



Board members' education and firm performance: evidence from a developing economy

Board members' education

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Abstract

Purpose – The purpose of the present paper is to examine the influence of the educational qualifications of board members, including the CEO, on the financial performance of Indonesian listed firms. Indonesia is a developing economy that adopts a two-tier board system.

Design/methodology/approach – This study employs a sample comprising 160 firms listed on the Indonesia Stock Exchange (IDX). Tobin's Q and return on assets (ROA) are used as measures of financial performance. It uses four proxies for board members' educational qualifications, namely postgraduate degrees, degrees obtained from prestigious universities, degrees obtained from developed countries, and degrees in financial disciplines. Regressions are performed separately for the supervisory board, management board, and CEO.

Findings – This study provides empirical evidence that the educational qualifications of board members and the CEO matter, to a particular extent, in explaining either ROA or Tobin's Q . For example, CEOs holding degrees from prestigious domestic universities perform significantly better than those without such qualifications.

Practical implications – Even though intellectual competence should appear to be one of the considerations in the appointment of board members, educational qualification is not always a good proxy for superior advising or managerial quality. There may be many other factors that need to be considered, such as experiences, managerial skills, networks, and other skills obtained outside schools. As such, the establishment of a nomination committee, which is expected to provide independent recommendations on qualified candidates to serve in the boardrooms, plays an important role.

Originality/value – Empirical studies focusing on the influence of the educational backgrounds of board members and the CEO on financial performance are still rare in the literature. This study is among the first to address such an issue in the context of a developing economy.

Keywords Board characteristics, Corporate governance, Educational qualification, Indonesia, Intellectual competence, Upper echelons, Boards, Boards of directors

Paper type Research paper

1. Introduction

In modern corporations, where the separation between the owners and the managers exists (Berle and Means, 1932), the capability of the managers to manage resources entrusted to them appears to be an important issue. To handle such highly-skilled jobs, firms need to hire board members, including the chief executive officer (CEO), with certain levels of either observable or unobservable capability. As contended by

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Bhagat *et al.* (2010), since the identification and measurement of such capabilities are difficult and costly, observable and objective measures such as educational qualification may need to be considered in hiring board members. Gottesman and Morey (2006a) state that educational qualification may be a proxy for intelligence, where more intelligent managers are expected to be better than their peers. On the other hand, it is also important to note that superior managerial skills are not always obtained from a high level of educational qualification. Unobservable characteristics, such as leadership and entrepreneurial skills, may also play a significant role. It is often found that fast-growing and high-performing firms are founded and are managed by people who are not highly-educated. Hence, it is considered important to examine whether the educational qualifications of the CEO and board members influence firm performance. Unfortunately, such empirical studies are relatively scarce in the literature.

In the management literature, scholars have made attempts to investigate whether the educational backgrounds of the CEO and top managers influence managerial behavior. For example, Bantel and Jackson (1989) and Wiersema and Bantel (1992) suggests that CEOs with higher educational attainments are better able to process information and accept significant changes within the firm. With respect to the firm's research and development (R&D) spending, a number of studies provide evidence that CEOs with degrees in technical fields are likely to allocate more resources for the funding of R&D activities (Finkelstein and Hambrick, 1996; Barker and Mueller, 2002). Additionally, Graham and Harvey (2002) suggest that chief financial officers (CFOs) holding Master of Business Administration (MBA) degrees are more likely to follow academic advice and employ present value techniques in evaluating new projects.

Concerning the educational qualifications of the CEO and board members linked with financial performance of the firm, there are at least three streams of research in the literature, which will be later discussed in Section 2. However, it is important to note that empirical research focusing on the relationship between CEO educational attainment and firm performance is relatively scarce in the financial economics literature, even in the context of developed countries. The existing studies are based on the data of the USA, such as Jalbert *et al.* (2002), Gottesman and Morey (2006a) and Bhagat *et al.* (2010). These studies generally provide weak evidence that a CEO having an MBA or a degree from a prestigious university is associated with superior performance. Hence, in the context of the USA, Bhagat *et al.* (2010) conclude that CEO education may be a poor proxy for CEO capability.

The purpose of this study is to examine the association between the educational qualifications of board members, as well as of the CEO, and financial performance of Indonesian listed firms. The present study, hence, contributes to the literature in a number of important ways. First, this study extends the existing literature by examining the issue in a developing economy, which is expected to provide a different situation from that in the developed world. Second, unlike previous studies, the present study addresses the educational backgrounds of supervisory and management board members, as well as of the CEO. Third, this study answers the question of whether academic degrees obtained from developed countries contribute to explaining firm performance. In less advanced economies with a relatively lower Human Development Index (HDI), academic degrees obtained by their people from the developed world are generally viewed as prestigious achievements.

Indonesia provides an interesting setting because it is the largest economy in Southeast Asia and the 17th-largest in the world. The country is also home to one of Asia's main emerging capital markets, attracting ever-growing global investments. Further, as found in other emerging markets, the Indonesian capital market is featured by high family ownership concentration (Claessens *et al.*, 2000), weaker investor protection, weaker information disclosure requirements, and less-developed markets for corporate control (La Porta *et al.*, 2000). The high prevalence of family control means board members are appointed partly because of family ties with the founder or the controlling shareholder, instead of their professional expertise and experiences (Westhead and Cowling, 1998).

How the demographic characteristics of upper echelons contribute to explaining corporate performance is still relatively under-researched within the context of the less-developed world, particularly in countries adopting a two-tier board structure system. Again, Indonesia is of interest because it is among third-world countries adopting such a board system, where corporations shall have supervisory and management boards. According to the country's Corporation Law, corporations shall have two boards on their organization structure, namely *Dewan Komisaris* (the Board of Commissioners (BOC)) and *Direksi* (the Board of Directors (BOM)). The members of these two boards are elected or appointed by shareholders. The BOC conducts advising and monitoring roles on the BOM and consists of both independent and non-independent members. It is led by a president commissioner, which is comparable to the board chairman in the context of unitary board structure. Further, the BOM conducts the day-to-day management of the firm. In other words, it is relatively similar to the top-management team in unitary boards. This board is headed by a president director (subsequently "CEO").

Indonesia is one of the East Asian countries heavily affected by the 1997 Asian financial crisis. Poor corporate governance is often said to contribute to the crisis. In the aftermath of the crisis, various attempts have been made to promote good corporate governance in the country, which can be seen from reformed regulations issued by the central bank and the capital market regulator. In 2006, the latest version of the Code of Good Corporate Governance was issued by the National Committee on Governance Policy (*Komite Nasional Kebijakan Governance* or KNKG), an independent body initiated by the government. The Code is to be voluntarily adopted by publicly-listed firms, except for certain aspects required by applicable regulations. With respect to the BOC and BOM, the Code has provided general guidelines for the composition, capability, integrity, and responsibility of board members. Additionally, it has also recommended the establishment of a nomination and remuneration committee, which is assigned to independently assist the BOC in nominating suitable candidates to serve in the boardrooms.

The final sample employed in this study comprises 160 firms listed on the Indonesia Stock Exchange (IDX) for the financial year 2007. Annual reports of the sample firms are hand-collected to gather information on the educational qualifications of board members. I conduct regression analyses separately for BOC members, BOM members, and the CEO. Return on assets (ROA) and Tobin's *Q* are used as measures of firm performance. With regard to the educational attainment of BOC members, it is revealed that postgraduate degrees and degrees from prestigious domestic universities positively influence firm performance. When the educational backgrounds of BOM members are taken into account, this study finds that a higher proportion of BOM members holding

postgraduate degrees is associated with a higher level of performance. On the other hand, a higher proportion of BOM members having a degree in financial disciplines leads to a lower level of performance. This study also suggests that firms whose CEO holds a postgraduate or top-university degree are better performers than their peers.

The present paper is structured in the following manner. Section 2 reviews previous work in the literature. This is followed by Section 3, which develops hypotheses to be tested in regression analyses. Section 4 describes the data and methodology used in this study. Next, empirical results and discussions are presented in Section 5. Finally, Section 6 concludes the paper.

2. Literature review

2.1 Previous work in the management literature

Early research in the management literature (Hall, 1977) argues that organizational outcomes – both strategies and effectiveness – are largely determined by bureaucratic rules and environmental selection. On the other hand, according to the upper-echelon theory that emerged later, such outcomes are also substantially shaped by the demographic characteristics of top executives, such as education level, age, tenure, and gender (Hambrick and Mason, 1984).

Top managers of the firm are hired probably because of their superior ability. According to Bhagat *et al.* (2010), such ability consists of observable characteristics (e.g. educational backgrounds and work experiences) and unobservable characteristics (e.g. leadership and entrepreneurial skills). They contend that since the unobservable characteristics are relatively difficult to identify and measure, the observable characteristics may play an important role. Hambrick and Mason (1984) also state that observable characteristics are considered valid proxies for their cognitive orientation, values, and knowledge base, which may in turn significantly influence decision making and managerial behavior. Further, education level is often viewed as a good proxy for human capital, knowledge base, or intellectual competence (Hambrick and Mason, 1984; Wiersema and Bantel, 1992; Datta and Rajagopalan, 1998; Wailderdsak and Suehiro, 2004; Barro and Lee, 2010).

In the management literature, there has been a considerable number of studies addressing the influence of the educational backgrounds of upper echelons (the CEO, board members, and top managers) on various aspects of managerial behavior. According to the upper-echelon theory, a higher education level is associated with open mindedness, capacity for information processing, and tolerance to changes (Hambrick and Mason, 1984). This proposition is confirmed by empirical work conducted later. In their study on the association between the social composition of top management teams and innovation adoptions in the banking industry, Bantel and Jackson (1989) suggest that more educated top managers are inclined to be more proactive in developing technical innovations. Providing some support for Hambrick and Mason's theory, Hitt and Tyler (1991) show that the type of education (i.e. major area of study) affects the firm's strategic decision models. Further, addressing demographic diversity within top management teams, Wiersema and Bantel (1992) provide evidence that top managers with a higher education level are more likely to undertake significant changes in corporate strategy.

A number of studies show that there is a significant association between the educational backgrounds of upper echelons and R&D activities. Tyler and Steensma (1998) find that top executives with technical education are likely to place higher attention on benefits provided by potential technological alliances. More specifically,

Barker and Mueller (2002) find that R&D spending is greater in firms whose CEOs have a technical degree. However, they find no evidence on the significant relationship between R&D expenditure and the amount of the CEO's formal education.

It is also revealed that higher educational levels of top management teams lead to a higher level of international diversification (Herrmann and Datta, 2005). The study states that the result "indicates support for the notion that the superior information-processing capabilities, greater flexibility and openness to change associated with higher educational levels result in executives favoring international diversification" (p. 75). Hambrick *et al.* (1995) provide evidence of the significant association between the average education level of top management team members and the firm's competitive moves. In their study on the managerial behavior of CEOs, Graham and Harvey (2002) find that CEOs holding an MBA are more likely to employ learned techniques, such as net present value and payback period, in valuing projects.

2.2 Educational backgrounds of upper echelons and firm performance

The existing literature on the association between the educational backgrounds of upper echelons and the firm's financial performance is largely dominated by US studies. There are at least three streams of research on this issue. First, scholars have attempted to investigate the demographic characteristics of upper echelons and firm performance. Hence, in this research stream, educational qualification is not the only emphasis of such studies. They also generally employ the diversity of other demographic attributes such as work experiences, functional backgrounds, and tenure. Addressing the association between the demographic diversity of top managers and firm performance, Smith *et al.* (1994) find that educational heterogeneity positively influences return on investments (ROI). Using growth in market share and growth in profits as dependent variables, Hambrick *et al.* (1996) provide evidence that the average education level of top management team members is positive and significant. In the context of China, Cheng *et al.* (2010) show that the university degree held by the board chairman is positively associated with seven measures of performance, namely earnings per share (EPS), ROA, cumulative returns, cumulative abnormal returns, growth in EPS, growth in ROA, and the market-to-book ratio.

Second, a number of studies existing in the literature examine the association between the characteristics of mutual fund managers and the fund's performance. Golec (1996) provides empirical evidence that better-performing funds can be expected from those with managers holding MBA degrees. Using risk-adjusting excess returns as a measure of fund performance, Chevalier and Ellison (1999) reveal that better fund performance can be expected from funds whose managers attended higher-SAT undergraduate institutions. In the context of the USA, higher-SAT undergraduate institutions are generally more prestigious than their peers. Further, Gottesman and Morey (2006b) conduct a study focusing on the impact of manager education on mutual fund performance. They find that the quality of MBA programs attended by the managers, as measured by the average GMAT score and the *Business Week* ranking, is positively associated with fund performance. It is also revealed that managers holding MBA degrees from top business schools are likely to show significantly better performance than those without MBAs or holding MBAs from unranked programs (Gottesman and Morey, 2006b).

Third, there is little research focusing on the influence of the CEO's educational background on financial performance of the firm. To the best of my knowledge, such studies in the context of countries outside the US are still absent. Jalbert *et al.* (2002)

employ a sample consisting of *Forbes 800* firms and find that the prestige of a CEO's graduate school is positively related to ROA. Interestingly, they show mixed results on whether a graduate degree leads to better performance. CEOs having a graduate degree are found to have significantly better performance based on Tobin's *Q*, and significantly worse performance in terms of ROA. Later studies are conducted by Gottesman and Morey (2006a) and Bhagat *et al.* (2010). The former find no evidence that CEOs from more prestigious schools outperform their counterparts from less prestigious schools. CEOs holding MBA degrees are also found to perform no better than those without such qualifications. Employing a much larger sample size, Bhagat *et al.* (2010) also fail to find any significant relationship between CEO education and long-term firm performance. However, they provide empirical evidence that hiring new CEOs with an MBA leads to short-term improvements in firm performance. Given these findings, Bhagat *et al.* (2010) do not consider CEO education a good proxy for CEO ability.

3. Hypotheses development

For the purpose of this study, I employ four measures of the educational backgrounds of board members and the CEO, namely postgraduate degrees, degrees obtained from prestigious domestic universities, degrees obtained from developed countries, and degrees obtained in financial disciplines. In this section, I formulate the hypotheses to be tested in this study, as well as the measurement of explanatory variables.

3.1 Postgraduate degrees

Following previous studies in the US context (Jalbert *et al.*, 2002; Gottesman and Morey, 2006a; Bhagat *et al.*, 2010), educational quality is defined by the level of educational qualification. According to the upper-echelon theory, a higher education level is considered a good proxy for higher levels of knowledge base and intellectual competence (Hambrick and Mason, 1984). As such, it is expected that a higher education level leads to better performance. A number of previous empirical studies provide evidence that the educational level of upper echelons is positively associated with financial performance, such as Hambrick *et al.* (1996), Jalbert *et al.* (2002), Bhagat *et al.* (2010) and Cheng *et al.* (2010). In the present study, the educational level of board members and the CEO is divided into two categories, namely "postgraduate degrees or higher" and "undergraduate degrees or lower". The first hypothesis is formulated as follows:

- H1.* Postgraduate degrees held by board members and the CEO are positively associated with firm performance.

A postgraduate degree is defined to be an academic degree awarded upon the completion of a degree-awarding program that is higher than the undergraduate level, including a Master's, graduate certificate, graduate diploma, Doctor of Philosophy (PhD), Doctor of Business Administration (DBA), Doctor of Public Administration (DPA), and their equivalents, obtained from either domestic or overseas institutions.

3.2 Degrees obtained from prestigious domestic universities

A number of previous empirical studies also define educational quality by the prestige of schools attended by the CEO, since more prestigious schools are viewed to offer higher educational quality than their less-prestigious counterparts. Those studies use different sources to determine the ranks of the schools or universities. For example,

Gottesman and Morey (2006a, b) determine the prestige of schools from which the CEO graduates based on the mean SAT, GMAT, and LSAT scores of each school. Jalbert *et al.* (2002) and Bhagat *et al.* (2010) rank universities based on the ranking produced by *US News and World Reports*. Jalbert *et al.* (2002) report that CEOs holding degrees from top 25 graduate schools perform significantly better than their peers.

In the Indonesian context, it is also expected that board members and CEOs graduating from prestigious universities outperform their peers. As such, it is hypothesized that:

H2. Academic degrees obtained by board members and the CEO from prestigious domestic universities are positively associated with firm performance.

There are several alternatives to determine the prestige of the Indonesian universities, such as by using the ranking of world universities issued by a number of institutions. For the purpose of this study, I use the ranking produced by *Tempo*, a prominent news magazine in the country in 2007. The *Tempo's* ranking considers the perception of employers in Indonesia. It is important to note that in the Indonesian context, the prestige of a domestic university is often viewed from the bargaining power of its graduates in the job market, as well as the toughness of its entrance examination. I consider a university "prestigious" if it is listed among top-ten Indonesian universities based on the ranking. Some of these universities are also listed among top Indonesian universities based on a number of international rankings, such as those conducted by *Times Higher Education and Quacquarelli Symonds (THE-QS)* and *Webometrics*. In this way, similar to Gottesman and Morey's (2006a) assumption, I assume that the prestige of a university today is similar to that when board members or the CEO graduated. Table I provides description of the top-ten universities. Interestingly, the ten universities are all located in Java, the country's most developed island.

3.3 Degrees obtained from universities in developed countries

In less developed countries, a person holding a foreign degree is considered élite (Baldwin, 1963). There may be several motivations why people from developing nations choose to study in developed countries. Ball and Chik (2001), in their study on Malaysian local and overseas graduates, mention some factors behind such a choice, namely the

No.	University name	Abbreviation	Type	City/town	Province
1	Universitas Indonesia	UI	Public	Depok	West Java
2	Institut Teknologi Bandung	ITB	Public	Bandung	West Java
3	Universitas Gadjah Mada	UGM	Public	Yogyakarta	Yogyakarta
4	Institut Pertanian Bogor	IPB	Public	Bogor	West Java
5	Institut Teknologi Sepuluh Nopember	ITS	Public	Surabaya	East Java
6	Universitas Airlangga	Unair	Public	Surabaya	East Java
7	Universitas Trisakti	Usakti	Private	Jakarta	Jakarta
8	Universitas Padjadjaran	Unpad	Public	Sumedang	West Java
9	Universitas Katolik Atmajaya	Unika Atmajaya	Private	Jakarta	Jakarta
10	Universitas Diponegoro	Undip	Public	Semarang	Central Java

Notes: This table describes the type and location of Indonesia's top ten universities, based on the ranking issued by *Tempo* magazine in 2007; the university names are provided in their official names in the Indonesian language

Table I.
Top ten universities
in Indonesia

limitations of higher education provision in home country and the need to expose young people to the latest state of science and technology. The OECD (2009) mention other factors, including the reputation of particular academic institutions; trade or historical links between countries; future job opportunities; and cultural aspirations.

The flux of young people from developing nations coming to the developed world for continuing higher education is a growing global phenomenon. The most preferred destination of international students is the USA, which had a 20 percent share in 2007; followed by the UK, Germany, France, Australia, Canada, and Japan (OECD, 2009). According to the OECD report, other countries enjoying significant shares in the international education market include Austria, Belgium, Italy, Korea, The Netherlands, Spain, Sweden, and Switzerland. With respect to the origin of international students, OECD (2009) reports that Chinese students constitute the largest group, with 16.3 percent of all international students enrolled in OECD countries, followed by students from India, Malaysia, Morocco, and the Russian Federation. Other Asian countries, including Indonesia, the Islamic Republic of Iran, Pakistan, Singapore, Thailand, and Vietnam, are also reported to have significant numbers of students enrolling in overseas universities.

To the best of my knowledge, in the context of developing economies, studies addressing whether CEOs holding an overseas degree show better financial performance are still absent. There are a considerable number of studies examining whether foreign graduates are better paid than local ones, such as Blaug *et al.* (1969), Pang and Clark (1970), Demetriades and Psacharopoulos (1979), Karabel and McClelland (1987), Smart (1988) and Ball and Chik (2001). Further, Spilimbergo (2009) provides evidence that foreign graduates help promote democracy in their home countries, but only if the foreign degree is obtained from universities in democratic countries.

In the case of Indonesia, foreign education is considered of higher quality. Foreign graduates may be viewed as people who are intellectually competent, open minded, and proficient in foreign languages. Better financial performance can be expected from firms whose board members are foreign educated. Therefore, the hypothesis is:

H3. Academic degrees obtained by board members and the CEO from universities in developed countries are positively associated with firm performance.

To proxy for such a qualification, I consider any academic degree obtained by board members and CEOs of the Indonesian listed firms from universities or academic institutions in developed countries, for either undergraduate or postgraduate programs. I define developed countries to be the countries included in the list of "advanced economies" according to the IMF (2010). The list includes 33 countries, namely Australia, Austria, Belgium, Canada, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hong Kong, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Malta, The Netherlands, New Zealand, Norway, Portugal, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Taiwan, the UK, and the USA. For the purpose of this study, I only consider the fact that the standards of higher education in developed countries are generally higher than those in Indonesia. As such, this study does not consider the position of each overseas university in world university rankings.

3.4 Degrees obtained in financial disciplines

Degrees in financial fields may provide managers and CEOs with financial expertise, which is very beneficial in the financial management of the firm, as well as in

producing high-quality financial reports (Jeanjean and Stolowy, 2009). As explained by Lipton and Herzberg (2006), such expertise is crucial for board members in fulfilling their obligations, such as to oversee the firm and to monitor the performance of senior management. Golec (1996) and Bhagat *et al.* (2010) find that managers and CEOs holding MBAs perform significantly better than those without such a degree. Christy *et al.* (2010) show that the proportion of board members holding a financial degree is negatively associated with the market risk of equity in Australia.

In the case of Indonesia, it is also predicted that financial degrees would provide board members and the CEO with financial skills that help them accomplish their jobs, and thereby firm performance could be enhanced. This prediction leads to the formulation of the fourth hypothesis:

H4. Academic degrees held by board members and the CEO in financial disciplines are positively associated with firm performance.

Financial degrees are defined to be academic degrees awarded by either domestic or overseas institutions, for either undergraduate or postgraduate programs, in the areas of accounting, finance, management, and business administration. At the Indonesian universities, the disciplines of accounting, finance, management, and economics generally fall within the scope of the "Faculty of Economics". In many cases, the annual reports of the sample firms frequently mention that a board member is a graduate of the Faculty of Economics of a particular university, without any explanation on the major of study. For this reason, academic degrees in economics are also considered financial degrees. This definition is consistent with that used by Güner *et al.* (2008).

4. Research design

4.1 Research sample

The initial sample of this study consists of 383 firms, which is the total number of listed firms on the IDX for the financial year 2007. The financial year 2007 is chosen since the year is considered the most recent normal period when this research starts. Banks and other financial firms are excluded from the sample due to different regulatory requirements. Board members and the CEO of Indonesian banks are also subject to specific regulations of Bank Indonesia, the country's central bank. After excluding firms with the negative book value of equity, this initial selection process results in 292 firms. From these eligible firms, I try to hand-collect their 2007 annual reports from various sources, including corporate web sites, the IDX's web site, and the IDX's Capital Market Reference Center. From the annual reports, I collect information on the educational backgrounds of board members. In addition, data on firm size and ownership structure are collected from the *Indonesian Capital Market Directory 2008*.

Finally, I obtain 160 firms with complete data required for this study. This relatively small size of sample is due to unavailability of annual reports and the absence of information on the educational backgrounds of board members in many reports. The sample firms come from eight non-financial sectors on the IDX, namely agriculture (five firms); basic industry and chemicals (12); consumer goods (eight); infrastructure, utilities, and transportation (20); mining (six); miscellaneous (seven); property, real estate, and building construction (39); and trade, services, and investments (63).

4.2 Research model and variable measurement

The dependent variable is firm performance, which is measured by ROA and Tobin's Q . These two measures are also used in many studies, such as Haniffa and Hudaib (2006) and Adams and Ferreira (2009). ROA is a proxy for profitability or accounting-based performance, whereas Tobin's Q is a measure of firm value or market-based performance. The measurement of explanatory variables has been explained in Section 3. I also employ two control variables in this study. First, I use firm size, which is proxied by the book value of assets, as commonly used in the literature. Second, I use family control, which is indicated by a dichotomous variable. Claessens *et al.* (2000) indicate that Indonesian listed firms are mainly family-controlled. Relatively similar to previous studies (Claessens *et al.*, 2000; Faccio and Lang, 2002), I classify the firm's largest shareholder into four groups, namely foreign institutions, government entities, domestic non-business entities (cooperatives and foundations), and domestic business entities. A firm is considered family-controlled if its largest shareholder is a domestic business entity, except in pyramiding and cross-shareholding cases. These two cases are common in the Indonesian capital market (Claessens *et al.*, 2000).

A considerable number of studies generally find that firm size has a direct relationship with firm performance. Larger firms seem to be able to perform better since they are more likely to have higher levels of business diversification. Previous Indonesian studies (Darmadi, 2011) provide evidence that firm size positively influences firm performance. Following the finding, it is expected that a positive relationship exists between firm size and firm performance. Further, Darmadi (2011) provides evidence that family-controlled firms in Indonesia are significantly outperformed by their non-family-controlled counterparts. He also contends that the family-controlled firms are generally smaller in size. Accordingly, I also predict that the association between family control and firm performance is negative.

To test the influence of the educational backgrounds of board members on firm performance, I employ ordinary least squares (OLS) regressions. The regression model is specified as follows:

$$\text{Performance} = \beta_0 + \delta_1 \text{Educational background} + \beta_1 \text{Firm size} + \beta_2 \text{Family control} \quad (1)$$

Table II presents research variables of this study. Capturing the two-tier board system adopted in Indonesia, I run regressions separately for BOC members, BOM members, and the CEO.

5. Results and discussions

5.1 Univariate analysis

Table III reports the descriptive statistics of research variables. ROA of the sample firms is found to vary significantly, with the mean value of 4.63 percent. The market value of the firms generally exceeds their book value of assets. It can be seen from the mean and median values of Tobin's Q , which are 2.05 and 1.53, respectively. The book value of total assets also shows a wide range, with Indonesian Rupiah (IDR) 4,324 billion on average. I confirm the finding of Claessens *et al.*, 2000, who document that most listed firms in East Asian capital markets, including Indonesia, are family-controlled. Among the sample firms, 57 percent of them are found to be family-controlled.

Variable	Description
<i>Dependent variable</i>	
<i>ROA</i>	Return on assets; defined to be net income divided by the book value of assets
<i>TOBINQ</i>	Tobin's <i>Q</i> ; defined to be the ratio of market value to the book value of assets, where market value is the book value of assets minus the book value of equity plus the market value of equity
<i>Explanatory variable</i>	
<i>BOC_GRAD</i>	Proportion of BOC members holding postgraduate degrees
<i>BOC_TOP</i>	Proportion of BOC members holding degrees from prestigious domestic universities
<i>BOC_DEV</i>	Proportion of BOC members holding degrees from universities in developed countries
<i>BOC_FIN</i>	Proportion of BOC members holding degrees in financial fields
<i>BOM_GRAD</i>	Proportion of BOM members holding postgraduate degrees
<i>BOM_TOP</i>	Proportion of BOM members holding degrees from prestigious domestic universities
<i>BOM_DEV</i>	Proportion of BOM members holding degrees from universities in developed countries
<i>BOM_FIN</i>	Proportion of BOM members holding degrees in financial fields
<i>CEO_GRAD</i>	Dichotomous with 1 if the CEO holds a postgraduate degree and 0 otherwise
<i>CEO_TOP</i>	Dichotomous with 1 if the CEO holds a degree from a prestigious domestic university and 0 otherwise
<i>CEO_DEV</i>	Dichotomous with 1 if the CEO holds a degree from a university in a developed country and 0 otherwise
<i>CEO_FIN</i>	Dichotomous with 1 if the CEO holds a degree in a financial field and 0 otherwise
<i>Control variable</i>	
<i>ASSET</i>	Firm size; defined to be the book value of assets
<i>FAMILY</i>	Family control; dichotomous with 1 if the firm is family-controlled and 0 otherwise

Table II.
Description of
research variables

In terms of the educational backgrounds of board members, it is found that 39 percent of BOC members, on average, have a postgraduate degree; while the average proportion of BOM members with a postgraduate qualification is 37 percent. Indonesian top-ten universities show their strong position in the job market for board members. On average, the proportion of board members having a degree obtained from the ten universities is 33 percent for both the BOC and BOM. Academic qualifications obtained in foreign countries seem to be a competitive advantage for board members in terms of their increased opportunities in the job market for board members. The fractions of board members holding such qualifications are 43 and 40 percent for the BOC and BOM, respectively. A larger fraction is found when financial degrees are taken into account. The proportions of BOC and BOM members holding a financial degree are 54 and 58 percent, respectively.

With respect to the educational backgrounds of the CEO, I find that 41 percent of the sample firms have a CEO of a postgraduate qualification. Further, 28 percent of CEOs completed at least one of their higher degrees at Indonesia's top-ten universities. Forty-five percent of the firms' CEOs are found to be educated in developed countries. Finally, 56 percent of the CEOs have financial degrees.

Table IV presents Pearson correlation coefficients between research variables. For the sake of brevity, correlations between educational variables are not reported. It is found that larger firms are more likely to have a higher proportion of BOC members holding postgraduate degrees and degrees from developed countries. In contrast, family-controlled firms are less likely to employ BOC members with

Variables	Number of obs.	Mean	Median	SD	Minimum	Maximum
<i>ROA</i> (percent)	160	4.63	2.90	8.87	-21.50	62.20
<i>TOBINQ</i>	160	2.05	1.53	1.85	0.24	14.62
<i>BOC_GRAD</i>	160	0.39	0.40	0.28	0.00	1.00
<i>BOC_TOP</i>	160	0.33	0.33	0.28	0.00	1.00
<i>BOC_DEV</i>	160	0.43	0.42	0.26	0.00	1.00
<i>BOC_FIN</i>	160	0.54	0.50	0.24	0.00	1.00
<i>BOM_GRAD</i>	160	0.37	0.33	0.26	0.00	1.00
<i>BOM_TOP</i>	160	0.33	0.33	0.29	0.00	1.00
<i>BOM_DEV</i>	160	0.40	0.40	0.27	0.00	1.00
<i>BOM_FIN</i>	160	0.58	0.60	0.25	0.00	1.00
<i>CEO_GRAD</i>	160	0.41	0	0.49	0	1
<i>CEO_TOP</i>	160	0.28	0	0.45	0	1
<i>CEO_DEV</i>	160	0.45	0	0.50	0	1
<i>CEO_FIN</i>	160	0.56	1	0.50	0	1
<i>ASSET</i> (in billion IDR)	160	4,324	1,288	9,778	10	82,059
<i>FAMILY</i>	160	0.57	1	0.50	0	1

Notes: This table reports descriptive statistics of variables used in the present study; *ROA* is return on assets; *TOBINQ* is Tobin's *Q*, which is defined to be the ratio of market value to the book value of assets; *BOC_GRAD* is the proportion of Board of Commissioners (BOC) members holding postgraduate degrees; *BOC_TOP* is the proportion of BOC members holding degrees from prestigious domestic universities; *BOC_DEV* is the proportion of BOC members holding degrees from universities in developed countries; *BOC_FIN* is the proportion of BOC members holding degrees in financial fields; *BOM_GRAD* is the proportion of Board of Management (BOM) members holding postgraduate degrees; *BOM_TOP* is the proportion of BOM members holding degrees from prestigious domestic universities; *BOM_DEV* is the proportion of BOM members holding degrees from universities in developed countries; *BOM_FIN* is the proportion of BOM members holding degrees in financial fields; *CEO_GRAD* is dichotomous with 1 if the CEO holds a postgraduate degree and 0 otherwise; *CEO_TOP* is dichotomous with 1 if the CEO holds a degree from a prestigious domestic university and 0 otherwise; *CEO_DEV* is dichotomous with 1 if the CEO holds a degree from a university in a developed country and 0 otherwise; *CEO_FIN* is dichotomous with 1 if the CEO holds a degree in a financial field and 0 otherwise; *ASSET* is the book value of assets; *FAMILY* is dichotomous with 1 if the firm is family-controlled and 0 otherwise

Table III.
Descriptive statistics

such qualifications. It is important to note that the correlation between firm size and family control is negative and significant at the 1 percent level, implying that family-controlled firms tend to be smaller in size. Similar to BOC members, BOM members of larger firms are more likely to hold postgraduate and developed-country degrees. Accordingly, CEOs of larger firms tend to have postgraduate qualifications. On the other hand, family-controlled firms employ a significantly higher proportion of BOM members holding degrees in financial fields. Again, graduates of Indonesia's top ten universities show their strong position in the job market for the CEO. Larger firms tend to have CEOs having degrees from the top universities, whereas family-controlled firms are less likely to have CEOs with such qualifications.

The correlations between educational backgrounds and firm performance show a number of significant findings. Postgraduate and top-university degrees held by BOC members are positively and significantly correlated with ROA. Additionally, ROA is positively correlated with both postgraduate and developed-country degrees held by BOM members, marginally significant at the 10 percent level. Further, firms whose

	<i>ASSET</i>	<i>FAMILY</i>	<i>ROA</i>	<i>TOBINQ</i>
<i>BOC_GRAD</i>	0.282***	-0.173**	0.203***	0.032
<i>BOC_TOP</i>	0.049	0.065	0.204***	0.004
<i>BOC_DEV</i>	0.343***	-0.251***	0.054	0.135*
<i>BOC_FIN</i>	0.086	0.042	-0.035	-0.029
<i>BOM_GRAD</i>	0.213***	0.012	0.137*	0.083
<i>BOM_TOP</i>	0.122	-0.091	0.102	0.042
<i>BOM_DEV</i>	0.146*	-0.045	0.131*	0.018
<i>BOM_FIN</i>	0.044	0.163**	-0.031	-0.156**
<i>CEO_GRAD</i>	0.210***	-0.010	0.073	0.083
<i>CEO_TOP</i>	0.174**	-0.185**	0.235***	0.063
<i>CEO_DEV</i>	0.070	0.077	-0.006	0.028
<i>CEO_FIN</i>	0.107	0.122	0.006	-0.044
<i>ASSET</i>		-0.244***	0.238***	0.076
<i>FAMILY</i>	-0.244***		-0.132*	-0.170**

Notes: Statistically significant at: *10, **5, and ***1 percent levels (two-tailed); this table reports selected Pearson correlation coefficients between variables; *ASSET* is the book value of assets; *FAMILY* is dichotomous with 1 if the firm is family-controlled and 0 otherwise; *ROA* is return on assets; *TOBINQ* is Tobin's *Q*, which is defined to be the ratio of market value to the book value of assets; *BOC_GRAD* is the proportion of Board of Commissioners (BOC) members holding postgraduate degrees; *BOC_TOP* is the proportion of BOC members holding degrees from prestigious domestic universities; *BOC_DEV* is the proportion of BOC members holding degrees from universities in developed countries; *BOC_FIN* is the proportion of BOC members holding degrees in financial fields; *BOM_GRAD* is the proportion of Board of Management (BOM) members holding postgraduate degrees; *BOM_TOP* is the proportion of BOM members holding degrees from prestigious domestic universities; *BOM_DEV* is the proportion of BOM members holding degrees from universities in developed countries; *BOM_FIN* is the proportion of BOM members holding degrees in financial fields; *CEO_GRAD* is dichotomous with 1 if the CEO holds a postgraduate degree and 0 otherwise; *CEO_TOP* is dichotomous with 1 if the CEO holds a degree from a prestigious domestic university and 0 otherwise; *CEO_DEV* is dichotomous with 1 if the CEO holds a degree from a university in a developed country and 0 otherwise; *CEO_FIN* is dichotomous with 1 if the CEO holds a degree in a financial field and 0 otherwise

Table IV.
Selected correlation
between variables

CEO is a graduate of the Indonesian top-ten universities tend to show significantly higher ROA. Educational backgrounds seem not to be correlated with improved firm value (Tobin's *Q*), except for academic degrees obtained by BOC members in developed countries, marginally significant at the 10 percent level. Surprisingly, financial degrees of BOM members are found to be negatively correlated with Tobin's *Q*. These correlation results will be further tested in the multivariate regression analysis.

I am also interested in examining the differences in the educational backgrounds of board members between larger and smaller firms, as well as between family-controlled and non-family-controlled firms. The results of *t*-statistics of differences in mean values are shown in Table V. Panel A reports the differences between larger and smaller firms. A firm considered larger if its book value of total assets is larger than the median value (IDR 1,288 billion). It seems to be clear that larger firms employ a higher proportion of board members with better educational qualification. Among four qualifications used in this study, postgraduate degrees and degrees obtained in developed countries show significant differences between larger and smaller firms. This may imply that larger firms have more financial resources to hire high-quality board members. They may also

Variable	Panel A: larger firms and smaller firms		t-statistics
	Larger firms (n = 80)	Smaller firms (n = 80)	
BOC_GRAD	0.45 (0.27)	0.33 (0.28)	2.920***
BOC_TOP	0.34 (0.24)	0.32 (0.32)	0.437
BOC_DEV	0.50 (0.24)	0.37 (0.27)	3.000***
BOC_FIN	0.52 (0.20)	0.55 (0.27)	0.717
BOM_GRAD	0.43 (0.25)	0.30 (0.26)	3.248***
BOM_TOP	0.36 (0.26)	0.30 (0.30)	1.306
BOM_DEV	0.48 (0.28)	0.32 (0.24)	3.876***
BOM_FIN	0.57 (0.23)	0.59 (0.27)	0.652
CEO_GRAD	0.46 (0.50)	0.37 (0.48)	1.232
CEO_TOP	0.33 (0.47)	0.24 (0.43)	1.229
CEO_DEV	0.51 (0.50)	0.39 (0.49)	1.592*
CEO_FIN	0.58 (0.50)	0.55 (0.50)	0.317
Variable	Panel B: family-controlled firms and non-family-controlled firms		t-statistics
	Family firms (n = 91)	Non-family firms (n = 69)	
BOC_GRAD	0.35 (0.26)	0.44 (0.30)	2.167**
BOC_TOP	0.35 (0.28)	0.31 (0.28)	0.822
BOC_DEV	0.38 (0.26)	0.51 (0.25)	3.290***
BOC_FIN	0.55 (0.24)	0.53 (0.24)	0.532
BOM_GRAD	0.37 (0.27)	0.36 (0.26)	0.153
BOM_TOP	0.31 (0.27)	0.36 (0.30)	1.135
BOM_DEV	0.39 (0.28)	0.42 (0.26)	0.575
BOM_FIN	0.62 (0.25)	0.53 (0.24)	2.087**
CEO_GRAD	0.41 (0.49)	0.42 (0.50)	0.127
CEO_TOP	0.21 (0.41)	0.38 (0.49)	2.310**
CEO_DEV	0.48 (0.50)	0.41 (0.49)	0.978
CEO_FIN	0.62 (0.49)	0.49 (0.50)	1.544*

Notes: Statistically significant at: *10, **5, and ***1 percent levels (one-tailed); this table reports t-tests of difference in means of selected variables between larger and smaller firms (Panel A) and between family-controlled and non-family-controlled firms (Panel B); standard deviations are in parentheses; *BOC_GRAD* is the proportion of Board of Commissioners (BOC) members holding postgraduate degrees; *BOC_TOP* is the proportion of BOC members holding degrees from prestigious domestic universities; *BOC_DEV* is the proportion of BOC members holding degrees from universities in developed countries; *BOC_FIN* is the proportion of BOC members holding degrees in financial fields; *BOM_GRAD* is the proportion of Board of Management (BOM) members holding postgraduate degrees; *BOM_TOP* is the proportion of BOM members holding degrees from prestigious domestic universities; *BOM_DEV* is the proportion of BOM members holding degrees from universities in developed countries; *BOM_FIN* is the proportion of BOM members holding degrees in financial fields; *CEO_GRAD* is dichotomous with 1 if the CEO holds a postgraduate degree and 0 otherwise; *CEO_TOP* is dichotomous with 1 if the CEO holds a degree from a prestigious domestic university and 0 otherwise; *CEO_DEV* is dichotomous with 1 if the CEO holds a degree from a university in a developed country and 0 otherwise; *CEO_FIN* is dichotomous with 1 if the CEO holds a degree in a financial field and 0 otherwise

Table V.
Educational background of board members in different types of firms

need board members with high qualifications to cope with the complex nature of their business operations. In terms of CEO education, larger firms are more likely to have CEOs holding developed-country degrees, marginally significant at the 10 percent level.

Further, Panel B of Table V differentiates the educational backgrounds of board members in family-controlled and non-family-controlled firms. With respect to the educational backgrounds of BOC members, it is found that family-controlled firms are

less likely to hire people with postgraduate and developed-country degrees. Hence, this implies that family firms are likely to be smaller in size. In terms of the educational qualification of top managers, family firms employ significantly a higher proportion of BOM members having financial degrees (62 percent in family firms compared to 53 percent in non-family firms). Accordingly, CEOs in family firms are also more likely to have financial qualifications than those in their non-family counterparts, marginally significant at the 10 percent level. This may explain the negative correlation between *BOM_FIN* and *TOBINQ* in Table IV. Based on the correlation result, family-controlled firms show significantly a lower level of firm performance than their non-family counterparts.

5.2 Multivariate analysis

OLS regressions are employed to test the influence of the educational backgrounds of board members and the CEO on firm performance. I run regressions separately for BOC members, BOM members, and the CEO. The models are tested first to make sure that they do not suffer from multicollinearity and heteroskedasticity problems. Using correlation coefficients between independent variables, it is indicated that the models have no any multicollinearity problem. As suggested by Brooks (2008), heteroskedasticity problems are dealt with using White heteroskedasticity-consistent standard errors. For all models, I include industry dummies as conducted in many prior studies.

Regression results of firm performance on the educational backgrounds of BOC members are reported in Table VI. Robust *t*-statistics, based on heteroskedasticity-consistent standard errors, are reported in parentheses. In the two-tier board system adopted in

Independent variable	Predicted sign	ROA (1)	Log (<i>TOBINQ</i>) (2)
Intercept		-5.075 ** (-1.751)	0.563 * (1.528)
<i>BOC_GRAD</i>	+	2.593 * (1.314)	0.173 (0.773)
<i>BOC_TOP</i>	+	3.753 * (1.524)	-0.080 (-0.399)
<i>BOC_DEV</i>	+	-4.926 * (-1.639)	0.221 (1.135)
<i>BOC_FIN</i>	+	-1.306 (-0.571)	-0.053 (-0.209)
Log (<i>ASSET</i>)	+	1.607 *** (3.407)	-0.038 (-0.956)
<i>FAMILY</i>	-	-0.503 (-0.483)	-0.091 (-0.846)
Industry dummy		Included	Included
Number of observation		160	160
R^2		0.292	0.191
Adjusted R^2		0.229	0.119
<i>F</i> -statistic		4.630 ***	2.652 ***

Notes: Statistically significant at: *10, **5, and ***1 percent levels (one-tailed); this table reports the regression of firm performance on the educational backgrounds of Board of Commissioners (BOC) members; the dependent variable of Model (1) is *ROA*, return on assets; The dependent variable of Model (2) is *TOBINQ*, which is defined to be the ratio of market value to the book value of assets; *BOC_GRAD* is the proportion of BOC members holding postgraduate degrees; *BOC_TOP* is the proportion of BOC members holding degrees from prestigious domestic universities; *BOC_DEV* is the proportion of BOC members holding degrees from universities in developed countries; *BOC_FIN* is the proportion of BOC members holding degrees in financial fields; *ASSET* is the book value of assets; *FAMILY* is dichotomous with 1 if the firm is family-controlled and 0 otherwise; robust *t*-statistics, based on heteroskedasticity-consistent standard errors, are in parentheses

Table VI.
OLS regression of firm performance on the education background of BOC members

Indonesia, the BOC acts as the representatives of shareholders and conducts advising and monitoring roles on the management. Its members consist of both independent and non-independent commissioners. Non-independent commissioners generally represent shareholders that have a significant proportion of share ownership, whereas non-independent commissioners are from outside the firm. Current applicable capital market regulations require listed firms to have independent commissioners of at least 30 percent of the total number of BOC members. Listed firms can appoint external individuals, with particular expertise and experiences, to serve as their commissioners.

Using ROA as the dependent variable, it is found that the coefficients of *BOC_GRAD* and *BOC_TOP* are positive and marginally significant at the 10 percent level, as shown in Model (1) of Table VI. Thus, this study provides limited evidence that these two qualifications of BOC members are positively associated with firm profitability. In terms of the significance of *BOC_GRAD*, this finding confirms Hambrick and Mason's (1984) proposition that education level is a good proxy for human capital, knowledge base, or intellectual competence. Many studies in the management literature have shown that a higher education level within upper echelons significantly affects management styles and characteristics, which may in turn improve the organization's strategies and effectiveness. This result is consistent, to a particular extent, with the finding of Cheng *et al.* (2010), which suggests a positive association between the educational attainment of the board chairman and financial performance in China.

The same positive and marginally-significant coefficient is found for *BOC_TOP*. This implies that higher proportion of BOC members holding degrees from prestigious universities leads to better profitability. Confirming the finding of Jalbert *et al.* (2002), this study shows that academic degrees obtained from prestigious universities may be also a proxy for intellectual competence. Such universities generally have highly-competitive entrance tests and offer better quality of higher education, which may result in higher-quality graduates they produce. These advantageous factors seem to enhance advising and monitoring roles held by graduates of the universities who serve on the BOC of Indonesian listed firms.

Surprisingly, contrary to my expectation, *BOC_DEV* is negative and marginally significant at the 10 percent level. This means that the proportion of BOC members holding academic degrees from developed countries negatively influences firm profitability. It may be difficult to interpret this result. Even though academic degrees obtained from an overseas university are often viewed to be prestigious achievements, they seem not to be associated with an improved level of accounting performance. Ball and Chik (2001) find that the location of study (whether domestic or overseas universities) is not statistically significant in explaining income levels and job satisfaction.

However, when Tobin's *Q* is employed as the dependent variable, it is found that the three educational qualifications of BOC members are not statistically significant, as shown in Model (2) of Table VI. Additionally, it is found that *BOC_FIN* is not significant in explaining either ROA or Tobin's *Q*. This seems to imply that the market does not perceive firms hiring BOC members with superior educational qualifications as better performers than their peers. Tacheva and Huse (2006) suggest that the composition of board members does not matter to firm performance. They further contend that firm performance is more influenced by the performance of each board member in holding their tasks. Since it is argued that board members have achieved a high level of success in their career, their educational backgrounds are not considered

affecting financial performance of the firm (Gottesman and Morey, 2006a). Gottesman and Morey state that:

[...] it may be that personality traits that are not directly developed through education, such as charisma, collegiality, and effort, among others, may be more important than education in producing superior firm performance (pp. 1-2).

As such, my finding suggests that the educational backgrounds of BOC members seem not to influence their capacity to advise and monitor the management in enhancing firm value.

Table VII reports regression results of firm performance on the educational backgrounds of BOM members. Using ROA as the dependent variable in Model (1), it is found that the educational backgrounds do not matter to firm profitability. Again, this seems to support Tacheva and Huse's (2006) argument that the composition or background of top management does not influence financial performance of the firm. There may be many other factors that enhance the capacity of BOM members or senior management in improving the firm's profitability, as argued by Gottesman and Morey (2006a), such as experiences and managerial skills that lead them to superior firm strategy; strong social networks that enhance the organization's position in the industry; and highly-skilled employees that boost the quality of the firm's products or services.

On the other hand, the educational backgrounds of senior management are found to matter to market-based performance of the firm. As indicated in Model (2) of Table VII, the education level of BOM members significantly influences Tobin's *Q* at the 5 percent level. This implies that the market perceives firms managed by highly-educated

Independent variable	Predicted sign	ROA (1)	Log (<i>TOBINQ</i>) (2)
Intercept		-6.039** (-1.721)	0.752** (2.166)
<i>BOM_GRAD</i>	+	-0.081 (-0.025)	0.492** (1.966)
<i>BOM_TOP</i>	+	2.398 (1.057)	0.004 (0.019)
<i>BOM_DEV</i>	+	1.277 (0.337)	-0.082 (-0.371)
<i>BOM_FIN</i>	+	-0.560 (-0.229)	-0.411** (-1.782)
Log (<i>ASSET</i>)	+	1.467*** (3.202)	-0.032 (-0.835)
<i>FAMILY</i>	-	0.134 (0.129)	-0.110 (-1.089)
Industry dummy		Included	Included
Number of observation		160	160
R^2		0.261	0.210
Adjusted R^2		0.195	0.140
<i>F</i> -statistic		3.963***	2.988***

Notes: Statistically significant at: **5 and ***1 percent levels (one-tailed); this table reports the regression of firm performance on the educational backgrounds of Board of Management (BOM) members; the dependent variable of Model (1) is *ROA*, return on assets; the dependent variable of Model (2) is *TOBINQ*, which is defined to be the ratio of market value to the book value of assets; *BOM_GRAD* is the proportion of BOM members holding postgraduate degrees; *BOM_TOP* is the proportion of BOM members holding degrees from prestigious domestic universities; *BOM_DEV* is the proportion of BOM members holding degrees from universities in developed countries; *BOM_FIN* is the proportion of BOM members holding degrees in financial fields; *ASSET* is the book value of assets; *FAMILY* is dichotomous with 1 if the firm is family-controlled and 0 otherwise; robust *t*-statistics, based on heteroskedasticity-consistent standard errors, are in parentheses

Table VII.
OLS regression of firm performance on the education background of BOM members

management teams as better performers than those with less-educated ones. Higher education levels may lead to higher intellectual competence that could impact the firm's attractiveness in the capital market. Recruiting highly-educated top management seems to mean that superior strategies to attract good investors could be undertaken. This finding confirms Hambrick *et al.* (1996), which provide evidence on the positive association between financial performance and the average education level of top management team members. Further, as concluded by Belliveau *et al.* (1996), CEOs holding higher education levels enjoy stronger social networks with government officials, which may in turn improve firm performance.

Surprisingly, *BOM_FIN* is significantly negative at the 5 percent level. Thus, a higher fraction of BOM members holding financial degrees leads to a lower level of market performance. As such, academic qualifications in finance-related disciplines are not found as significant determinants of superior firm performance. This seems to imply that financial knowledge is not always gained from formal education. Long experience in various managerial positions, regardless of educational backgrounds, may provide top managers with financial expertise that help them in running the firm's day-to-day operation. Another possible interpretation on the negative influence is that most of BOM members in Indonesian listed firms hold finance-related degrees. As shown in Table V, the average proportion is 58 percent. Further, the higher fraction of financial degrees within BOM members is more prevalent in family-controlled firms, which tend to perform significantly lower than non-family-controlled ones.

To enable my results to be compared with the findings of prior studies, I run multivariate regressions separately for the CEO. The results are reported in Table VIII. In Model (1), where ROA is employed as the dependent variable, I find that amongst the four educational qualifications, *CEO_TOP* is found to be the only variable being significant, and the sign is consistent with that hypothesized. This implies that firms led by CEOs holding degrees from prestigious universities perform significantly better than those without such CEOs. Hence, this result indicates that *CEO_TOP* is a good proxy for intellectual competence of the CEO. The positive association is then consistent with Jalbert *et al.* (2002), which find that CEOs holding degrees from top 25 graduate schools perform significantly better, in the context of the USA. As previously mentioned, graduates of the Indonesian prestigious universities show their strong position in the job market for the CEO. Further, larger firms, which tend to be better performers in terms of profitability, are also more likely to employ CEOs with such qualifications. They may need higher-quality CEOs to better cope with the complex nature of their business activities, as well as to maintain their strong position in the industry.

Model (2) of Table VIII shows relatively similar results to that of Table VII. *CEO_GRAD* is positive and significant at the 5 percent level, indicating that a higher education level held by the CEO leads to the firm's advantageous factors as perceived by the market. Thus, holding a postgraduate degree may enhance a CEO's capacity that results in the formulation of superior strategies. CEOs with such a qualification may also have stronger social networks that could improve the firm's value in the market (Belliveau *et al.*, 1996). Next, *CEO_FIN* is found to be negatively related to Tobin's *Q*, marginally significant at the 10 percent level. This is consistent with the finding of Model (2) of Table VII. Financial knowledge, which is absolutely required in managing a firm, is not always obtained from schools. Rich experiences and

Independent variable	Predicted sign	ROA (1)	Log (TOBINQ) (2)
Intercept		-6.431 ** (-2.107)	0.613 ** (1.957)
CEO_GRAD	+	0.371 (0.226)	0.244 ** (1.797)
CEO_TOP	+	2.884 ** (1.759)	0.005 (0.041)
CEO_DEV	+	-0.608 (-0.358)	0.034 (0.322)
CEO_FIN	+	0.489 (0.262)	-0.189* (-1.595)
Log (ASSET)	+	1.515 *** (3.236)	-0.030 (-0.793)
FAMILY	-	0.379 (0.366)	-0.112 (-1.024)
Industry dummy		Included	Included
Number of observation		160	160
R ²		0.279	0.203
Adjusted R ²		0.215	0.132
F-statistic		4.343 ***	2.855 ***

Notes: Statistically significant at: *10, **5, and ***1 percent levels (one-tailed); this table reports the regression of firm performance on the educational backgrounds of the chief executive officer (CEO); the dependent variable of Model (1) is ROA, return on assets; the dependent variable of Model (2) is TOBINQ, which is defined to be the ratio of market value to the book value of assets; CEO_GRAD is dichotomous with 1 if the CEO holds a postgraduate degree and 0 otherwise; CEO_TOP is dichotomous with 1 if the CEO holds a degree from a prestigious domestic university and 0 otherwise; CEO_DEV is dichotomous with 1 if the CEO holds a degree from a university in a developed country and 0 otherwise; CEO_FIN is dichotomous with 1 if the CEO holds a degree in a financial field and 0 otherwise; ASSET is the book value of assets; FAMILY is dichotomous with 1 if the firm is family-controlled and 0 otherwise; robust *t*-statistics, based on heteroskedasticity-consistent standard errors, are in parentheses

Table VIII.
OLS regression of firm performance on the education background of the CEO

managerial skills seem to improve the degree of the CEO's financial expertise. Another possible interpretation on the negative influence is that CEOs holding finance-related degrees are more prevalent in family-controlled firms, which tend to perform significantly lower than their non-family counterparts.

In terms of control variables, Tables VI-VIII indicate that firm size has a positive and significant association with ROA, confirming the results of previous Indonesian studies. However, contrary to the correlation results, the regression results indicate that family control is not significantly associated with any of the two performance measures.

6. Conclusion

Studies focusing on the influence of the educational backgrounds of board members and the CEO on financial performance are scarce in the literature. Prior studies generally employ US data. To the best of my knowledge, the present study appears to be the first in emphasizing such an issue in the context of a developing economy. Indonesia provides an interesting setting because it is one of the Asian emerging markets and one of 20 largest economies in the world. The two-tier system adopted by the country's Corporate Law is another interesting viewpoint. Further, since Indonesia is among countries with a relatively lower HDI, better educational qualification is often viewed as prestigious achievements. I employ 160 non-financial firms listed on the IDX in 2007. This relatively small size of sample is due to data availability issues. In the present study, I employ four explanatory variables as proxies for the educational backgrounds of board members and the CEO, namely postgraduate degrees, degrees

obtained from prestigious domestic universities, degrees obtained from developed countries, and degrees in financial disciplines. Regression analyses are conducted separately for BOC members, BOM members, and the CEO. Two measures of firm performance are used as dependent variables, namely ROA and Tobin's Q .

The present study finds that the educational backgrounds of board members matter to firm performance, to a particular extent. In terms of the educational attainment of BOC members, it is found that postgraduate degrees and degrees from prestigious universities have marginally-significant effects on ROA. However, the fraction of BOC members holding developed-country degrees is negatively related to the profitability measure. Despite this result, it is important to note that the education of BOC members is not significantly associated with firm value based on Tobin's Q . When the educational attainment of BOM members is taken into account, ROA is not significantly influenced. Using Tobin's Q , I find that the influence of postgraduate degrees held by BOM members, including the CEO, is significant and positive. On the other hand, academic degrees held by BOM members, including the CEO, in finance-related disciplines negatively influence the firm-value measure. Finally, firms led by CEOs with prestigious-university qualifications show significantly higher profitability than their peers.

This study may have some practical implications. Even though intellectual competence should appear to be one of the considerations in the appointment of board members, education qualification is not always a good proxy for superior advising or managerial quality. There may be many other factors that need to be considered, such as experiences, managerial skills, networks, and other skills obtained outside schools. As such, the establishment of a nomination committee, which is expected to provide independent recommendations on qualified candidates to serve in the boardrooms, plays an important role. In Indonesia, the establishment of such a committee has been recommended by the Code of Good Corporate Governance issued by KKNKG. However, in smaller firms, the costs to form the nomination committee may outweigh the benefits, leading to the needs of other alternative procedures in nominating suitable candidates.

The present study is still subject to some limitations. First, this study only includes 160 firms in its sample due to data availability issues. Hence, future studies may need to employ other methods of data collection, such as questionnaires, to enlarge the sample size. Second, this study only conducts analyses based on one-year data, which could affect the generalizability of the results. As such, a longer time span needs to be used in future research to provide more powerful insights into the relationship between the educational qualifications of board members and firm performance. Third, the result of this study can only be applied within the Indonesian context. It is suggested that future studies compare and contrast different situational settings. For instance, future research may need to employ data from multiple countries, enabling to compare the association between the two variables in developed and developing countries; or from multiple periods of time, contrasting the persistence of such an association during normal and recession periods.

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Further reading

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