Board Diversity and Firm's Financial Performance: Evidence from South-East Asia

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ABSTRACT

This study examines the relationship between demographic and cognitive diversity factors within the board of directors and firm financial performance. The studied sample is based on the Top 100 companies within the South-East Asian region published by the Nikkei Asian Review magazine. The relationship is examined using financial performance data (return on assets and equity) for the five-year interval from 2009 to 2013 and board diversity for the one-year interval between 2012 and 2013, which is defined in respect to gender, the educational background of the director and the ethnic group of the director. In addition, the generated relationship is controlled by several industry and organizational variables and an additional diversity dimension, namely the age of the board representatives. The correlation and regression analyses fail to indicate a significant relationship between board diversity and firm financial performance. Finally, the paper discusses both implications for future research and practical contribution.

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1. INTRODUCTION

As the problem of corporate governance has not been perfectly solved yet and that a row of corporate governance mechanisms can still be improved (Shleifer & Vishny, 1997, p.737), corporate governance remains to be of crucial relevance and of enormous practical importance. Notwithstanding the fact, that there are still possibilities of improving the quality of corporate governance, the economic and legal aspects of its mechanisms, which are altered through the political actions of a certain region or country, it still remains a crucial aspect for any international or multinational organization (Shleifer & Vishny, 1997, p.738). Corporate governance remains hotly debated in the Asian-Pacific region (Dogan & Smyth, 2002, p.2), due to the considerably weak structure and adopted practices, thus for example, being one of the contributing reasons for the beginning of the Asian Financial Crisis in 1997-1999 (Dogan & Smyth, 2002, p.2; Taghizadeh, 2013, p.443). Corporate governance is considered to be a weak part of the Asian-Pacific region (Taghizadeh, 2013, p.443). The findings by Taghizadeh (2013) and the pressing needs for studies of corporate governance arrangements in countries other than the United Kingdom (UK) and the United States of America (USA) found by Shleifer & Vishny (1997) lead to the interest of identifying of how exactly firms' financial performance is affected by the corporate governance structure in the Asian-Pacific region. One of the main reasons for looking at the effects on firms' financial performance is the fact that most corporations in the Asian-Pacific region adjust their governance policies towards international practices to demonstrate good corporate citizenship with a belief that effective governance will result in improved corporate performance (Chuanrommanee & Swierczek, 2007, p.272). Moreover, the most significant governance issue, which is currently faced by managers, directors and shareholders of the modern business world, is the gender, racial and cultural formation of the board of directors (Carter et al., 2003, p.34). In addition, Carter et al. (2003) highlights that the issue is forming a high public profile due to the vast amount of reports in popular press, shareholder proposals from advocacy groups and policy statements from major institutional investors. Therefore, this study will focus on examining the effect of board's diversity on the firms' financial performance throughout the top, largest firms in the ASEAN region, according to the rankings published in *Forbes* and *Nikkei Asian Review* magazines. From the theoretical perspective, the study of board diversity effects on the ASEAN firms' financial performance will fill in the existing literature gap and will provide a motivation for further studies. The practical value of the paper will contribute in terms of creating a clear picture for the directors, managers and shareholders of what is exactly the effect of board diversification on corporations' financial performance in the Asian-Pacific region. Additionally, the results of this study will contribute to strategic human resource management, namely in terms of the hiring process of new executives for the board. Therefore, to examine the relationship between board of directors' diversity and firm financial performance, first the concept of board diversity is discussed and then connected with the performance of a firm through the commonly used financial theories. Ultimately, specific relationships between board diversity and firm performance are investigated in this study.

2. LITERATURE REVIEW

In order to investigate the relationship between board diversity and firm financial performance, this section will cover important concepts, introducing the idea behind the hypothesized relationship. First the determinants of board diversity are explained, i.e. the gender, age, ethnicity and educational background. Consequently the relevance of these determinants is discussed based on previous studies. Second, the connection between board diversity and financial performance is discussed, leading to the creation of the general hypothesized relationship. Third, the hypothesized relationship between board diversity and firm performance is discussed using two main financial theories, namely the agency and the resource dependency theories. Ultimately, specific relationships between board diversity and performance are discussed through the main concepts, illustrated in this study.

2.1 Board diversity and gender

Among all diversity factors, gender arguably remains one of the most long-standing and debated elements of board composition (Mahadeo et al., 2012, p.377). Furthermore, according to Carter et al. (2003) gender remains one of the most significant governance issues faced by managers, directors and shareholders of the modern business world. Burke (1997, 2003), Zelechowski & Bilimoria (2004) and Stephenson (2004) explained a series of competitive benefits for a firm which considers employing women on the board of directors. These authors found that women have a more in-depth knowledge of the consumer market and customers, as well as women being not only innovative, but also highly socially and community minded. Moreover, Catalyst (2004), who did a study based on the 353 Fortune companies in the United States found that representation of women on the firms' boards led to a 35 percent better return on equity and a 34 percent better total return on shareholders, compared to the companies with a lower percentage of female representation. Mahadeo et al. (2012) found that there is a significant effect on the performance of a company for a mixed gender board compared to a board with no female representation and that involving women in the board leads to potential benefits for the firm. Furthermore, Kang et al. (2007) and Adams & Ferreira (2008) found that the situation of women participating on company boards is improving and that the percentage of female directors is growing. However, by looking at other developed and developing countries, e.g. throughout the Asia-Pacific region, the results are highly different. Kang et al. (2007) found that in Australia 33 percent of companies do not have female directors representing the board and 51 percent of companies only have one woman representing the board of directors. Therefore it can be seen that although there are regions with a small percentage of female representatives, a diverse board in terms of gender suggests an increase in the financial and organizational performance of a firm. Thence, examining how gender differences within the boards of ASEAN companies influences financial performance is an addition to the existing literature, as well as a contribution for potential further research.

2.2 Board diversity and age

The company's management as well as career progression is highly dependent on having a board, which mainly consists of mature, experienced and older directors (Kang et al., 2007, p.197). Moreover, Gilpatrick (2000) found that older or retired executives are commonly seen as the ideal candidates for becoming non-executive board members, thus are more likely to be selected for the boards compared to individuals who are less experienced and who are younger. The idea behind having older directors on the board of an organization consists of a series of underlying benefits for a company. Houle (1990) stated that an older board of directors is able to ensure a more efficient level of operations not only within the board, but also throughout the company by providing the necessary experience, the network and the required financial resources. Additionally, successful planning based on the previously acquired experience will guarantee a sustainable development not only of

the board members, but also of the lower divisions of an organization. A more recent study, conducted by Mahadeo et al. (2012) found that age diversity is still an emerging positive factor and has significant influence on the performance of a firm, thus validating the earlier findings by such authors as Murray (1989), Houle (1990) and Gilpatrick (2000). Furthermore, Kang et al. (2007) found that 78 percent of company directors are aged between 51 and 70 and that previous executives enjoy holding a position within the board of directors after their retirement, which was based on a sample from Australia. However, it is not considered whether this had a positive influence on the company itself. Hence, previous research showed that although there is evidence showing that age plays a crucial role in the composition of the board of directors, it remains uncertain for particular regions, such as Australia, whether an older board actually benefits the firm. Thence, studying the South-East Asian region, is an attempt to show the role of age in the board of directors and an attempt to narrow down the existing literature gap.

2.3 Board diversity and education

In comparison to age and gender diversity, the educational background remains a puzzling piece in terms of having a significant effect on firm performance due to relatively less research compared to other diversity dimensions (Mahadeo et al., 2012, p.378). Notwithstanding the fact of comparatively less conducted research, several authors identified that the educational background is of important relevance when it comes to measuring the performance of an organization. Murray (1989) found that education is of marginal relevance for the short-term performance of a firm. However, he discovered that having a specific background for a specific industry would lead to better performance, where a good example is the oil industry, where the board is highly dominated by engineers. Opposing to the findings by Murray (1989), it was found by Argenti (1976) that a board without educational diversity could lead to a collapse of an organization, where a good example is the downturn of Rolls Royce in the 1970s, where the board was dominated by engineers with little experience and knowledge for financial implications of the company's research and development. Thence, making educational diversity a crucial aspect for the board of directors, especially for the largest corporations in the modern business world. Furthermore, Bantel (1993) found that a more educationally diverse board benefits the firm in terms of better decision-making, which is based on the case of the banking sector and the financial industry as a whole. Moreover, it was found that a firm might benefit from having an educationally diverse board of directors in terms of faster and in-depth assessments of particular decisions, as well as addressing the potential information asymmetry issues between the board and senior management (Mahadeo et al., 2012, p.378). Consequentially, Mahadeo et al. (2012) found that the educational background has a significant impact on the performance of an organization. Thence, with the above mentioned findings, the educational background is seen as of significant relevance in measuring board diversity and is used in this study as a potential factor for studying the case of the South-East Asian region.

2.4 Board diversity and ethnicity

Ethnicity, or nationality and culture remains to be very rarely observed when measuring board diversity in the cases of an emerging market (Darmadi, 2011). Moreover, existing evidence of ethnicity being related to firms' financial performance mostly comes from the studies of developed economies. However, the existing findings show that measuring board diversity in terms of nationality and culture is of important relevance when trying to observe its effects on the performance of an organization. On the one hand, a diverse board in terms of culture may cause cross-cultural communication problems and interpersonal conflicts, as found by Lehman & Dufrene (2008) and Cox, Jr. (1991). On the other hand, a board which has foreign representatives creates potential benefits for the company. Oxelheim & Randoy (2003) found that a more diverse board creates potential competitive advantages for the firm in terms of an international network, commitment to shareholders and improved managerial abilities. Moreover, several authors indicate that diversity in terms of foreign nationals leads to a positive impact on firm performance, however, it is highly dependent on the financial measures used in the process of conducting research. Oxelheim & Randoy (2003) found that having foreign nationals significantly impacts the performance of a firm by using Tobin's q based on a sample of Norwegian and Swedish firms. Ruigrok & Kaczmarek (2008) found similar results using net income as a performance measure by studying a sample of UK, Dutch and Swiss firms. By studying a sample of developing countries, Ararat et al. (2010) found that higher diversity leads to an increase in market-to-book ratio of a firm in such countries as Turkey. In other words, previous research shows that there is indeed a connection between having a culturally diverse board and the firm's performance, which is different for each region and country. Finally, one of the recent studies made by Darmadi (2011) found that nationality diversity has no impact on the financial performance for a sample of Indonesian companies, Indonesia being a part of the South-East Asian region. Thence, the contradicting findings between Darmadi (2011) and prior research shows the relevance of measuring board diversity in terms of its ethnic composition. Consequently, ethnic diversity is used to test the relationship between board diversity and firm's financial performance for the sample of South-East Asian firms in order to compare the results with the findings in prior studies.

2.5 Connecting board diversity and firm performance

The structure of the board plays a crucial role in a way that it monitors the managers and controls the company on behalf of all shareholders, which is comprised of such aspects as duality, non-executive representation on the board and the existence of board monitoring committees (Chuanrommanee & Swierczek, 2007, p.276). However, the way in which board diversity is defined in this study is based on the gender, racial and cultural aspects, which are considered to be the main governance issues in the modern business world (Carter et al., 2003, p.34), as well as on the educational background of board representatives. Gender, racial and cultural aspects are taken into account due to the fact that many institutions, such as the National Association of Corporate Directors Blue Ribbon Commission and the Interfaith Center on Corporate Responsibility (ICCR) promote the idea of not only considering the mentioned diversity aspects in the selection of directors (National Association of Corporate Directors, 1994), but also to constantly monitor and report on the diversity within major corporations (Carter et al., 2003, p.34). Respectively, education is used due to its crucial role in the performance of a firm, when it comes to hiring a board for a specific industry as was found by Argenti (1976) and Murray (1989). Furthermore, the added element of diversification within the board of directors improves the decision-making of the group (Erhardt et al., 2003, p.102). Moreover, Simon & Pelled (1999) found that educational and cognitive level diversity within the board leads to a positive effect on the organizational performance, thus hypothesizing that diversity in the board of directors has a positive effect on the firm's financial performance through the potential increases in the

organizational performance and improved decision-making. Additionally, Erhardt et al. (2003) found that diverse boards lead to an increase in firms' financial performance. Consequently, proving an existing relationship between firm performance and board diversity and showing the relevance of studying this relationship based on the South-East Asian region in an attempt to narrow down the existing literature gap.

2.6 Board diversity and the resource dependency theory

The resource dependency theory, which is addressed towards the board of directors, is considered to be an important mechanism for absorbing critical elements of the environmental uncertainty into the firm (Yusoff & Alhaji, 2012, p.56). The resource dependency theory acts as a linking tool that is used by the directors to connect the firm with external factors and holds the possibility of reducing the transaction costs associated with environmental interdependency (Yusoff & Alhaji, 2012, p.56). In addition, Hillman et al. (2000) states that by connecting the firm with external environmental factors, it not only decreases the transaction costs associated with the external operations, but also leads to a reduction of uncertainty. Based on the findings of Yusoff & Alhaji (2012) and Hillman et al. (2000) it is hypothesized that a board's ability to connect the firm with the external environment leads to an increase in the firm's financial performance. Moreover, Erhardt et al. (2003) and Simon & Pelled (1999) found that diversity within the board leads to better decision-making and organizational performance. Therefore, it is assumed that a more diverse board is able to connect the firm with the external environment more effectively. Thence, it motivates the hypothesized link that board diversity leads to improved financial performance of companies.

2.7 Board diversity and the agency theory

The role of the board in the agency framework is connected with resolving the agency problems between the managers and shareholders by controlling the compensation and whether the existing managers create value for the shareholders (Carter et al., 2003, p.37). The agency theory is closely linked to the financial performance of the firm in terms of boards' monitoring of the potential costs, associated with the management pursuing their own interests at the expense of shareholders' interests (Hillman & Dalziel, 2003, p.384). The importance of thorough monitoring lies in the fact that the board of directors is able to reduce the agency costs connected with the separation of ownership and control (Hillman & Dalziel, 2003, p.384), thus leading to an increase in the firm's financial performance due to the prevented expenses from the agency costs. The prevented agency costs are explained by Berle & Means (1932), through the assertion of separating ownership and control, thus giving the managers an opportunity to pursue their own interests at the expense of profit maximization for the company. Based on the findings of Berle & Means (1932) and Hillman & Dalziel (2003) it is hypothesized that a board's ability to carefully monitor the costs within the company, including the agency costs could lead to an increase in firm's financial performance. Furthermore, according to the findings of Erhardt et al. (2003) and Simon & Pelled (1999), diversity of the board leads to improved decision-making and organizational performance. Therefore, a board that is able to make better decisions and operates at a high organizational level is assumed to better monitor the state of the company. Hence, it supports the stated hypothesis that board diversity leads to increased firms' financial performance.

2.8 Hypothesis

Previous studies show that demographic and cognitive diversity play a crucial role when determining the organizational and financial performance of an organization, as found by Erhardt et al. (2003), Darmadi (2011) and Mahadeo et al. (2012). Furthermore, it is seen that there are various ways of how board diversity impacts the firm and that each diversity dimension influences a certain financial or organizational aspect of a company (e.g. Oxelheim & Randoy, 2003; Ruigrok & Kaczmarek, 2008). Additionally, by reflecting the relevance of board diversity and connecting it with financial theory, it shows that there is a theoretical relationship between board diversity and firm financial performance. Consequently, these arguments lead to the statement of a general hypothesis that: *a more diverse board of directors leads to a potential increase in the financial performance of a firm.*

3. DATA AND METHODS

This section covers the procedures taken in order to test the relationship between board diversity and firm's financial performance. First, a detailed description of the sample that was used in this study is introduced. Second, variables used to test the relationship are defined, together with a description of how each variable was constructed. Moreover, the section covers a brief description of the analysis and used techniques. Finally, results of the analysis are presented and justified by meaningful descriptive information.

3.1 Sample

Data for this study was gathered from the Top 100 companies of the ASEAN region, operating in various industries. The companies were analyzed by the *Nikkei Asian Review* magazine, based on a specific range of criteria. The most important criteria chosen by the *Nikkei Asian Review* were market value in billions of dollars, net profit in millions of dollars and a percentage change in the firm's performance in comparison to the previous financial year. The Top 100 companies were comprised from the six largest economies in ASEAN, namely ASEAN-4 + Philippines and Vietnam, where the top twenty is exclusively composed of companies from Indonesia, Thailand, Malaysia and Singapore. Malaysia comprises 27 percent of the list, followed by Singapore and Thailand, respectively accounting for 21 percent each. The list of the Top 100 companies was accessed from the official website of *Nikkei Asian Review*, which is also available in magazines such as *Forbes* and *Fortune*. Data, concerning the diversity of the board of directors for these companies was acquired through official reports, which were publicly available on the companies' websites. Respectively, data concerning the financial performance of the companies (ROE and ROA) was acquired in the same way. Due to publicly unavailable data, 27 of the original companies had to be excluded from further study. Out of the remaining 73 companies, the largest numbers came from the financial services industry (27.4 percent) and communications industry (16.4 percent). Other industries included, the agribusiness sector (8.2 percent), real estate (6.8 percent), utilities/transportation (5.5 percent), and others (35.7 percent), summing up to a total of 25 different industries. Hence, 73 of the remaining companies with complete data were included in the analysis. Consequently, important descriptive data is depicted in Table 1. On average the board was represented by 10.8 members with an average age of 59.7 years, ranging from 47.4 being the youngest and up to 72.2 being the oldest. When it comes to measuring the diversity of the board, it can be seen that the average ratio was 55.3 percent ranging from 33.3 percent to 71.4 percent. Furthermore, performance of the firm

Table 1: Overview of the companies included in the final sample

	N	Min	Max	Median	Mean average	Standard deviation
1 ROA09	**73**	**0.002**	**0.518**	**0.064**	**0.088**	**0.091**
2 ROA13	**73**	**0.008**	**10.820**	**0.055**	**0.241**	**1.260**
3 ROE09	**73**	**0.031**	**2.540**	**0.145**	**0.266**	**0.375**
4 ROE13	**73**	**0.036**	**19.320**	**0.155**	**0.574**	**2.307**
5 Board size	**73**	**5.000**	**18.000**	**10.500**	**10.842**	**2.908**
6 Directors' age	**73**	**47.400**	**72.200**	**59.895**	**59.737**	**5.151**
7 Financial services industry	**73**	**0.000**	**1.000**	**0.000**	**0.260**	**0.442**
8 Communications industry	**73**	**0.000**	**1.000**	**0.000**	**0.160**	**0.373**
9 Agribusiness industry	**73**	**0.000**	**1.000**	**0.000**	**0.080**	**0.277**
10 Real estate industry	**73**	**0.000**	**1.000**	**0.000**	**0.050**	**0.229**
11 Utilities industry	**73**	**0.000**	**1.000**	**0.000**	**0.050**	**0.229**
12 Firms' age	**73**	**2**	**136**	**33**	**39.700**	**27.340**
13 Firms' size[a]	**73**	**0.445**	**469.649**	**13.717**	**47.373**	**86.622**
14 Total turnover[a]	**73**	**0.295**	**165.682**	**3.584**	**10.927**	**24.196**
15 Board diversity	**73**	**0.333**	**0.714**	**0.642**	**0.553**	**0.076**

[a]. In millions.

was measured by the return on assets and return on equity for years 2009 and 2013, thus depicting the difference in the firms' performance over the five-year period. It can be seen that the highest return on equity on average reached 26.6 percent for year 2009 and 57.4 percent for the year 2013, thus showing a growth of 30.8 percent over the years. A similar growth rate (15.3 percent) was seen in terms of return on assets with an average of 8.8 percent for year 2009 and a 24.1 percent average for year 2013. In overall, it is seen that all firms had experienced significant growth in terms of financial performance in the period from year 2009 to 2013 in terms of ROE and ROA. In addition, companies included in the sample were considered to be large corporations, which is seen by the size of the firm and the amount of total turnover, which on average varies, respectively around 47.37 and 10.92 million dollars. Moreover, it is seen that companies included in the sample existed on average for 39.7 years, with the youngest company being 2 years old and the oldest 136 years old. Finally, it can be seen that the value of diversity and organizational variables was fluctuating, which is assumed to be the reason behind the changes in the financial performance of the firms and will be tested and interpreted in the following sections of this study.

3.2 Measures

3.2.1 Independent variables

This study measured diversity in terms of ethnic, gender and educational background representation within the board of directors. The diversity representation was obtained from the company publicly available, official reports. These reports were analyzed for both 2012 and 2013 and were based on the company's annual overview of financial performance and organizational structure. Ethnicity was measured by the representation percentage of whites (Anglo-Saxon, Germanic and Scandinavian) and non-whites (African, Hispanic, Asian and Indian). Respectively, gender diversity was measured in terms of the percentage of woman representing the board of an organization. Finally, the educational background was measured in terms of the percentage of individuals having a business (e.g. general management, finance, procurement) or politically related (e.g. law, commercial relations, politics) degree. The percentage of females and minorities for the board of directors was determined by dividing the amount of non-whites and females by the total number of executive board of directors for both 2012 and 2013. Respectively, the same was done to determine the percentage difference in terms of the executives' background, both for 2012 and 2013. In addition, a mean average was calculated for these two years. The purpose of calculating the average over the two years was to have better control for potential changes in the diversity ratio and increased reliability (Erhardt et al., 2003, p.106). Finally, the variable board diversity was transformed into an aggregate construct comprising of the three dimensions, namely the gender, differences in respect to the educational background and differences in ethnicity of the board members. According to Edwards (2001), an aggregate construct is a sum of the scores on individual dimensions that are assigned an equal weight. Therefore, first the three chosen dimensions of diversity were transformed into ratios in order for the dimensions to be assigned on an equal measurement level. Afterwards, as already mentioned, a mean average was calculated for both years for each of the three dimensions. Finally, the mean average out of the three dimensions was calculated for each company, thus creating an aggregate construct for the diversity variable. The usage of an aggregated variable continues to evolve a fair amount of debate and criticism in organizational behavior literature (Edwards, 2001; p.145). However, it remains to be a widely used technique of testing the effect of the independent variable on the dependent variables (e.g. Locke, 1976; Warr et al., 1979; Murphy & Shiarella, 1997; Erhardt et al., 2003; Haynes & Hillman, 2010; Johnson et al., 2012).

3.2.2 Dependent variables

Organizational performance has been measured in several different ways and researches have been using such financial data as the ratios of the stock prices to earnings and stock prices to book values, according to Murray (1989) and Erhardt et al. (2003). This study uses two financial ratios, namely the return on assets (net income divided by total assets or ROA) and return on equity (net income divided by total equity attributed to shareholders or ROE). Information on ROE and ROA was extracted from the self-made, publicly available financial

reports, respectively for years 2009 and 2013. Both measures evaluate how effectively a company is managing the capital that is entrusted by shareholders. Measures, such as ROE, ROA and ROI are consistent with other organizational studies and are most often used by financial analysts in evaluating a firm's performance (e.g. Shrader et al., 1997; Erhardt et al., 2003). Therefore, the two measures, namely ROE and ROA were used to test the relationship between board diversity and firm performance in this study. Furthermore, the financial performance of companies was measured on a five-year interval, namely for the years 2009 and 2013. The reason behind choosing year 2009 was due to the global financial crisis, that stroke the economy in years 2007 and 2008, when a large number of institutions collapsed or were bailed out by the government throughout the regions of the USA, UK and continental Europe (Erkens et al., 2012, p.389). Therefore, year 2009 was observed as a starting point after the crisis ended and companies not only in South-East Asia, but also worldwide began once again to perform adequately and up to the point where these companies are nowadays. Consequently, year 2013 was used in order to observe the changes in financial and organizational performance throughout the five-year interval, as well as due to the largest amount of publicly available data, compared to years 2014 and 2015. Moreover, this was done because the impact of a strategic change on organizational performance typically requires numerous years to observe (Erhardt et al., 2003, p.106). Therefore, the five-year scale accounted for a diverse individual's contribution on strategic decision-making (Erhardt et al., 2003, p.106). Furthermore, the measurement at two different periods of time leads to a better market fluctuation control and more consistent results, according to Katz et al. (2000).

3.2.3 Control variables

In addition to the independent and dependent variables, several industry and organizational variables were used. Control variables that were used in this study included the type of industry, the size of the board, the age of the firm, the age of board representatives, firm size and the total turnover of a firm. Controlling the relationship for the industry was chosen because it helps to identify the effects of board diversity on the performance of a firm when using such diversity dimensions as gender or educational background as was found by prior research (e.g. Murray, 1989; Simon & Pelled, 1999; Tuggle et al., 2010; Mahadeo et al., 2012). Furthermore, these authors found that board diversity has an impact on the performance of a firm, depending on the specific industry in which it operates. Board size, as well as industry is a widely used measure for controlling and analyzing the relationship between board diversity and performance (e.g. Erhardt et al., 2003; Mahadeo et al., 2012). In addition, prior research indicates that the size of the board is positively correlated with board diversity. Mahadeo et al. (2012) found that board size has a significant effect on the educational background, suggesting that larger boards require a more educationally diverse board. Hence, by using education as a dimension of board diversity in this research, it was decided to control the relationship with the board size. Moreover, as it was seen in the earlier section of this paper, age plays an important role in determining the effects of board diversity on the firm's financial performance. Kang et al. (2007) found that efficient management of a firm is dependent on having a mature and experienced board. Therefore, it was decided to control the relationship between board diversity and financial performance by using the board representatives' age because from the chosen sample of Top 100 companies in South-East Asia it was observed that there are firms with a relatively young board (e.g. having a mean average age of 59.73 years with individual board members being as young as 27 years old), what could be of influence on the firm's performance. Next to the age of board representatives, it was decided to control the relationship by introducing the firm age, which is considered to be one of the traditional factors that affect firm performance (Smith et al., 2006, p.2). Hence, by observing the variance between the firms' age in the South-East Asian region, which includes firms as young as 2 years old and as old as 136 years old it was decided to check whether the age of the firm has any potential effects on the performance of a firm. Finally, in order to control for the size of the firm, it was decided to test the relationship by including the amount of total assets. Measuring firm size in terms of its total assets is considered to have a strong impact on the firms' financial performance and is widely used in financial literature (e.g. Carter et al., 2003; Erhardt et al., 2003; Leuz et al., 2003; Engelen et al., 2012). Hence, this factor was used to examine the effects of board diversity on firm financial performance. In addition to the total assets of a firm, it was decided to control the relationship with another financial measurement, namely the total turnover of a firm. Total turnover is considered to be a strong measure of firm performance as well as a strong measure of organizations' basic activities and is widely used in scientific literature (e.g. Leuz et al., 2003; Smith et al., 2006). Therefore, this factor was added into the regression model in order to test the relationship between board diversity and firm's financial performance. Thence, based on the publicly available data, namely the official company reports, information about the board size, age of board representatives, firm size and total turnover was respectively collected for years 2012 and 2013. A mean average of the age within the board was respectively calculated for each year. The mean average age was determined by diving the total age sum of all executives by the total number of executives for each year. Furthermore, a mean average over the two years was calculated for the size of the board, the mean age within the board, firm size and total turnover in order to have better control of the varying values and a higher level of reliability as suggested by Erhardt et al. (2003). Data concerning the age of the selected firms was respectively gathered from the official companies' websites and double-checked with the information published on ORBIS, which is an online database that contains up-to-date information from over 100 million companies around the world, published by Bureau van Dijk. Information about the type of industry was extracted from the Top 100 companies ranking provided by the *Nikkei Asian Review* magazine, making it a total of 25 different industries forming the most valuable companies in the region. During the analysis, 5 biggest industries were identified, namely the financial industry, communications industry, agribusiness industry, real estate industry and utility/transportation industry, each representing at least more than 5 percent of the total amount of studied companies. The remaining industries, which represented less than 5 percent of the total sample were respectively classified as other industries. Hence, the group, classified as other industries, became the sixth dummy variable, which was excluded from the regression model and was used as a base category against which the other 5 dummy variables were compared, thus avoiding the dummy variable trap. Therefore, five industry dummy variables, given the values of 0 or 1 were created and included in the regression model. The usage of dummy variables is an effective tool for categorical representation of the vast amount of industries as well as are of help when there is a relatively small amount of observations, as stated by Garavaglia & Sharma, (1989). Consequently, Garavaglia & Sharma, (1989) suggested that using dummy variables is more effective compared to coding each industry with a separate number (e.g. ind01 = 1, ind02 = 2 … ind25 = 25) because that

would show a big difference in the performance of an industry which is coded as 1 and which is coded as 15 or 25 without any particular reason. Furthermore, the usage of dummy variables is commonly seen in financial and corporate governance studies (e.g. Adams & Ferreira, 2009; Engelen et al., 2012). Finally it has to be mentioned that ROE and ROA at time 1 were also used as additional control variables when performing the hierarchical regression analysis in order to control the relationship for the possible effects of past year's performance. This procedure was also performed by Erhardt et al. (2003) who used ROA and ROI at time 1 to control the relationship between board diversity and performance in terms of ROA and ROI at time 2. Since it was suggested as an appropriate technique to measure the effects of board diversity in the US, the same technique was used in order to test the relationship between board diversity and firm performance for the South-East Asian region.

3.3 Analysis

The data used in this study was examined by correlation and a hierarchical regression analysis, outputs of which could be respectively found in Table 2 and Table 3. The two chosen statistical methods were found to be consistently used in prior studies when analyzing the effects of board diversity on firm performance (e.g. Erhardt et al., 2003; Adams & Ferreira, 2009; Adams & Funk, 2012 Mahadeo et al., 2012). The correlation was used in order to examine the relationship among the variables, namely: board diversity, board representatives' age, board size, industry, firm age, firm size and total turnover, ROA09, ROE09, ROA13 and ROE13. Furthermore, the hierarchical regression analysis was used in order to present the specific effects of the independent variable on the dependent variables. Consequently, the regression analysis was used in order to test the initially generated hypothesis by using the diversity variable, which was transformed into an aggregate construct, thus treating all three dimensions of diversity as a single dimension. It was assumed that there is a linear relationship between board diversity and firm financial performance, therefore the relationship was measured with the following regression equation:

$$FFP_i = \beta_1 \cdot BOARD\ DIVERSITY_i + \beta_2 \cdot BOARD\ SIZE_i + \beta_3 \cdot DIRECTORS'\ AGE_i + \beta_4 \cdot FIRM\ AGE_i + \beta_5 \cdot FIRM\ SIZE_i + \beta_6 \cdot TOTAL\ TURNOVER_i + \beta_7 \cdot industry\ dummy_i + \varepsilon_i$$

with FFP_i the firm financial performance for firm i in the studied sample, $BOARD\ DIVERSITY_i$ the aggregated construct consisting of gender, ethnicity and background dimensions of firm i, $BOARD\ SIZE_i$ as measured by the number of representatives within the board of firm i, $DIRECTORS'\ AGE_i$ as measured by the mean average age of the board members within firm i, $FIRM\ AGE_i$ as measured by the age of a firm counting from the year when it was founded, $FIRM\ SIZE_i$ as measured by the total amount of assets of firm i, $TOTAL\ TURNOVER_i$ as measured by the total operating turnover/revenue of firm i and $industry\ dummy_i$ constructed for the five largest industries in order to monitor potential industry effects on the relationship between board diversity and firm performance. Assuming the linearity of the regression model is a commonly used method and is often speculated in scientific literature (e.g. Erhardt et al., 2003). Standard errors are robust. During the hierarchical regression analysis, the control variables, including ROE09 and ROA09 were entered during the first step, followed by the added independent variable in the second step. The outcome of the regression analysis was used to observe the changes in the explained variance (ΔR^2) in order to determine the significance of the relationship between board diversity and firm performance. Cohen and Cohen (1975), Erhardt et al. (2003) and Cohen et al. (2013) suggest this technique as an effective approach in order to examine the

Table 2: Correlation matrix of the variables used in the tested model

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 ROA09	1														
2 ROE09	0.591**	1													
3 ROA13	-0.043	0.263*	1												
4 ROE13	-0.002	0.425**	0.972**	1											
5 Directors' age	-0.275*	-0.089	-0.072	-0.052	1										
6 Board size	-0.268*	-0.047	0.102	0.131	0.403**	1									
7 Financial services industry	-0.484**	-0.180	-0.105	-0.106	0.016	0.140	1								
8 Communications industry	0.084	0.173	-0.029	0.067	-0.138	0.031	-0.263*	1							
9 Agribusiness industry	-0.025	-0.114	-0.029	-0.062	0.101	-0.182	-0.178	-0.133	1						
10 Real estate industry	-0.066	-0.075	-0.035	-0.049	0.186	-0.008	-0.143	-0.107	-0.072	1					
11 Utilities industry	0.026	-0.076	-0.031	-0.042	0.068	0.128	-0.143	-0.107	-0.072	-0.058	1				
12 Total turnover	0.086	-0.006	-0.052	-0.066	-0.162	0.045	-0.152	0.248*	0.012	-0.090	-0.044	1			
13 Firms' size	-0.224	-0.086	-0.080	-0.087	-0.052	0.056	0.494**	0.018	-0.116	-0.089	-0.094	0.497**	1		
14 Firms' age	-0.137	-0.128	-0.126	-0.144	0.166	-0.018	0.381**	-0.054	-0.190	-0.084	0.038	-0.024	0.216	1	
15 Board diversity	-0.363**	-0.304**	-0.078	-0.118	0.180	-0.030	0.352**	-0.260*	0.085	0.013	-0.019	-0.201	0.021	0.344**	1

****. Significance at the 5% level***

*****. Significance at the 1% level***

changes in the dependent variable. Moreover, Erhardt et al. (2003) used the following technique when analyzing the effects of board diversity on firm's financial performance based on a sample of 127 large US corporations and found that board diversity is positively associated with firm's performance. Therefore, the following method was used in this study in order to test the effect of board diversity on the Top 100 companies of the South-East Asian region. Finally, the changes in the *F-values* and the standardized beta coefficients were observed together with the changes in the explained variance in order to determine the significance of board diversity's impact on firm's financial performance, results of which are depicted in the following sections of this study.

3.4 Results

The means and standard deviations are presented in Table 1, followed by the correlation coefficients which are reported in Table 2. Based on the results in Table 1, board diversity had a relatively high mean value (m = 0.553). Table 2 shows that ROE13 and ROA13 were highly correlated (r = 0.972), what was according to the expectations of conducting this study. Respectfully, a strong correlation was found between firm size and total turnover (r = 0.497), as expected by this study. However, it was found that ROE13 and ROA13 were negatively correlated with board diversity (r = - 0.118 and r = - 0.078). Moreover, it was found that ROE09 and ROA09 had a significant negative correlation with board diversity (r = - 0.304 and r = - 0.363). Board diversity was correlated with directors' age (r = 0.180) and negatively correlated with the board size (r = - 0.030). By looking at the industry dummies, it was found that board diversity had a significant correlation with the financial services industry (r = 0.352) and a significant negative correlation with the communications industry (r = - 0.260), which were the biggest two industries forming the Top 100 companies in South-East Asia. Finally a significant correlation was found between board diversity and firms' age (r = 0.344). Furthermore, in order to test the above stated hypothesis, a hierarchical linear regression analysis was conducted (Cohen and Cohen, 1975), results of which are found in Table 3. The analysis indicated that only ROE at time 1 had a significant impact on ROE at time ($t = 3.409$; $p < 0.01$). This resulted in a suggestion that companies in 2009 were able to get a much higher ROE, hence being able to perform at a higher level, what influenced the performance in 2013. Thence, suggesting that previous year's performance serves as one of the factors that influence firm performance in general. No evidence was found that board diversity, nor do the selected control variables have an impact on ROE at time 2, nor ROA at time 2. This suggests that the chosen diversity dimensions, as well as the controlling industry and organizational factors do not impact the firm performance throughout the region of South-East Asia. Thence, the results of this study did not support the earlier stated hypothesis that greater diversity within the board of directors would lead to increased firm's financial performance.

4. DISCUSSION

This study investigated the relationship between board diversity and the financial performance of the Top 100 companies within the ASEAN region. The acquired results did not support the generated hypothesis that a more diverse board would lead to greater financial performance. It was found that only previous years' performance had a significant impact on the performance of a firm in terms of the ROE of a firm. Furthermore, the findings of this study showed that board diversity was negatively correlated with such performance measures as ROE and ROA, but had a strong positive correlation with the financial industry and the size of the firm. This suggests, that although no impact was found on the chosen performance measures, board diversity remains a crucial aspect for every company, as it may have a significant impact on various other performance measures, such as ROI, sales growth, net income and further on, together with such factors as the type of industry

Table 3: Regression results for predicting ROE and ROA

	ROE 2013			ROA 2013		
	β	**ΔR^2**	**F**	**β**	**ΔR^2**	**F**
Control variables		**0.229**	**1.651**		**0.094**	**0.577**
1 ROA09	**-**			**-0.191**		
2 ROE09	**0.417****			**-**		
3 Directors' age	**-0.119**			**-0.191**		
4 Board size	**0.227**			**0.182**		
5 Financial services industry	**-0.133**			**-0.337**		
6 Communications industry	**-0.027**			**-0.140**		
7 Agribusiness industry	**-0.002**			**-0.062**		
8 Real estate industry	**-0.031**			**-0.092**		
9 Utilities industry	**-0.051**			**-0.109**		
10 Total turnover	**-0.131**			**-0.154**		
11 Firms' size	**0.065**			**0.082**		
12 Firms' age	**-0.060**			**-0.017**		
Independent variable						
13 Board diversity	**0.069**	**0.003**	**1.516**	**-0.047**	**0.002**	**0.530**

. Significance at the 5% level

****. Significance at the 1% level***

in which the company operates and the size of the firm. Moreover, findings of this study turned out to be not consistent with the findings from prior literature on board diversity and firm performance (e.g. Murray, 1989; Richard, 2000; Erhardt et al., 2003; Mahadeo et al., 2012). These authors found a significant impact of board diversity on firms' financial performance and on overall organizational performance based on such performance indicators as ROE, ROA and ROI. However, these authors focused on studying the regions of Europe and the US, which is assumed to be one of the reasons behind the consistency of finding a significant impact of board diversity on the financial performance of a firm. This study focused on the analysis of South-East Asian companies, where corporate governance policies are tailored and adjusted towards international practices and still remain a weak point of the region as stated by Chuanrommanee & Swierczek (2007) and Taghizadeh (2013). Therefore, the found results are different from prior studies and serve as an important contribution to the growing amount of literature concerning the South-East Asian region. Finally, this study is not only a contribution from a practical point of view, but also from a theoretical, where it serves as an addition to the existing literature that is trying to solve the puzzling relationship between board diversity and other corporate governance mechanisms and firm financial and organizational performance throughout the South-East Asian region.

5. LIMITATIONS

The conducted study has several important limitations which need to be addressed. First, the sample of the study consists of the largest corporations in the South-East Asian region and does not take into account smaller companies. It is needed to address the diversity of the boards in smaller companies, which do not make up the Top 100 of the region in potential future researches. In fact, there is an assumption that the results gathered for smaller companies would be different from what was found for the large corporations, thus showing the effect of board diversity from another perspective. Second, the diversity of the members was only defined in terms of their ethnicity, gender and educational background, which was found in the official reports of the organizations. However, it was not made clear whether there is a difference in behavior and decision-making between the diverse and non-diverse members of the board. Therefore, the lacking information could be backed up by future behavioral studies of the diverse environment within the board of South-East Asian corporations by studying additional diversity dimensions. Third, ROE and ROA were used to measure the financial performance of an organization, both of which are quite similar tools, used to measure the effectiveness of managing the firm's capital. The initial plan of using ROI or return on investments instead of ROE was changed, due to the lack of publicly available information about the return on investments for most of the companies within the ASEAN region. Therefore, this serves as a key motivator for future research by taking into account the ROI of a company, which would result in a more different and significant outcome and relationship with board diversity. Consequently, due to the amount of lacking information, the variable diversity was transformed into an aggregate construct and included only those companies with complete data. This procedure limits the results to a general view of diversity instead of looking at each dimension individually, which could have shown different results, valuable for the study of this relationship. Hence, testing this relationship by using individual diversity dimensions becomes a potential idea for further research, thus not only testing each diversity dimension individually, but also increasing the reliability of a sample by conducting an increased amount of observations. Moreover, the regression analysis conducted in this study assumed that there is a linear relationship between the firm's financial performance and diversity. However, due to lacking data it was impossible to measure how exactly diversity affects the performance, as the effects were only measured in terms of the amount of women, minorities and the differences in educational background of board representatives within the board. It is assumed, that if more data was available, the results of the tested relationship would be different in terms of how board diversity impacts the financial performance of a firm. It is suggested that with more data available, the significance and reliability of the found impacts of diversity on how a firm performs would increase. Hence, would possibly transform the linear relationship into a non-linear or a curvilinear relationship, as speculated by Erhardt et al. (2003). Finally, the Top 100 companies selected from the *Nikkei Asian Review* magazine were chosen based on the convenience of availability and were not deeply analyzed of how the ranking was conducted. Nevertheless, this study aimed to detect a causality between the selected variables and to check the assumed relationship, where such lists of companies are found appropriate and were used by several authors (e.g. Murray, 1989; Erhardt et al., 2003).

6. CONCLUSIONS AND RECOMMENDATIONS

Notwithstanding the list of limitations, this study has contributed important information related to the effects of diversity on firm's performance in the South-East Asian region. Moreover, this research contributes from both theoretical and practical perspectives and provides a set of recommendations both for theoretical and practical use. Theoretically, this study was an attempt to narrow down the existing literature gap in the studies of the South-East Asian region. Hence, contributed as an addition to the growing studies of the South-East Asian region and a valuable point of continuation to research the topic of how diversity within the board affects firm's performance. Results of this study do not indicate a significant relationship between board diversity and firm's financial performance. On the contrary, the study shows a negative correlation between board diversity and the chosen performance measures, namely the ROE and ROA of a firm. However, this study showed that, although board diversity has no significant impact, previous year's performance plays a valuable role in the financial performance of a company within the South-East Asian region. Earlier in the years Simon & Pelled (1999) found that cognitive and demographic diversity dimensions lead to a positive effect on organizational and financial performance of a corporation. This leads to a suggestions that a broader definition of board diversity, by including several other dimensions, which were not studied in this paper, could lead to different results and show important connections. Moreover, expanding the performance measures beyond ROA and ROE is speculated to add additional value to the results, as well as an increase in reliability, thus becoming a potential recommendation for further research in an attempt to solve the puzzling relationship between board diversity and firm's financial performance in the South-East Asian region. In addition, expanding the research to a broader time interval could serve as a potential source of acquiring more accurate and differentiated results on the effect of board's diversity on firm's financial performance. It was seen now that throughout the five-year interval, the situation in South-East Asia vastly changes together with the various components of the largest corporations operating in the region. Hence, including earlier years, as well as acquiring information for the year 2014 and beginning of 2015, would become a potential recommendation for further studies in terms of

additional observations. Ultimately, this study serves as a contribution and motivation to further study the effect of diversity on firm's financial performance by taking into account other diversity and performance dimensions and expanding the chosen time interval to earlier years and more detail. From a practical point of view, the results of this study show that a diverse board leads does not lead to an increase in the performance of a firm, thus suggesting that women and minorities with a specific background do not enhance the performance of a corporation. These findings contradict what was found by Simon & Pelled (1999) and Erhardt et al. (2003) that a more diverse workforce would demonstrate higher operational performance and decision-making. This suggests that each person, no matter of his or hers profile is able to deliver high quality output for the company, resulting in increased organizational and financial performance. Additionally, Carter et al. (2003) found that the main issues of corporate governance are the gender, racial and cultural aspects of an individual. Hence, the results of this study show that gender, race and culture remain one of the main issues of corporate governance as these dimensions impact the organization differently, not only depending on other factors, but also on the region where the company operates. Thence, this study serves as a suggestion for large, multinational corporations to expand their pool of candidates when hiring new executives for the board, as women, certain minority groups and individuals with specific backgrounds are assumed to perform as good as any other individual that is more likely to fit with the profile being hunted by an organization. In conclusion, this paper is a valuable contribution towards addressing the relationship between diversity within the board of directors and firm's financial performance in the South-East Asian region. The findings show that there is no significant relationship between the diversity and increased firm financial performance, in terms of the ROE and ROA of a company. Regardless of the existing limitations and the limited amount of measurements tested, it does appear that a company should not discriminate when hiring employees for a certain position as differences in gender, race and background do not hold an impact on the performance neither of the individual, nor the company itself. Companies should take into account that hiring both, diverse and domestic labor contains hidden benefits behind the unrecognized talent compared and might lead to unexpectedly high results for the firm.

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