

The impact on firm performance: evidence from CEO education**Silvina¹, Robin^{2✉}, Wisnu Yuwono³**

Faculty of Management, Universitas Internasional Batam, Indonesia

Abstract

The purpose of this paper is to examine the impact of CEO Education on Firm Performance. The sample covers 180 observations from IDX LQ45 listed on Indonesia Stock Exchange for period 2017 until 2020. The CEO Education is defined by the field of study in economic, management, business, or accounting. Firm Performance is measured by Tobin's Q from market based perspective. Board characteristics and Stock Returns are used as control variables in this paper. The result shows that there's a relationship between CEO Education and Firm Performance. CEO with economic, management, business, or accounting background have a positive and significant impacts on Firm Performance. The result becomes stronger with additional test of CEO Education measured by the level and quality of education on Firm Performance, supporting that CEO Education does enhance the Firm Performance.

Key words: CEO education; corporate governance; firm performance

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✉ Corresponding Author

Email Address: robin@uib.ac.id

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INTRODUCTION

The performance of an entity is highly depend on the right decision-making. The Chief Executive Officer (CEO) as the highest position in the entity plays an important role in making strategic decisions. CEO performance determines the success of the entity. Upper Echelons theory (Hambrick 1984) states that the strategy chosen by the CEO is a reflection of the cognitive values and background characteristics of board members have a significant impact on entity behavior in decision making. Education is one of the CEO characteristics that can be measured according to the Upper Echelons Theory. Education is an important dimension that helps to form the cognitive basis of CEO because education indicates insight, basic skills, values, and cognitive preferences of CEO.

In Indonesia, Education shows an increasing trend from year to year, where the gross enrollment ratio based on the PDDikti higher education statistics in 2019 shows a ratio of 35.69% and in 2018 shows a gross enrollment ratio of 34.58% (Kemdikbud. go.id, 2018). An increasing gross enrollment ratio indicates a higher public intention to the importance of higher education. Based on PDDikti data, it was found that the economic field is the second concentration with the most specialization after education concentration in Indonesia (Kemdikbud.go.id,n.d, 2018). Education concentration rate is 23%, followed with Economic concentration is 19% and social concentration is 18%. The high interest of the Indonesian people in the economic field is one of the gaps in this study where the results of the study are expected to prove that the tendency of public interest in the field of Economic has implications for better management of corporate financial management in the future to improve the Firm Performance of the entity.

Research Ghardallou, Borgi, and Alkhalifah (2020) found that the effect of CEO Education on Firm Performance is highly dependent on the indicators measured. CEOs with a bachelor's degree in business and administration, economics, finance, and accounting tend to improve entity performance. The educational level of the CEO as measured by the MBA, postgraduate and doctoral indicators has does not effect the financial performance of the entity. CEOs with postgraduate education levels significantly increase firm value. CEO with a business education background supports efficient decision making. CEOs who have a higher education level will be more confident and proactive in making risky decisions that can improve the innovative performance of the entity (Garcés-Galdeano and García-Olaverri 2019).

In contrast to the results of the research above, Lindorff and Jonson (2013) show that there is no relationship found between CEOs who graduated from MBA, economics, and other qualifications on the financial performance of entities. The influence of the CEO on an entity's financial performance is limited. The success of the entity can be caused by good management, an educated board of directors, and also external factors such as the right environment and timing (Parnell et al. 2012). The results of the study (Serra, Três, and Ferreira 2016) on 73 entities listed on the Brazilian Stock Exchange found that CEO competence proxied by a higher level of education did not lead to an increase in entity performance. CEO with technology specialization does not influence on the performance of the entity.

Previous studies with inconsistent results and limited research in Indonesia about CEO Education and Firm Performance prompted the author to conduct research on CEO Education and the impact on Firm Performance with board characteristics and stock return as control variables. The author chooses the object of research in the LQ45 Indonesia Stock Exchange period 2017 until 2020 considering that the performance of IDX LQ45 has a good level of liquidity, market capitalization, and fundamental.

The contribution of this paper included: first, this research provides a new understanding for board of commissioners and board of directors about the importance of education background on Firm Performance. On the other hand, this research provides insight for top management in selection criteria or requirements in term for appointed new CEO or CEO replacement. Second, this research provide an evidence to shareholders and potential investors in resolving agency problems and decision making.

CEO Education

Previous empirical studies found that CEOs with an education background in business and management improve bank performance. CEOs with undergraduate and postgraduate education levels assist executives in good teamwork and able to make good decisions effectively which contribute a positive impact on Firm Performance. CEOs with educational backgrounds in business and management

can take advantage of their specialization in making the right decisions to improve Firm Performance (Tulung & Ramdani, 2016).

Moreover, King et al. (2016) suggests that CEO with management background provide skills that enable the CEOs to manage the complexity of financial firm and achieve successful performance outcomes. The results of the study by Erin et al. (2019) in the health sector in Nigeria found that board financial education had a significant positive relationship with Firm Performance. Board financial education is proxied through undergraduate education level in finance, postgraduate education levels in finance, and professional qualifications in finance. Financial literacy should be considered as the main prerequisite for the appointment of company boards and basic financial training should be a top priority for all companies to ensure optimal firm financial performance (Erin et al. 2019). (Kirkpatrick, 2009; (Olayinka, Jonah, and Ame 2017) have argued that the failure of most financial institutions is due to the lack of financial expertise of board members. Consistent with this argument, (Uwuigbe 2017) argues that the supervisory function of the board cannot be left in the hands of board members who do not have knowledge and experience in financial matters.

A large number of board members who lack understanding of finance puts the organization at financial risk in terms of financial discussion meetings, many board members are lack attendance. Without the right level of financial understanding, the right questions may never be asked, which can ultimately affect the firm's performance. Corporate financial performance is an important concept related to how financial resources available to an entity are used effectively and efficiently to achieve the overall corporate goals of that entity, keep them in business and create greater prospects for future opportunities. The way of hows CEOs decides to manage and invest shareholder funds might determine the firm's performance and its ability to achieve company goals. According to the past empirical studies, the hypothesis comes out as follows:

H₁: CEOs major in economic, management, business, or accounting increase Firm Performance.

METHODS

Sample and Data

This paper uses a quantitative approach to test the hypotheses and analyzes the causal relationships between variables to obtain research results. CEO Education as an independent variable. Board characteristics and Stock Returns as control variables. Firm Performance as dependent variable. This research uses secondary data from Index LQ45 Indonesia Stock Exchange. The data of CEO Education, board characteristics, Stock Returns and Firm Performance are hand collected from company annual report for the period from 2017 until 2020 published in www.idx.co.id and official website of each entity if the annual report is not available in Indonesia Stock Exchange. To find out the research results, this paper used regression tests, Pearson correlation matrix, and additional robustness tests. Data processing used STATA version 13.1. The total sample of this paper was 180 observations. The industrial sectors of this paper include consumer cyclical, consumer non-cyclical, energy, financials, health care, industrials, infrastructures, properties, and real estate.

CEO Education Measurement

CEO Education is measured by the field of study in economic, management, business, or accounting or other fields of study. The measurement is following by Lindorff and Jonson (2013) and Ghardallou et al. (2020). The CEO Education is a dummy variable. To measure CEO Education, the variable set one if the CEO field of study in economic, management, business, or accounting and set zero if the CEO field of study is not economic, management, business, or accounting.

Firm Performance measurement

Firm Performance as the dependent variable of this paper is measured by market-based measures. Tobin's Q is used as Market Based Measurement (Joh and Jung 2016; Brahma 2020). The formula used in Tobin's Q is calculated from the sum of the market value of equity, the book value of debt, the book value of preference shares to total assets. The market-based measures by Tobin's Q followed by Kalsie and Shrivastav (2016).

Control Variables

This paper follows the literature and includes a group of control variables that are generally used in past empirical studies. The control variables of this paper consist of board characteristics and Stock Returns. Board characteristics include CEO Gender and CEO Age (Zaidi, Ali, and Sadraoui, 2021; Vo

et al., 2020; Ying and He, 2020), Board Size and Board Independency (Brahma, 2020; Fidanoski, Simeonovski, and Mateska, 2014; Kagzi and Guha, 2018). CEO Gender is a dummy variable, set one if the CEO is male and zero if the CEO is female. CEO Age is a natural logarithm of a CEO's age from birth until the year of data collected. Board Size is a natural logarithm of the board of commissioners and board of directors (Adams and Jiang, 2017). Board Independency is measured by total independent commissioners to total commissioners in the firms (Fidanoski et al., 2014). Stock Returns is defined by the variance of the stock closing price at the beginning of a certain period. If the purchase price of shares at the beginning of a certain period is greater than the closing price of shares, the return on shares is negative. On the other hand, if the selling price of shares at the beginning of a certain period is greater than the closing price of shares, then the return on shares is positive (Bui et al. 2019).

The model of regression to analyze the effect of CEO Education on Firm Performance as following:

$$FP_{i,t} = \alpha_0 + \alpha_1 CEdBM_{i,t-1} + \theta' Z_{i,t-1} + \gamma_i + \mu_t + \varepsilon_{i,t}$$

Notes:

$FP_{i,t}$ = Firm Performance by Tobin's Q

$CEdBM_{i,t-1}$ = a dummy variable, equal to one if the CEO is major in economic, management, business, or accounting and Zero if the CEO is not major in economic, management, business, or accounting.

$Z_{i,t-1}$ = the control variables from Board characteristics and Stock Return

γ_i = the industry fixed effect

μ_t = the year fixed effect

$\varepsilon_{i,t}$ = the error of the regression

FINDING AND DISCUSSION

Statistic Descriptive

Table 1 shows the statistic descriptive of all variables in this paper: CEO Education as Independent variable, Firm Performance as dependent variables, and board characteristics and stock return as control variables. Board characteristics in this paper consist of CEO Gender, CEO Age, Board Size and Board Independency. Board Independency, Stock Returns and Tobins'Q are winsorized at 1% and 99% to address the outliers. The statistic descriptive shows that the average of CEO with concentration in Economic, management, business, or accounting is 0,65 with standard deviation is 0,4783, means that the average of CEO Education in economic, management, business, or accounting is 65%. From 180 observations, 95% of CEO composition is male with mean 0,95. The mean value the CEO Age and Board Size after natural logarithm is 3,991 and 2,5223. The maximum Board Independency is 0,8 equals to 80% with mean value 0.4225 shows the average composition of independent board is 42% fulfil Indonesia Financial Services Authority (OJK) requirements with minimal Board Independency equals to 30% . The mean value of Stock Returns is 0.239 shows a positive return on 23,9%. Tobins Q shows an average of mean value equals to 2,1797. The result shows an average firm value in the paper is 2,18% from firm's assets.

Table 1.
Statistic Descriptive

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>CEdu_BM</i>	180	0.6500	0.4783	0.0000	1.0000
<i>CGen</i>	180	0.9500	0.2186	0.0000	1.0000
<i>CAge</i>	180	3.9914	0.1333	3.6109	4.2485
<i>BS</i>	180	2.5224	0.2569	1.7918	3.1355
<i>BIN</i>	180	0.4225	0.1072	0.2500	0.8000
<i>StockReturn</i>	180	0.2394	0.7868	-0.8275	4.6545
<i>Tobin's Q</i>	180	2.1797	2.6711	0.0700	17.6783

Pearson Correlation Matrix

Table 1 represent the Pearson correlation between CEO Education, Board Characteristics, Stock Return and Firm Performance. Pearson's correlation matrix results show that there is a positive correlation between CEO Education, Board characteristics and Stock Return except CEO Age . CEO Gender has a positive correlation 0.0488 with Firm Performance through Tobin's Q. CEO Age, Board

Size and Stock Return has a negative correlation with Tobin's Q with correlation value -0.0822, -0.0511 and -0.1160. Board Independency has a positive correlation with Firm Performance with value 0.4713. The main independent variable: CEO Education has a positive correlation with Firm Performance as measured by Tobin's Q with correlation value 0.1062.

Table 2.
Pearson Correlation Matrix

	<i>CEdu_BM</i>	<i>CGen</i>	<i>CAge</i>	<i>BS</i>	<i>BIN</i>	<i>StockReturn</i>	<i>Tobin's Q</i>
<i>CEdu_BM</i>	1.0000						
<i>CGen</i>	0.0989	1.0000					
<i>CAge</i>	-0.3759	0.0502	1.0000				
<i>BS</i>	0.1149	-0.0193	0.1181	1.0000			
<i>BIN</i>	0.0078	0.1587	0.2027	0.1888	1.0000		
<i>StockReturn</i>	0.1963	0.0594	-0.1691	-0.0391	-0.0087	1.0000	
<i>Tobin's Q</i>	0.1062	0.0488	-0.0822	-0.0511	0.4713	-0.1160	1.0000

Regression Result

Table 2 represents the regression result of CEO Education on Firm Performance with control variables of Board Characteristics and Stock Return. The model (1) is the regression result of CEO Education measured by Economic, management, business, or accounting background on Firm Performance, the t value is 2,5 with significant level at 5%. The result shows that CEO Education in Economic, management, business, or accounting has a positive impacts on Firm Performance. Model (2) shows the regression result of CEO Education in economic, management, business, or accounting with CEO Gender as control variable, the result shows that CEO Education is significant and impact Firm Performance positively with t value 2.47 at significant level 5%. Model (3) shows the impact of CEO Education in economic, management, business, or accounting has a positive and significant impact on Firm Performance after a control variable of CEO Age, the significant level is at 5% with t value 2.17. Model (4) result shows that CEO education in Economic, management, business, or accounting increase Firm Performance positively and significant with t value 2.47 at significant level at 5%. Model (5) uses Board Independency as variable control to measure the impact of CEO Education on Firm Performance, the result shows that CEO in economic, management, business, or accounting has a positive impact on Firm Performance with significant level at 1%. Model (6) measures the impact of CEO Education with Stock Returns as variable control on Firm Performance. The result shows that the CEO Education in economic, management, business, or accounting does increase Firm Performance with t value 2.61 at significant level 1%. Model (7) measure the CEO Education with full set of variables controls : Board Characteristics and Stock Return, the result shows that the CEO Education in Economic, management, business, or accounting has a positive and significant impact on Firm Performance, the t-stat value of CEO with major in economic, management, business, or accounting is 3.12 with a significant level at 1%. The influence of CEO Education on Firm Performance in Industrial Sector 3 (Consumer Non Cyclical), Sector 5 (Financial) and Sector 6 (Health Care) is at a significance level of 0.000. The hypothesis stated that CEO Education has a positive and significant effect on Firm Performance is accepted. The results of this study are supported by research of (Zaidi et al. 2021), (Ghardallou et al. 2020), (Gupta and Mahakud 2020), (Erin et al. 2019) and (Darmadi 2013).

Table 3.
Regression Result

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Constant</i>	0.5800 (1.10)	0.3413 (0.59)	13.0976** (2.42)	-0.5167 (-0.24)	-4.6326*** (-2.95)	0.9080* (1.79)	8.1558 (1.40)
<i>CEdu_BM</i>	1.3897** (2.50)	1.3825** (2.47)	1.1294** (2.17)	1.3985** (2.47)	1.4835*** (3.24)	1.4777*** (2.61)	1.3575*** (3.12)
<i>CGen</i>		0.2488 (0.68)					-0.5666 (-1.47)
<i>CAGE</i>			-3.1647** (-2.29)				-3.2781** (-2.34)
<i>BS</i>				0.4326 (0.56)			0.3520 (0.59)
<i>BIN</i>					13.3697*** (3.93)		14.0340*** (4.17)
<i>StockReturn</i>						-0.4262*** (-2.79)	-0.5589*** (-3.15)
<i>Control for :</i>							
<i>Year FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Industry FE</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Obs.</i>	180	180	180	180	180	180	180
<i>Adj. R²</i>	0.3065	0.3026	0.3193	0.3033	0.5050	0.3162	0.5399

Where the dependent variable is Firm Performance measured by Tobin's Q. CEdu_BM is a dummy variable than equal to one if the CEO is major in economic, management, business, or accounting and zero if the CEO is not major in economic, management, business, or accounting. Y_i , μ_t , $\varepsilon_{i,t}$ is board characteristics, stock return, year fixed effect and the error of the regression. Superscripts *, **, and *** means significance at the 10%, 5%, and 1% levels

Robustness tests

To shows the CEO Education is significant positive impact on Firm Performance, additional CEO Education measurement is being tested: (1) CEO Education measured by level of education (2) CEO Education measured by quality of education. More than one measurement of CEO Education is being tested in robustness tests for strenghten the impact of CEO Education on Firm Performance. The model of regression to analyze the effect of ceo education on firm performance as following:

$$FP_{i,t} = \alpha_0 + \alpha_1 CEQL_{i,t-1} + \gamma_i + \mu_t + \varepsilon_{i,t} \quad (1)$$

$$FP_{i,t} = \alpha_0 + \alpha_1 CEdLV_{i,t-1} + \alpha_1 CEQL_{i,t-1} + \alpha_1 CEdBM_{i,t-1} + \theta'Z_{i,t} + \gamma_i + \mu_t + \varepsilon_{i,t} \quad (5)$$

Notes:

- $FP_{i,t}$ = Firm Performance by Tobin's Q
 $CEQL_{i,t-1}$ = CEO Education_Quality is a dummy variable, equal to one if the CEO is graduate from oversea university and Zero if the Director is graduate from local university
 $CEdLV_{i,t-1}$ = CEO Education_Level of Education is a dummy variable, equal to one if the CEO is post graduate above and Zero if the CEO below post graduate degree.
 $CEdBM_{i,t-1}$ = a dummy variable, equal to one if the CEO is major in Economic, management, business, or accounting and Zero if the Director is not major in Economic, management, business, or accounting.
 $Z_{i,t-1}$ = the control variables from Board characteristics and Stock Return
 γ_i = the industry fixed effect
 μ_t = the year fixed effect
 $\varepsilon_{i,t}$ = the error of the regression

Table 3 represents the results of the robustness test regarding the impact of CEO Education as proxied by (1) CEO Education quality (2) CEO Education level on Firm Performance. Robustness results find that CEO graduated from oversea university are able to enhance Firm Performance more than CEO graduated from local university. The t value for CEO Education quality is 2.92 at significant level 1% with mean value 0.7870 proof that CEO Education quality has a positive and significant impact

on Firm Performance. The model (2) and (3) shows the impact of CEO Education defined by level of education on Firm Performance before and after control variables. The result confirmed that CEO level of education has positive and significant impact on Firm Performance with t value 2,25 at significant level 5% before control variables and t value 1,97 at significant level 10% after control variables. CEO with post graduate degree enhance Firm Performance. The result likely show that more higher level of CEO Education will bring a higher Firm Performance from market based perspective. Model (4) shows a result of a positive significant impact of CEO level of education, CEO major in Economic, management, business, or accounting along with control variables on Firm Performance. CEO major in Economic, management, business, or accounting is the most significant impact on Firm Performance with t stat value 1,0843 at significant level 1%. Model (5) shows the impact of all CEO Education measurement after control variables. The CEO major in Economic, management, business, or accounting has the most significant impact on Firm Performance with t value 2,73 significant level at 1%. CEO level of education has significant positive impact on Firm Performance at significant level 10%. The quality of CEO Education has a positive and not significant impact on Firm Performance.

Table 4.
Robustness tests

	(1)	(2)	(3)	(4)	(5)
Constant	1.0691** (2.59)	1.0022** (2.25)	11.5809* (1.97)	7.7710 (1.34)	7.6961 (1.27)
<i>CEdu_LV</i>		1.1037** (2.55)	0.9236*** (2.95)	0.4860* (1.92)	0.4780* (1.69)
<i>CEdu_QL</i>	0.7870*** (2.92)				0.0264 (0.08)
<i>CEdu_BM</i>				1.0843*** (2.74)	1.0870*** (2.73)
<i>CGen</i>			-0.2519 (-0.75)	-0.4827 (-1.25)	-0.4858 (-1.25)
<i>CAge</i>			-4.0662*** (-2.76)	-3.2146** (-2.30)	-3.2008** (-2.22)
<i>BS</i>			0.2781 (0.46)	0.3278 (0.56)	0.3295 (0.56)
<i>BIN</i>			13.7748*** (3.98)	13.9903*** (4.21)	13.9867*** (4.19)
<i>StockReturn</i>			-0.4223** (-2.36)	-0.5157*** (-2.81)	-0.5131*** (-2.65)
<i>Control for :</i>					
<i>Year FE</i>	Yes	Yes	Yes	Yes	Yes
<i>Industry FE</i>	Yes	Yes	Yes	Yes	Yes
Obs.	180	180	180	180	180
Adj. R ²	0.2723	0.2978	0.5253	0.5427	0.5399

CONCLUSIONS

This paper examines the impact of CEO Education on Firm Performance. The findings indicate that that CEO Education concentrated in economic, management, business, or accounting improves Firm Performance. Moreover, additional CEO Education measurement on the level and quality of education shows a positive impact on Firm Performance. In conclude, CEO Education enhances Firm Performance. This paper focus on measured Firm Performance from market-based perspective. Future research may consider to expand the research samples and measured Firm Performance from accounting based perspective.

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