Is Age and Power of Top Management Team Important in Leverage Decision?

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Abstract: This study aims to examine the influence of the age of the top management team on corporate leverage, by including power as a moderating variable. The study was conducted using panel data with 283 samples of non-financial companies listed on the Indonesia Stock Exchange in the period 2010-2017. Testing is done using moderated regression analysis (MRA). Leverage is measured using the book and market leverage, while the age of the top management team is measured by the average age of the team, and power is measured using average share ownership by a team divided by the number of shares outstanding. This research found that when the top management team has power in the company, the older top management team will be more likely to choose lower leverage decisions. This result is consistent with the Upper Echelon Theory which states that the observable characteristics of the top management team can influence the company's strategic decisions.

1 INTRODUCTION

A number of studies have investigated the role of manager characteristics in strategic organizational decisions, such as in investment decisions, it was found that the characteristics of the chief executive officer (CEO) and the top management team significantly influence the company's R&D expenditures (Barker and Mueller, 2002, Chen, Hsu, and Huang 2010). The managerial characteristics also influence IPO decisions, and it was found that the demographic characteristics of the CEO are the main determinants in corporate risk-taking, namely the IPO (Farag, and Mallin, 2016). As well as research by Yim (2013), Jenter and Lewellen (2015) found that managerial preferences, as measured by the demographic characteristics of managers, influence the tendency for acquisition decisions by companies.

The decision about leverage is one of the company's strategic decisions that must be taken by management. However, the decision about the use of debt (leverage) is risky. The use of debt as one source of external funding, on the one hand, is able to improve company performance, as in the research of Berger and Patti (2006), Cheng and Tzeng (2011), Gharibeh (2015) found that debt financing decisions by companies have a positive effect on company performance. But on the other hand, debt increases the risk of companies that can lead companies to financial distress. Due to default (Detthamrong, Chancharat, and Vithessonthic, 2017). The financial crisis that occurred in Asia and America has raised questions about the aggressive behavior of top executives (Tarraf, 2011). This makes the manager's characteristics important to discuss related to the use of debt by the company.

In Upper Echelon Theory, the executives act based on their interpretations of the strategic situations they face. These actions are influenced by the cognitive base and their values, which will show the valuable skills, knowledge basis, and information processing abilities in the decision-making process (Hambrick, 2007). The cognitive and other values from these top executives can be measured through the demographic characteristics of the manager, one of which is age. Young managers are associated with new ideas and acceptance of risk compared to older managers. Older managers tend to have lower mental stamina and physical condition than younger managers, more risk-averse, and maintain the status quo (Hambrick and Mason, 1984). Young managers are more likely to pursue risks such as increasing financial leverage or an unrelated diversification strategy.

The study about the effect of the chief executive officer on debt decisions has not done much, and the results are still provided mixed conclusions. The
study from Serfling (2014) showed that young managers lead to higher debt levels, while older managers show lower debt levels. Bertrand and Schoar (2003) found that CEOs from the older generation chose a lower level of financial leverage. However, Malmendier et al. (2011) reported that older CEOs have more debt. Whereas, Frank and Goyal (2007) did not find any relationship between age of CEO and leverage.

The inconsistency of research results which linking age and leverage are likely due to variables that moderate this relationship. According to Carpenter (2004), in examining the relationship between a manager's characteristics and company strategy, there are several variables that can moderate or mediate the relationship, including power. Power has a very important role in decision making, when CEOs power increases, their ability to influence decisions will also increase (Daily and Johnson, 1997), and more easily imprint their personal preferences on the firm (Korkeamäki, Liljenblom, and Pasternack 2017). Bigley and Wiersema (2002) mentioned that the interaction between power and cognitive orientation of managers would affect company strategic decisions. The prediction about the use of power by the CEO requires an understanding of the CEO's cognitive orientation towards the company's strategy because power is the ability to realize the desired preferences.

Thus, from this explanation, we can say that older managers who tend to be more risk-averse are more likely to choose lower leverage when they have power in the company. In other words, power will strengthen the negative influence of age on leverage.

The object of research in this study is the top management team. Using the management team will increase the potential strength of the theory to be predicted since the chief executive shares the task and gives strength to other team members to some extent (Hambrick and Mason, 1984).

The first stage of this study investigates the effect of age on company leverage decisions. Age is measured using the average age of the top management team. Whereas, leverage uses two measurements, namely the book leverage and market leverage. The results of this study are consistent with the previous studies, which stated that age has a negative effect on the leverage decision. This result supports the Upper Echelon Theory.

The second stage of this study examines the effect of power related to the effect of age toward leverage decisions. In this study, power is measured using the share ownership owned by managers compared to the number of shares of the companies outstanding. The results show that power strengthens the negative effect of age toward leverage decisions. This result is consistent with the study conducted by Bigley and Wiersema (2002), who stated that power and cognitive orientation should interact if it is related to company strategic decision. The results are also consistent with agency theory. The higher proportion of ownership, managers tend to choose lower leverage decisions. Through share ownership by managers, the agency problem is reduced.

The main contribution of this study adds the empirical evidence of the effect of the manager's characteristics, namely age, toward company leverage in the context of the company in Indonesia, considering the small amount of the research on this topic. Furthermore, this study also provides the relationship model between age and company leverage decision by including power as a moderating variable.

2 LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Age and Leverage

Young managers are often associated with new ideas and risk acceptance than older managers who tend to have less physical and mental stamina, more risk-averse, and are attached to status-quo (Hambrick and Mason, 1984). This makes young manages more likely to pursue risky strategies such as increasing financial leverage or carrying out unrelated diversification.

Research by Wiersema and Bantel (1992) show that demographic characteristics can reflect the manager's cognitive perspectives. Using a sample of large manufacturing companies in America, they found that top management teams with higher average age avoided changing strategies.

The study from Serfling (2014), showed the results that risk-taking behavior decreases as CEOs get older, since older CEOs invest less in research and development, diversify acquisition, manage companies with more diversified operations, and maintain lower operations leverage. Overall, the results imply that the age of the CEO can have a significant impact on risk-taking behavior and company performance.

Bertrand and Schoar (2003) found that a significant level of heterogeneity in investment, finance, and company practices can be explained by the permanent effects of managers. Executives from
earlier (older) birth groups on average appear to be more conservative (prefer fewer debts). From this explanation, the proposed hypothesis is:

H1: Age of top management team has a negative effect on leverage.

2.2 The Effect of Power toward the Relationship between Age on Leverage

Power is defined as the capacity of individual actors to use their will. The use of power in strategic making decisions of the company has become the main discussion (Finkelstein, 1992). However, according to Bigley and Wiersema (2002), predictions about the use of power by the CEO require an understanding of the CEO's cognitive orientation towards the company strategy, because power is the ability to realize the desired preferences. Meanwhile, the relationships between the cognitive orientation of the CEO and company strategy presupposes that the CEO has enough power to realize the desired preferences. Therefore, the power and cognitive orientation of the manager will interact with the company's strategic decision.

The results of the research from Bigley and Wiersema (2002) showed that managers would use their power in determining choices of strategy that depend on the cognitive orientation of the manager (the variable used by the CEO's successor experience). When substitute CEO experience increases (more oriented to maintain the status quo), managers will use less power to choose corporate strategic refocusing. Thus, it is logical to explain that the age of managers will interact with the power they have in leverage decisions. Managers who have power in the company will be more likely to realize the desired preferences based on their cognitive orientation. Older managers will be more likely to choose a low average when they have power in the company. Therefore, the proposed hypothesis of this study is:

H2: Power strengthens the negative effect of age of the top management toward leverage.

3 SAMPLE SELECTION, VARIABLE CONSTRUCTION, AND DATA DESCRIPTION

3.1 Sample Selection

Companies that become the sample of this study are all non-financial companies listed on the Indonesia Stock Exchange from 2010 to 2017. After removing companies that are not always listed throughout 2010-2017, and companies that have no complete data from their management team, the sample has amounted to 283 companies. Thus, the number of observations for eight years have reached 2,264 observations. The data is obtained from the company’s annual report. Table 1 presents descriptive statistics of research variables.

<table>
<thead>
<tr>
<th>Value Type</th>
<th>Mean</th>
<th>Med</th>
<th>Max</th>
<th>Min</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Book Lev.</td>
<td>0.57</td>
<td>0.480</td>
<td>16.834</td>
<td>0.0002</td>
<td>0.814</td>
</tr>
<tr>
<td>Market Lev.</td>
<td>0.44</td>
<td>0.434</td>
<td>0.992</td>
<td>0.0001</td>
<td>0.269</td>
</tr>
<tr>
<td>Age</td>
<td>50.</td>
<td>51</td>
<td>73</td>
<td>31</td>
<td>5.5</td>
</tr>
<tr>
<td>Stock Own</td>
<td>1.87</td>
<td>0</td>
<td>51</td>
<td>0</td>
<td>5.846</td>
</tr>
<tr>
<td>Profitability</td>
<td>0.06</td>
<td>0.060</td>
<td>2.557</td>
<td>-1.733</td>
<td>0.273</td>
</tr>
<tr>
<td>Tangibility</td>
<td>0.31</td>
<td>0.273</td>
<td>0.962</td>
<td>0.0012</td>
<td>0.231</td>
</tr>
<tr>
<td>Size</td>
<td>6.34</td>
<td>6.340</td>
<td>8.470</td>
<td>3.705</td>
<td>0.775</td>
</tr>
</tbody>
</table>

3.2 Age of Management Team, Power, and Leverage Measurement

Age is the age of the manager in the year. For the calculation of age in the top management team, the procedure used follows the method from Chen et al. (2010), which is done by calculating the average age of the top management team.

The calculation for leverage is done using the method from Huang and Kisgen (2013) with the following formula:

Book leverage = Total debt/(total debt + book value of common equity) (1)
Market leverage = Total debt/(total debt + market value of common equity) (2)

Power (stock own) is measured by share ownership of the manager. The number of shares owned by the CEO is divided by the total number of
shares outstanding of the company (Bigley and Wiersema, 2002).

### 3.3 Control Variables

The first control variable of this study is profitability. It is calculated using the formula from Danis et al. (2014):

\[
\text{Profitability} = \frac{\text{Operating Income}}{\text{Total assets}} \tag{3}
\]

The second control variable of this study is tangibility. It is calculated using the formula from Yildirim et al. (2018):

\[
\text{Tangibility} = \frac{\text{Fixed Assets}}{\text{Total assets}} \tag{4}
\]

The third control variable of this study is the size. It is calculated using logarithms of the total assets owned by the company. \( (5) \)

The formulas used to test the first hypothesis are as follows:

\[
\begin{align*}
\text{Book Leverage} & = \alpha_0 + \alpha_1 \text{Age} + \alpha_2 \text{StockOwn} + \alpha_3 \text{Profitability} + \alpha_4 \text{Tangibility} + \alpha_5 \text{Size} + \varepsilon \tag{6} \\
\text{Market Leverage} & = \beta_0 + \beta_1 \text{Age} + \beta_2 \text{StockOwn} + \beta_3 \text{Profitability} + \beta_4 \text{Tangibility} + \beta_5 \text{Size} + \varepsilon \tag{7}
\end{align*}
\]

It is expected that the regression coefficients of \( \alpha_1, \alpha_2, \beta_1, \beta_2 \), are significant at the specified level of significance (1%, 5%, or 10%).

The formulas used to test the second hypothesis are as follows:

\[
\begin{align*}
\text{Book Leverage} & = \gamma_0 + \gamma_1 \text{Age} + \gamma_2 \text{StockOwn} + \gamma_3 \text{Age}\times\text{StockOwn} + \gamma_4 \text{Profitability} + \gamma_5 \text{Tangibility} + \gamma_6 \text{Size} + \varepsilon \tag{8} \\
\text{Market Leverage} & = \delta_0 + \delta_1 \text{Age} + \delta_2 \text{StockOwn} + \delta_3 \text{Age}\times\text{StockOwn} + \delta_4 \text{Profitability} + \delta_5 \text{Tangibility} + \delta_6 \text{Size} + \varepsilon \tag{9}
\end{align*}
\]

It is expected that the regression coefficients of \( \gamma_3, \delta_3 \), are significant at the specified level of significance (1%, 5%, or 10%).

### 4 Research Results

#### 4.1 Age of Top Management Team and Leverage

The effect of the age of the top management team toward leverage is tested, which is also to answer the first hypothesis. The test is carried out using the least square regression panel, with a fixed effect as the chosen model. The fixed effect model is chosen after the Chow test (to choose between the common effect and fixed effect models), and the Hausman test (to choose between the fixed effect and random effect models) are conducted. The Chow test and Hausman test results lead to the choice of the fixed-effect model. The summary of the test results of the age of the top management team toward leverage is shown in Table 2.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Book leverage</th>
<th>Market leverage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>C</td>
<td>4.436683***</td>
<td>-0.424970***</td>
</tr>
<tr>
<td></td>
<td>(0.0000)</td>
<td>(0.0000)</td>
</tr>
<tr>
<td>Age</td>
<td>-0.057126*</td>
<td>-0.020622**</td>
</tr>
<tr>
<td></td>
<td>(0.0877)</td>
<td>(0.0158)</td>
</tr>
<tr>
<td>StockOwn</td>
<td>-0.425264***</td>
<td>0.000298</td>
</tr>
<tr>
<td></td>
<td>(0.0000)</td>
<td>(0.9922)</td>
</tr>
<tr>
<td>Profitability</td>
<td>-0.398154***</td>
<td>-0.054049***</td>
</tr>
<tr>
<td></td>
<td>(0.0000)</td>
<td>(0.0000)</td>
</tr>
<tr>
<td>Tangibility</td>
<td>0.292367**</td>
<td>0.132593***</td>
</tr>
<tr>
<td></td>
<td>(0.0142)</td>
<td>(0.0000)</td>
</tr>
<tr>
<td>Size</td>
<td>-0.541346***</td>
<td>0.146647***</td>
</tr>
<tr>
<td></td>
<td>(0.0000)</td>
<td>(0.0000)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.600263</td>
<td>0.762677</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.542205</td>
<td>0.728208</td>
</tr>
<tr>
<td>Cross-sections included</td>
<td>283</td>
<td>283</td>
</tr>
<tr>
<td>Total panel (balanced) obs.</td>
<td>2.264</td>
<td>2.264</td>
</tr>
</tbody>
</table>

The effect of age toward book leverage shows the direction of a negative relationship with a regression coefficient of \(-0.001785\) (model 1). Likewise, the effect on market leverage shows the negative effect with a coefficient of \(-0.002155\). (model 2). These results indicate that companies with top management teams that mostly consist of older people are more likely to choose lower debt compared to companies with top management teams that consist of younger...
people (Bertrand and Schoar, 2003, Serfling, 2014). This supports previous studies.

(Yim, 2013, Jenter and Lewellen, 2015, Croci., Giudice, and Jankensgard, 2017) that age will have an effect on the company policy and risk-taking in which young managers are easier to accept risk compared to older managers.

4.2 Is Power Strengthen the Effect of Age on Leverage?

This study examines whether greater power (stock own) of the top management team will increase the negative effect of age of top management team on leverage. This test is done to answer hypothesis 2. The testing is done using the moderated regression analysis. The summary of the test result is shown in Table 3.

Table 3: Summary of Test Results of the Effect of Age toward Leverage with Power (Stockown) as Moderating Variable (Moderation Effect)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Book leverage</th>
<th>Market leverage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>C</td>
<td>4.038317***</td>
<td>-0.471381***</td>
</tr>
<tr>
<td></td>
<td>(0.0000)</td>
<td>(0.0039)</td>
</tr>
<tr>
<td>Age</td>
<td>0.018535***</td>
<td>-0.000977</td>
</tr>
<tr>
<td></td>
<td>(0.0081)</td>
<td>(0.7314)</td>
</tr>
<tr>
<td>StockOwn</td>
<td>-0.819521**</td>
<td>-0.269376</td>
</tr>
<tr>
<td></td>
<td>(0.0043)</td>
<td>(0.2319)</td>
</tr>
<tr>
<td>Age*StockOwn</td>
<td>-0.019725***</td>
<td>0.005200</td>
</tr>
<tr>
<td></td>
<td>(0.0000)</td>
<td>(0.2277)</td>
</tr>
<tr>
<td>Profitability</td>
<td>-0.394247***</td>
<td>-0.054180***</td>
</tr>
<tr>
<td></td>
<td>(0.0000)</td>
<td>(0.0000)</td>
</tr>
<tr>
<td>Tangibility</td>
<td>0.274065**</td>
<td>0.132381***</td>
</tr>
<tr>
<td></td>
<td>(0.0214)</td>
<td>(0.0000)</td>
</tr>
<tr>
<td>Size</td>
<td>-0.536309***</td>
<td>0.147109***</td>
</tr>
<tr>
<td></td>
<td>(0.0000)</td>
<td>(0.0000)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.601728</td>
<td>0.762744</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.543650</td>
<td>0.728147</td>
</tr>
<tr>
<td>Cross-sections included</td>
<td>283</td>
<td>283</td>
</tr>
<tr>
<td>Total panel (balanced) obs.</td>
<td>2.264</td>
<td>2.264</td>
</tr>
</tbody>
</table>

The regression coefficient of the age and stock own interaction variable (age*stockown) in Model 1 shows a number of -0.019725and significant, but it is insignificant in Model 2 with a coefficient of 0.005200. These results indicate that the greater the share ownership owned by the top management team, the stronger the negative effect of age toward leverage. The top management team, which consists of older managers will tend to choose low leverage, and this decision will be more likely to be taken if the share ownership by the top management team is getting bigger. This study is in line with Bigley and Wiersema (2002), using CEO's succession events for companies listed on Forbes 500 in the period 1990-1994, they found that power and cognitive orientation of managers interacted regarding the strategic corporate strategic refocusing. This study is in line too with research by Korkeamäki, Liljeholm, and Pasternack (2017). Using the CEO's data in Finland from 2002 to 2005, they were found that CEO's personal debt preferences affect corporate debt decisions, and power is proven to moderate the relationship. The effect of the CEO's personal debt toward the company’s debt is weakened by share ownership by CEO and share ownership by the block holder.

4.3 Subgroup Analysis

Subgroup analysis is made to explore the interaction of power (stock own) and age (age) of the top management team toward leverage decisions among groups.

Because of power (stock own) moderates in models that use book leverage, subgroup analysis is performed just to book leverage as the dependent variable.

Data is divided into two groups, first groups with high leverage (high leverage) and second groups with low leverage (low leverage). Companies are classified as high leverage if it's average leverage from 2010-2007 is above the median, and companies are classified as low leverage if it's average leverage is in the median position or below the median. The summary of the test results is in table 4.

In the group of high leverage (model 1), age has a significant effect (negative) toward book leverage with a regression coefficient of -0.003792. The interaction coefficient of age and stock own (age*stockown) in the high leverage group (model 2) is negative and significant (-0.010176). These results indicate that in the high leverage group, power (stock own) moderates the effect of age toward leverage.

While in the group of low leverage (model 3), age has no effect toward book leverage with a regression coefficient of -0.000387. The interaction coefficient of age and stock own (age*stockown) in the low leverage group (model 4) is positive and significant (0.022903). This result shows that the interaction of age and stock own does not moderate the effect of age toward leverage, because the age coefficient in model
Model 1 in Table 4 shows that age has a significant negative effect on book leverage. The same result is seen in model 1 in Table 5; that age has a significant negative effect on market leverage. These findings are consistent with the research results in the previous stage.

### 4.4 Robustness Tests

A robustness test is done to test the consistency of the results of the study that have been obtained. The testing is done by changing the leverage proxy. In the previous stage, leverage uses a total debt proxy, replaced by long-term debt, so that the new leverage is calculated by dividing long-term debt with long-term debt plus equity. The summary of the results of the robustness test is set out in Table 5 and Table 6.
Model 2 in table 4 shows that the interaction coefficient of age and stock own is significant negative. This means that the interaction of age and stock own strengthens the negative effect of age toward book leverage. On model 2 in table 5, it is known that the interaction coefficient of age and Stockown is insignificant. This indicates that the interaction of age and stock own does not moderate (does not strengthen) the effect of age toward market leverage. This result is also consistent with the original findings. Therefore, it can be concluded that the results of this study are robust.

5 CONCLUSIONS

This study provides evidence that the age of top management team affects the company's leverage decisions. The results of the study are consistent with the Upper Echelon Theory, in which young managers are associated with new ideas and higher risk acceptance than older managers. Thus, young managers are more likely to pursue a risky strategy, such as an increase in leverage.

In addition, this study also shows that interaction of the power of top management team with a cognitive orientation, which is measured from the age of manager, will affect leverage decisions. When the age of the top management team gets older, it will tend to choose lower leverage decisions. This will be more likely to happen if the manager has power (stock own) in the company.

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