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Gender diversity in the boardroom and firm performance

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by

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Abstraction

This study examines the relationship between gender diversity in the boardroom and firm performance for listed firms in S&P500. Board diversity is defined as the percentage of women on board, and firm performance is measured by Return on Assets (ROA). This research is important because it provides evidence that testing whether board diversity is related to improving firm performances, and thus indicates a strategy to increase firm values. Taken board size and firm size into consideration, we find a positive relationship between the percentage of women in the boardroom and firm performance.

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Introduction

As recent society has witnessed the rapid process of women empowerment, including women's higher social status and higher educational level, women leadership in corporate gradually concerns talent allocation. Over the years, people have argued whether improving gender diversity could boost firm performance, and the government raises some issues of the composition of the board. Those issues are concerns of shareholders since the firm stock value is tightly associated with firm performance. Shareholders tend to focus on board information before they decide to purchase one company's stock. Some people hold that traditionally, men are at the top of corporations and they have multiple experiences to guide and manage firms, thus they are more willing to invest in a company that has a high ratio of men diversity. On the contrary, women are in less competitive positions when hunting for a job, since women have some physical limitations. For example, women always take family and children into consideration when they apply for a job. As a result, it will cause investors to become hesitant to invest in a company with women leaders. There is a real debate among stockholders that whether a company should be more diverse or not, and it is an important issue that affects shareholders' value.

Apart from the relationship between gender diversity and shareholders' value, the composition of the board is a significant issue within a company. According to Sun Oil's CEO, Robert Cambell, who asserts that woman or minority person can propose perspective that a company does not have before, and those perspectives would add value to a company and increase gender diversity in board as well. However, they are ignored by males. Women leaders tend to address different opinions, value information from all board directors, and take corporative decision-making strategies, which could motivate collaboration within a company. Since "groupthink" is a serious problem to decision making, female directors could

have a chance to reduce this risk and embrace innovations, which in turn, could decrease conflicts within a firm.

Given the importance being placed on board diversity from investors, shareholders, governments and corporations, the purpose of this study are to examine the relationship between gender diversity and firm performance in the United States. There are a lot of previous research studies that demonstrate gender diversity in different countries and industries, but there are a limited number of studies focus on listed firms in the United States. This paper will examine the impact of gender diversity and firm performance in the United States, by studying S&P500 firms. Gender diversity is measured by the percentage of women on board, and firm performance is measured by ROA. Since various firms have different years of business operation, business scales, and board compositions. We also take board size and firm size into consideration when doing the examination. Also, it is meaningful to compare the outcome between women and men, thus justifying the conclusion. The result of this paper is important because it indicates that board diversity is positively associated with increasing firm financial performance, which could add more evidence to the literature that board diversity has a beneficial impact on firm value. Also, this study could give suggestions to human resource management, as talent management is pertinent to firm performance.

The remaining of this study is organized as follows. First, the “Literature Review” section reviews the current literature on the relationship between gender diversity in the boardroom and firm performance, and it also shows whether it is important to have this particular study on gender diversity and firm financial performance and its previous study outcomes. Section “Methodology” presents the research hypothesis and specifically describe the data selection process and methodology. “Result” part present research outcomes. Section “Conclusion”

states the conclusion of this research and shows the potential benefits of this research and its drawbacks.

Literature Review

According to the report "US Board Diversity Study" released by Institutional Shareholder Services, U.S. lags many global markets in gender diversity in boardroom – about 20% of directorships held by women, which is far lower than European countries like Norway(42%), France(39%), and Sweden(37%). Public policy and corporate culture may contribute to this pheromone. However, despite differences among countries, the overall American trend of the growth in female directorships accelerates in the past five years, with all-male boards decline continuously – in 2017, 99 percent of the S&P 500 have at least one woman on the board (Papadopoulos et al. 2018). Several countries have passed a regulation or laws in increasing women representatives on corporate boards. For example, Norway's government requires corporates to have 40 percent of women directors, and Spain also quota a specific number of female directors. Competent women have human capital advantages, social networking preponderance and other related characteristics that deserve attention from upper management.

However, since women have characteristics like being emotional and fussy, women might suffer stereotypes in some industries. Besides, the glace ceiling is a significant factor that affects career decisions of women. Some assert that women are more likely to avoid stress and work-life imbalance that brought by upper management, and their inadequate experiences and education limits them to be approved by leadership. However, it is argued that female directors are more likely to gain an advanced degree compared to male counterparts. Also, women tend to accumulate more experiences associated with marketing and sales, and they are more discreet to risks, as well as keep eyes on social duties (Conyon and He, 2017).

Previous research on women on board has focused on the role of gender diversity on firm financial performance, some papers have investigated its influence on social performance like corporate social responsibility and environment issues. Boulouta(2013) proposed that understanding the positive relationship between board gender diversity and corporate social responsibility has both theoretical and managerial meanings. It not only provides explanations for the practice of advocating prioritization of women directors but also helps companies to manage their strategies, especially for those NGOs which directly involved in corporate social responsibility issues (Boulouta, 2013). Corporate board is believed to link with monitor and control management, information service and consultation, and those functions partially determine firm performance (Carter et al. 2010). Board gender diversity is believed to have some potential benefits, including upgrading the quality of decision making, effective strategic control, strict board supervision(Conyon and He, 2017). Miller and Carmen(2009) found that gender diversity has a positive association with firm innovation. Innovation is one of the firm strategies to attain competitive advantages and increase market share. Provided that board is linked to providing ideas and allocate resources to support innovation of the firm, board diversity offers human resources and social capital to firms that is conducive to increasing firm innovation. Heterogeneous groups tend to produce a wide range of ideas since people are from all walks of life, and heterogeneous groups can thoroughly evaluate decisions due to increasing available information. Additionally, social networks provided by females tend to be more diverse than that from males merely, because women pay attention to expanding and maintaining social networks to pursue their careers. They are more likely to involve in weak ties, which are valuable in providing non-redundant information for firm innovation (Miller and Carmen, 2009).

Several studies have dug the insight into the relationship between gender diversity in the boardroom and firm financial performance. Nevertheless, the result of researches was varied, in terms of countries, industries, and so on. Campbell and Mínguez-Vera(2012) found a positive association between gender diversity and ROA, indicating women can bring a better financial performance to the corporate. In contrast, although Carter et al. concluded a strong positive relationship between the number of women on corporate board and companies' ROA, he mentioned that there is no relationship between firm financial performance and gender diversity in the boardroom when Tobin's Q is used to evaluate firm performance (Campbell and Mínguez-Vera, 2012). Conyon and He(2017) argued that the impact of board gender diversity is quantitatively larger for firms with better performances compared to firms in lower performances, which means women who are equipped with managerial talent are less likely to be fully utilized in low performing firms, resulting in a dispersion of firm performance. Their study challenged prior studies that confirm the uniform influence of board gender diversity on firm performance. Low-performing companies face external threatens which can be seen from changes in the function and impact of boards, which harms decision making and corporate outcomes. Under this condition, low-performing companies have less attraction to highly qualified female directors, and they reduce their chances to explore human capital and social capital (Conyon and He, 2017). Liu et al. (2014) provided a clear investigation in China by dividing the effect of female directors into two forces – executive effect and monitoring effect, and they found that executive force outperforms monitoring force in contributing to firm performance. Additionally, since China has multiple ownership structures, they found a divergent result that board gender diversity is positively related to personal controlled firms but insignificant in state-owned firms (Liu et al., 2014). Le and Chen(2018) regarded firm size as an important factor that may improve or limit firms' specific activities, for example, decision-making mechanism, the process of information and

innovation. This paper offered an investigation in complex and interconnected factors, finding that firm size weaken the positive relationship between gender diversity in the boardroom and firm performance in China, which indicates that board gender diversity has a positive influence on firm performance only under the condition when firm size is less than a certain value (Le and Chen, 2018). Overall, these studies offer a chance for performing this study by using ROA as a measurement, combined with firm size, to exam the relationship between gender diversity in the board room and firm performance in the U.S.A..

Research Design

This study involves different factors, involving gender diversity and firm performance. Gender diversity is measured by the percentage of women on board, and firm performance is measured by a financial indicator, Return on Assets (ROA). The previous studies have some inconsistent results, generating both positive and irrelative relationships between gender diversity and firm performance, and those inconsistent outcomes are believed to have resulted from different methodologies, different sample sizes, and different variables. Therefore, this study was supposed to include firm size, board size and firm age as variables, but the data of firm age was incomplete, thus leaving this variable out.

Based on the previous description, this study proposes the following hypothesis:

Hypothesis: Gender diversity on board is positively associated with firm performance.

Data and Analysis

This study adopts secondary sources. Based on the objective of this study, it is important to select an appropriate population of firms in American to represent the large population. Since S&P500 is a well-recognized index for the stock market, the company it represents can stand for the large population.

The database from Bloomberg terminal is wide enough to cover the data required by this research, and all the data adopted ranges from the year 2016 to 2018. The measurement is as follows:

Table 1 Measurement of Variables

Variables	**Type of Variables**	**Measurement Scale**
Percentage of women on board	Independent variables	Number of women on board / Number of board
ROA	Dependent variable	EBIT/Total assets
Board Size	Control variable	Number of board
Firm Size	Control variable	Natural logarithm of total assets of the firm

This study uses Multiple Regression model, and the model developed to examine the relationship between gender diversity in the boardroom and firm performance as follows:

$$Y = \alpha + \beta 1X1 + \beta 2X2 + \beta 3X3 + i$$

$$ROA = \alpha + \beta 1 \text{ Percentage of women on board} + \beta 2 \text{Firm size} + \beta 3 \text{ Board size}$$

Results and Findings

Since there is no previous study investigated the relationship between gender diversity and board size with sample of S&P 500 companies(the indicator to represent the overall situation in the United States), this study has no comparison with previous similar studies. Therefore, this study compares with similar studies with different country selection and provides several explanations.

1. Descriptive analysis

Table 2 Descriptive Statistics of Variables

Variables	***Minimum***	***Maximum***	***Mean***
ROA	*-0.3362*	*0.3533*	*0.0698*
Percentage of women on board	*0.0769*	*0.5555*	*0.2689*
Board size	*5*	*23*	*11.08*
Firm size(in $million)	*855.03*	*2764661*	*74475.321*

Table 2 shows the descriptive statistics of variables used in this study. In this sample, ROA ranges from -0.3362 to 0.3533, with a mean of 0.0698, indicating that $1 of assets, on average, could generate $6.98 income (after taxes). The minimum of the percentage of women on board is 0.0769, which shows that in addition to those companies who didn't provide that information, all companies have females on board. The mean of the percentage of women on board is 0.2689, indicating that about one-fifth of the board was occupied by women. Board size ranges from 5 to 23 with a mean of 11.08, and total assets range from 855.03 to 276466 with a mean of 74475.321, indicating that board size and firm size varies among S&P 500 companies.

Compared to Julizaerma and Sori's study, which investigated the association between gender diversity in the boardroom and firm performance in Malaysia, the mean value of ROA, the

percentage of women on board, board size, and firm size for the United States' sample are larger than Malaysia's, indicating that in general, United States has a higher gender diversity and board/firm size. This difference can be explained by the gap between economic status between Malaysia and the United States: the former one is an Asian developing country, while the latter one is a developed economic power.

2. Correlation analysis

Table 3 Correlation Analysis

ROA	*1*	*.023*	*-.166***	*-.163***
% Women on Board		*1*	*.006*	*.060*
Board Size			*1*	*.240***
Firm Size				*1*

***. Correlation is significant at the 0.01 level (2-tailed).*
**. Correlation is significant at the 0.05 level (2-tailed).*

Table 3 depicts the correlation between each variable in this study. Some variables have a positive correlation with ROA, while others own a negative correlation with ROA. Nevertheless, all correlations have different significant levels.

Specifically, the percentage of women on board is positively correlated with firm performance but it is nonsignificant. Women representation is positively related to firm size and firm size but both at a nonsignificant level. Moreover, Firm size and board size are negatively correlated with firm performance with 0.01 significant level (2-tailed).

3. Regression analysis

Regression analysis is crucial in this study since it shows whether the independent variable influences on dependent variables. According to the result shown in table 4, the percentage of women on board has a positive relationship with firm performance as expected, which supports the hypothesis that *Gender diversity on board is positively associated with firm performance.* Nevertheless, this relationship does not have a significant level effect when p is larger than 0.05 since its statistical significance is 0.732. It may result from a small number of women on board since the mean of the percentage of women on board among S&P 500 companies is 0.2689. Under this circumstance, the advantage of gender diversity on board could not be fully utilized. It could be said if the percentage of women increases, it could have a more significant effect on firm performance.

Compared to this result with that of Julizaerma and Sori's study, which showed that the coefficient of the percentage of women on board with firm performance is 0.06 with 0.788 significant value, indicating that in Malaysia, the gender diversity in the boardroom is positively associated with firm financial performance. Both Malaysia and the United States show a positive but nonsignificant relationship between gender diversity in the boardroom and firm performance. The reason stated is that the benefits of gender diversity have not materialized as expected, which could support the explanations stated above.

In terms of firm size, they both have a negative and significant relationship with ROA, which means larger board size decreases firm performance. It could be explained by the previous study that the big firm size would undermine the process of decision making, information and innovation (Carter et al. 2010). Also, according to economies of scale theory, after one firm's scale exceeds a certain level, if its scale continues to expand, the various aspects of

production are difficult to coordinate, thus reducing the production efficiency. Since most of the companies in S&P 500 are in relative big size compared to those who are excluded, it is reasonable that some firm sizes already exceed the optimal level, which results in this negative relationship.

Compared to this result with that of Julizaerma and Sori's study, which showed that the coefficient of firm size with firm performance is 0.02 with 0.000 significant level, indicating that in Malaysia, the firm size is positively associated with firm financial performance. The difference could be explained by the theory of economies of scale. Since the table of descriptive analysis has shown that the firm size of Malaysia is smaller than that of the United States, they could demonstrate a different result in terms of firm size. In Malaysia, it is recommended that it is conducive to increase firm size to improve a firm's profitability.

Furthermore, board size has a negative and significant relationship with ROA, indicating that with increasing size of the board, the firm performance will drop. The reason may similar to what has been discussed above. Big board size may retard the information exchange and decision-making process.

Compared to this result with that of Julizaerma and Sori's study, which showed that the coefficient of board size with firm performance is 0.01 with a 0.411 significant level, indicating that in Malaysia, the board size is positively associated with firm financial performance but at a nonsignificant level. The difference between Malaysia and the United States could lie in their economic powers and firm size. With a larger firm size, the board size will increase correspondingly. Therefore, the results of the relationship between both firm size and board size with firm financial performance are aligned in two countries.

Table 4 Regression of Gender Diversity and Firm Performance

Model	*Coefficient*	*t-statistic*	*Significant*
(Constant)	*.119*	*6.194*	*.000*
% Women on Board	*.015*	*.342*	*.732*
Board Size	*-.134*	*-2.953*	*.003*
Firm Size	*-.133*	*-2.932*	*.004*
R-Square	*.044*		
F-Statistics	*7.068*		

Conclusion

This study contributes to the literature on the relationship between gender diversity and firm performance. While most of the studies are based on data from a certain economy, it is generally agreed that special institutional features suggest prudent in generalizing results. This study offers a brand new insight into the relationship between gender diversity in the boardroom and firm performance in the United States, a country that advocates equality and freedom with a sound market mechanism. The United States is promoting gender diversity in the boardroom, but it still behind most other developed economies, to say, Norway, France, and Sweden, indicating a pressing requisition for improving gender diversity in the United States.

Contributions

This study uses the data of listed firms on S&P 500 to examine the relationship between female representation in the boardroom and firm financial performance. The finding is important in addressing women involvement in board of corporate for the United States, and it shows the positive relationship between gender diversity and firm performance, which suggests a potential way for firms to better financial situation – to balance the ratio of women and men in the boardroom instead of merely focus on the presence of women. This is aligned with the proposal of American governments. Therefore, it is highly recommended that decision-makers should continuously keep the strategy to fully utilized gender diversity. In business sectors, the management level could achieve the optimal level of women and men composition in the workplace to maximize shareholders' profit. For the non-profit sector, it is conducive to improve women social status as well as their employment situation. Specifically, the government is supposed to launch more public policies in terms of improving women representation within a corporate, stressing the social value of women, as

well as to introduce more educational programs for females. Furthermore, in terms of individual-level, a single female should focus more on personal development in both physical and psychological levels. Specifically, women are encouraged to chase a higher educational background and seize the opportunity to work in a corporate. Overall, the issue of gender diversity should arouse the attention of the society, and it calls for a joint endeavors to ease the current situation.

I expect that this research could attract interests among employers, policymakers, and researchers since women show a relatively low representation rate on board in the large population and feces glass ceiling problems. More and more future related research should be placed in this field.

Limitations

However, there are several limitations in this study. First, it is difficult to find all listed firms in S&P500 have the board information for three consecutive years. For example, this study is supposed to include more variables like firm age, but more than half of the company listed in S&P 500 has no IPO time in the Bloomberg database, thus leaving out this variable. Secondly, other factors that might affect firm performance, which was not take into consideration in this study. For example, the number of board meeting within a year would be a factor that influences this model. Thirdly, ROA may not well-represent the overall performance of firms, which has its limitations. Specifically, this accounting-based indicator uses the net income of firm dividing total assets on book value, which does not reflect banks' cost of capital. Also, to provide a sound performance on financial statements, the firm may lever to increase this ratio. Therefore, a compounded indicator is required to represent overall firm performance to reduce this limitation, and Tobin's Q may be a more suitable measurement to represent firm financial performance than accounting-based measurement

since it reflects the market's expectations for firm's future earnings and shows competitive advantage of a firm. Also, the ratio of women representation can be measured by other indicators, specifically, like lead women directors ratio, women managers ratio, and women employee ratio. Fourthly, a selection of different ranges of firms will lead to a different result. This study covers firms within S&P 500 index, but this index is thought to reflect stock market changes. Based on *US Board Diversity Study* released by ISS, which examines board gender diversity in terms of S$P 400, S&P 500, S&P 600, and S&P 1500, the overall gender diversity is increasing with the sample size increases. Therefore, a larger sample size is preferred for future studies on this topic, hoping to generate a more pervasive result. Lastly, the model adopted in this study has its limitation, since the model is simply a Multiple Regression model.

Future Research

To sum up, if I have a chance to further my study on this specific topic, firstly, I plan to increase my sample size, which could well-represent the overall situation of board gender diversity on board in the United States. For example, S&P 1500 is thought to fulfill this demand. Secondly, I plan to adopt more thorough indicators to measure variables. For instance, using Tobin's Q to measure the percentage of women on board, and I will consider firm age. Thirdly, because that there existing corporates that have zero number of women on board, I plan to adopt a dummy variable to my research model, which could take a value of one when one or more than one women are present. In this way, I can examine whether the presence of women can affect the firm value, then move forward to exam the relationship between gender diversity and firm performance. This research design could be more logical and the corresponding result could be more persuasive. Lastly, I am pleased to exam the relationship between gender diversity and firm performance in different corporate levels and

industries. In detail, I can exam gender diversity on board level, on director level, on manager level, and on normal employee level, for which I could compare and contrast the different influences for women representation on firm performance, suggesting a more specific strategy for firms to improve their financial performance. By the way, I am interested in examining those relationships for different countries and industries, which gives me a chance to investigate the differences and dig deeply for a certain sector.

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