

# BOARD DIVERSITY AND FIRM PERFORMANCE: THE INDONESIAN EVIDENCE

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## Abstract

This paper examines the associations between diversity of board members and financial performance of the firms listed on the Indonesia Stock Exchange (IDX). Three demographic characteristics of board members—gender, nationality, and age—are used as the proxies for diversity. Using a sample of 169 listed firms, this study finds that both accounting and market performance have significant negative associations with gender diversity. Nationality diversity is found to have no influence on firm performance. In contrast, the proportion of young members is positively related to market performance, providing evidence that young people in the boardrooms are associated with improved financial performance.

**Keywords:** Corporate Governance, Board Diversity, Financial Performance, Indonesia

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## 1. Introduction

In today's business entities, employees and top management teams become increasingly diverse in terms of age, ethnicity, and gender, in addition to their diversity in terms of tenure, experience, educational background, and socioeconomic status (Jackson and Alvarez, 1992; Sessa and Jackson, 1995). It appears to be a common phenomenon that minority or "lower-status" groups, such as women and minority ethnic groups, are likely to be marginalized in diverse groups (Ibarra, 1993), and therefore there are increasingly attempts to promote equal opportunity among different groups in the workplace. For example, such developed countries as the United States and Australia have established equal-opportunity commissions. Proposals on governance reform also increasingly state the importance of gender diversity on the board of directors (Adams and Ferreira, 2009). Furthermore, the governments of Norway and Sweden have imposed gender quota on the boards of directors (Medland, 2004; Randøy et al., 2005).

Board diversity has attracted the interest of researchers from various disciplines. Scholars have made attempts to link the diversity with different aspects within the firm, such as corporate strategic change (Goodstein et al., 1994; Wiersema and Bantel, 1992), organizational innovation (Bantel and Jackson, 1989), corporate governance (Adams and Ferreira,

2009), and corporate social responsibility (Coffey and Wang, 1998; Williams, 2003). In addition to a considerable number of studies in the finance and corporate governance literature that examine the relationship between board composition and firm performance, such as Eisenberg et al., (1998), Mak and Kusnadi (2005), and Yermack (1996), there are also a growing number of studies investigating the relationship between board diversity and financial performance. Such studies have been conducted in the context of a few developed countries, such as the US (Carter et al., 2003; Krishnan and Park, 2005), Canada (Francœur et al., 2008), Spain (Campbell and Minguez-Vera, 2008), the Netherlands (Marinova et al., 2010), and Scandinavian countries (Oxelheim and Randøy, 2003). On the other hand, such issues in the context of developing economies are still very rarely addressed. Among the few studies are Ararat et al. (2010) and Marimuthu (2008), which use the data of Turkey and Malaysia, respectively.

The present study investigates the influence of board member diversity of the Indonesian listed firms on financial performance, which is measured by Tobin's  $q$ , as the market-based performance measure, and return on assets (ROA), as the accounting-based performance measure. In this study, we use gender, nationality, and age as proxies for diversity. Using 169 companies listed on the IDX, we use cross-sectional regression models to examine whether

women, foreign nationals, and the young in the boardrooms influence financial performance.

This study contributes to the corporate governance literature for the reason that it emphasizes on a developing economy that has different economic, legal, and cultural environments from those of Western economies, where most previous studies have been conducted. Our empirical evidence reveals that there is a significant negative relationship between gender diversity and financial performance. This result thus contradicts the findings of most prior studies conducted in the context of developed markets. It is also found that nationality diversity has no influence on financial performance. In contrast, consistent with prior findings, our results indicate that young people on the board are associated with improved financial performance.

Indonesia is of interest since it has an emerging capital market that attracts a large number of foreign investments. At the end of 2009, foreign investors held 67.5 percent of the total value of shares traded on the IDX (Bapepam-LK, 2010). In addition, like China, Indonesia is one of the developing economies that adopt two-tier board structure, as discussed in Section 2.

The remainder of this paper is organized as follows. Section 2 of the paper briefly discusses the regulation of two-tier board structure in Indonesia. In Section 3, we review prior studies and develop hypotheses. This is followed by Section 4, which describes the data and methodology used in this study. Section 5 presents and discusses empirical results, and concluding remarks are presented in Section 6.

## 2. Two-tier Board Structure in Indonesia

Indonesia's Corporation Law adopts two-tier board structure. This type of board structure is also adopted in such countries as Germany, the Netherlands, and Japan (Weimer and Pape, 1999). According to the Law, corporations shall have two boards in their organizational structures, namely *Dewan Komisaris* ("Board of Commissioners" or "BOC") and *Dewan Direksi* ("Board of Management" or "BOM"). Members of BOC and BOM are elected by shareholders in the shareholders' general meeting.

BOM conducts the day-to-day management of the firm, and is headed by a president director. It is responsible to both shareholders and BOC. BOC, which is headed by a president commissioner, represents shareholders and conducts monitoring role on the management. Therefore, the function of BOC is merely non-executive. Its members may be affiliated to the firm (non-independent) or from outside the firm (independent). Each of BOC and BOM has its own members, so that overlapping membership is not permitted. Hence, in two-tier board structure there is no role duality between the chief executive officer (CEO) and the chairman, a debatable issue in unitary board structure. However, a president

commissioner can be from either independent or non-independent members of BOC.

Publicly-listed firms shall be in accordance with applicable laws and regulations, such as the Capital Market Law, Bapepam-LK regulations, and the IDX regulations. Current applicable regulations require listed firms to have independent commissioners of at least 30 percent of the total number of BOC members. In addition, they are also required to have at least one unaffiliated member of BOM.

## 3. Literature Review and Hypotheses Development

Diversity within the members of top management team may bring potential costs to the organization, such as interpersonal conflicts and communication problems (Cox, Jr., 1991). However, it is also believed that the diversity brings advantages to the entity, such as broader perspectives in decision making, higher creativity and innovation, and successful marketing to different types of customers (Cox, Jr., 1991; Cox and Blake, 1991; Robinson and Dechant, 1997).

In categorizing different types of diversity, one common method is to differentiate between observable and non-observable attributes. Observable or readily-detected attributes include demographic characteristics such as gender, race, ethnicity, and age; while non-observable or underlying attributes include cognitive characteristics such as education, tenure, professional background, and personal values (Kilduff et al., 2000; Milliken and Martins, 1996). Observable attributes appear to be the focus of most research on diversity (Erhardt et al., 2003). Milliken and Martins (1996) suggest that unobservable attributes can create distinct differences on the orientations toward organizational issues and interaction styles, despite their unobservable nature.

In studies on board diversity, researchers may use one or more attributes as proxies for diversity. Gender of the board members appears to be the most widely observed attribute. Other observable attributes that have been studied in the current literature include race or ethnic background (Carter et al., 2003; Erhardt et al., 2003; Richard et al., 2004), age (Kilduff et al., 2000; Siciliano, 1996), and nationality (Oxelheim and Randøy, 2003). Less frequently, researchers have also drawn particular diversity of non-observable attributes into their attention, such as tenure (Hambrick et al., 1996; Tihanyi et al., 2000), educational level (Herrmann and Datta, 2005; Smith et al., 1994), and occupational backgrounds (Goodstein et al., 1994).

Since issues on the relationship between board diversity and financial performance in emerging markets are still very rarely addressed, this paper focuses on observable or readily-detected attributes. In addition to the gender and age of board members, we address their nationality since we have no reliable options to identify their ethnic background,

particularly in identifying whether they are from Chinese descent or *pribumi* (indigenous).<sup>[1]</sup>

### 3.1. Gender diversity

There are different arguments on the relationship between gender diversity and the firm's competitive advantages. Some arguments support the proposition that greater diversity is likely to bring advantages to the firm due to various reasons. Women are considered to have "feeling" cognitive style that focuses on harmony (Hurst et al., 1989) and ability to facilitate dissemination of information (Earley and Mosakowski, 2000). They are also considered "tough" since they have to face various challenges prior to holding seats on the board, which reward them great prestige in the environment (Krishnan and Park, 2005). Furthermore, it is also argued that gender diversity would lead to increasing creativity and innovation (Campbell and Minguez-Vera, 2008). On the other hand, other arguments suggest that greater gender diversity may bring disadvantages to the firm. Greater gender diversity may increase the likelihood of conflicts (Joshi et al., 2006; Richard et al., 2004), slow decision-making process (Hambrick et al., 1996), and differences in responding to risks (Jianakoplos and Bernasek, 1998).

Despite dramatic increase in number of women pursuing managerial careers (Omar and Davidson, 2001), women representation on the board of directors is generally low, including in developed economies. According to the census conducted by Australia's Equal Opportunity for Women in the Workplace Agency—EOWA (2008), the percentage of female directors in Australia, the US, and the UK is estimated at 10.7, 15.4, and 12.2 percent, respectively. Scandinavian countries are leaders in terms of female representation in the boardroom, with the average percentage of 22.5 percent, as the result of gender quota policy (European Professional Women's Network—EPWN, 2006).

Gender diversity of the management team members receives concerns in a number of studies in the management and organization theory literature. For instance, researchers link the gender diversity with managerial advancement (Tharenou et al., 1994), management style (Rigg and Sparrow, 1994), occupational merit (Lobel and Clair, 1992), occupational pressures (Granleese, 2004), and personal networks (Ibarra, 1993).

In the accounting and corporate governance literature, links between gender diversity and financial performance have also been addressed in a considerable number of studies. Using Tobin's *q* as the measure of market-based performance, Carter et al. (2003) provide evidence that the US firms with higher proportion of women on the board of directors perform significantly better. Based on ROA as the measure of accounting-based performance measure, the positive association also exists (Shrader et al.,

1997; Krishnan and Park, 2005). Using a sample of the Canadian firms, Francoeur et al. (2008) argue that high percentage of women officers lead to positive and significant abnormal returns. In Europe, the evidence of positive associations between gender diversity and financial performance comes from Denmark (Smith et al., 2005) and Spain (Campbell and Minguez-Vera, 2008). In the context of emerging markets, Ararat et al. (2010) provide evidence of such positive associations using a sample of the Turkish listed firms.

Interestingly, Adams and Ferreira (2009) and Bøhren and Strøm (2007) indicate that the fraction of women in the boardrooms is negatively related to financial performance. Bår et al. (2008) indicate a negative relation between gender diversity of the management team and fund returns, using a sample from US mutual fund industry. Some researchers are unable to find a significant association between gender diversity and financial performance, such as Dwyer et al. (2003), Randøy et al. (2006), Rose (2007), and Marinova et al. (2010). Using a small sample consisting of 42 Indonesian manufacturing companies, Kusumastuti et al. (2007) find no empirical relationship between female directors and Tobin's *q*.

In the case of Indonesia, initial sample of the present study reveals that the average percentage of women on the boards of 383 listed firms on the IDX is 11.2 percent. This number is not very much different from that of Australia and the UK. Even though most studies for developed economies show that greater percentage of female directors lead to higher financial performance, such relationship may be different in Indonesia due to its unique circumstances. Because listed firms in Indonesia are mainly family controlled (Claessens et al., 2000), the presence of women on the board may be more driven by family relationships with the controlling shareholder instead of their occupational expertise and experiences. The lack of competence may in turn affect the corporate performance. Given this argument, the first hypothesis is stated as follows:

H1: There is a negative relationship between gender diversity of the board members and financial performance.

### 3.2. Nationality diversity

Diversity of nationality and culture of the management team members may increase the likelihood of cross-cultural communication problem (Lehman and Dufrene, 2008) and interpersonal conflicts (Cox, Jr., 1991). On the other hand, the presence of foreign nationals on the team are expected to bring competitive advantages to the firm, namely international networks, commitment to shareholder rights, and managerial entrenchment avoidance (Oxelheim and Randøy, 2003).

As the globalization of business increases, foreign investors have opportunities to buy larger stakes in the firm (Oxelheim and Randøy, 2003). In addition, cultural origins of the management team become increasingly diverse (Cox, Jr., 1991). In emerging markets, which enjoy capital inflows from outside their countries, firms with larger foreign shareholdings may have heterogeneous nationality of their board or management team members. Unfortunately, the relationship between nationality diversity of the board members and firm financial performance in the emerging market case is still very rarely observed by researchers.

Evidence of the association between citizenship heterogeneity and financial performance by far mostly comes from developed economies. The results of those studies show mixed results. Using a sample of Norwegian and Swedish firms, Oxelheim and Randøy (2003) indicate a significantly higher Tobin's  $q$  for firms that have Anglo-American nationals in their boardrooms. Using net income as the performance measure, Ruigrok and Kaczmarek (2008) find that nationality diversity of the board and management team members is positively related to financial performance in the UK, the Netherlands, and Switzerland. Choi et al. (2007) indicate the positive impacts of the presence of foreign directors on financial performance of the Korean firms. The similar result is also indicated by Choi and Hasan (2005) using a sample of the Korean banks. In the case of developing countries, Ararat et al. (2010) provide evidence that higher levels of nationality diversity on the boards of the Turkish firms lead to higher market-to-book ratio and Tobin's  $q$ .

Other studies, however, find no empirical evidence of such associations. Using final market share and net marketing contribution of the European firms as the performance measure, Kilduff et al. (2000) fail to find any significant association. From Denmark, Rose (2007) also indicates that the proportion of foreign nationals has no any significant link with market performance based on Tobin's  $q$ .

In the Indonesian case, foreigners on the board in our sample account for averagely 8.9 percent of the board seats. This relatively large proportion is partly due to high proportion of foreign ownership in some firms. Based on expected advantages of having foreign nationals in the boardrooms, it is hypothesized that:

H2: There is a positive relationship between nationality diversity of the board members and financial performance.

### 3.3. Age diversity

Age can be considered as a proxy for the extent of experience and risk-taking manner (Herrmann and Datta, 2005). Hambrick and Mason (1984) suggest that youthful managers are more inclined to undertake

risky strategies, and firms with young managers will experience higher growth than their counterparts with older managers. This can be understood since older managers tend to be more risk averse (Barker and Mueller, 2002) and "may be at a point in their lives at which financial security and career security are important" (Hambrick and Mason, 1984, p. 198), while younger managers tend to have higher ability to process new ideas, lower willingness to accept status quo, and less interest in career stability (Cheng et al., 2010). In the management and organization theory literature, Hermann and Datta (2005) indicate that younger executives lead to higher levels of international diversification. Lower average age of the top management team is also positively related to the strategic change (Wiersema and Bantel, 1992). Furthermore, age diversity also has a positive relationship with the organization's philanthropy (Siciliano, 1996).

Indeed, some researchers provide evidence that older CEO or board chairman is positively associated with higher financial performance. For instance, Cheng et al. (2010) indicate that older chairmen in China have significant impacts on some performance measures, namely ROA, cumulative returns, and abnormal returns. Older executives tend to have richer experiences and practices, which accumulate into skill-based competencies (Reed and Defillippi, 1990).

There are a limited number of studies that investigate the relationship between age diversity on the board or top management team and financial performance, and they report different results. Kilduff et al. (2000) indicate a positive association between age heterogeneity and marketing performance. Ararat et al. (2010), based on the data of Turkish firms, find that age diversity has a significant influence on return on equity (ROE), but not on Tobin's  $q$ . On the other hand, Randøy et al. (2006) and Eklund et al. (2010) fail to find significant impacts of average age of board members on Tobin's  $q$  in Nordic and Swedish markets, respectively. In addition, Kusumastuti et al. (2007) also provide no evidence of empirical link between financial performance and the proportion of directors whose age is 40 years of age or older.

For the purpose of this study, we investigate the effects of the proportion of young commissioners and directors on financial performance. Morck et al. (1989) define young leaders as president, chairman, and CEO no more than 60 years of age at a particular point of time. For the Indonesian case, due to differences in life expectancy (see United Nations Department of Economic and Social Affairs, 2007) and retirement age, we define young commissioners and directors as those no more than 50 years of age as at 31 December 2007. Surprisingly, our sample of Indonesian listed firms shows that the average proportion of young members (no more than 50 years of age) on the board is 47 percent. This seems to suggest that the presence of young people in the boardrooms is partly due to the nature of Indonesian

listed firms that are mainly family controlled (Claessens et al., 2000). Based on prior findings that young managers are likely to be less conservative and more motivated to process new ideas, we argue that higher proportion of youth on the board is positively related to financial performance. Our third hypothesis is:

H3: There is a positive relationship between age diversity of the board members and financial performance.

In measuring the diversity of the board or management team members, there are at least four different approaches employed by researchers. *First*, some use the average or variation coefficient of particular attributes such as age and tenure (Eklund et al., 2010; Herrmann and Datta, 2005; Tihanyi et al., 2000). *Second*, others use heterogeneity index, with Blau index being the most commonly used (Ararat et al., 2010; Richard et al., 2004; Smith et al., 1994). *Third*, a number of researchers involve dichotomous variables to indicate whether particular attributes are present on the board or management team (Choi et al., 2007; Krishnan and Parsons, 2008). *Fourth*, most studies in our literature review indicate the diversity by computing the proportion of members with particular demographic attributes, such as Carter et al. (2003), Erhardt et al. (2003), Krishnan and Park (2005), and Oxelheim and Randøy (2003). For the purpose of this study, we use the proportion of women, foreign nationals, and the young in the boardrooms to indicate the diversity of gender, nationality, and age, respectively. We also employ dichotomous variables and Blau heterogeneity index in our further analysis.

## 4. Data and Methodology

### 4.1. Methodology

In this study, we conduct cross-sectional regression analysis to investigate the extent to which board diversity affects financial performance. Taking into account explanatory and control variables that may affect financial performance, we specify our model as follows:

$$\text{PERF} = \beta_0 + \beta_1 \text{PWOMEN} + \beta_2 \text{PFOREIGN} + \beta_3 \text{PYOUNG} + \beta_4 \text{LNASSET} + \beta_5 \text{LNBSIZE} + \beta_6 \text{LARGEST} + \beta_7 \text{BLOCK} + \varepsilon \quad (1)$$

where PERF is financial performance, which is measured by ROA and natural logarithm of Tobin's  $q$ ; PWOMEN is the proportion of women; PFOREIGN is the proportion of foreign nationals; PYOUNG is the proportion of members less than 50 years of age; LNASSET is natural logarithm of total assets as the proxy for firm size; LNBSIZE is the natural logarithm of the total number of board members; LARGEST is

the proportion of ordinary shares owned by the largest shareholder; and BLOCK is the proportion of ordinary shares owned by blockholders.

Using dichotomous variable and Blau index to indicate the presence of particular attributes and heterogeneity index, respectively, the following models are also used in our analysis:

$$\text{PERF} = \beta_0 + \beta_1 \text{DWOMEN} + \beta_2 \text{DFOREIGN} + \beta_3 \text{DYOUNG} + \beta_4 \text{LNASSET} + \beta_5 \text{LNBSIZE} + \beta_6 \text{LARGEST} + \beta_7 \text{BLOCK} + \varepsilon \quad (2)$$

$$\text{PERF} = \beta_0 + \beta_1 \text{BLAUGENDER} + \beta_2 \text{BLAUNATIONAL} + \beta_3 \text{BLAUAGE} + \beta_4 \text{LNASSET} + \beta_5 \text{LNBSIZE} + \beta_6 \text{LARGEST} + \beta_7 \text{BLOCK} + \varepsilon \quad (3)$$

where DWOMEN, DFOREIGN, and DYOUNG are dichotomous variables that equal 1 if the firm has at least one woman, one foreign national, and one member no more than 50 years of age, respectively, on the board; while BLAUGENDER, BLAUNATIONAL, and BLAUAGE are Blau heterogeneity indices for gender, nationality, and age, respectively, in the boardrooms.

### 4.2. Dependent Variables

The dependent variable is the firm's financial performance. Two measurements are used in this study, namely ROA as the proxy for accounting-based performance measure and Tobin's  $q$  as the proxy for market-based performance measure. These two measurements of financial performance are also used in such prior studies as Haniffa and Hudaib (2006), Adams et al. (2009), and Adams and Ferreira (2009).

ROA is obtained from the Indonesian Capital Market Directory 2008, which defines it to be the ratio of the firm's net income to its book value of assets. This definition is consistent with Shrader et al. (1997) and Erhardt et al. (2003). Tobin's  $q$  is computed using formula suggested by Adams et al. (2009). They define Tobin's  $q$  to be the ratio of the firm's market value to its book value of assets; market value is calculated as the book value of assets minus the book value of equity plus the market value of equity. As conducted by Adams et al. (2009) and suggested by Hirsch (1993), Tobin's  $q$  is included in the model using its natural logarithmic form.

### 4.3. Explanatory Variables

This study uses three key explanatory variables to test hypotheses, namely the proportions of women, foreign nations, and youth on the board. The proportion of women is defined as the ratio of the number of women on the board to the total number of board members. Similar definitions also apply for the proportions of foreign nationals and youth. We run regressions referring to combined numbers of BOC and BOM members. In addition, we also address two-

tier board structure adopted by the Indonesian law by running regressions separately for BOC and BOM.

Explanatory variables in our further analysis also consist of dichotomous variables to indicate the presence of women, foreign nationals, and youth on the board. These dichotomous variables enable us to evaluate whether the presence of women, foreigners, and youth leads to significant effects on financial performance. Furthermore, using Blau index, we also include heterogeneity levels of gender, nationality, and age in separate regressions.

#### 4.4. Control Variables

We have four control variables to be included in our models, namely firm size, board size, largest shareholder ownership, and blockholder ownership. In terms of the association between firm size and financial performance, empirical evidence of prior studies is mixed. Adams and Ferreira (2009) and Krishnan and Park (2005) indicate that firm size is positively related to Tobin's  $q$  and ROA, while Carter et al. (2003) fail to do so. Interestingly, using Malaysian data, Haniffa and Hudaib (2006) find that firm size is positively related to ROA but is negatively related to Tobin's  $q$ . We predict that firm size has a positive relationship with financial performance.

Board size is expected to have a significant relationship with financial performance. Yermack (1996) suggest that smaller board size leads to higher financial performance. This finding is supported by later studies, such as Carter et al. (2003) and Eklund et al. (2010). Evidence from Malaysia and Singapore also indicate the same result (Mak and Kusnadi, 2004). In contrast, evidence from Australia suggests that board size is positively related to firm performance (Setia-Atmaja, 2008). As suggested by Coles et al. (2008), in complex firms that have greater advising requirements, board size is positively related to Tobin's  $q$ . As such, board size is expected to have a positive influence on financial performance.

The third and fourth control variables are largest shareholder ownership and blockholder ownership, respectively. Blockholders are shareholders who own substantial portion of the firm's shares, which is generally defined as 5 percent of the firm's ordinary shares. Previous empirical evidence on the relationship between concentrated ownership and firm

performance shows contradicting results. A number of studies provide evidence that there is a significant positive association between shareholdings of large investors and corporate performance, such as Haniffa and Hudaib (2006) and Joh (2003), using a sample of Malaysian and Korean firms, respectively. Other scholars fail to find any significant association between the two variables, such as Krivogorsky (2006) and Weir et al. (2002). We predict that a positive association exists between concentrated ownership and financial performance of the Indonesian listed firms.

#### 4.5. Sample Data

The financial year 2007 is chosen as the period under study.<sup>[2]</sup> Our initial sample consists of 383 firms, the total number of public firms listed on the IDX as at 31 December 2007. We exclude firms with negative equity and incomplete data. The final sample of the present study consists of 169 firms, or 44.13 percent of the total number of listed firms. Financial data required for this study (total assets and ROA) are obtained from the *Indonesian Capital Market Directory 2008*. In addition to total assets, data of shareholders' equity and market capitalization are also obtained from the same source to compute Tobin's  $q$ .

We obtain directorship and ownership data (board size, largest shareholder ownership, blockholder ownership, and demographic characteristics of each board member—gender, nationality, and age) mainly from annual reports available on the Internet, particularly from the IDX's or the firm's websites. However, since required demographic data are not always available in the annual reports, we make our best attempts to obtain the data from other reliable sources that are accessible via the Internet, such as the firm's legal documents (e.g. documents of shareholders general meeting) and the websites of Financial Times and Reuters.

Table 1 reports the mean, standard deviation, minimum, and maximum of selected variables in our final sample. The average figures of ROA and Tobin's  $q$  are 3.68 percent and 2.08, respectively. The average proportions of women, foreign nationals, and young members in the boardrooms are 12, 9, and 47 percent, respectively. Interestingly, the fraction of the young holding seats on BOM is 61 percent on average.

**Table 1.** Descriptive statistics

Variables	Number of Observations	Mean	Standard Deviation	Minimum	Maximum
ROA (percent)	169	3.68	7.12	-21.50	34.40
TOBINQ	169	2.08	5.08	0.24	64.40
ASSET (billion Rupiah)	169	5,197	17,938	10	203,735
BSIZE	169	8.44	3.27	4.00	19.00
LARGEST	169	0.47	0.21	0.06	0.96
BLOCK	169	0.69	0.19	0.06	1.00
<i>Boards of Commissioners and Management</i>					
PWOMEN	169	0.12	0.15	0.00	1.00
PFOREIGN	169	0.09	0.17	0.00	0.75
PYOUNG	169	0.47	0.23	0.00	1.00
<i>Board of Commissioners</i>					
PWOMEN	169	0.11	0.18	0.00	1.00
PFOREIGN	169	0.09	0.19	0.00	1.00
PYOUNG	169	0.32	0.27	0.00	1.00
<i>Board of Management</i>					
PWOMEN	169	0.13	0.19	0.00	1.00
PFOREIGN	169	0.09	0.18	0.00	0.83
PYOUNG	169	0.61	0.28	0.00	1.00

This table reports the descriptive statistics of the firms captured in our sample. ROA is accounting performance, measured by return on assets. TOBINQ is market performance; measured by Tobin's  $q$ . ASSET is the book value of total assets. BSIZE is board size, measured as the total number of board members. PWOMEN is the proportion of women. PFOREIGN is the proportion of foreign nationals. PYOUNG is the proportion of board members no more than 50 years of age. LARGEST is the proportion of common shares owned by the largest shareholder. BLOCK is the proportion of common shares owned by blockholders (shareholders with 5 percent of ownership or more).

## 5. Empirical Results and Discussion

### 5.1. Univariate Analysis

Table 2 presents pairwise correlation matrix for variables considered in Equation (1). BOC and BOM are combined for simplicity. LNASSET is positively correlated to ROA, providing evidence that larger firms tend to show better accounting performance. Surprisingly, there is a significant negative relation between PWOMEN and LNTOBINQ, which is further discussed in multivariate analysis section.

LNBSIZE has a positive relationship with PFOREIGN, indicating that larger board size lead to greater nationality diversity. LNBSIZE also shows positive associations with LNASSET and LNTOBINQ, suggesting that larger board size is more likely to belong to firms with larger assets and higher market performance. Finally, PYOUNG is negatively correlated with both LNASSET and LNBSIZE, implying that larger firms with greater number of board members are likely to have lower proportion of young people in their boardrooms.

**Table 2.** Correlation coefficient matrix

	ROA	LNTOBIN Q	PWOME N	PFOREIG N	PYOUN G	LNASSE T	LNBSIZ E	LARGES T	BLOC K
ROA	1.00								
LNTOBIN Q	0.04	1.00							
PWOMEN	-0.07	-0.16**	1.00						
PFOREIGN	0.07	0.08	-0.15**	1.00					
PYOUNG	-0.09	0.06	0.20***	-0.08	1.00				
LNASSET	0.19*	-0.07	-0.08	0.11	-0.23***	1.00			
LNBSIZE	0.07	0.14*	-0.09	0.34***	-0.28***	0.67***	1.00		
LARGEST	0.04	0.06	0.05	0.22***	0.06	0.01	0.03	1.00	
BLOCK	-	0.05	0.01	0.03	0.14*	-0.13*	0.02	0.55***	1.00
	0.15*								

This table reports correlation coefficients between variables included in regression models. ROA is return on assets. LNTOBINQ is log value of Tobin's  $q$ . PWOMEN is the proportion of women. PFOREIGN is the proportion of foreign nationals. PYOUNG is the proportion of board members no more than 50 years of age. LNASSET is log value of total assets. LNBSIZE is log value of the total number of board members. LARGEST is the proportion of common shares owned by the largest shareholder. BLOCK is the proportion of common shares owned by blockholders (shareholders with 5 percent of ownership or more). For simplicity, board of commissioner (BOC) and board of management (BOM) are combined. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 levels, respectively.

## 5.2. Multivariate Analysis

Using several models derived from Equation (1), we conduct cross-sectional regression analysis, whose results are reported in Tables 3 and 4. Before running the regression analysis, the data are tested first to make sure that they do not suffer from multicollinearity and heteroskedasticity. From correlation matrix presented in Table 2, the correlation coefficients between independent variables are ranging from  $-0.28$  to  $0.67$ . Gujarati (2003) suggests that multicollinearity problem may exist when the correlation exceeds  $0.80$ . In addition, we also consider VIF (variance inflation factor) for each independent variable. VIF values greater than 10 indicate multicollinearity problems (Gujarati, 2003). None of the VIF values in our models exceed 3; hence multicollinearity is not a problem in our models. To deal with potential heteroskedasticity problem, as suggested by Brooks (2008), we use White heteroskedasticity-consistent standard error estimates.

Table 3 reports the results of the regressions linking board diversity and accounting performance based on ROA. Only the proportion of young members on BOC is found to be significantly and negatively associated with ROA. This seems to suggest that young members on BOC are unlikely to improve accounting performance, since BOC conducts monitoring and advising roles instead of executive function. Contrary to our expectations, we find that none of the proportions of women and foreign nationals from the three models have significant impacts on ROA, thus allowing us to reject Hypotheses 1 and 2 when accounting performance based on ROA acts as the dependent variable. The insignificant results of our evidence support prior findings that accounting performance is not

significantly associated with gender, nationality, and age diversity (Randøy et al., 2006; Richard et al., 2004).

There are at least three possible interpretations of our results. As suggested by Tacheva and Huse (2004), board composition does not matter much to the firm's performance. They suggest that the firm performance is more affected by task performance of the individuals on the board. Additionally, actual effects of board diversity may be difficult to determine since the firm performance is also affected by many other factors (Randøy et al., 2006). Furthermore, since listed firms in Indonesia are mainly family controlled (Claessens et al., 2000), the positions held in the boardrooms may partly be based on family relationships rather than occupational expertise and experiences, hence making the board composition does not matter to improve firm performance.

The impact of the firm's assets on its accounting performance is found to be significantly positive. Similar to the findings of Adams and Ferreira (2009) and Krishnan and Park (2005), this implies that larger firms tend to have significantly higher ROA than their smaller counterparts. Despite its significant and positive correlation with firm size, board size is found not to be significantly related to firm performance, a result similar to Oxelheim and Randøy (2003). Interestingly, concentrated ownership variables are found to be significantly associated with accounting performance with different signs. While the proportion of shares held by the largest shareholder has a positive impact on ROA, blockholder ownership is found to negatively influence the accounting performance measure.



**Table 3.** OLS regression of ROA on board diversity

Independent variables	Predicted sign	BOC	BOM	BOC and BOM
		(1)	(2)	(3)
Intercept		7.228* (1.455)	4.191 (0.855)	6.906 (1.280)
PWOMEN	(-)	-1.760 (-0.880)	-1.674 (-0.778)	-2.491 (-0.863)
PFOREIGN	(+)	1.430 (0.343)	3.113 (0.803)	2.864 (0.617)
PYOUNG	(+)	-3.584** (-1.757)	1.166 (0.576)	-1.923 (-0.830)
LNASSET	(+)	0.735** (1.837)	0.816** (1.994)	0.790** (1.950)
LNBSIZE	(+)	-2.024 (-1.164)	-1.781 (-1.028)	-2.180 (-1.202)
LARGEST	(+)	5.850** (1.732)	4.716* (1.458)	5.122* (1.542)
BLOCK	(+)	-8.523** (-2.021)	-7.758** (-1.922)	-8.034** (-1.965)
Number of observations		169	169	169
R <sup>2</sup>		0.092	0.079	0.082
F-statistic		2.337**	1.960*	2.057**

The dependent variable is return on assets. PWOMEN is the proportion of women. PFOREIGN is the proportion of foreign nationals. PYOUNG is the proportion of members no more than 50 years of age. LNASSET is log value of total assets. LNBSIZE is log value of the total number of board members. LARGEST is the proportion of common shares owned by the largest shareholder. BLOCK is the proportion of common shares owned by blockholders (shareholders with 5 percent of ownership or more). BOC is board of commissioners. BOM is board of management. Robust *t*-statistics, based on heteroskedasticity-consistent standard errors, are in parentheses. \*, \*\*, and \*\*\* indicate significance (one-tailed) at the 0.10, 0.05, and 0.01 levels, respectively.

Table 4 reports the results of the regressions investigating the effects of board diversity on market performance based on Tobin's *q*. Our empirical evidence reveals that the proportion of women on the board has a significant negative relation with market performance based on Tobin's *q*, thus allowing us to accept Hypothesis 1. Providing similar evidence to Adams and Ferreira (2009), our result contradicts other studies that report positive impact or no impact of gender diversity on Tobin's *q*. It would seem that higher proportion of women on the board is associated with lower level of market performance. Another possible explanation is that higher proportion of women could lead to overmonitoring (Adams and Ferreira, 2009). It should be emphasized that the explanatory power (*R*<sup>2</sup>) of the three models of Table 4 are no more than 12 percent, which suggests that market performance is also explained by many factors other than board diversity and the control variables.

The regression results also suggest that the proportion of foreign nationals in the boardrooms has no significant association with market performance. Hence, this finding is consistent with Randøy et al. (2006) and Rose (2007). A possible reason is that firms with higher proportion of foreign nationals in their boardrooms are not perceived by the market as more attractive than their counterparts that have no or lower proportion of foreign nationals. The evidence in Models (2) and (3) of Table 4 suggests that the proportion of board members no more than 50 years of age has a significantly positive influence on

Tobin's *q*. This seems to suggest that younger board members are more likely to be motivated to face new challenges and strategic changes that lead to higher performance, as suggested by Hambrick and Mason (1984) and Wiersema and Bantel (1992).

In terms of control variables, firm size (as proxied by total assets) is found to be negatively related to Tobin's *q*. Hence, this finding contradicts findings of studies in the context of the US firms, which suggest that larger firm size leads to higher market performance, as indicated by Adams and Ferreira (2009) and Carter et al., (2003). However, the negative association between firm size and Tobin's *q* is consistent with findings of studies based on the data of Malaysia (Haniffa and Hudaib, 2006), Turkey (Ararat et al., 2010) and Spain (Campbell and Minguez-Vera, 2008). This seems to suggest that smaller firms are perceived by the market as better performers than their larger counterparts (Hannan and Freeman, 1989).

Further, our evidence reveals that board size is positively related to Tobin's *q* in all models of Table 4. Hence, this result contradicts the findings of Yermack (1996), Eisenberg et al. (1998), and Mak and Kusnadi (2005). It seems that greater number of board members would be able to provide more advice to the CEO on business strategy, particularly in large and complex firms (Coles et al., 2008; Setia-Atmaja, 2008). Finally, concentrated ownership has no significant impacts on Tobin's *q* in all of our three models.

**Table 4.** OLS regression of Tobin's  $q$  on board diversity

Independent variables	Predicted sign	BOC	BOM	BOC and BOM
		(1)	(2)	(3)
Intercept		-0.178 (-0.438)	-0.418 (-1.230)	-0.341 (-0.897)
PWOMEN	(-)	-0.626*** (-2.883)	-0.418** (-1.839)	-0.766*** (-2.515)
PFOREIGN	(+)	-0.111 (-0.435)	0.008 (0.032)	-0.138 (-0.497)
PYOUNG	(+)	0.142 (0.782)	0.356** (2.171)	0.347** (2.109)
LNASSET	(+)	-0.098** (-2.132)	-0.101** (-2.296)	-0.101** (-2.240)
LNBSIZE	(+)	0.585*** (3.136)	0.627*** (3.254)	0.633*** (3.272)
LARGEST	(+)	0.244 (0.922)	0.210 (0.821)	0.231 (0.935)
BLOCK	(+)	-0.101 (-0.317)	-0.110 (-0.350)	-0.105 (-0.332)
Number of observations		169	169	169
$R^2$		0.101	0.102	0.107
$F$ -statistic		2.583**	2.605**	2.763***

The dependent variable is log value of Tobin's  $q$ . PWOMEN is the proportion of women. PFOREIGN is the proportion of foreign nationals. PYOUNG is the proportion of members no more than 50 years of age. LNASSET is log value of total assets. LNBSIZE is log value of the total number of board members. LARGEST is the proportion of common shares owned by the largest shareholder. BLOCK is the proportion of common shares owned by blockholders (shareholders with 5 percent of ownership or more). BOC is board of commissioners. BOM is board of management. Robust  $t$ -statistics, based on heteroskedasticity-consistent standard errors, are in parentheses. \*, \*\*, and \*\*\* indicate significance (one-tailed) at the 0.10, 0.05, and 0.01 levels, respectively.

To investigate whether the presence of women, foreign nationals, and young members on the board has a significant link with financial performance, we employ dichotomous variables to indicate the presence. Furthermore, we also use Blau heterogeneity index since some authors argue that the proportion of board members with particular attributes is not an appropriate measure of diversity (Campbell and Minguez-Vera, 2008). This index is introduced by Blau (1977) and is computed as follows:

$$\text{Blau index} = 1 - \sum_{i=1}^n P_i^2 \quad (4)$$

where  $P_i^2$  is the percentage of board members in each category and  $n$  is the total number of categories used. Table 5 presents summary statistics for the

dichotomous variables and Blau heterogeneity index. For the sake of simplicity, BOC and BOM are combined. It can be seen that 54 percent of firms included in the sample have at least one woman in their boardrooms. While 98 percent of firms have at least one young member holding the board seats, only 33 percent have foreign nationals in their boardrooms. Blau heterogeneity indices show the same results. Nationality and age diversity appear to have the lowest and the highest index, respectively, on average. Blau index shows the highest score at 0.50 when the proportions of members from both groups (e.g. the fraction of men and the fraction of women on the board) are equal. On the other hand, the index shows the lowest score at zero when all of board members are from one group (e.g. all members are men or women).

**Table 5.** Summary statistics for dichotomous variables and Blau index of diversity

Variables	Number of Observations	Mean	Standard Deviation	Minimum	Maximum
<i>Boards of Commissioners and Management</i>					
<i>Dichotomous variables</i>					
DWOMEN	169	0.54	0.50	0.00	1.00
DFOREIGN	169	0.33	0.47	0.00	1.00
DYOUNG	169	0.98	0.15	0.00	1.00
<i>Blau index of diversity</i>					
BLAUGENDER	169	0.16	0.17	0.00	0.50
BLAUNATIONAL	169	0.10	0.16	0.00	0.50
BLAUAGE	169	0.39	0.14	0.00	0.50

This table reports the summary of dichotomous variables and Blau index of diversity used in regression models. Board of commissioners (BOC) and board of management (BOM) are combined. DWOMEN is a dichotomous variable, which equals 1 if the firm has at least one woman on the board and 0 otherwise. DFOREIGN is a dichotomous variable, which equals 1 if the firm has at least one foreign national on the board and 0 otherwise. DYOUNG is a dichotomous variable, which equals 1 if the firm has at least one member no more than 50 years of age on the board and 0 otherwise. BLAUGENDER is Blau index for gender diversity of the board members. BLAUNATIONAL is Blau index for nationality diversity of the board members. BLAUAGE is Blau index for age diversity of the board members.

The results of the regressions using dichotomous variables are reported in Table 6. For the sake of simplicity, the regressions are not conducted separately for BOC and BOM. The results indicate that despite insignificant relationship between the proportion of women and ROA (as reported in Table 4), the presence of women on the board is found to be negatively related to ROA. Similar to our previous

interpretation, low-performing firms are more likely to have female members on their boards. Employing Tobin's  $q$  as the dependent variable, as presented in Model (2) of Table 5, the results are identical with those of Table 4. The presence of women is found to be negatively related to Tobin's  $q$ , while a positive association exists between Tobin's  $q$  and the presence of young members on the board.

**Table 6.** OLS regression of ROA and Tobin's  $q$  on board diversity using dichotomous variables

Independent variables	Predicted sign	ROA	Log (Tobin's $q$ )
		(1)	(2)
Intercept		6.535*	-0.754**
		(1.357)	(-1.781)
DWOMEN	(-)	-2.916***	-0.245***
		(-2.691)	(-2.465)
DFOREIGN	(+)	0.838	0.000
		(0.657)	(0.001)
DYOUNG	(+)	-2.850	0.625**
		(-0.812)	(2.026)
LNASSET	(+)	0.834**	-0.111***
		(2.081)	(-3.144)
LNBSIZE	(+)	-1.059	0.651***
		(-0.482)	(3.366)
LARGEST	(+)	5.212**	0.175
		(1.677)	(0.640)
BLOCK	(+)	-6.778**	-0.000
		(-1.925)	(-0.097)
Number of observations		169	169
$R^2$		0.117	0.127
F-statistic		3.042***	3.355***

The dependent variable in Model (1) is ROA. The dependent variable in Model (2) is log value of Tobin's  $q$ . DWOMEN is a dichotomous variable, which equals 1 if the firm has at least one woman on the board and 0 otherwise. DFOREIGN is a dichotomous variable, which equals 1 if the firm has at least one foreign national on the board and 0 otherwise. DYOUNG is

a dichotomous variable, which equals 1 if the firm has at least one member no more than 50 years of age on their board and 0 otherwise. LNASSET is log value of total assets. LNBSIZE is log value of the total number of board members. LARGEST is the proportion of common shares owned by the largest shareholder. BLOCK is the proportion of common shares owned by blockholders (shareholders with 5 percent of ownership or more). In both models, board of commissioners (BOC) and board of management (BOM) are combined for the sake of simplicity. Robust *t*-statistics, based on heteroskedasticity-consistent standard errors, are in parentheses. \*, \*\*, and \*\*\* indicate significance (one-tailed) at the 0.10, 0.05, and 0.01 levels, respectively.

Using Blau index as the measure of diversity, the results are slightly different. Similar to the regressions using the proportion, none of the three types of diversity appear to have significant effects on both measures of performance. This suggests that the diversity of gender, nationality, and age of the board members of the Indonesian listed firms does not matter to accounting performance. Again, gender diversity is negatively associated with Tobin's *q*, which may suggest that gender diversity on the board is more likely to belong to low-performing firms.

Interestingly, while the proportion of the young on the board has a significant influence on Tobin's *q*, age diversity is found to have no significant impact. This can be understood since the computation of Blau index is different from the proportion computation. Blau index considers all groups and does not pay attention to only one group. Hence, when the proportion of female members on the board of a firm is 100 percent, the index would be zero since the firm has no male members. In other words, the gender of its board members is totally homogeneous.

**Table 7.** OLS regression of ROA and Tobin's *q* on board diversity using Blau index

Independent variables	Predicted sign	ROA	Log (Tobin's <i>q</i> )
		(1)	(2)
Intercept		5.136* (1.341)	-0.156 (-0.468)
BLAUGENDER	(-)	-4.419* (-1.357)	-0.732*** (-2.580)
BLAUNATIONAL	(+)	1.718 (0.458)	-0.117 (-0.360)
BLAUAGE	(+)	-1.601 (-0.385)	0.400 (1.105)
LNASSET	(+)	0.783** (1.940)	-0.107*** (-3.040)
LNBSIZE	(+)	-1.363 (-0.610)	0.584*** (3.003)
LARGEST	(+)	5.130* (1.614)	0.197 (0.712)
BLOCK	(+)	-7.537** (-2.125)	-0.001 (-0.323)
Number of observations		169	169
<i>R</i> <sup>2</sup>		0.084	0.113
<i>F</i> -statistic		2.108**	2.925***

The dependent variable in Model (1) is ROA. The dependent variable in Model (2) is log value of Tobin's *q*. BLAUGENDER is a Blau index for gender diversity of board members. BLAUNATIONAL is a Blau index for nationality diversity of board members. BLAUAGE is Blau index for age diversity of board members. LNASSET is log value of total assets. LNBSIZE is log value of the total number of board members. LARGEST is the proportion of common shares owned by the largest shareholder. BLOCK is the proportion of common shares owned by blockholders (shareholders with 5 percent of ownership or more). In both models, board of commissioners (BOC) and board of management (BOM) are combined for the sake of simplicity. Robust *t*-statistics, based on heteroskedasticity-consistent standard errors, are in parentheses. \*, \*\*, and \*\*\* indicate significance (one-tailed) at the 0.10, 0.05, and 0.01 levels, respectively.

### 5.3. Sensitivity Analysis

We further conduct sensitivity analyses to test the robustness of our results. As the alternatives to ROA and Tobin's *q*, net profit margin (NPM) is used as the measure of accounting performance, whereas price-to-book ratio (PBV) is used as the measure of market performance. We repeat regressions in Tables 3, 4, and 6 and use log value of sales revenues, instead of log value of total assets, as the proxy for firm size. Our findings remain the same as those reported.

In another sensitivity test, we repeat regressions in Table 7 using Shannon index of diversity. Shannon index, or Shannon-Weaver index, is introduced by

Shannon and Weaver (1949) and is computed as follows:

$$\text{Shannon index} = - \sum_{i=1}^n P_i \ln P_i \quad (5)$$

where  $P_i$  is the percentage of board members in each category and  $n$  is the total number of categories used. Our results remain unchanged.

### 6. Conclusion

This study examines the relationship between the diversity of gender, nationality, and age of the board

members and firm financial performance in Indonesia. A number of such studies have been undertaken in the context of a few developed economies. Hence, this study makes contribution to the literature by addressing the issue in a developing economy that has different economic, legal, and cultural environments. Indonesia is a civil law country whose capital market is characterized by large family ownership of its listed firms and significant value of foreign trading on the stock exchange.

Three demographic characteristics of the board members—gender, nationality, and age—are addressed in this study. We employ the proportion of women, foreign nationals, and board members no more than 50 years of age as the key explanatory variables. Furthermore, we also employ dichotomous variables to indicate the presence of those groups on the board, as well as Blau heterogeneity index to score the level of diversity in the boardrooms. Firm size, board size, and the proportion of independent commissioners are also included in the model as control variables. We conduct cross-sectional regression analysis using a sample comprising 169 firms listed on the Indonesia Stock Exchange as at 31 December 2007.

We find that the proportion of the young in the boardrooms of the Indonesian listed firms is relatively high and has a significant positive association with market performance, even though Blau index of age diversity has no significant influence on Tobin's  $q$ . This seems to imply that younger board members are more likely to be motivated to face new challenges and strategic changes that lead to higher performance, as suggested by Hambrick and Mason (1984) and Wiersema and Bantel (1992). In contrast, foreign nationals holding board seats have no influence on either accounting or market performance, which seem to suggest that nationality diversity does not matter to financial performance.

Using ROA as the measure of accounting performance, we find that none of the proportions of women, foreign nationals, and the young have significant influence on firm performance, except the proportion of the young on BOC. The similar result is also found when using Blau index for diversity. However, the presence of women in the boardrooms is found to have a significant negative relationship with ROA. When the analysis employs market-based performance based on Tobin's  $q$ , the proportion and the presence of women also show significant negative impacts. The interpretations on this finding need to be undertaken in caution. This would seem that higher proportion of female members is associated with lower level of firm performance. It should not immediately be interpreted that the presence of women in the boardrooms would destroy shareholder value. Hence, this study also suggests a call for the encouragement of equal opportunity for all groups of employees, including women, based on their competence and contribution to the organization.

The present study is subject to some limitations, which are expected to be overcome by future studies. *First*, this study uses ordinary least square (OLS) regressions to examine the effects of board diversity on financial performance. Hence, future studies need to address the effects of firm performance and other firm characteristics on the board diversity through a simultaneous equation framework, as conducted by Carter et al. (2003) and Campbell and Minguez-Vera (2008). *Second*, this study employs cross-sectional analysis among listed firms in one financial period only, which makes our results cannot be generalized for other financial periods. Future studies need to consider the use of longitudinal data to provide more reliable insights into the relationship between board diversity and financial performance.

## Notes

[1] Carter et al. (2003) identify the ethnic background of board members of Fortune 500 companies (whether they are White, Afro-American, Asian, or Hispanic) based on Directorship database. On the other hand, in the context of Malaysia, Haniffa and Cooke (2002) identify the ethnic background of board members, whether they are *bumiputera* (indigenous) or non-*bumiputera*, based on the company registrars and annual reports. This seems to be possible to undertake due to unique naming practices among different ethnic groups in Malaysia (see Daniels, 2005). For the Indonesian case, relying on annual reports to gather information, we have no reliable options to identify the race or ethnic background of the board members due to the following reasons. First, ethnic-Chinese Indonesian, playing an important role in the country's economy, mostly have "Indonesian names" as the result of name-changing policy imposed by the Suharto government (Suryadinata, 2008). Second, some companies do not provide the pictures of their board members, while some others have poor scanning quality of their annual reports. Third, even though good pictures of board members are available in the annual reports, it may not be always reliable to identify someone's race based on the physical appearance on the pictures. It would seem that we could not always correctly guess whether a fair-skinned man with a "typical Indonesian name" on a picture is Chinese or *pribumi* (indigenous).

[2] The financial year 2007 is considered the most recent "normal period," due to global financial crisis that heavily affected the Indonesian capital market in 2008 and 2009. While a number of studies on the relationship between board diversity and firm performance use longitudinal data (e.g. Adams and Ferreira, 2009; Campbell and Minguez-Vera, 2007; Oxelheim and Randøy, 2003; Rose, 2007), other studies use purely cross-sectional data (e.g. Carter et al., 2003; Erhardt et al., 2003; Krishnan and Park, 2005; Shrader et al., 1997; Randøy et al., 2006). As Carter et al. (2003), we recognize the limitations of using a single year of data. Hence, our results cannot claim to represent other financial periods.

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