BOD dapat menetralisir efek ini

Kata kunci: *BOD, gender,* **kinerja perusahaan***, leverage*

INTRODUCTION

Lately, women have gradually been rising as promising CEOs in the business world. An article by Valet (2018) describes various women that have led Fortune 500 companies and how they became world leaders on business. The article concluded by stating that 2018 has been a ground-breaking year for women in business as their role has increased significantly compared to earlier years. A similar trend is being shown by Indonesian business heads. An article published by Kompas refers to previous research by Grant Thornton International. This research points out that 87% of firms' top management has at least one woman, a 12% increase compared to earlier years. Although Indonesia's change is not that significant, a gradual change towards that direction is apparent. The top management of Indonesian companies are 29% composed of females, a 10% increase over the last 15 years. However, there still exists a gender differential when it comes to the CEO. Internationally, only 15% of CEOs or main directors are women. This is because women usually work not as the CEOs of the company, but as the HR directors (43%).

Leverage also plays a crucial role in a business. According to Strebulaev and Yang (2013) leveraged business have additional capital available to finance its operations and expansions compared to an unleveraged business that solely dependent on equity. With that, it is believed that firms with higher leverage could utilize their resources better and hence perform better than the one with low leverage and or/unleveraged business. With an access to capital to expand their business and utilize their cash for operations, a business tends to perform better. Modigliani and Miller (1958) states that financial leverage is the degree to which a firm has funded its business operations through outside resources. In doing so, the debt should be repaid with an agreed amount of interest.

In doing this research, we decided to use Indonesian firms as it is of our interest to investigate the role of BOD gender and leverage in Indonesia. Also, in determining the sample, we filtered out nonperforming firms or firms that have just formed, due to their unstable and unreliable nature. As such, we decided to use the Kompas 100 index, which is an index of 100 public companies chosen by Indonesian Stock Exchange starting from July 13th 2007. They publish a new list every 6 months. There are considerations to take into account before a company can be listed as one of the Kompas 100 companies, such as: the company have been listed in the Indonesian Stock Exchange for a minimum of 3 months, having a regular and significant value and number of transactions on the market, having a high market capitalization, company's philosophy and trade pattern, etc. It's of our interest to investigate whether leverage negatively affects firm performance and whether BOD gender positively moderates leverage and firm performance. In conjunction to the previous research conducted by Suherman (2017).

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

There have been many theorems proposed by scholars regarding leverage, but the earliest theory regarding leverage was proposed by Modigliani and Miller (1958). As the name implies, this preposition assumes that whatever leverage a firm chooses to have at any given

point, it is irrelevant to the profitability of the firm. They argued that the investors and the firm both has equal access to financial market, and thus financial information. Because of this, the investor could hypothetically create any leverage that was wanted but not offered by the firm, and likewise, discard any leverage that was offered but not wanted. Therefore, the leverage model or better known as the capital structure model has no impact towards the profitability of the firm.

Another relevant theory in capital structure is the pecking order theory proposed by Donaldson (1961). This theory presents its assertion not from the book, but from the empirical fact that the firms show a distinct preference for using internal financing (share capital, excess assets, and etc.) over external financing including bank loans based on his survey on American companies. Donaldson (1961) proposed that the pecking order theory for the firm financing is as follows, from the most to least reliable one: focusing on internal financing first, then to external financing with little to no additional costs which includes government bonds, and finally other riskier debt financing from external parties. Maloney, McCormick, and Litchell (1993) derived research from theory called the debt monitoring theory, and this outlines that the higher debt or equity ratio could push the managers to work harder. This is reasonable because under this condition, the managers will have a lot more to lose, and if they do make a fatal mistake the cost would be the biggest downfall for the company itself. In the event that the company have no debts, there is less pressure inside the company, as there are no liabilities that should be repaid to another party in the future.

There are two major types of managers according to Maloney, McCormick, and Litchell (1993) known as the debt-disciplined and debt-undisciplined. Debt-disciplined managers are described as individuals whom are not afraid to take a chance and take more debt compared to its debt-undisciplined counterparts. Therefore, they tend to target project with the most Net Present Value (NPV), with a hope to be able to maximize the shareholder's wealth, albeit the large borrowings. The debt undisciplined managers have a different point of view, they don't take as many external funds compared to its counterpart, but their focus is not only on profitability of the company, but on other factors which includes entrenchments or managerial perks. It could be concluded that the risk aversion attitude level in the top management level of a company plays a big factor in determining the firm's leverage. Risk averse managers prefer stability, and therefore avoid debts from external parties as much as possible, whereas its counterpart focuses in getting as much profit as possible to maximize equity and involves debt from external parties in decision making.

Caprino (2016) on her journal published by Forbes looks at how gender can influence decision making on managerial level. On the introduction, it points out that it is considered as a common belief that when it comes to stressful situations in which decision should be made instantaneously, men tend to be calmer and more sensible while its counterpart typically becomes emotional and fall apart. However, neuroscientists found this notion to be misguided according to Caprino (2016).

Firstly, Mather and Bos (2016) neuroscientists and neurobiologist from Southern California and the Netherlands respectively, inspected the behavior of male and female. Their research shows that when people are under pressure and stressed out, men tends to be more aggressive, and are more ambitious in taking risks. If they are faced with a big reward that has

a small chance of materializing, then men are more eager to take the risk knowing well that they would more likely not get reward. However, when women are faced with the same situation, they take more time to weigh the contingencies and count not on the bigger, but less likely reward, but smaller and more likely ones. Mather and Bos (2014) concluded that this does not mean that one strategy is better than the other, but in a business situation, ideally, it is better to have both men and women on the top management level, especially when a crucial business decision is being made. This finding is further supported by a journal posted by Facchio, Marchica, and Mura (2016) which discusses the relationship between CEO gender and risk taking in corporations. It is found that firms run by female CEOs tend to consider safer financing and investment choices than those otherwise similar firms run by its counterparts.

Conceptual framework

Based on the study of existing theory and literature review, the effect of leverage towards firm performance and BOD gender's moderating role towards their relationship will be examined. In this study, the dependent variable is firm performance, the independent variable is leverage and the moderating variable is BOD gender. The conceptual framework is depicted as follows:
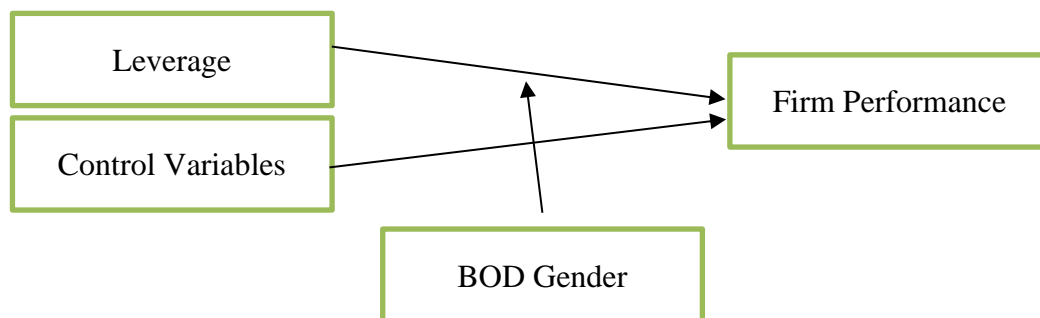
Figure 1
Conceptual Framework
Source: Researcher

Hypothesis development

This research takes the side of a journal by Donaldson (1961) which states that companies would likely take internal source in funding the company, then less risky external source, then risky external sources. This so-called pecking order is due to the fact that when one borrows from outside the company, there is an interest rate that has to be paid, and if the revenue cannot make for the lost interest repayment, the company will do more harm than good. Therefore, companies who have higher leverage are expected to show a drop in profitability.

H_1: Leverage negatively affects firm performance.

Caprino (2016) found out that women are more reasonable in making decisions in critical moments compared to men. They are less aggressive and will wait for low-risk scenarios with moderate reward, while men will take high-risk scenarios with high rewards. In the business world, especially sitting as one of the BODs, this means that women will make less aggressive decisions. Therefore, as a moderating variable, the existence of BOD gender (meaning more women on BOD gender) will decrease the leverage, and accordingly, firm performance, hence, BOD gender will strengthen the negative correlation between leverage and firm performance.

H$_2$: Board of directors', as a moderating variable, will strengthen the negative relationship between leverage and firm performance.

RESEARCH METHOD

Population and sample

Only secondary data will be used in this study. All financial and annual reports are collected from Indonesia Stock Exchange (IDX) website, and in the event that the company's financial and/or annual report is unavailable on the Indonesian Stock Exchange (IDX) website, the reports will be downloaded directly from the company's official site. This research will also be using financial data of companies provided by S&P platform that is accessible through Market Intelligence extension of Microsoft™. Secondary data required for this research includes data related to board of directors' gender, firm size, firm leverage, and firm performance. The population of the data are companies being part of Kompas 100 list that is being listed in the Indonesian Stock Exchange for the period of 2015 to 2018.

Method of Data Analysis

To summarise the aforementioned sections, independent variables are those variables in the model that affects the outcome of the dependent variable. In this research, firm leverage which is an independent variable influences firm performance. Board of directors' gender will act as a moderating variable in which their composition will affect the leverage decision that will be made which influences the firm performance. Firm size, current ratio, and asset turnover will be the controlled variable in this research. Due to the aforementioned condition above, the research will be conducted using multivariate regression.

Multivariate regression will model the data gathered in the study to a linear equation which shows the relationship of the variables. The model in this research will be observed using IBM SPSS software. Further test will be done on the result of regression to examine its credibility, these test will include the following:

Operational Variables

Dependent Variable

Firm Performance

Firm performance is affected by many direct and indirect which includes firm size, capital employed to net fixed assets, leverage, liquidity, accounts receivable turnover, accounts payable turnover, and inventory turnover (Chytis, Tasios, Arnis, 2018). This fact explains that firm performance is reliant on all other factors and decisions making, especially the one made by the CEO and the board of directors which acts as the leaders of a corporation (Goll and Rasheed, 1998). Gender composition in the board of directors affects the decision making which eventually affects performance given that the fact that female leader favours less risky financing and investment choices compared to its counterparts (Faccio, Marchica, Mura, 2016). Gender diversity in top management level which is involved in decision making affects firm performance by increasing its profitability. The composition of gender matters as higher the number of male leader being involved in the board of directors leads to lower firm profitability (Zahoor et al, 2015). In this research, net profit margin will be used as a measure of firm performance (Warrad, 2014; Bashir et al, 2013). The company's net profit margin can be calculated using this formula:

$$Net\ Profit\ Margin = \frac{Net\ Profit}{Sales} \qquad (1)$$

Independent Variable

Firm Leverage

Firm leverage is a crucial decision making element typically done by top management in order to fund its operations and investment through debt in comparison to equity and it affects firm performance as a whole (Chytis, Arnis, and Tasios, 2018). It is proven that leverage decision has a significant impact towards food companies listed in Athens Stock Exchange during financial crisis in a five-year period between 2008 and 2012, according to Chytis, Arnis, and Tasios (2018). Leverage decision in funding the company's investment and financing choices are affected by the composition of gender in the boards of directors which acts as the decision makers for that particular company (Faccio, Marchicha, and Mura, 2016). It is found that many firms in Pakistan have good financial ratios with a few to none debt position, and leverage position of a company could be calculated using the debt to equity ratio with the equation as follows (Ahmed, Awais, and Kashif, 2018)

$$Debt\ to\ Equity\ Ratio = \frac{Total\ debt\ of\ the\ firm}{Total\ equity\ of\ the\ firm} \qquad (2)$$

Another method of measuring firm leverage is by using debt to asset ratio to observe whether the assets of the company is purchased using money generated from the raise of debt from third parties in trade with interest payment, or by selling shares to the capital market

(equity). The formula in calculating Debt to asset ratio according to Suherman (2017) is as follows:

$$Debt\ to\ Asset\ Ratio = \frac{Total\ debt\ of\ the\ firm}{Total\ assets\ of\ the\ firm} \qquad (3)$$

Moderating Variable

Board of Directors Gender

Board of directors' gender can be easily identified and directly measured using the gender of members of the board in comparison to the total amount board of directors in a particular company found in the company's annual report. A study done by Shao and Liu (2014) suggested the following equation to find the ratio between male and female members in the board of directors. The female ratio will be used for this study

$$\frac{\Sigma\ Male\ Board\ of\ Directors}{Total\ Board\ of\ Directors} \qquad (4)$$

$$\frac{\Sigma\ Female\ Board\ of\ Directors}{Total\ Board\ of\ Directors} \qquad (5)$$

This equation defined by Shao and Liu (2014) will calculate the percentage of both male and female members respectively of the board of directors to observe the composition of gender of the members belong to the board. Taouab and Issor (2019) claimed that companies with more gender diversity have higher firm performance (more profitable). The board of directors' gender itself can be easily identified by observing directly from the annual report of each company, however its effect towards firm leverage decision can be complex given that the leverage decision taken by different composition of board members is different, and it is confirmed that financing and investment choices as well as risk aversion between female members and its counterparts have an inverse relationship, according to Facchio, Marchica, and Mura (2016).

Another alternative of board of directors' gender calculation is other than the percentage approach is proposed by Suherman (2017) which calculates board of directors' gender using the dummy approach. The dummy approach will identify the board of directors' gender as "female" if there is at least one female member in the board of directors and "male" if there are no female members in the board of directors.

Control Variable

Firm Size

Firm size can be identified through various measures including the number of employees, total revenues, profits, and etc. (Joaquin, Castelo, and Khanna, 2001). As the firm grows in size, transactions are more complicated which eventually boosts turnover as well as opening up new markets for existing and new products (Olawale, Ilo, and Lawal, 2017). The size of the firm could also be random when it comes to the distribution of variability in terms of accounting numbers which make it possible to be examined with different method in

consonance with the theory formulated by Trigueiros (2000). An article published by Oyelade (2019) suggested the use of total assets as an indicator of firm size as it depicts the firm's wealth in terms of asset as a whole. In this study, firm size will be acting as the control variable.

$$\text{Firm Size} = \text{Total Assets} \qquad\qquad (6)$$

The representation of the firm size above, however, is not so reliable given that the data range is wide, and exact value of firm size in terms of total assets is massive, the use of logarithm to the base e (2.7128) for total assets is recommended (Suherman, 2017).

Liquidity Ratio

Company debt is divided into two categories which commonly known as long-term and short-term debt. Solvency and liquidity ratios are both used to identify whether the company is able to meet their long-term and short-term obligations respectively. Current ratio is one of the current ratio commonly being used to identify whether the company will be able to meet their short-term obligations. Current ratio will measure whether the company's current assets are sufficient in meeting their short term obligations (Marsha and Murtaqi, 2017) with the formula as follows:

$$Current\ Ratio = \frac{Total\ current\ assets\ of\ the\ firm}{Total\ current\ liabilities\ of\ the\ firm} \qquad (7)$$

Other Performance Measures

Other than from its earnings, companies' performance can also be measured by measuring the ability of the assets that the company owns in generating profit for the company. Many firms found out to have a good financial ratio in terms of return on assets though they have substantial amount of debt (Ahmed, Awais, Kashif, 2018). The formula that can be used to calculate return on assets is as follows:

$$Return\ on\ Asset = \frac{Net\ Sales}{Total\ asset\ of\ the\ firm} \qquad (8)$$

The return on asset will be affected by the leverage decision being made by the company's directors as stated in the pecking order theory (Prasilova, 2012); however the strength of the relationship between leverage and firm performance may vary across regions and industrial sectors. Not only the ability of the assets in generating income for the company can be measured to assess firm performance, but also how effective the firm is using their assets in generating income for the company through the use of asset turnover (Pouraghajan et al, 2012). Asset turnover can be calculated using the formula as follows:

$$Asset\ Turnover = \frac{Net\ Sales}{Average\ total\ assets\ of\ the\ firm} \qquad (9)$$

The values for net profit, gross profit, net sales, total assets etc. will be retrieved from the MI (Market Intelligence) platform.

Empirical model

Models 1-2 (H_1):

y_1: NPM $= \alpha + \beta_1 DAR + \beta_2 ROA + \beta_3 \ln(TA) + \beta_4 CR + \beta_5 ATO + \varepsilon$

y_2: NPM $= \alpha + \beta_1 DER + \beta_2 ROA + \beta_3 \ln(TA) + \beta_4 CR + \beta_5 ATO + \varepsilon$

Models 3-6 (H_2):

y_3: NPM $= \alpha + \beta_1 DAR + \beta_2 GR\_DUM + \beta_3 DAR * GR\_DUM + \beta_4 ROA + \beta_5 \ln(TA) + \beta_6 CR + \beta_7 ATO + \varepsilon$

y_4: NPM $= \alpha + \beta_1 DAR + \beta_2 GR\_PR + \beta_3 DAR * GR\_PR + \beta_4 ROA + \beta_5 \ln(TA) + \beta_6 CR + \beta_7 ATO + \varepsilon$

y_5: NPM $= \alpha + \beta_1 DER + \beta_2 GR\_DUM + \beta_3 DER * GR\_DUM + \beta_4 ROA + \beta_5 \ln(TA) + \beta_6 CR + \beta_7 ATO + \varepsilon$

y_6: NPM $= \alpha + \beta_1 DER + \beta_2 GR\_PR + \beta_3 DER * GR\_PR + \beta_4 ROA + \beta_5 \ln(TA) + \beta_6 CR + \beta_7 ATO + \varepsilon$

Hypothesis and variables of this research is presented in the following statistical form, where:

$\propto_0$	is a constant
β_1-β_7	is a coefficient
NPM	: net profit margin
ATO	: asset turnover
CR	: current assets
TA	: total assets
GR_DUM	: BOD gender (female: 1)
GR_PR	: BOD gender (percentage)
DAR	: debt to asset ratio
DER	: debt to equity ratio
ROA	: return on assets
DAR	: debt to asset ratio
GPM	: gross profit margin
ROA	: return on assets
CR	: current ratio
ε	: the standard error

RESULT

This research uses sample from the 2018 edition of Kompas 100. The samples are chosen using *purposive sampling* method. Here are the particulars of the chosen sample:

Table 1
Summary of Research Sample

Particulars	Number of companies
Companies listed on 2018th edition of Kompas 100	100
Financial institutions exempted from the sample	(11)
Companies which do not fulfil this research's criteria (explained below)	(20)
Companies taken into this research (that fulfils this research's criteria)	69
Number of observations (69 firms * 4 years)	276

Descriptive Statistic

Table 2
Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Net Profit Margin	276	-.3236	.4993	.0983	.1069
DAR	276	.0978	.7928	.4855	.1763
DER	276	.1084	3.8268	1.2036	.8186
ROA	276	.0453	3.2656	.7821	.5412
ln(TA)	276	.0104	.7922	.3117	.1812
CR	276	12.5348	19.658	16.0932	1.4636
ATO	276	.3758	7.4311	2.0706	1.3121
GENDER DUM	276	-.0640	.4579	.0613	.0723
GENDER PROP	276	.00	.63	.1143	.1615
Valid N (list wise)	276	0	1	.42	.495
Descriptive Statistics	276				

The total number of observations is 69 companies, each having four year of operation (2015-2018), which sums to a total of 276 individual observations. From these statistics, it can be seen that as top managers, women still play a very small role. On average, only 11% of the board of directors are composed of women, and only 42% of companies have at least one women sitting on the board of directors. At the most, only two-thirds of the members of BOD are composed of women. This was achieved in 2016 by PT Media Nusa Citra, in which 63% of the board of directors were women. The company also has highest board of directors in general, having 57% percent women in 2017 and 2018 and 50% of women in 2016. Here are the summary of the results of various tests of classical assumption:

Classical assumption result

Table 3
Summary for Test of Classical Assumption

Model	MULTI	AUTO	HETERO	NORM
		X	√	
y_1	√	X	√	~
y_2	√	X	√	~
y_3	√	X		~
y_4	√	X		~
y_5	√	√		~
y_6	√	X	√	~
		X	√	

$y_1 - y_8$	: Regression model as stated in Chapter 3
MULTI	: Result from Multicollinearity test
AUTO	: Result from Autocorrelation test
HETERO	: Result from Heteroskedasticity test
NORM	: Result from Normality Test
√	: Data passes the test completely
X	: Data fails the test completely
~	: Data almost passes the test, but is not ideal

Based on these criteria, the data collected for this thesis pass this test for all models. For $y_3 - y_6$, however, some values from the covariance matrix show a high correlation, being above 95%. This is due to the nature of BOD gender, the moderating variable. Additional

variables are required for the moderating variable, from y_5 to y_8 : GR_DUM*DAR, GR_PR*DAR,GR_ DUM*DER, and GR_PR*DER. These variables are obtained by multiplying the measure of leverage taken for each model (DAR or DER) by the measure of BOD gender taken for each model (dummy method or proportion method). Therefore, it is to be expected that these variables will strongly correlate with other variables, namely the leverage measure and the gender measure.

Autocorrelation is measured by the Durbin-Watson test. The DW value will be outputted by the SPSS software. Then, the upper value and lower acceptable ranges have to be searched from the Durbin-Watson table. To get this, the number of observations, independent variables and significance level must be considered. The table below depicts the details of those variables, the upper and lower value, as well as the acceptable range of the DW value:

Table 4
DW Specifications for models y_1-y_2

Item	Value
k*	4
Number of observations	276
Significance level	5%
d_U (upper)	1.826
d_L (lower)	1.782
Acceptable range	1.872 – 2.128

k is obtained by subtracting one from the sum of independent and control variables.

Table 5
DW Specifications for models y_3-y_6

Item	Value
k*	6
Number of observations	276
Significance level	5%
d_U (upper)	1.841
d_L (lower)	1.768
Acceptable range	1.768 – 2.232

*k is obtained by subtracting one from the sum of independent and control variables.

Our research has 276 total observations. However, as the Durbin-Watson table provides data in intervals of 10 for observations above 200, this research can only get an approximate measure of d_U and d_L values, being those for 280 observations instead of 276.

The collected data doesn't satisfy this classical assumption test. DW value of the six models are below the acceptable range, indicating negative autocorrelation. The models y_3 to y_6's DW value are closer to the acceptable range than the models y_1 to y_2's DW value. The cause of this phenomenon can be explained. Firstly, the number of observations is an important factor when doing the Durbin-Watson test. The dU and dL value will be different for different number of observations.

An article from Kompas.com (2016) agrees and strengthens the finding outlined above. It is written in the article that Indonesia's economic growth is the slowest at 2015, due to some macroeconomic factors. Another article (2019) compares economic data from 2014 to 2019 and

found that 2015 is the year that saw the least growth. Therefore, it is expected that financial data collected from the year 2015 will be comparatively smaller compared to 2016, 2017 and 2018; therefore giving birth to a pattern where accounting ratios and measures, especially profitability measures such as return on assets (ROA) and net profit margin (NPM) hit their lowest point on the year 2015, causing the data to have autocorrelation. Individual DW value can be seen on the appendix.

The method used to identify heteroskedasticity is by looking at the scatterplot and ensure that there are no patterns emerging from the dots scattered around the scatterplot. Patterns such as lines, curves, waves etc. indicate that the data fails heteroskedasticity test. Looking at the six scatterplots on Appendix B, it can be concluded that in general, no such patterns emerge. For example, the scatterplots for y_3 to y_6 shows more data on the right side of the table. However, the data appear random and do not form lines, waves etc. A faint outline of a line going downwards to the right might be seen on the bottom-left part of the table, however, there are many other dots scattered around it. The scatterplots for $y_1 - y_2$ shows the data mainly being in the middle, with some outliers on the right and left side. The scatterplot doesn't appear to make recognizable patterns. Hence, the data passes heteroskedasticity test.

All models follow a normal distribution as shown by the curve on the figures below. However, as can be seen from the appendix, the histogram shows that the data aren't really ideal as The histograms for y_1 and y_2 are a bit skewed to the left, while those for y_3 to y_6 show that there are too many data that are very close to the mean, therefore making the central column too high. Although this is the case, the data still follows a normal distribution. The bars on the outside (most left and most right of the graph) are the shortest. The bars closer to the inside are taller, and the bar at the very middle is the tallest. This indicates that a normal distribution is the case. However, there are too many data that are very close to the mean and few data that are outliers, making the bar at the middle considerably taller even to the bars to its left and right.

Research findings

Table 6
Result for Hypothesis 1 (y_1)

$NPM = \alpha + \beta_1 DAR + \beta_2 ROA + \beta_3 \ln(TA) + \beta_4 CR + \beta_5 ATO + \varepsilon$

Variable	Sign	Coefficient	Significance
Constant	+	.125	.014*
DAR	-	-.068	.013*
ROA	-	-.093	.000**
ln (TA)	-	-.001	.339
CR	-	-.005	.096
ATO	+	1.129	.000**
F	68.766		
Sig.	.000**		
R	.748		
R^2	.560		
Adjusted R^2	.552		
N	276		

* indicates a significance of 5% or less;
** indicates a significance of 1% or less.

The model as a whole is significant, as can be seen from the ANOVA regression statistics (F and Sig. values), where its significance is way below 5%. The Adjusted R^2 is 55.2%, indicating that roughly 55% of the change in leverage can be explained by the change in BOD gender. The remaining 44.8% is explained by factors outside the model. For this model, the data shows that leverage in terms of DAR has a very significant negative correlation to the dependent variable, firm performance. The model passes both F and t-tests, meaning that the model and the variables are very significant in predicting the dependent variable.

Table 7
Result for Hypothesis 1 (y2)

NPM $= \alpha + \beta_1 DER + \beta_2 ROA + \beta_3 \ln(TA) + \beta_4 CR + \beta_5 ATO + \varepsilon$			
Variable	Sign	Coefficient	Significance
Constant	+	.111	.021*
DER	-	-.019	.001**
ROA	-	-.095	.000**
ln (TA)	+	.002	.296
CR	-	-.006	.071
ATO	+	1.125	.000**
F	70.795		
Sig.	.000**		
R	.753		
R^2	.567		
Adjusted R^2	.559		
N	276		
* indicates a significance of 5% or less;			
** indicates a significance of 1% or less.			

The Adjusted R^2 is 55.9%, indicating that roughly 56% of the change in leverage can be explained by the change in BOD gender. The remaining 44% is explained by factors outside the model. For this model, the data shows that leverage in terms of DER has a very significant negative correlation to the dependent variable, firm performance. The model passes both F and t-tests, meaning that the model and the variables are very significant in predicting the dependent variable.

Table 8
Result for Hypothesis 2 (y₃)

$$NPM = \alpha + \beta_1 DAR + \beta_2 GR\_DUM + \beta_3 DAR * GR\_DUM + \beta_4 ROA + \beta_5 \ln(TA) + \beta_6 CR + \beta_7 ATO + \varepsilon$$

Variable	Sign	Coefficient	Significance
Constant	+	.164	.002**
DAR	-	-.100	.002**
GR_DUM	-	-.012	.325
DAR*GR_DUM	+	.078	.066
ROA	-	-.098	.000**
ln (TA)	-	-.001	.418
CR	-	-.005	.086
ATO	+	1.141	.000*
F	52.413		
Sig.	.000**		
R	.760		
R²	.578		
Adjusted R²	.567		
N	276		

* indicates a significance of 5% or less;
** indicates a significance of 1% or less.

The model as a whole is significant, as can be seen from the ANOVA regression statistics (F and Sig. values), where its significance is way below 5%. The Adjusted R^2 is 56.7%, indicating that roughly 57% of the change in leverage can be explained by the change in BOD gender. The remaining 43% is explained by factors outside the model. For this model, DAR and gender dummy individually has negative impact towards firm performance (the sign for DAR and gender dummy are both minus). However, when both variables are taken into consideration, they affect the firm performance positively (the sign for DAR*GR_DUM is plus). Only the DAR value is extremely significant.

Table 9
Result for Hypothesis 2 (y₄)

$$NPM = \alpha + \beta_1 DAR + \beta_2 GR_{PR} + \beta_3 DAR * GR_{PR} + \beta_4 ROA + \beta_5 \ln(TA) + \beta_6 CR + \beta_7 ATO + \varepsilon$$

Variable	Sign	Coefficient	Significance
Constant	+	.138	.008*
DAR	-	-.091	.004**
GR_PR	-	-.015	.424
DAR*GR_PR	+	.196	.109
ROA	-	-.096	.000**
ln (TA)	+	.001	.384
CR	-	-.006	.055
ATO	+	1.134	.000*
F	51.780		
Sig.	.000**		
R	.758		
R²	.575		
Adjusted R²	.564		
N	276		

* indicates a significance of 5% or less;
** indicates a significance of 1% or less.

The model as a whole is significant, as can be seen from the ANOVA regression statistics (F and Sig. values), where its significance is way below 5%. The Adjusted R^2 is 56.4%, indicating that roughly 56% of the change in leverage can be explained by the change in BOD gender. The remaining 44% is explained by factors outside the model. For this model, DAR and gender proportion individually has negative impact towards firm performance (the sign for DAR and gender proportion are both minus). However, when both variables are taken into consideration, they affect the firm performance positively (the sign for DAR*GR_PR is plus). Only the DAR value is extremely significant.

Table 10
Result for Hypothesis 2 (y_5)

$NPM = \alpha + \beta_1 DER + \beta_2 GR\_DUM + \beta_3 DER * GR\_DUM + \beta_4 ROA + \beta_5 \ln(TA) + \beta_6 CR + \beta_7 ATO + \varepsilon$

Variable	Sign	Coefficient	Significance
Constant	+	.135	.007*
DER	-	-.022	.001**
GR_DUM	+	.018	.123
DER*GR_DUM	+	.007	.256
ROA	-	-.098	.000**
ln (TA)	-	-.000	.489
CR	-	-.006	.056
ATO	+	1.126	.000**
F	53.227		
Sig.	.000**		
R	.763		
R^2	.582		
Adjusted R^2	.571		
N	276		
* indicates a significance of 5% or less;			
** indicates a significance of 1% or less.			

The model as a whole is significant, as can be seen from the ANOVA regression statistics (F and Sig. values), where its significance is way below 5%. The Adjusted R^2 is 57.1%, indicating that roughly 57% of the change in leverage can be explained by the change in BOD gender. The remaining 43% is explained by factors outside the model. For this model, DER affects firm performance negatively (the same as earlier models, the sign of DER is minus). However, gender dummy, unlike previous models, affect firm performance positively. When both variables are taken into consideration, they affect the firm performance positively (the sign for DER*GR_DUM is plus). Only the DER value is extremely significant.

Table 11
Result for Hypothesis 2 (y₆)

$$NPM = \alpha + \beta_1 DER + \beta_2 GR\_PR + \beta_3 DER * GR\_PR + \beta_4 ROA + \beta_5 \ln(TA) + \beta_6 CR + \beta_7 ATO + \varepsilon$$

Variable	Sign	Coefficient	Significance
Constant	+	.110	.021*
DER	-	-.020	.002**
GR_DUM	+	.063	.093
DER*GR_PR	+	.009	.403
ROA	-	-.096	.000**
ln (TA)	+	+.002	.313
CR	-	-.007	.039*
ATO	+	1.116	.000**
F	52.710		
Sig.	.000**		
R	.761		
R²	.579		
Adjusted R²	.568		
N	276		

* indicates a significance of 5% or less;
** indicates a significance of 1% or less.

The model as a whole is significant, as can be seen from the ANOVA regression statistics (F and Sig. values), where its significance is way below 5%. The Adjusted R^2 is 56.8%, indicating that roughly 57% of the change in leverage can be explained by the change in BOD gender. The remaining 43% is explained by factors outside the model. This model 's result resembles the previous model. DER affects firm performance negatively (DER's sign of DER is minus). However, gender proportion affects firm performance positively. When both variables are taken into consideration, they affect the firm performance positively (the sign for DER*GR_PR is plus). Only the DER value is extremely significant.

DISCUSSION

Leverage towards Firm Performance

The SPSS output for models 1-2 shows that leverage (in terms of DAR or DER) is very significant in predicting firm performance (NPM). As the sign is negative, the second hypothesis is accepted. Every increase of one unit in leverage correlates to a decrease of 0.068 units in net profit margin. Donaldson (1961)'s pecking order theory is therefore proven: when using external borrowing, interest rates become an important factor and too large a borrowing can bring detriment to the company's bottom line, and ultimately firm performance.

The output of this research therefore does not support with the debt-monitoring hypothesis, in which McCormick and Litchell (1993) theorizes that the more debt the company owns, the harder the managers will work to fulfil that debt, and the more profit it will be able to produce. As can be seen from this research's data output, too much external borrowing can sometimes bring down profitability. There is, however, also a possibility that debt-monitoring theory did work on our firms. Maybe, given a certain threshold of leverage, managers will work harder to achieve higher profits. However, above certain values, the interest rates might just get out of hand and not cover expected returns, indicating a drop in profits, or, the managers'

motivation to work hard could be overshadowed by deadlines and big interest expense, without good or sustainable revenues to cover them. Therefore, it could be argued that while external financing is definitely good for the company as it provides extra capital from which to invest on and provides the debt-monitoring effect, too much borrowing might not be good as well.

Leverage towards Firm Performance moderated by BOD Gender

The last four models (y_3-y_6) points that the models as a whole are valid in predicting firm performance. However, only the leverage is extremely significant, while the BOD gender is somewhat significant, however, it could not reach a significance amount of lower than 5%. All measures of leverage (DAR and DER) produces the same conclusion: that leverage has a significant negative impact on firm performance. This means that the sample companies uses too much external borrowings in their financing and this results in firm performance not being maximized. As for BOD gender, the output yields mixed results: when DAR is used as the leverage variable, the existence of females atop BOD worsens the firm's performance, while when DER is used as the leverage, more females meant better performance. As gender fails t-test on all models, it's safe to conclude that when determining firm performance, there are other variables other than BOD gender that are more detrimental in determining firm performance. When gender and leverage are seen together, however, their interaction positively correlates to firm performance, albeit not passing the t-test as well.

When BOD gender becomes the moderating variable, contrary to the proposed hypothesis, it weakens the negative relationship between leverage and firm performance. This is due to the moderating variable, DAR or DER * DUM or PR being positive in all four tests. As the correlation between leverage to performance and BOD gender to performance is negative, this means that the moderating weakens the negative relationship. The final hypothesis is therefore rejected. Leverage and BOD gender has a negative impact on firm performance. and BOD gender as a moderating variable weakens their negative relationship.

CONCLUSION

The main objective of this study is to empirically prove the effect leverage has towards The sample used are 69 out of the 100 companies listed in the Kompas 100 of the year 2018 edition. The research shows that leverage has a negative impact on firm performance and when moderated by BOD gender, more females or the existence of females on the BOD weakens the negative impact between leverage and firm performance.

REFERENCES

Ahmed, F., Awais, I. and Kashif, M. (2018). *Financial Leverage and Firms' Performance: Empirical Evidence from KSE-100 Index*. Etikonomi, 17(1).

Bashir, T., Riaz, A., Butt, S. and Parveen, A. (2013). *Firm Performance: A Comparative Analysis of Ownership Structure*. European Scientific Journal, 9(31), pp.413-430.

Caprino, K. (2016, May 12). How Decision-Making Is Different Between Men And Women And Why It Matters In Business. Retrieved from https://www.forbes.com/sites/kathycaprino/2016/05/12/how-decision-making-is-different-between-men-and-women-and-why-it-matters-in-business/

Chytis, E., Tasios, S. and Arnis, N. (2018). *Factors affecting Firm Performance in Periods of Financial Crisis: Evidence from the listed on the Athens Stock Exchange Food Companies*. MIBES Transactions, 12(1).

Donaldson, G. (1961). *Corporate Debt Capacity a Study of Corporate Debt Policy and the Determination Journal*. Washington D.C.: BeardBooks.

Faccio, M., Marchica, M. and Mura, R. (2016). *CEO Gender, Corporate Risk-taking, and the Efficiency of Capital Allocation*. Journal of Corporate Finance, 39(C).

Kompas. (2016, Febuary 7). Pertumbuhan Ekonomi 2015 Terendah dalam 6 Tahun Terakhir. Retrieved from https://money.kompas.com/read/2016/02/07/182803626/Pertumbuhan.Ekonomi.2015.Terendah.dalam.Enam.Tahun.Terakhir?page=all

Kompas. (2019, March 9). Peran Perempuan di Dunia Bisnis Global Terus Meningkat. Retrieved from https://money.kompas.com/read/2019/03/09/ 134109326/peran-perempuan-di-dunia-bisnis-global-terus-meningkat

Marsha, N. and Murtaqi, I. (2017). *The Effect of Financial Ratios on Firm Value in the Food and Beverage Sector of the IDX*. Journal of Business and Management, 6(2), pp.214-226.

Myšková, R. and Hájek, P. (2017). *Comprehensive assessment of Firm Financial Performance Using Financial Ratios and Linguistic Analysis of Annual Reports*. Journal of International Studies, 10(4), pp.96-108.

Olawale, L., Ilo, B., Lawal, F. (2017). *The Effect of Firm Size on Performance of Firms in Nigeria.* Aestimato, The IEB International Journal of Finance, 15(4), pp.2-21.

Oyelade, A. (2019). *The Impact of Firm Size on Firms Performance in Nigeria: A Comparative Study of Seclected Firms in the Building Industry in Nigeria*. Asian Development Policy Review, 7(1).

Pouraghajan, A., Malekian, E., Emamgholipour, M., Lotfollahpour, V. and Bagheri, M. (2012). *The Relationship between Capital Structure and Firm Performance Evaluation Measures: Evidence from the Tehran Stock Exchange*. International Journal of Business and Commerce, 1(9), pp.166-181.

Shao, L. and Liu, Z. (2014). *CEO Gender and Firm Performance*. Simon Fraser University.

Strebulaev, I. and Yang, B. (2013). *The Mystery of Zero-Leverage Firms*. SSRN Electronic Journal.

Suherman, S. (2017). *Apakah Diversitas Gender Memengaruhi Struktur Modal? Bukti Empiris di Indonesia*. Jurnal Keuangan dan Perbankan, 21(2), p.224.

Taouab, O. and Issor, Z. (2019). *Firm Performance: Definition and Measurement Models.* European Scientific Journal, 15(1).

Trigueiros, D. (2000). *A Theoretical Definition and Statistical Description of Firm Size.* University of Macau.

Warrad, L. (2014). *The Effect of Current Ratio on Jordanian Real Estate Sector's Net Profit Margin*. European Journal of Economics, Finance and Administrative Sciences, (63).

Warrad, L. and Omari, R. (2015). *The Impact of Turnover Ratios on Jordanian Services Sectors' Performance.* Journal of Modern Accounting and Auditing, 11(2).

Zahoor, N., Malik, M., Debaj, D. and Zyed, Z. (2015). *Relationship Between Gender Diversity in Top Management Teams and Profitability of Pakistani Firms*. Journal of Resources Development and Management, 16.