

The Impact of Executive Characteristics on Company Policy and Performance: The Case of London Stock Exchange Listed Companies (FTSE100)

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Abstract

This research aims to investigate the effect of managerial characteristics on firm policy and performance. This research uses data from UK-listed companies (FTSE100) during the period 2015 - 2021. The results show that female Chief Executive Officers have a negative impact on financing policy. It has a positive effect on company performance, but no significant effect on investment policy. We also find that Chief Executive Officer education has a negative effect on financing policy, but a positive effect on investment policy and performance. At the same time, Chief Executive Officer's age has a negative influence on financing policy, but no influence on investment policy and performance. The results of our research support the theory of behavioral finance by providing empirical evidence that the behavioral aspects of the manager is been correlated with female gender, education, and age in terms of influencing firm policies and performance. The implication of this research is that investors should be aware of the characteristics of the Chief Executive Officer of the companies in which they invest their money because Chief Executive Officer Characteristics can be using as a benchmark for predicting performance and executive policy decision-making.

Keywords: Chief Executive Officers (CEO), Company performance, age, education of women CEOs, financing policy.

1. Introduction

The characteristics of the leader include being female, education and age. The issue of female gender in the financial literature is one of the new issues addressed by scientists in the field of finance (2020; Dah et al., 2020; Bautista et al., 2020; Tran et al., 2021; Biswas, 2021; Shen et al., 2021). Recently, the issue of women in business and management has become an interesting one. The year 2017 was a good year for women (fortune.com, 2017). Indeed, that year the number of female CEOs was the highest among Fortune 500 companies. While, this is the highest, it is still low. Only 32 women CEOs led Fortune 500 companies, and the remaining 468 companies were led by male CEOs. As an example, the number of female CEOs is low in Indonesia. Deloitte (2016) stated that out of 64 Indonesian companies, only eight of them were led by female CEOs, while the rest were led by male CEOs. The position of business leader is dominated by male business leaders. Based on this phenomenon, the question of the role of the female CEO in terms of influencing company policy and performance is interesting to study. Previous research has focused on exploring the effect of a

female CEO on firm performance and risk. According to the research findings of Liu et al. (2014) and Faccio et al. (2016), a female CEO can increase the profitability and probability of survival of a company. The increase in profitability and survival is caused by the power struggle and accuracy when it comes to calculating any financial decision. On the other hand, according to Barber and Odean (2001), women CEOs tend to be risk averse. If women tend to be risk averse, they can produce higher returns. The results of previous empirical studies are different from the law of high-risk high return. According to Adams and Funk (2012), women are not always risk averse, and their behaviour changes depending on the conditions. Previous studies have only focused on the effect of a female CEO on firm performance and risk, but not on firm policies such as financing policy and investment policy. Therefore, our research fills this gap by exploring the effect of a female CEO not only on firm performance but also on firm policies.

In addition to female gender characteristics, the results of previous empirical studies indicate that other CEO characteristics could exist and it can influence firm policy and performance. According to Amara Tijani and Necib Adel (2021), the level of education and the age of the CEO show the leadership style of the CEO. The higher the level of education, such as an MBA, which is a professional master's degree in business, the more sophisticated the management of the company will be, and the higher the aggressiveness and risk tolerance, which will lead to higher profitability (Lam et al., 2013). According to the phenomenon and the situation of education in Indonesia, the master's level business degree is not limited to an MBA. There is also the Magister Management (MM). At the same time, the older the CEO, the more experienced they are. They also tend to be risk averse. Previous research dealing with the issues of CEO education and age has mainly focused on the effect of CEO education and age on firm performance (Gupta & Mahakud, 2020; Ahn, 2020; Chandren et al., 2021; Shen et al., 2021; Sumarta et al., 2021). However, few studies have examined the effect of CEO education and age on corporate policies, such as financing policy and investment policy. We are motivated to fill this gap by investigating the influence of CEO education and age on firm performance and policies. Based on the phenomenon and research gap indicated above, we aim to examine the influence of CEO characteristics (female gender, master's level business education and age) on financing policy (debt), investment policy (capital expenditure) and firm performance (return on assets) among manufacturing firms listed on the London Stock Exchange (FTSE100) during the period 2015-2021. We chose only manufacturing firms as we wanted to control for industrial variation. According to Ozkan (2001), firms in the same industry of manufacturing firms tend to face the same conditions. Our research makes an important contribution to the development of behavioral finance theory because our research results provide empirical evidence on the effect of CEO behavioral aspects correlated with female gender, education and age on firm policies and performance. Our research is the first study to explore the effect of CEO characteristics (female gender, education and age) on firm policies (financing policy and investment policy) and firm performance.

2. Review of the literature and development of hypotheses

The influence of CEO characteristics on financing policy (interest-bearing debt) and

investment policy (capital expenditure) and firm performance (return on assets) is explaining by several theories such as behavioral finance theory and social role theory.

2.1. Characteristics of CEOs

A female CEO indicates that the gender of the CEO is female. According to Franke et al (1997) and social role theory, there are rational differences between men and women. Women tend to behave with a female character, and men tend to behave with a male character. This identity remains unchanged. According to social role theory, women tend to act like mothers, i.e. to be more communicative, careful, caring and ethical than men. According to behavioral finance theory and the work of Barber and Odeon (2001), women tend to be risk averse. According to Dunkers et al (2001), women choose only the safest options. In contrast, Adams and Funk (2012) suggest that women are not entirely risk averse, as this condition can change. King et al (2016) stated that education is one of the critical factors when selecting the person for the CEO position. Education can be a signal of the quality of a CEO. According to King et al. (2016), CEOs with an MBA education are more aggressive in terms of strategies, such as making riskier decisions, than CEOs without an MBA education. In terms of behavioral finance theory, MBA-educated CEOs will be overconfident because they believe they understand because they have better training. According to Beber and Fabbri (2012), they tend to be risk-takers.

The CEO age indicates the age range of CEOs from birth to research year t . The higher the value of CEO age, the older the CEO. The CEO's age will affect his or her risk preference (Malm et al., 2021; Burney et al., 2021). Cline and Yore (2016) explain that older CEOs will experience neurophysiological decreases. This decline in cognitive ability will occur from age 20 to age 60, and the decline becomes more significant beyond age 60. These include a decline in perceptual and numerical abilities, and poorer verbal memory. Older CEOs will be more cautious and risk adverse (Serfling, 2014). In contrast, younger CEOs tend to be risk-takers. They want to prove their abilities and have a more competitive personality.

2.2. Characteristics of the company

The size of the company indicates the importance of the company's wealth. The larger the size of the firm, the richer it is and the greater its capabilities. According to Huang (2006), large firms tend to have a more stable cash flow. According to Chen (2004), large firms tend to be diversifying and may eventually fail due to the assumption that they are 'too big to fail'. Large firms have an economy of scale, i.e. the profit made by lowering production costs per unit as output levels increase (Ross et al., 2010, p. 916). Firm size is measuring by the natural logarithm ($\ln$) of total assets (Setiawan & Rachmansyah, 2019).

The age of the firm shows the life of the firm from its introduction to the year t of the research. The age of the firm is using to control for the stage of the firm's life cycle (Faccio et al., 2016). Newly established firms tend to have less cash, while more mature firms have more free cash flow (Ross et al., 2010, p. 643). More free cash flow creates agency problems if not distributed, such as empire building and underinvestment. The age of the firm is measuring by the natural logarithm ($\ln$) of the firm's age.

2.3. Characteristics and funding policy

If the CEO is female, according to Eagly's (1987) social role theory and its application in the business world as proposed by Franke et al. (1997), since they are used to the role of mother, female CEOs will have a heightened sense of anxiety and will tend to be risk averse (García & Herrero, 2021). When female CEOs tend to be risks averse, their risk tolerance will be low, which means that they avoid risky decisions. Debt will pose a risk of bankruptcy if used too often, so female CEOs will use lower levels of debt, as shown in the research results of Faccio et al. (2016), Huang and Kisgen (2013), and Wang et al. (2021).

H1: Women CEOs have a negative impact on funding policy

A higher level of education of the CEO will make him or her more motivated to take risky decisions in order to obtain a higher level of compensation. CEOs with a master's degree in business get higher compensation (Lam et al., 2013). When faced with risky debt financing policies, they will increase debt to finance the company's assets. Not only that, but they will also undertake more sophisticated strategies when managing financial policy because they have an education. This gives them more credibility, and the debt capacity will increase (Custódio & Metzger, 2014; Chua et al., 2021). Frye et al. (2018) showed that CEOs with an MBA education could adjust the capital structure faster. CEOs with higher levels of education have more knowledge, understand the benefits of debt and formulate the optimal level of debt. Companies that are led by a CEO with an MBA education will use more debt as part of the financing policy.

H2: CEO training has a positive impact on funding policy

There are two different views regarding the age of the CEO. Faccio et al (2016) found that CEO age negatively affects debt. This is because an older CEO tends to be risk averse. Cline and Yore (2016) explained that an older CEO has a decreased level of cognitive function. The result of Ferris et al. (2017) show that CEO age positively affects debt. Older CEOs will increase debt when it is not optimal. This is because older CEOs have more experience as CEOs and are more committed to the company. Faccio's result further supports the theory of behavioral finance, as well as the work of Beber and Fabrri (2012). A firm led by an older CEO will have lower debt in relation to the financing policy.

H3: The age of the CEO has a negative impact on funding policy.

2.4. The Chief Executive Officers characteristics and investment policy

Huang and Kisgen (2013) and Faccio et al. (2016) have shown that female CEOs put a lower capital expenditure in the investment policy. This is because investment is a risky decision that will incur fixed costs, while the resulting benefits are uncertain. Companies led by female CEOs will spend less capital on their investment policy.

H4: Women CEOs have a negative impact on investment policy

The more education the CEO has, the more sophisticated and higher the investment management skills. CEOs with an MBA or Master's degree in management get a master's

level business education. This allows them to better read market conditions and see the business opportunities available. The more aggressive the policy they use, and if they are faced with an investment policy, the higher the capital expenditure will be, as indicated by the results of Custódio and Metzger (2014). Behavioural finance theory also explains that higher education tends to lead to overconfidence, and the tendency to speculate and invest (Gupta et al. 2020). They are motivated by the highest possible remuneration (Lam et al. 2013).

H5: The education of the CEO has an impact on the investment policy.

The older the CEO, the more cautious, conservative and risk averse he or she is (Malm et al., 2021). This cautious nature is explained by the fact that the cognitive abilities of an older CEO will be reduced (Cline & Yore, 2016). Their accuracy when estimating will be lower and from a legal perspective, they will be bound to be cautious. In contrast, younger CEOs engage in more thinking that is open and tend to be more ambitious. For example, younger CEOs will use operating cash flow to generate more capital expenditure, as shown in the work of Faccio et al. (2016) and Ferris et al. (2017).

H6: The age of the CEO has a negative impact on the investment policy.

2.5. Chief Executive Officer's characteristics and company performance

If the CEO is female, she has better communication skills and is better able to control innovations and the company's reputation. They can satisfy consumers more and increase sales because they have a community character (Franke et al., 1997). Women improve the level of control to enhance the firm's ability to generate returns (Naseem et al., 2020; De Masi et al., 2021).

H7: The female CEO has a positive impact on company performance

According to Custódio and Metzger (2014), a CEO with a master's level business degree is more sophisticated in managing financial and investment policies, so they are able to achieve higher returns. In addition to the behavioral finance theory, CEOs with a master's level business degree are more aggressive in implementing strategies and they tend to take risks. According to the law of high risk and high return, high risks will be compensated by higher returns. Therefore, firms led by a CEO with a master's level business degree will have higher returns on assets, as proposed in the work of Lam et al (Green and Homroy (2018), and Naseem et al (2020).

H8: CEO education has a positive impact on company performance.

Two different opinions were expressing regarding the age of CEOs. Older CEOs have more experience. However, they may also face a decline in cognitive function (Cline & Yore, 2016), which decreases the accuracy of their estimated conditions. According to behavioral finance theory, older CEOs will be more conservative. Older CEOs are therefore more risk averse, leading to lower return on assets, as shown in the research results of Cline and Yore (2016).

H9: The age of the CEO has a negative impact on company performance

3. Methodology and presentation of research models

3.1. Research methodology

This research used a quantitative approach to causality. Quantitative analysts to confirm the existing theory did the quantitative approach. The researcher used 97 manufacturing companies listed on the London Stock Exchange (FTSE100) during the years 2015 to 2021 as a sample. The sampling technique used in this research was purposive sampling. The sampling criteria were (1) a manufacturing company listed on the London Stock Exchange (FTSE100), (2) a company that has completed its financial reporting, and (3) a company with the same reporting period.

Three models were using in this study, as there were three dependent variables, namely financing policy, investment policy and firm performance. The financing policy was measuring by the debt ratio. It indicates the proportion of interest-bearing debt used to finance the company's assets. The investment policy was measuring by the capital expenditure (Burney et al 2021). Capital expenditure shows the number of new fixed assets and was measured by fixed assets in year t minus fixed assets in year t -1 plus depreciation in year t to fixed assets in year t (Bailly; 2020). Firm performance can be measuring by the return on assets (ROA) (Fariha et al., 2021, Amara Tijani and Necib Adel 2021). In this research, ROA was calculating as the ratio of earnings before interest and taxes to total assets.

The independent variables in this study are the CEO characteristics controlled by the firm characteristics. This study used the three main characteristics of a CEO. These are female gender, CEO's master's level business education and CEO's age. Female gender was measuring by a dummy variable of one if the CEO was female and zero if the CEO was male. The CEO's master's level business education was measured by a dummy variable of one if the CEO had a Master of Business Administration or a Magister Management degree and 0 if the CEO had neither. The age of the CEO is measuring by the natural logarithm of the CEO's age up to year t. The control variables in this research are firm size and age. Firm size shows the wealth of the firm. It was measuring by the natural logarithm of total assets. The age of the firm was measuring by the natural logarithm of the firm's age.

3. 2. Presentation of the research models

In this research, we used the pooled OLS regression model as this model is commonly using in research using panel data. Our data consists of panel data including cross-sectional data (65 manufacturing firms) and time series data (period 2015-2021). By using only manufacturing firms in our research, we can control for industrial variation. According to Ozkan (2001), firms in the same industry as other manufacturing firms tend to face the same conditions. The use of the pooled OLS regression model was therefore appropriate in this research. The following three analytical models were using in this research:

$$DEBT_{it} = \beta_0 + \beta_1 FCEO_{it} + \beta_2 EDU_{it} + \beta_3 CAGE_{it} + \beta_4 SIZE_{it} + \beta_5 FAGE_{it} + \varepsilon_{it} \quad (01)$$

$$CPX_{it} = \gamma_0 + \gamma_1 FCEO_{it} + \gamma_2 EDU_{it} + \gamma_3 CAGE_{it} + \gamma_4 SIZE_{it} + \gamma_5 FAGE_{it} + \varepsilon_{it} \quad (02)$$

$$ROA_{it} = \alpha_0 + \alpha_1 FCEO_{it} + \alpha_2 EDU_{it} + \alpha_3 CAGE_{it} + \alpha_4 SIZE_{it} + \alpha_5 FAGE_{it} + \varepsilon_{it} \quad (03)$$

With:

it: Error term

DEBT_{it}: Interest-bearing debt ratio
EDU_{it}: Chief Executive Officers education

CPX_{it}: Capital expenditure ratio
CAGE_{it}: Chief Executive Officers Age

ROA_{it}: Return on assets ratio
SIZE_{it}: Company size

FCEO_{it}: Female Chief Executive Officers
FAGE_{it}: The age of the company

4. Results and Interpretations

4.1. Descriptive statistics

Descriptive statistics consist of an exploratory analysis of the sample and the research variables. Through this analysis, we will first determine the trend of each variable. The descriptive statistics of the study model are summarizing in Table 1.

The results show that 23.46% of the assets of manufacturing firms are financing by interest-bearing debt. The increasing investment in new fixed assets is only 14.15% on average. The proportion of female CEOs in the manufacturing industry from 2015 to 2021 was 7.07% and the remaining 92.93% were male.

Table 1: Descriptive statistics

	N	Min	Max	Mean	Std-Deviation
DEBT	679	0.0000	0.7562	0.2346	0.1836
CPX	679	-0.6824	0.7111	0.1415	0.1277
ROA	679	-0.1719	0.4	0.0825	0.0771
FCEO	679	0	1	0.0707	0.2573
EDU	679	0	1	0.2647	0.3978
Ln CAGE	679	3.7301	4.3465	4.0056	0.2119
CAGE (years)	679	39	76	49	1
SIZE	679	27.3426	37.1889	31.4313	1.1497
Ln FACE	679	0.6312	4.0001	3.4719	0.4678
FACE (years)	679	4	102	51	4

Source: STATA 14-software output

4.2 Corrélation analysis: Bivariate analysis

The correlation analysis aims to identify the relationships between the variables. Table 2, 3 and 4 summaries the correlation coefficients between the variables in the model for evaluating the quality of the integrated report discussed in this chapter, using the Pearson test for each model.

Based on Table 2, the results of the Pearson correlation analysis show that:

- There is a significant negative correlation between female CEO and interest-bearing debt at the 1% level;
- There is a significant negative correlation between CEO training and interest-bearing debt at the 1% level;
- There is a significant negative correlation between CEO age and interest-bearing debt at the 5% level.

Based on Table 3, the results of the Pearson correlation analysis highlight that:

- There is no significant correlation between female CEOs and capital expenditure ;
- There is a significant positive correlation between CEO training and capital expenditure at the 5% level;
- There is no significant correlation between CEO age and capital expenditure.

Meanwhile, based on Table 4, the results of the Pearson correlation analysis show that:

- There is a significant positive correlation between female CEO and firm performance at the 1% level;
- There is a significant positive correlation between CEO education and company performance at the 1% level;
- There is no significant correlation between CEO age and company performance.

Table 2: Pearson correlation model (M1)

		DEBT	FCEO	EDU	CAGE	SIZE	AGE
DEBT	Pearson	1					
Correlation							
	Sig. (2-tailed)						
FCEO	Pearson	-0.154	1				
Correlation							
	Sig. (2-tailed)	0.007					
EDU	Pearson	-0.342	0.061	1			
Correlation							
	Sig. (2-tailed)	0.000	0.302				

CAGE	Pearson	-0.145	0.051	-0.091	1		
Correlation							
	Sig. (2-tailed)	0.046	0.401	0.129			
SIZE	Pearson	0.139	0.051	-0.111	-0.002	1	
Correlation							
	Sig. (2-tailed)	0.017	0.392	0.052	0.993		
FAGE	Pearson	-0.172	0.118	0.051	-0.002	0.026	1
Correlation							
	Sig. (2-tailed)	0.005	0.039	0.373	0.991	0.672	

Source: STATA 14-software output

Tableau3: Modèle de corrélation de Pearson (M2)

		CPX	FCEO	EDU	CAGE	SIZE	AGE
CPX	Pearson	1					
Correlation							
	Sig. (2-tailed)						
FCEO	Pearson	0.051	1				
Correlation							
	Sig. (2-tailed)	0.423					
EDU	Pearson	0.121	0.061	1			
Correlation							
	Sig. (2-tailed)	0.041	0.302				
CAGE	Pearson	-0.089	0.051	-0.091	1		
Correlation							
	Sig. (2-tailed)	0.106	0.401	0.129			
SIZE	Pearson	0.330	0.051	-0.111	-0.002	1	
Correlation							
	Sig. (2-tailed)	0.000	0.392	0.052	0.993		
FAGE	Pearson	0.081	0.118	0.051	-0.002	0.026	1
Correlation							
	Sig. (2-tailed)	0.210	0.039	0.373	0.991	0.672	

Source: STATA 14-software output

Tableau4: Modèle de corrélation de Pearson (M3)

		ROA	FCEO	EDU	CAGE	SIZE	AGE
ROA	Pearson Correlation	1					
	Sig. (2-tailed)						

tailed)							
FCEO	Pearson	0.152	1				
Correlation							
	Sig. (2-tailed)	0.008					
EDU	Pearson	0.171	0.061	1			
Correlation							
	Sig. (2-tailed)	0.005	0.302				
CAGE	Pearson	-0.041	0.051	-0.091	1		
Correlation							
	Sig. (2-tailed)	0.491	0.401	0.129			
SIZE	Pearson	0.273	0.051	-0.111	-0.002	1	
Correlation							
	Sig. (2-tailed)	0.000	0.392	0.052	0.993		
FAGE	Pearson	0.156	0.118	0.051	-0.002	0.026	1
Correlation							
	Sig. (2-tailed)	0.008	0.039	0.373	0.991	0.672	

Source: STATA 14-software output

4.3 Multivariate analysis: Results and interpretations

This part is a possible empirical validation of the research hypotheses. After an exploratory study that dealt with the specificities of the sample and the functional relationships between the variables, we will perform a multivariate analysis.

Table 5: Regression results

Variable	Financing Policy		Investing Policy		Firm Performance	
	Coef	Sig	Coef	Sig	Coef	Sig
Constant	0.671	0.013	-0.364	0.036	-0.302	0.019
FCEO	-0.064	0.036	0.007	0.703	0.027	0.043
EDU	-0.129	0.000	0.041	0.007	0.036	0.002
CAGE	-0.128	0.008	-0.051	0.129	-0.012	0.551
SIZE	0.014	0.036	0.027	0.000	0.012	0.000
FAGE	-0.049	0.008	0.015	0.281	0.024	0.021
R2	18.2%		12.6%		11.47%	
F-Stat	12.746		10.327		9.227	
Observation	679		679		679	

Source: STATA 14-software output

➤ Female Chief Executive Officer and Funding Policy

The results of the multiple regression show that female CEOs (FCEOs) negatively and significantly affect interest-bearing debt. This result highlights that a firm led by a female

CEO uses (6, 4%) significantly less debt than firms led by male CEOs. These results are consistent with our **first research hypothesis** and the research results of Peillex and Comyns (2020). These results are also consistent with Ross et al (2017) social role theory indicating that women are cautious by nature as they are used to their social role as mothers. Indeed, it is riskier and more costly to do otherwise. Conversely, men like to violate regulations by trying to avoid taxes (Desmond 2019), and have a higher debt that will reduce the said taxes. The results of this study also show that behavioral finance theory remains relevant when it comes to explaining men and women's debt behavior in financing policy.

➤ **Mastery of business education and financing policy**

The results show that CEOs with a master's degree in business (EDU) negatively and significantly affect debt. This shows that firms led by CEOs with a master's degree in business have 13.8% less debt than firms led by CEOs without a master's degree in business. This result contradicts our **second research hypothesis** and contradicts the theory of behavioral finance as highlighted by the research results of Elmaguiri et al (2021). This is due to the fact that CEOs with a master's degree in business reduce debt. Thus, their decision is risk averse. In behavioral theory, it is expected that CEOs with this characteristic are overconfident because they feel better than average, and because they are motivated by the higher pay (King et al. 2016). This means that their risk tolerance should be higher. There are several possible causes for CEOs with a master's level business education to decrease debt. First, when an agency problem arises between the manager and the owner, a CEO with a master's level business education will avoid the bonding mechanism that arises due to a debt agreement. The bonding mechanism reduces the consumption of the benefiting manager and monitors him/her. Secondly, the main objective of the CEO is not to avoid the bonding mechanism but to avoid the risk of default.

➤ **Age of the Chief Executive Officer and funding policy**

The results show that the age of the CEO negatively and significantly affects the debt in financing policy. This means that firms led by older CEOs have lower debt in financing policy. These results confirm our **third research hypothesis** and the results found by Meier et al (2020) and d'Ooghe (2021). According to Cline and Yore (2016), older CEOs tend to be more risk averse and cautious as their cognitive abilities decline.

➤ **Female Chief Executive Officer and Investment Policy**

Female CEOs do not have a significant positive effect on capital expenditure. Female CEOs are therefore not a variable that affects capital expenditure in investment policy. This result does not support our **fourth research hypothesis** or the theory of behavioral finance. The results of Ismail et al (2019) confirm that women tend to be risk averse and reduce capital expenditure (Faccio et al. 2016). This is likely due to the fact that women are cautious. Women tend to hesitate when things are still uncertain and they buy the time needed to execute investment decisions. Conversely, when there is sufficient evidence, they increase their investments (Bellier et al, 2020). The results of the study by Faccio et al. (2016) show that female CEOs have a positive and significant effect on capital expenditure when the

investment can add significant value to the company.

➤ **Master's degree in business and investment policy**

CEOs with a master's degree in business positively and significantly affect capital expenditure in relation to investment policy. This result means that a firm led by a CEO with a master's degree in business has a significantly (4.1%) higher capital expenditure than a firm led by a CEO without a master's degree. Thus, our **fifth research hypothesis** is confirming and validating by the results of the research conducted by Sadoun and Zourdani (2020). MBA CEOs have a higher level of compensation (King et al. 2016) than non-MBA CEOs. This may motivate CEOs to make capital investment decisions. In addition, CEOs with a business-oriented education have higher cognitive abilities and the appropriate (business) knowledge to analyses capital expenditure decision making. The ability and motivation of compensation makes CEOs with this characteristic more confident. These results are consistent with the work of Boulay (2021), as CEOs with higher education tend to be risk-takers. However, behavioral finance theory does not prove that this behavior is the result of errors and biases in information processing. Behavioral finance theory can be exploring in the regression results of the influence of CEO education on firm performance and asset returns in the last model (Amara and Necib 2020)

➤ **Age of the CEO and investment policy**

The age of the CEO has no significant effect on capital expenditure. This result does not confirm our **sixth research hypothesis** and the results of Guillou, Mini and Varin (2019). The results indicate that young and old CEOs do not affect the high and low state of capital expenditure. This result is similar to the work of Defossé (2017). This is because older CEOs experience a decline in cognitive abilities because they age (Cline and Yore, 2016), which means that they process information incorrectly and produce losses. The CEO therefore needs to be more careful and sufficiently supported. As we know earlier, the CEO, as a manager, is required by law to prevent further losses. One way to do this is to invest in increasing assets when it is confirming that the investment will be profitable for the company.

➤ **Female CEO and compagnie performance**

The results show that female CEOs positively and significantly affect firm performance in the form of return on assets. These results are consistent with our **seven research hypothesis**, and with the research results of Daidai and Tamnine (2021). The results prove that although firms led by female CEOs tend to be risk averse. However, they can effectively manage the company's assets and generate a 3.02% higher return on assets than male-led companies generate. The return on assets increases because women CEOs can increase sales and reduce business costs. According to social role theory, women have maternal qualities such as prudence, friendliness and caring, which mean that they can understand and build relationships with their customers. Women CEOs can therefore increase the company's sales level. Secondly, female CEOs have a cautious nature and better monitoring skills, which means they can reduce the possibility of loss and cost increase (Frye et al 2018). This study shows that the theory of behavioral finance is still relevant. Thus, there is an information

process error and bias on the part of male CEOs, which is demonstrating by the fact that they take higher risks but produce lower returns.

➤ **Training in business management and business performance**

The result shows that CEOs with a master's level business education have a positive and significant effect on return on assets. Firms led by CEOs with a master's level business education have a 3.4% higher return on assets than firms led by CEOs without a master's level business education. The results of this study confirm our **eighth research hypothesis** and the findings of Bailly et al (2020). This is because firms led by CEOs with a master's degree in business education have the ability to generate higher profits. They are more sophisticated when it comes to managing their financing and investment policies (Adraoui et al, 2021). Second, they are more aggressive in implementing strategies (King et al. 2016). CEOs with a higher level of knowledge can use to reinforce predictions and take advantage of opportunities that arise. According to Touzi (2022), the company's ability to generate profits is greater. The results of this study show that even though entrepreneurs with a master's degree avoid debt and invest in more capital, this can result in higher returns on assets. Thus, firms led by highly educated CEOs do not experience agency problems as an indication of their avoidance of the bonding mechanism. They are neither overconfident nor overoptimistic, as they manage to generate higher profits.

➤ **Age of the Chief Execxutive Officer and firm performance**

The age of the CEO does not have a positive and significant effect on asset performance. The age of the CEO, whether young or old, does not affect the firm's performance. This result does not confirm either our **last research hypothesis**. This is because firm performance is more influencing by the cognitive abilities of the CEO. Older CEOs have a memory of their management experience of certain conditions which can then be used as a reference for decision making. This can improve company performance in a way that is measuring by return on assets. Conversely, companies led by older CEOs may also produce low ROA. CEOs over the age of 60 experience a decline in cognitive abilities, which means that the accuracy of their estimates may decrease (Tran et al (2021).

➤ **Company characteristics and financing Policy**

The result shows that the size of the company positively and significantly affects the debt financing policy. The result shows that large firms have a greater debt capacity. This result is consistent with the work of Poretti, Schatt, Magnan (2022). Large firms tend to have a more stable cash flow. This means that the firm is considiring by banks as better able to repay any debt, so their debt capacity increases. According to Case et al (2021), large firms tend to be "too big to fail", which then becomes a signal that is difficult for small firms to emulate. This signal will provide certainty to the creditor, and the creditor in turn will provide more debt capacity. The age of the company has a negative and significant effect on debt. These results are in line with the research results of Belenzon (2019). New firms tend to have less cash, while long-established firms have more free cash flow, which means that they have enough money to finance their activities.

➤ **Company characteristics and investment policy**

The size of the company positively and significantly affects the investment policy of capital expenditure. Thus, larger firms have a higher level of investment in new fixed assets (capital expenditure). The larger the firm, the richer it is and the more capacity it has to finance investment in new fixed assets. The age of the firm has a positive but insignificant effect on capital expenditure. This study shows that firm age does not affect capital expenditure. This result is not in line with the findings of Clouet (2022). Long-established firms do not always have much free cash flow to increase their investments and investment opportunities in turn.

➤ **Business characteristics and business performance**

The size of the company positively and significantly affects the return on assets. This result shows that the larger the company, the greater the ROA generated. This result confirms the results of Wamba (2022) research. This result is explained by the fact that the larger the size of the company, the richer and more important the assets under management. This creates an economy of scale. This reduces the cost of production per unit due to increased production levels (Alpman and Gardes 2021), which increases the return on assets. The age of the firm positively and significantly affects the ROA. This result shows that the older the firm, the greater the profit generated. Indeed, the older the company, the more familiar the company's products and brands are to the public and the higher the number of sales due to the better brand image.

5. Discussion and Conclusion

The results of our research show that female CEOs have a negative and significant effect on interest-bearing debt, and a significant positive effect on firm performance. However, there is no significant effect of female CEOs on capital expenditure. We also find that CEO education has a negative and significant effect on interest-bearing debt, but a positive and significant effect on capital expenditure and performance. At the same time, CEO age has a significant negative influence on interest-bearing debt, but no significant influence on capital expenditure and performance.

The academic implication of our study is that the results of our study regarding the influence of female CEOs and CEO age on financing policies (interest-bearing debt) are still relevant and support the theory of behavioral finance. Conversely, the results of our study concerning the influence of the behavior of a CEO with a master's degree in business administration (MM or MBA) on financing policies (interest-bearing debt) are less relevant and are not in line with the theory of behavioral finance. The results of this study regarding the influence of the behavior of CEOs with a Master's degree in business administration on investment policy (capital expenditure) are relevant and consistent with behavioral finance theory, but not the results of our study regarding the influence of gender, including female CEOs and CEO age. The results regarding the effect of a female CEO on firm performance in our research are consistent with behavioral finance theory, social role theory and the research results of Amara and Necib (2021). The results of this study on the influence of the behavior of CEOs with a business master background on firm performance (return on assets) support behavioral

finance theory. The results of Barber and Odean's (2001) work indicate that there is no overconfidence among CEOs with a business master's education such as an MM or an MBA. Thus, CEOs with a MM or MBA can produce higher returns on assets than firms led by CEOs without a MBA or MM education.

The managerial implications of the results of our study are that for shareholders of manufacturing companies, our results can be used as a reference when they want to use shareholder-voting rights at the GMS to elect CEOs. They can choose CEOs with a business management background, such as an MM or MBA. They may consider female CEOs. Similarly, for potential investors, they may prefer to invest in a company with the same characteristics. Financial management divisions of manufacturing companies and financial advisors should pay attention to the characteristics of CEOs (female gender, master's level business education and age) as there are differences in decision-making and performance. Some characteristics can be used as a benchmark to predict CEO performance and decision-making.

The total number of samples, namely 97 manufacturing companies, limits our study. Further research should increase the total sample of companies by extending the research period or by using samples of companies from other non-financial sectors, not only manufacturing. The results of our study show that the R-squared value in model 1 is 18.2%, while it is 12.6% in model 2 and 11.47% in model 3. Further research should add other characteristic variables that may influence the decisions made in a company.

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