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Do academics in the boardroom create value for firms?

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ABSTRACT

Objective: The objective of this article is to examine the value of academics as board members. Using upper echelons theory to explain how top management's characteristics affect corporate decision-making, we particularly investigated whether academics as independent directors contribute to firm performance. More specifically, we further assessed whether this enhancing value for the firm remains in the long run. Moreover, this study also examined the monitoring role of academics as independent directors in reducing investment inefficiency.

Research Design & Methods: This study used Indonesian non-financial listed firms covering the years 2007 through 2016 as our sample. We collect both financial and non-financial data from Indonesian Stock Exchange and firms' annual reports. We eliminated firm-year observations where information is missing and left an unbalanced panel consisting of 2461 firm-year observations. To test our hypothesis empirically, we initially used OLS regression as well as GLS random effects and several robustness tests to mitigate any endogeneity concern, such as propensity score matching and Hainmueller entropy balancing. Furthermore, we used quantile regression to examine the relation effect of academic boards across the entire distribution of investment inefficiency and also to mitigate the censoring problem.

Findings: Empirically, we showed that firms with academics in board members, on average, have better firm performance. The results hold to a battery of robustness checks. The analysis also suggests that the enhancing values of academic board members remain in the long run. Interestingly, we further found that the enhancing value of academics is more pronounced in reducing high-level of investment inefficiency.

Implications & Recommendations: Corporate governance literature offers upper echelons theory to explain how the top management's characteristics affect corporate decision-making. Similar to various demographic characteristics, this study confirmed the upper echelons theory in exposing the advising and monitoring role of academic independent directors. Personal characteristics of board members predict the outcome of corporate decision-making, even in emerging countries such as Indonesia.

Contribution & Value Added: This study shed light on the important role of academics as independent board members in delivering value for firms. Examining this issue in an emerging country such as Indonesia, where the corporate governance mechanism is more likely to be a rubber stamp, helps us highlight the actual value of hiring independent academic directors. Our evidence also contributes to the literature on the channel in which academics deliver value for firms by reducing investment inefficiency at the extreme level.

Article type: research article

Keywords: academic board; upper-echelon; firm performance; investment efficiency

JEL codes: G3, M4

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INTRODUCTION

Despite the fact that the 1998 financial crisis led to negative investment and economic growth in Indonesia, the emerging literature of corporate governance literature indicates that better law enforcement may benefit the business environment. Corporate governance studies document evidence on how law enforcement and investor protection are getting better in Indonesia. Previously, Soeharto's authoritarian regime maintained control over Indonesia's political and economic aspects for 32 years.

In 1997-1998, Indonesia was facing economic collapse which led to a transition from non-democratic rule to democratic regime (Chandra & Kammen, 2002).

Indonesia's emerging democracy and decentralization era involves new fiscal and financial reformation, political divergence, accountability, and policy-making latitude (Holzhacker, Wittek, & Woltjer, 2015). This situation has increased policy performance in corporate governance by allowing corporations to develop suitable governance mechanisms to protect their stakeholders using various mechanisms, *e.g*., external and independent supervisory boards. This mechanism allows firms to enhance control and accountability. Indonesia follows a two-tier board structure; board of directors (BOD) and board of commissioners (BOC). Vigilant assurance from independent directors or commissioners is vital in mitigating the possibility of expropriation (Habib, Muhammadi, & Jiang, 2017).

Incoming board members hired from the external possess unique characteristics, knowledge, and skills. Firms may hire external and independent board members with various backgrounds, such as celebrities, former bureaucrats or politicians, government officers, sportsmen, or professors. Over the last two decades, the literature on corporate governance literature has explored the top management's role in business decisions making. Most of this empirical research relies on the upper echelons theory of Hambrick and Mason (1984) to explain how managerial background characteristics affect organizational outcomes. This issue is important for several reasons. Firstly, top executives play a significant role in shaping the organization's culture (Schein, 2004). Secondly, from a managerial perspective, top management characteristics can be used to predict the outcome of strategic decisions. Upper echelons theory predicts that the strategic decisions made by the top management team would at least partially reflect the individual's behavioural tendencies (Olsen & Stekelberg, 2015).

Prior studies have explored observable upper-echelon characteristics of firms' executives and the outcomes. Jalal and Prezas (2012) show that firms with outside chief executive officers (CEO) experience higher stock performance, accounting profitability, capital investment, and better growth opportunities. In particular, Francis, Hasan, and Wu (2015) show that firms with directors from academia exhibit higher performance than their counterparts. They argue that these directors play essential governance roles through their advising and monitoring functions. While the extant literature enhances our understanding of how top management characteristics can influence the various outcomes, few studies examine the implications of academics in the boardroom.

This study aims to extend Francis, Hasan, and Wu (2015) who examined the role of professors as board members. They show the governance role of professors through several channels such as innovations and reducing information asymmetry. The presence of academic independent directors can enhance the transparency of information and ultimately lower the risk of financial crashes (Jin *et al.,* 2022). However, a limited study in the literature examines the channel through which academic boards provide value for firms. Understanding the impact of professors on decisions making is essential for two reasons. Firstly, board members as top management teams are responsible for strategic decisions. Despite the competing argument that academics' expertise may not be well suited to the real business environment, outside board members such as academics provide heterogeneity as well as others such as foreign directors, banker directors, politician directors, or lawyer directors. Secondly, Indonesia is one of the largest emerging economies in the world and a typical relationship-based society that is characterized by weak investor protection and relatively high corruption which provides a unique setting to examine whether professors as representatives of higher education play both monitoring and advising functions as independent board members or just a rubber stamp. Our findings also add to the existing body of literature on how academics contribute value to firms by decreasing investment inefficiency to an extreme degree.

However, the academic board member may not be randomly assigned by firms. Therefore, we performed two additional tests for robustness. Firstly, we conducted a matching estimation based on the propensity score by employing Caliper and Gaussian kernel matching. Secondly, we used Hainmueller's entropy balancing method to mitigate potential endogeneity concerns (Hainmueller, 2012). Results from these two empirical tests consistently indicated that our results were robust to endogeneity problems.

The remainder of this article is organized as follows. In section 2, we will discuss prior literature and hypothesis development. Section 3 will contain empirical strategy. Section 4 will discuss our findings. Finally, we will conclude the analysis with limitations and suggestions for the future line of research.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

There has been an ongoing debate on corporate governance issues since the 1980s, attracting the attention of investors, shareholders, regulatory offices, and academic researchers. Corporate governance provides a framework to reassurance security through monitoring and controlling firms' operations. Globalization of the business environment has led to cultural diversity, and thus the framework of corporate governance may have limitations to be applied in various environments. Therefore, companies must apply the corporate governance framework meticulously and carefully. Corporate governance needs to follow a principle-based approach rather than a rule-based approach (OECD, 2004).

The corporate governance framework denotes the distribution of responsibilities and rights among different stakeholders in the firm, such as board members, managers, stockholders, creditors, customers, and other stakeholders, and ensures proper decision-making (Abu-Tapanjeh, 2009). The business and economic research on the association between various corporate governance mechanisms and firm decisions has been recently growing. For example, Olsen and Stekelberg (2015) examine the influence of CEO narcissism on corporate tax aggressiveness. According to their evidence, a narcissistic CEO can lead to more aggression in tax avoidance. This evidence shows that individual characteristics of the CEO as a top management can affect forms' strategic decisions.

Using US firms from 1992 to 2004, Khan and Vieito (2013) examine whether the women CEO outperform men. Their results show that the CEO's gender can significantly influence firm performance. Women CEO's risk preference plays a vital role in decision-making and thus can influence firm performance. However, other study shows that the gender diversity of top management team should enhance performance for firms seeking growth (Dwyera *et al.*, 2003).

More recent studies highlight the significance of exploring specific types of external board members. Although the evidence is mixed when examining the various board members' characteristics, the literature shows that outside board members behave differently in monitoring and advising functions. Some of the outside board members can even destroy firms' value, *e.g*., politicians who pursue their political objectives rather than firm goals. For example, Bertrand *et al.* (2018) show that politically-connected boards are more likely to use a firm's resources, *e.g*., over-employment or factory miss-location, to pursue their political objectives at the firm's costs.

Academic board members are a type of external board members with unique characteristics. According to Francis *et al.* (2015), professors possess specialized knowledge and skills in their respective research domains such as business, technology, and law. Additionally, academic directors' main areas of proficiency revolve around academic subjects. Their characteristics can add value to the board's diversity as well as board efficacy and thus enhance the quality of firm decisions. As independent experts, academic directors also provide advising contribution thanks to their knowledge and perspectives. Dou *et al.* (2022) argue that independent directors with academic backgrounds can also exercise their theoretical foundation and scientific foundation to help management develop better risk mitigation. For instance, the monitoring role of academic boards can effectively reduce stock price crash risk by improving financial reporting quality and alleviating agency problems (Jin *et al.,* 2022).

Despite their advising contribution, academic directors with strong reputations and a tradition of independent thinking are more likely to be independent and thus they are expected to perform better at monitoring functions (Francis *et al*., 2015, Chen *et al*., 2019). Considering their reputation, academic directors can also effectively mitigate corporate myopia (Dou *et al.*, 2022). Furthermore, firms become highly regarded because academic directors are more likely to earn respect from society because of their higher level of integrity and knowledge (Chen *et al*., 2019). The social and scientific network can help companies gain non-market resources such as favoured graduates or university resources (Chen *et al*., 2019). In light of these discussions, we hypothesize:

H1: Academic board members are positively associated with firm performance.

The influence of academic boards on a range of corporate decisions could potentially lead to an increase in firm value. Additionally, we propose that academic board members may have a role in major corporate decisions such as limiting overinvestment. Academic boards are valuable in providing sound management advice for investments. Their presence in firms can lead to better decision-making and improved operations, ultimately benefiting the organization. Independent directors also play a crucial role in advising and monitoring firms (Francis *et al.*, 2015). The expertise of academic boards can give firms a competitive advantage, and their professional knowledge can be utilized to improve corporate projects (Wang, 2020). Consequently, academic boards can help limit over-investment and enhance the quality of corporate initiatives. Therefore, we formulated the following hypothesis:

H2: Academic board members are negatively associated with over-investment.

RESEARCH METHODOLOGY

This study's sample included all Indonesian-listed firms between the years 2007 and 2016. Due to their characteristics, we eliminated financial firms, because they had different regulatory environments and corporate governance characteristics. The background information of board members, as well as financial data, were hand-collected from the annual reports. The reports provided financial and non-financial information such as detailed board members' personal information including professional background, degree, gender, and affiliation. If the annual reports provided limited information about their board members, we further searched the university website, or other business or personal websites to identify and verify their professional backgrounds. Our final sample comprised 2461 firm-year observations. We winsorized the variables at the 1% level in both tails to mitigate potentially biased inference caused by the outliers (Arifin *et al.*, 2020).

We tested our first hypothesis by employing the subsequent regression model:

$$Performance_{i,t} = \alpha + \beta_1 ACD_{i,t-1} + \sum_n^j \beta_2 X_{i,t} + \beta_3 \eta_{i,t} + \beta_4 \upsilon_{i,t} + \epsilon_{it}, \quad (1)$$

in which $Performance_{i,t}$ represents the two firms' performance measures for firm *i* in year *t*. $ACD_{i,t}$ represents the academic boards which are constructed following Francis *et al*. (2015). We then created a dummy and continuous variable to capture the presence of academic board members. For the dummy variable, we valued one if a firm has at least one academic board member either a management board or a supervisory board, and zero otherwise. We also used a ratio equal to the number of academic board members divided by the total number of board members for continuous variables. To examine our second hypothesis, we employed quantile regression to examine the relationship effect of academic board across the entire distribution of investment inefficiency.

X_{it} is a vector of control variables. Larger firms are more likely to perform better, thus we controlled for $SIZE_{it}$. $SIZE_{it}$ is the firm's size calculated as the natural logarithm of total assets of firm *i* in year *t*. $INTANG_{it}$ is the intangible assets for firm *i* in year *t* scaled by total assets. We also controlled for effective tax rate (ETR), leverage (LEV_{it}), growth opportunities $(GROWTH_{it})$, Altman's Z-Score $(ZSCR_{it})$, and capital expenditure $(CAPEX_{it})$. The effective tax rate was included to control whether firms use the tax aggressiveness associated with profitability. Excessive debt creates direct cost, *e.g*., interest payments and debt covenants, which reduces profitability. Thus, leveraged firms are less likely to perform better and growth opportunities affect profitability.

To address concerns regarding the endogenous determination of academic board members and potential bias in the OLS estimation due to omitted variables, we employed propensity score and entropy balancing matching analysis. Table 1 provides detailed information on all variables.

Table 1. Variable definition

Variable	Description
ROA	Return on assets calculated as earnings before tax divided by total assets.
ROE	Return on equity calculated as earnings after tax divided by total equity.
ACD_P	Proportion of academics calculated as the number of academics sitting on the boards divided by total number of board members.
ACD_D	Dummy variable that is equal to one in firm that has at least one academic board, and zero otherwise.
SIZE	Natural logarithm of total assets.
INTANG	Intangible assets divided by total assets.
ETR	Effective tax rate calculated as tax expenses divided by earnings before tax.
LEV	Leverage calculated as total debt-to-equity ratio.
GROWTH	Market value of equity divided by book value of equity.
ZSCR	Altman Z-score for emerging markets computed as Z = 3.25 + 6.56 × (current assets-current liabilities/total assets) + 3.26 × (retained earnings/total assets) + 6.72× (EBIT/total assets) + 1.05 × (book value of equity/total liabilities).
CAPEX	The ratio of capital expenditure to total assets.

Source: own study.

RESULTS AND DISCUSSION

In Table 2, we provide a summary of the descriptive statistics for both the dependent and independent variables, as well as the control variables for both the total sample and sub-sample. Within 2377 firm-years, 149 firm-years have at least one academic on their board members. Panel A of Table 2 suggests that 6% of our sample had academics on their board members. For firm-level characteristics, the results suggest that an average sample firm has ROA and ROE of 6.12% and 8.74% respectively. The average discretionary abnormal accrual was 0.0012, the average intangible asset ratio was 1.76%, and the average leverage ratio was 81.86%.

Regarding sub-sample analysis, we found that on average firms with an academic board member were more likely to have higher ROA and ROE. We also noticed that the likelihood of managing earnings was lower for firms with academic board members. Similarly, the larger firms were more likely to have academic board members. Furthermore, we found insignificant differences in terms of intangibility, tax aggressiveness, leverage, growth opportunity, bankruptcy risk, and capital expenditure ratio between firms with academic and non-academic boards.

Table 3 presents a correlation matrix between all variables. Our two measures of firm performance (ROA and ROE) were positively correlated. We also found that ACD_P and ACD_D were positively correlated with ROA and ROE. Similarly, SIZE was positively correlated with ROA and ROE, indicating that larger firms were associated with better performance. As predicted, ROA and ROE were negatively correlated with LEV.

We first explored the impact of academic board members on firm performance. Table 4 presents the results of the baseline model using ordinary least squares (OLS) regressions including industry and year fixed-effect. Standard errors were adjusted at the firm-level clustering. Column 1(2) reports the results with the ROA(ROE) as the dependent variable. The significantly positive coefficients of ACD_P suggest that academics as board members can enhance firm performance. The results held when we replaced ACD_P with ACD_D (dummy variable). We also found that academics positively and significantly affect the sales-to-employee ratio (untabulated). As a result, the statistical significance of the impact of academic boards on firm performance provided support for Hypothesis 1. The results of this study are consistent with previous research that highlights the importance of academic boards in improving the performance of firms (Francis *et al*., 2015; Jiang & Murphy, 2007; Chen *et al*., 2019).

Table 2. Descriptive statistics

Panel A. Full sample						
Variables	**N**	**Mean**	**SD**	**p25**	**Median**	**p75**
ROA	3244	0.0612	0.1026	0.0106	0.0499	0.0996
ROE	3244	0.0874	0.2515	0.0001	0.0720	0.1806
ACD_P	3440	0.0064	0.0296	0.0000	0.0000	0.0000
ACD_D	3446	0.0522	0.2225	0.0000	0.0000	0.0000
DAC	3244	0.0012	0.1762	-0.0155	0.0001	0.0419
SIZE	3244	21.1428	1.8142	19.9135	21.1762	22.3953
INTANG	3237	0.0176	0.0512	0.0001	0.0001	0.0044
ETR	3244	0.2193	0.2107	0.0001	0.2350	0.2993
LEV	3244	0.8186	1.7322	0.0678	0.4168	1.0190
GROWTH	3244	0.9063	0.3162	0.9189	0.9897	1.0531
ZSCR	3901	6.4026	7.0657	4.3335	6.1328	8.6862
CAPEX	3244	0.1530	0.2946	0.0104	0.0681	0.1725
Panel B: Sub-sample						
Variables	**Academic board**		**Non-academic board**		**Diff.**	**p-value**
	Mean	**SD**	**Mean**	**SD**		
ROA	0.123	0.1026	0.059	0.1008	0.065	0.000***
ROE	0.225	0.2515	0.080	0.2420	0.145	0.000***
DAC	-0.025	0.1762	0.007	0.1619	-0.032	0.022**
SIZE	20.553	1.8142	21.238	1.7945	-0.685	0.000***
INTANG	0.011	0.0512	0.018	0.0504	-0.007	0.106
ETR	0.223	0.2107	0.219	0.2146	0.004	0.8647
LEV	0.902	1.7322	0.806	1.6876	0.095	0.511
GROWTH	0.908	0.3162	0.927	0.2926	-0.019	0.433
ZSCR	7.228	7.0657	6.429	6.6166	0.799	0.111
CAPEX	0.152	0.2946	0.146	0.2866	0.005	0.823

Source: own study.

Table 3. Correlation matrix

Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
(1) ROA	1.0000	–	–	–	–	–	–	–	–	–	–	–
(2) ROE	0.7632	1.0000	–	–	–	–	–	–	–	–	–	–
(3) ACD_P	0.1220	0.1054	1.0000	–	–	–	–	–	–	–	–	–
(4) ACD_D	0.1415	0.1346	0.9190	1.0000	–	–	–	–	–	–	–	–
(5) DAC	0.1828	0.0852	-0.0773	-0.0452	1.0000	–	–	–	–	–	–	–
(6) SIZE	0.1607	0.1362	-0.1116	-0.0875	0.2801	1.0000	–	–	–	–	–	–
(7) INTANG	-0.0157	-0.0298	-0.0447	-0.0319	0.0081	0.1775	1.0000	–	–	–	–	–
(8) ETR	0.1014	0.1345	-0.0110	0.0039	0.0174	-0.0003	0.0034	1.0000	–	–	–	–
(9) LEV	-0.1135	-0.1841	-0.0082	0.0161	0.0095	0.0689	-0.0030	-0.0125	1.0000	–	–	–
(10) GROWTH	-0.0442	-0.0107	-0.0165	-0.0163	0.0734	0.2082	0.0238	-0.0177	0.0289	1.0000	–	–
(11) ZSCR	0.1040	0.0801	0.0196	0.0183	0.0463	0.0927	0.0625	-0.0063	-0.0565	0.0131	1.0000	–
(12) CAPEX	0.1176	0.0933	-0.0198	0.0049	0.0554	0.0919	0.1124	-0.0408	0.0219	0.0121	0.0362	1.0000

Source: own study.

Among the control variables, the coefficient of LEV and INTANG was significantly negative and suggested that firms with higher leverage and more intangible assets have a lower performance. The CAPEX coefficient was significantly positive, consistent with the prediction that firms with higher investment in capital expenditure have a higher performance. The adjusted R2 ranged from 11.70% to 14.90% suggesting that a significant portion of firm performance variance has been explained. Overall, we found consistent evidence for our central hypothesis that academic board members improve performance.

Table 4. Academic boards and firm performance: OLS regressions

Variable	(1)	(2)	(3)	(4)
	ROA	**ROE**	**ROA**	**ROE**
ACD_P_t	0.516***	1.044***	–	–
	(2.937)	(3.009)	–	–
ACD_D_t	–	–	0.074***	0.166***
	–	–	(3.233)	(3.206)
DAC_t	0.097***	0.077**	0.095***	0.073**
	(4.575)	(2.050)	(4.490)	(1.968)
$SIZE_t$	0.010***	0.024***	0.010***	0.024***
	(3.828)	(4.352)	(3.815)	(4.387)
$INTANG_t$	-0.113	-0.330**	-0.116	-0.335**
	(-1.549)	(-2.006)	(-1.582)	(-2.025)
ETR_t	0.047***	0.150***	0.046***	0.147***
	(3.760)	(4.226)	(3.712)	(4.209)
LEV_t	-0.007***	-0.029***	-0.008***	-0.029***
	(-4.664)	(-3.415)	(-4.963)	(-3.612)
$GROWTH_t$	-0.023	-0.018	-0.022	-0.017
	(-1.523)	(-0.599)	(-1.494)	(-0.563)
$ZSCR_t$	0.001**	0.002*	0.001**	0.002*
	(2.263)	(1.821)	(2.274)	(1.811)
$CAPEX_t$	0.037***	0.076***	0.035***	0.073***
	(3.652)	(2.993)	(3.581)	(2.893)
Constant	-0.111**	-0.410***	-0.110**	-0.411***
	(-2.026)	(-3.621)	(-2.004)	(-3.640)
Obs.	2 461	2 461	2 463	2 463
Adj. R-squared	**0.144**	**0.117**	**0.149**	**0.125**
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Source: own elaboration. The t-statistics, reported in parentheses, are based on clustered standard errors at the firm level. *, **, and *** indicate significance at 10%, 5%, and 1% level, respectively.

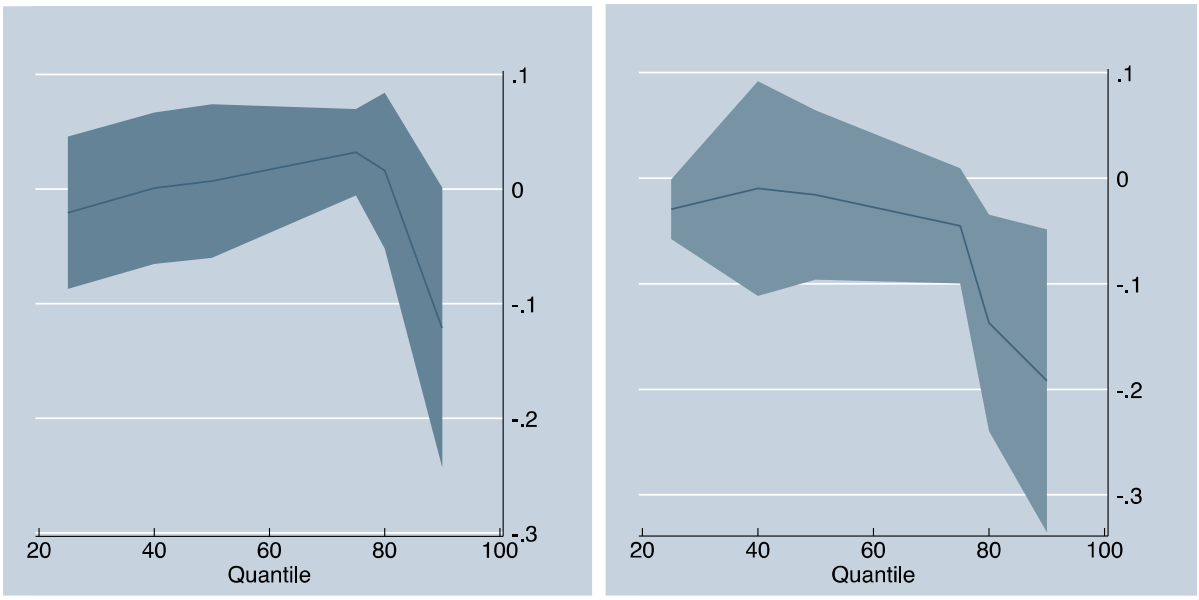
Since our main independent variables (ACD_P and ACD_D) are less likely to vary across time, therefore GLS random effects can provide a more efficient estimation than pooled OLS estimation. Table 5 reports the results of GLS random effects estimation. Consistently, Column 1(3) in Table 5 shows a significant positive influence of ACD_P (ACD_D) on ROA at 1% level. The results held when we used ROA in Column (2) and (4). These results support our first hypothesis, indicating that firms with academic board members have higher firm performance than firms with non-academic board members. (Francis *et al*., 2015; Jiang & Murphy, 2007; Chen *et al*., 2019).

As for our second hypothesis, we examined whether academics help firms in reducing investment inefficiency, using quantile regression to examine the relationship effect of academic board across the entire distribution of investment inefficiency and mitigate the censoring problem (Adelino & Dinc, 2014). We used similar control variables. Table 6 shows the regression results. We employed the investment inefficiency models of Biddle *et al.* (2009) and Ağca and Mozumdar (2008) to estimate the expected level of investment. Following Ho *et al*. (2022), we used the absolute value of the residual from both models to estimate investment inefficiency which reflects the deviation of efficient investments. Interestingly, the results consistently show that the coefficient of ACD_P is negative and significantly affects investment inefficiency conditioned at the 90th percentile. This evidence indicates a stronger negative relationship between academic boards and a decrease in investment inefficiency for the highest-level inefficiency. Our hypothesis is supported by the results, which emphasize the oversight function of academic directors in enhancing the quality of corporate decisions, *e.g.*, investment (Francis *et al*., 2015; Jiang & Murphy, 2007).

Table 5. Academic boards and firm performance: GLS random effects

Variable	(1)	(2)	(3)	(4)
	ROA	**ROE**	**ROA**	**ROE**
ACD_P_t	0.306***	0.673***	–	–
	(3.164)	(3.020)	–	–
ACD_D_t	–	–	0.044***	0.116***
	–	–	(3.469)	(4.002)
DAC_t	0.094***	0.060**	0.093***	0.059**
	(8.922)	(2.154)	(8.861)	(2.109)
$SIZE_t$	0.010***	0.022***	0.010***	0.022***
	(5.619)	(5.173)	(5.587)	(5.244)
$INTANG_t$	-0.076	-0.263**	-0.077	-0.265**
	(-1.620)	(-2.243)	(-1.634)	(-2.275)
ETR_t	0.018**	0.084***	0.018**	0.084***
	(2.196)	(3.849)	(2.165)	(3.845)
LEV_t	-0.004***	-0.025***	-0.004***	-0.026***
	(-3.768)	(-8.791)	(-3.816)	(-8.881)
$GROWTH_t$	-0.007	0.013	-0.007	0.013
	(-0.964)	(0.667)	(-0.945)	(0.676)
$ZSCR_t$	0.001	0.001	0.001	0.001
	(1.593)	(1.285)	(1.635)	(1.329)
$CAPEX_t$	0.020***	0.034**	0.020***	0.034**
	(3.320)	(2.111)	(3.305)	(2.099)
Constant	-0.139***	-0.373***	-0.136***	-0.372***
	(-3.315)	(-3.895)	(-3.264)	(-3.941)
Obs.	2 461	2 461	2 463	2 463
R-squared Overall	**0.1388**	**0.1197**	**0.1436**	**0.1284**
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Source: own study.



Panel A. Investment model of Biddle et al. (2009) Panel B. Investment model of Ağca and Mozumdar (2008)

This Figure plots the coefficients against the corresponding quantiles.

Figure 1. Quantile Regression Plot

Source: own elaboration.

Table 6. Quantile regressions

Panel A. Full sample				
Variable	**(1)**	**(2)**	**(3)**	**(3)**
	Q25	**Q50**	**Q75**	**Q90**
ACD_P $_t$	-0.021	0.001	0.032	-0.121**
	(-0.66)	(0.21)	(1.39)	(-2.06)
Control Variables	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes
Obs.	2 461	2 461	2 461	2 461
Pseudo R-squared	0.005	0.003	0.002	0.014
Industry Dummy	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes
Panel B. Sub-smaple				
Variable	**(1)**	**(2)**	**(3)**	**(3)**
	Q25	**Q50**	**Q75**	**Q90**
ACD_P $_t$	-0.029**	-0.016	-0.045	-0.192***
	(-2.04)	(-0.39)	(-1.63)	(-2.62)
Control Variables	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes
Obs.	2 461	2 461	2 461	2 461
Pseudo R-squared	**0.012**	**0.071**	**0.059**	**0.075**
Industry Dummy	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes

Note: investment inefficiency is the residual of the following equations: $Investment_{i,t}=\alpha + \beta_1 SalesGrowth_{i,t-1}+ \epsilon_{it}$ (Biddle *et al.*, 2009) and $Investment_{i,t}=\alpha + \beta_1 TobinsQ_{i,t-1}+ \beta_2 CF_{i,t-1}+\epsilon_{it}$ (Ağca & Mozumdar, 2008). *, **, and *** indicate significance at 10%, 5%, and 1% level, respectively.
Source: own study.

Robustness Tests: Endogeneity

Endogeneity could be a problematic issue when examining the influence of board characteristics. In the context of our study, the sample selection bias issue would indicate that the board characteristics and their determinants were jointly determined. Therefore, we conducted a battery of robustness tests to address endogeneity issues. Firstly, we used propensity score matching (PSM) to match firms with academic board members with control firms to mitigate any selection bias on observed variables. In PSM, we employed two matching procedures: Caliper and Gaussian Kernel. We used specific firm characteristics for each procedure to estimate the likelihood of having academic board members. Table 7 shows that our final matched sample for PSM comprises 2209 firm-year observations. As in the full sample, we compared the means of ROA for the subsamples of firms with academic and non-academic boards. The results continued to support our previous evidence on the higher performance of firms with academics on their board members.

The observable differences across treated and control groups can be argued to explain differences in firm performance across these two groups, probably in a non-linear way. To address this point of concern, we employed entropy balancing as in Hainmueller (2012). By using this approach, it is possible to achieve equilibrium concerning the first three moments of discernible firm characteristics between the treated and control groups. After achieving this balance, the analysis can be re-evaluated using this newly aligned data structure. This method ensures that the features of treated and control groups are similar in terms of mean, standard deviation, and skewness. The result strengthens the findings of PSM's findings and supports our primary evidence that firms with academics on their board members are more likely to have a better performance.

Table 7. Propensity score matching and entropy balancing

Propensity Score Matching	**Caliper**		**Gaussian Kernel**	
Difference in ROA	0.0621*** (3.74)		0.0719*** (5.64)	
Bootstrapped 100 replications	**Caliper**		**Gaussian Kernel**	
	Coef.	**z-stat**	**Coef.**	**z-stat**
ACD_D	0.071***	5.06	0.071***	5.55
Std. Err.	0.014	–	0.013	–
Observations	2 209	–	2 209	–
Entropy Balancing	**Coef.**	**t-stat**	–	–
ACD_D	0.436***	5.71	–	–
Control variables	Yes	–	–	–
Year FE	Yes	–	–	–
Industry FE	Yes	–	–	–
Observations	2 461	–	–	–
R^2	**0.201**	–	–	–

Source: own study.

Additional Analysis: Long-term Performance

This subsection examines the long-term impact of academic board members on the firm performance of academic board members. Table 8 reports the cross-sectional OLS regressions of long-term performance. In this regression specification, the dependent variables were the long-term ROA and ROE over two-, three-, and four-year periods. We included similar firm characteristics in the regression as control variables. Both in Panel A and Panel B of Table 8, the coefficients of ACD are significantly positive in all six specifications. Consistently, the results in Panel C of Table 7 show that the firms with academic directors exhibit higher sales per employee. Overall, these findings support the evidence of Francis *et al.* (2015) showing a positive long-run market reaction following the appointment of an academic director.

CONCLUSIONS

The upper echelons theory suggests that board members' characteristics have a significant influence on strategic corporate decisions. Following this notion, this study examined whether the background of board members such as academics can alleviate firm performance. Using data on Indonesian public firms from 2007-2016, we found that firm performance significantly improves in firms that hire academic board members. Furthermore, our evidence also suggests that this effect remains in the long run. The results are robust to a battery of sensitivity tests, including when we use propensity score and entropy balancing to mitigate the endogeneity concerns. These findings are consistent with the notion that firms benefit from the particular expertise of academic board members. Academia can improve a board's diversity and enrich different problem-solving perspectives. Because the impact of academic board members may depend on the level of investment inefficiency, our further analysis focused on the impact of academics at extreme levels of investment inefficiency. We found that investment inefficiency decreases for firms with a high investment inefficiency group. Our evidence extends prior literature examining the role of board member characteristics' role in corporate decision-making.

Table 8. Academic boards and long-term performance

Panel A			
Variable	**(1)**	**(2)**	**(3)**
	ROA $_{t+2}$	**ROA $_{t+3}$**	**ROA $_{t+4}$**
ACD_P$_t$	0.580***	–	–
	(3.026)	–	–
ACD_P$_t$	–	0.583***	–
	–	(2.893)	–
ACD_P$_t$	–	–	0.606***
	–	–	(2.986)
Control Variables	Yes	Yes	Yes
Constant	Yes	Yes	Yes
Obs.	1 913	1 651	1 387
Adj. R-squared	**0.112**	**0.116**	**0.119**
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Panel B			
Variable	**(1)**	**(2)**	**(3)**
	ROE $_{t+2}$	**ROE $_{t+3}$**	**ROE $_{t+4}$**
ACD_D$_t$	1.215***	–	–
	(3.197)	–	–
ACD_D$_t$	–	1.193***	–
	–	(2.865)	–
ACD_D$_t$	–	–	1.174***
	–	–	(2.816)
Control Variables	Yes	Yes	Yes
Constant	Yes	Yes	Yes
Obs.	1 913	1 651	1 387
Adj. R-squared	**0.089**	**0.095**	**0.085**
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Panel C			
Variable	**(1)**	**(2)**	**(3)**
	SALEM $_{t+2}$	**SALEM $_{t+3}$**	**SALEM $_{t+4}$**
ACD_P $_t$	4.051**	–	–
	(2.21)	–	–
ACD_P $_t$	–	3.888**	–
	–	(2.02)	–
ACD_P $_t$	–	–	3.631*
	–	–	(1.95)
Control Variables	Yes	Yes	Yes
Constant	Yes	Yes	Yes
Obs.	1 466	1 193	937
Adj. R-squared	**0.1997**	**0.1914**	**0.1620**
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Note: ROA = earnings before tax divided by total assets; ROE = earnings after tax divided by total equity; ACD_P = the proportion of academics on the boards divided by the total number of board members; SALEM = total sales divided by the total number of employees. The t-statistics, reported in parentheses, are based on clustered standard errors at the firm level. *, **, and *** indicate significance at 10%, 5%, and 1% level, respectively.

Source: own study.

Therefore, our results provide noteworthy policy implications by providing empirical evidence to both regulatory bodies and industries on how academic board members could improve firms' performance. Although firms may hire independent board members to only fulfil its obligation to the regulation, careless hiring will provide no additional value to the firms. Therefore, academic and expertise background is necessary to be considered in board member hiring. Hence, firms are encouraged to hire academics to their boardroom to bring diversity into it and to benefit from their expertise and scientifical knowledge to improve performance and firms' value in the long run. We acknowledge the limitation of our study, particularly regarding the academic reputability of the academic board. Academic board members from top universities may bring different impact compared to those from low-ranked or non-reputable universities. Hence, we suggest for future research to explore academic reputation, including the academic board's university reputation, and to dig deeper into how it may affect firms' long-term value.

REFERENCES

Abu-Tapanjeh, A.M. (2009). Corporate governance from the Islamic perspective: A comparative analysis with OECD principles. *Critical Perspectives on Accounting*, *20*(5), 556-567. https://doi.org/10.1016/j.cpa.2007.12.004

Adelino, M., & Dinc, S.I. (2014). Corporate distress and lobbying: Evidence from the Stimulus Act. *Journal of Financial Economics, 114*(2), 256-272. https://doi.org/10.1016/j.jfineco.2014.07.004

Ağca, Ş., & Mozumdar, A. (2008). The impact of capital market imperfections on investment-cash flow sensitivity. *Journal of Banking and Finance, 32*(2), 207-216. https://doi.org/10.1016/j.jbankfin.2007.02.013

Altman, E.I., Iwanicz-Drozdowska, M., Laitinen, E.K., & Suvas, A. (2017). Financial Distress Prediction in an International Context: A Review and Empirical Analysis of Altman's Z-Score Model. *Journal of International Financial Management and Accounting*, *28*(2), 131-171. https://doi.org/10.1111/jifm.12053

Arifin, T., Hasan, I., & Kabir, R. (2020). Transactional and relational approaches to political connections and the cost of debt. *Journal of Corporate Finance*, 101768. https://doi.org/10.1016/j.jcorpfin.2020.101768

Bertrand, M., Kramarz, F., Schoar, A., & Thesmar, D. (2018). The Cost of Political Connections. *Review of Finance*, *22*(3), 849-876. https://doi.org/10.1093/rof/rfy008

Biddle, G.C., Hilary, G., & Verdi, R.S. (2009). How does financial reporting quality relate to investment efficiency?. *Journal of Accounting and Economics, 48*(2-3), 112-131. https://doi.org/10.1016/j.jacceco.2009.09.001

Chandra, S., & Kammen, D. (2002). Generating reforms and reforming generations: military politics in Indonesia's democratic transition and consolidation. *World Politics*, *55*(1), 96-136. https://www.jstor.org/stable/25054211

Chen, J., Garel, A., & Tourani-Rad, A. (2019). The value of academics: Evidence from academic independent director resignations in China. *Journal of Corporate Finance, 58*, 393-414. https://doi.org/10.1016/j.jcorpfin.2019.06.003

Dou, C., Yang, X., Liu, W., & Sun, R. (2022). Can independent directors with macro vision relieve debt default–from the perspective of independent director's 'advisory' function. *China Journal of Accounting Studies, 10*(1), 73-94. https://doi.org/10.1080/21697213.2022.2082721

Dwyera, S., Richard, O., & Chadwick, K. (2003). Gender diversity in management and firm performance: The influence of growth orientation and organizational culture. *Journal of Business Research, 56*, 1009-1019. https://doi.org/10.1016/S0148-2963(01)00329-0

Dyreng, S.D., Hanlon, M., & Maydew, E.L. (2010). The effects of executives on corporate tax avoidance. *The Accounting Review, 85*, 1163-1189. https://www.jstor.org/stable/20744155

Francis, B., Hasan, I., & Wu, Q. (2015). Professors in the boardroom and their impact on corporate governance and firm performance. *Financial Management, 44*(3), 547-581. https://doi.org/10.1111/fima.12069

Habib, A., Muhammadi, A.H., & Jiang, H. (2017). Political connections, related party transactions, and auditor choice: Evidence from Indonesia. *Journal of Contemporary Accounting and Economics, 13*(1), 1-19. https://doi.org/10.1016/j.jcae.2017.01.004

Hainmueller, J. (2012). Entropy balancing for causal effects: A multivariate reweighting method to produce balanced samples in observational studies. *Political Analysis, 20*(1), 25-46. https://doi.org/10.1093/pan/mpr025

Hambrick, D., & Mason, P. (1984). Upper Echelons: The Organization as a Reflection of Its Top Managers. *The Academy of Management Review, 9*(2), 193-206. https://doi.org/10.2307/258434

Ho, K.C., Li, H.M., & Gong, Y. (2022). How does corporate social performance affect investment inefficiency? An empirical study of China market. *Borsa Istanbul Review, 23*(2), 515-524. https://doi.org/10.1016/j.bir.2021.06.016

Holzhacker, R.L., Wittek, R., & Woltjer, J. (2015). Decentralization and Governance for Sustainable Society in Indonesia. *Decentralization and Governance in Indonesia.* https://doi.org/10.1007/978-3-319-22434-3_1

Jalal, A.M., & Prezas, A.P. (2012). Outsider CEO succession and firm performance. *Journal of Economics and Business, 64*(6), 399-426. https://doi.org/10.1016/j.jeconbus.2012.09.001

Jiang, B., & Murphy, P.J. (2007). Do business school professors make good executive managers?. *Academy of Management Perspectives, 21*(3), 29-50. https://doi.org/10.5465/amp.2007.26421237

Jin, H., Su, Z., Wang, L., & Xiao, Z. (2022). Do academic independent directors matter? Evidence from stock price crash risk. *Journal of Business Research, 144*(1), 1129-1148. https://doi.org/10.1016/j.jbusres.2022.02.054

Khan, W.A., & Vieito, J.P. (2013). CEO gender and firm performance. *Journal of Economics and Business, 67*, 55-66. https://doi.org/10.1016/j.jeconbus.2013.01.003

Olsen, K.J., & Stekelberg, J.M. (2015). CEO Narcissism and Corporate Tax Sheltering. *Journal of American Taxation Association, 38*(1), 1-42. https://doi.org/10.2308/atax-51295

Schein, E.H. (2004). Organizational Culture and Leadership (The Jossey-Bass Business & Management Series) Third Edition. San Francisco, CA: Jossey-Bass A Wiley Imprint.

Wang, A. (2020). Professors on boards and corporate innovation in China. *Applied Economics, 52*(41), 4474-4498. https://doi.org/10.1080/00036846.2020.1735623

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Conflict of Interest

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