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**Female directors of Chinese A-share listed companies and their effect on company  
performance**

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by

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## **ABSTRACT**

This article examines whether and how female board participation affects the performance of Chinese A-share listed companies. The study selects 17075 A-share listed companies from 2010 to 2016 as the sample and empirically tests the impact of female directors on the performance of A-share companies with the orthogonal least squares (OLS). In this study, I adopt return to assets as the dependent variable and the proportion of female directors as an independent variable. I also add a dummy variable and other control variables. The results show that female directors have a positive effect on the performance of A-share companies. Besides, there are female directors with shares in most companies.

**Key words:** Female directors, company performance, gender

**JEL Classification:** G32, G34, J16, M41

## I. INTRODUCTION

This article explores the proportion of female directors and their impact on company performance among Chinese A-share listed companies. The basis focus point is the diversity of the structure in the workplace. Recently, the diversified organizational structure is very hot in many areas. First, diversity can consist of the differences between ages, genders, religions, and so on. The diversity also can include the differences between such as the views of value, physical condition, and education background. There are two kinds of diversity. The first kind of diversity is observable diversity. We can calculate the proportion of different classifications and analyze diversity through the database. The results are accurate and numerical. The second kind of diversity is unobservable diversity. The diversity based on the personalities, characters, or the view of value. The differences are on the cognitive level. On the cognitive level, differences cannot be analyzed by calculation. People will have different cognition of the same things in different periods. Even in the next second, people will have precisely the opposite idea because of specific detail. We do not know what everyone thinks. People's thoughts and thinking processes are usually based on thinking habits and experiences. Different people have different experiences, which means that people's cognition of a specific thing is not the same. In the workplace, the board of the company plays an important role. The core of the diversified board is gender diversity.

In recent years, with the increasing influence and activity of female directors on the board of directors, scholars and industry began to pay attention to the impact of female directors on company performance. At the international level, they also pay attention to gender equality in employment and the promotion of women's employment space. In 2010, the Council of the

European Union required member states to pay attention to gender equality in work, and at the same time, to reach the goal of 40% of board seats in most enterprises by 2020, which provides a sufficient guarantee for the promotion of women. Besides, the proportion of listed companies with female directors has reached 59.65 percent, according to a summary of the 2010 annual report on female executives of listed companies published by China Entrepreneur Magazine. The series of data and examples show that the status of women increase in the workplace and emphasize the importance of the existence of female in the workplace.

Gender diversity in the workplace is more discussed in western countries. However, there is no consistent conclusion through the papers. Besides, Chinese culture and economic principles are very different from western countries, so the economic models and theories are not suitable for China. So female directors and their effect on company performance are worthy of being studied in this background. To make the resulting representative, I select Chinese A-share listed companies from 2010-2016 as the samples. I take the proportion of female directors as an independent variable and create a dummy variable, which is whether female directors with shares exist. If there is a female director with shares existing, the value of the dummy variable is 1. If the company has no female directors with shares, the value of the dummy variable is 0. Return on assets is regarded as a measure of company performance. I also added the control variables: the size of the company, return on sales of the company, return on equity of the company, the operating growth rate, the leverage ratio and the square value of the proportion of the female directors.

I adopt the OLS regression method to analyze the data with four models. The first model is a regression of all control variables. In the second model, I add the independent variable to

explore the effect of female directors on the company performance. In the third model, I add the dummy variable to increase the accuracy and reasonableness of the research. In the last model, I add the square value of the proportion of female directors. The fourth model can examine the accuracy of the models and make the results more reasonable. The results of the four models explain the subject and make the conclusion more accurate. Through the results, I verify those female directors have a positive effect on company performance of Chinese A-share listed companies, and the female directors with shares are normal in the Chinese financial market. Over 90 percent of Chinese A-share listed companies have female directors with shares.

Through the article, the results may attract the attention of scholars and entrepreneurs, which promotes gender equality and more in-depth researches on the effect of females in the workplace. At present, the critical problem is how to maximize the positive impact of the female directors and to figure out which aspects the female directors have a positive effect. The article results offer a theoretical basis for the enterprises. It is useful for increasing voice power and the influence of female directors. For enterprises, female directors are very essential because the participation of them increase the gender diversity of the boardroom. Female directors always have different views and processing methods from male directors. Female directors are more careful and pay more attention to details. The existence of female directors will bring more information and developing opportunities for the company. However, male directors have better leadership skills. They are more decisive and brave. So both female directors and male directors have advantages and disadvantages. The most important thing is to balance the working environment and maximize profitability.

The article results also have some enlightening significance to government departments.

The Chinese government advocates equality between men and women and encourage the development of female directors. However, the government department should not just keep an eye on the increase in the proportion of female directors. The government should also make the environment of developing female directors better. The enterprises also need to increase the voice power of the female directors. Besides, improving the promotion structure of female directors is also very necessary.

The article also has a positive effect on Chinese society. In general, the invisible resistance exists in the promotion structure of female directors, which also called “Glass Cliffing”. In social psychology, the status of females in the workplace is still lower than males. People do not realize the effect of female in the management and governance system. So the article offers evidence. First of all, there exists a positive influence of female directors on company performance. People should face up to the ability and voice of the female. Secondly, the article encourages both female employees and directors. They will increase the self-confidence and are brave to develop themselves. The working environment for the female is becoming better, and female received attention gradually. They will have more development chances and space.

The article still has some limitations. The first limitation is the data period. I only select the data from 2010 to 2016. The more accurate conclusion needs a more extended data period to support it. The period is not long enough during the history length of Chinese economic market development. The second limitation is data filtering. I do not delete the companies with the leverage ratio is more than 1. Besides, I also keep the A-share listed companies with B-share or H-share at the same time. The third limitation is the data range. I only select Chinese A-share listed companies. The data range is not large enough to be representative of the Chinese

economic market. Therefore, the accuracy of the article results can be improved to solve the three points to some extent.

## **II. LITERATURE REVIEW**

Teachers Insurance and Annuity Association-College Retirement Equities Fund (TIAA-CREF) proposes that a suitable person should serve as the director of a company. The directors should include people with different backgrounds, ages, genders and experiences (TIAA-CREF, 1997). This is the diversity of board structure. The core of the diversity of board structure is gender diversity. According to the research of Catalyst, the proportions of female directors in 2006 and 2007 are 14.6% and 14.8%. The percentage of female director increases to 15.2% in 2018 (Catalyst, 2018). The increase indicates that more and more female directors participate in the company governance system. The effect of female directors on company performance attracts the attention of the scholars.

Alder selects 215 companies among the fortune 500 companies from 1980 to 1998 as a sample. He measures the company performance with return on assets (ROA), return on sales (ROS), and return on equity (ROE). The results show the profit margin will be higher if more female directors participate in the management and governance system in the same industry (Alder, 2001). However, Shrader and his partners select 200 companies as a sample to explore the effect, and there is no significant relationship between the proportion of female directors and company performance. They measure the company performance with Return on assets (ROA), return on sales (ROS), return on investments (ROI) and return on equity (ROE) (Shrader et al., 1997). In the study of Carter and his partners, they selected 1000 companies as

a sample in 1997. The results indicate that the proportion of female directors have a positive effect on company performance. The size of the company and board is larger; the percentage of female directors participate in the governance system is bigger (Carter et al., 2003).

Besides, there are two views on the effect of female directors on company performance. On the one hand, scholars think the effect is positive. The female directors can improve the company governance system. The improvement of the company governance system can increase the company operating profits (Adams et al., 2009). Female directors play an important role in the discussion because of their different views and processing methods, which will bring more development opportunities to the companies (Ferdinand et al., 2009).

On the other hand, some scholars consider that there is a negative effect. The gender diversity in the board may reduce the team cohesion and increase internal divergence (Westphal, 2000). This will decrease the company performance.

The previous studies also talk about female managers affect corporate governance with different aspects. First of all, the existence of top female managers will bring diversity values to the board, and the different views will enrich the content of the board meetings, which will create more possibilities for the company. Thus, the board meetings are more active because of top female managers. By analyzing the minutes of board meetings of Israeli business companies, Dr. Miriam finds the activeness of the board with at least three directors of each gender will be 79% more than the other board and the main reason is the existence of three female directors (Miriam, 2017). The board will be more active when the number of female directors achieved a critical mass. It is more possible that a CEO with bad performance is replaced in the gender-balanced board, and the board will be very active during the period of

being replaced. Through the analyze, “CEO turnovers are more sensitive to the stock price, and directors receive more equity-based compensation in firms with more gender-diverse boards” (Renée & Daniel, 2008).

Secondly, female directors are better listeners and have more communication skills than men. Thus, women are more likely to join monitoring committees. Besides, female top managers have a positive effect on attendance. Female directors have better attendance records than male directors. The male directors will have fewer problems with attendance when there are female directors in the boardroom (Renée & Daniel, 2008). However, female board members will have more forms of audit supervision. Ferdinand mentions in his study that companies with female directors will have higher audit fees (Ferdinand,2009). Renée and Daniel also argue that a higher quota would lead to a lower corporate value for well-managed companies (Renée & Daniel, 2008).

Financial results are regarded as an important evaluation to determine the female top managers’ effect on corporate governance. In traditional cases, when calculating the financial results, they adopt raw stock returns or accounting ratios. However, the complexity and risk should be considered. Because the “glass cliff” has been proved to exist, which means the female will meet many invisible barriers during the governance or the process to go upper. Thus, the environment will contain more risk and complexity. Although females have risk-averse psychology and characteristics, the result of the new model shows that if the company has a high rate of female officers, and the company will gain significant excess returns. But they indicate that the company with female both in management and governance systems can create enough market value to catch up with the normal stock market. (Claude et.al, 2008).

The impact of female directors on governance is not limited to profitability but also includes specific market performance and satisfaction. After the analysis of different industrial companies in the Netherlands, the proportion of female directors in retail, financial, service, and other industries is relatively large. These industries are customer-oriented, so female directors play an indispensable role. In these industries, customer satisfaction and market performance become the potential value of the company (Mijntje. L. R. 2009). Thus, there are two ways to measure female top managers' effect on corporate governance. In most papers, we examine company performance by analyzing the database.

In the paper of Claude and his partners, they adapt the three-factor Fama/French valuation model to control the risk and explore the effect. Three-factor Fama/French valuation model tries to explain a company's return by its beta, size and book-to-market ratio (Fama, 1992, 1993). However, the Chinese economic market is very different from the foreign economic market based on a different background. So the three-factor Fama/French valuation model is not suitable to the Chinese market.

Therefore, based on the above literature, I make the hypothesis whether the female directors have a positive effect on Chinese A-share listed companies.

### **III. HYPOTHESIS DEVELOPMENT**

H1: Female directors of Chinese list companies have a positive effect on Chinese A-share listed companies' performance.

H2: Female directors of Chinese list companies have a negative effect on Chinese A-share listed companies' performance.

#### IV. METHODOLOGY AND DATA

The initial sample I adopt is the data of A-shared listed companies from 2010 to 2016. I filter and delete some companies. The first kind of company is financial companies because financial companies have their particular governance approaches. The second kind of company is the companies with ST or \* ST, which means the companies are in an unusual trading situation. Last is the companies with incomplete data. Eventually, I get 17075 effective records, which are reasonable and can be representative of the Chinese market. Other databases can be filtered and downloaded from the CSMAR Database. First, a model is designed to regression all control variables.

The model 1 is

$$ROA_{ij} = \beta_0 + \beta_1 SIZE_{ij} + \beta_2 LEV_{ij} + \beta_3 ROS_{ij} + \beta_4 GROWTH_{ij} + \beta_5 ROE_{ij} + \varepsilon$$

In the following models, each explanatory variable will be gradually added, so that the influence of each explanatory variable on the explained variable can be tested, and the impact of female directors on corporate performance can be explained.

The influence of female directors on corporate performance can be tested by adding female variables based on model 2.

Model 2:

$$ROA_{ij} = \beta_0 + \beta_1 Fepro_{ij} + \beta_2 SIZE_{ij} + \beta_3 LEV_{ij} + \beta_4 ROS_{ij} + \beta_5 GROWTH_{ij} + \beta_6 ROE_{ij} + \varepsilon$$

Based on model 2, the dummy variable WOMEN is added to explore the impact of female holding on corporate performance.

Model 3:

$$ROA_{ij} = \beta_0 + \beta_1 Fepr_{ij} + \beta_2 SIZE_{ij} + \beta_3 LEV_{ij} + \beta_4 ROS_{ij} + \beta_5 GROWTH_{ij} + \beta_6 ROE_{ij} \\ + \beta_7 WOMEN_{ij} + \varepsilon$$

The new variable  $Fepr_{ij}^2$  is added into model 3 to explore the relationship between female shareholding and corporate performance better.

Model 4:

$$ROA_{ij} = \beta_0 + \beta_1 Fepr_{ij} + \beta_2 SIZE_{ij} + \beta_3 LEV_{ij} + \beta_4 ROS_{ij} + \beta_5 GROWTH_{ij} + \beta_6 ROE_{ij} \\ + \beta_7 WOMEN_{ij} + \beta_8 Fepr_{ij}^2 + \varepsilon$$

ROA is return on assets, which is the financial ratio that shows how a company is profitable based on the assets. It is calculated as net income divided by assets. Fepr is the proportion of the female directors, which is calculated through Excel.

ROE is return on equity, which is regarded as the measure of the profitability of the business relative to equity. ROE is calculated as net income divided by shareholder's equity. ROS is calculated as operating income divided net sales. ROS is return on sales, which is a measure of how efficiently a company turns sales into profits. SIZE represents the size of the company, which uses the natural logarithm of the total assets at the end of the year. Besides the higher company size will result in higher profit rates (Hall and Weiss, 1967). Therefore, I need to delete the effect to the test. LEV is the leverage ratio, which is total liabilities divided by total assets. It aims to evaluate the solvency ability of companies and the capital structure. The companies with a higher leverage ratio will have a higher risk. However, the high leverage ratio will magnify a company's profitability (Jarrow, 2013). GROWTH means operating growth rate, which is calculated as revenue growth of the current year divided by total revenue of last year. It is an indicator reflecting the changes in operating income. The dummy variable is Women.

If there are women with shares, the number will be 1. If there are not women with shares in the company, the number will be 0. The dummy variable can determine the relationship between women with shares and companies' performance. The variable can explain the effect better. Besides, it also can determine the model of accuracy and integrity.

Therefore, based on the equation and previous studies, I will regard ROA as the dependent variable, Female as an independent variable, and ROE, ROS, SIZE, LEV, GROWTH as the control variables. The variables and their calculation methods show in Appendix A.

## **V. EMPIRICAL RESULTS**

### **Descriptive Statistics Result**

Through the samples of 17075 A-share listed companies, I find the results of descriptive statistics. The mean of ROA is 0.0369. The minimum number is -3.994, and the maximum number is 0.590. In general, the company is profitable. The mean of variable Fepro is 17.14, the minimum value is 0 and the maximum value is 64.29. However, the standard deviation of variable Fepro is 10.53, which means female executives' shareholdings in all listed companies fluctuate widely. However, the dummy variable WOMEN has a mean of 0.945, which means there are women with shares in 94.5% of the sample listed companies. The dummy variable WOMEN has a maximum value as 1 and a minimum value as 0. The dummy variable WOMEN only can appear 0 or 1 as its minimum value and maximum value. Because the value of the dummy variable is settled as 0 or 1 depends on whether the company has the female directors with shares.

The minimum value of variable LEV is 0.007 and the maximum value is 1.411. Because I

do not delete the companies with the leverage ratio is more than 1. The mean of the leverage ratio is 0.441. So most companies have a good leverage ratio. More details in TABLE 1.

TABLE 1					
VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
SIZE	17,075	9.585	0.636	7.250	13.380
LEV	17,075	0.441	0.224	0.007	1.411
ROS	17,073	0.714	46.400	-3,298	2,692
GROWTH	17,075	7.479	485.400	-10.160	59,412
ROA	17,075	0.036	0.070	-3.994	0.590
ROE	17,075	0.059	0.711	-54.810	28.650
Fepro	17,075	17.140	10.530	0.000	64.290
WOMEN	17,075	0.945	0.228	0.000	1

Notes: SIZE represents the size of the company. LEV represents the leverage ratio of the company. ROS represents return on sales. GROWTH represents the operating growth rate of the company. ROA represents return on assets. ROE represents return on equity. Fepro represents the proportion of female directors. WOMEN represents the existence of the female directors with shares.

### Correlations Analysis

Through the correlations analysis to model 3, I can figure that variable Fepro is positively correlated with ROA with p-value 0.040, which is less than 0.01. The leverage rate is negatively correlated with ROA, while ROE is positively correlated with ROA with p-value as 0.251. Besides, the correlation coefficients between variables are small, indicating that there is no complete multicollinearity. The results need to be examined in the following empirical test. More details in TABLE 2.

### Empirical Analysis

In Model 2 and Model 3 of TABLE 3, the coefficient of Fepro is 0.000163 and 0.000156, and it is positively correlated at the level of 1%, which indicates that female executives' shareholding can promote corporate performance. Hypothesis 1 is valid. In Model 3, the coefficient of dummy variable Women is 0.000825, which is not significant, which indicates that although female executive shareholding can promote corporate performance, it has a small impact. In Model 4, neither the primary variable Fepro nor the new variable Fepro2 are significant, which means there is a linear relationship between female executive stock ownership and corporate performance. Besides, Model 2 and Model 3 are more accurate than Model 4. The regression coefficients of financial leverage LEV to ROA are significant at the level of 1% in the four models, which shows a significant negative correlation between financial leverage and corporate performance. The more debt an enterprise has, the worse its corporate performance will be. The regression coefficients of return on sales to ROA are significant at the level of 0.5% in the four models. The increase in sales will make the company performance increase. More details in TABLE 3.

TABLE 2

VARIABLES	ROA	FEPRO	SIZE	LEV	ROS	GROWTH	ROE	WOMEN
ROA	1.000							
FEPRO	0.040***	1.000						
SIZE	0.002	-0.200***	1.000					
LEV	-0.329***	-0.135***	0.514***	1.000				
ROS	0.017**	0.005	-0.001	-0.004	1.000			
GROWTH	0.002	0.001	0.008	0.004	0.000	1.000		
ROE	0.251***	0.007	0.042***	-0.081***	-0.006	0.001	1.000	
WOMEN	0.013*	0.392***	-0.056***	-0.031***	-0.009	0.003	0.003	1.000

t-statistics in parentheses

\*\*\* p<0.01 ,\*\* p<0.05 ,\* p<0.1

Notes: SIZE represents the size of the company. LEV represents the leverage ratio of the company. ROS represents return on sales. GROWTH represents the operating growth rate of the company. ROA represents return on assets. ROE represents return on equity. Fepro represents the proportion of female directors. WOMEN represents the existence of the female directors with shares.

TABLE 3				
VARIABLES	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Fepro		0.000163*** (3.457)	0.000156*** (3.045)	1.33e-05 (0.0749)
<i>Fepro</i> <sup>2</sup>				3.20e-06 (0.840)
SIZE	0.0231*** (25.83)	0.0236*** (26.06)	0.0236*** (26.05)	0.0236*** (25.99)
LEV	-0.132*** (-51.80)	-0.132*** (-51.66)	-0.132*** (-51.66)	-0.132*** (-51.66)
ROS	2.57e-05** (2.455)	2.55e-05** (2.439)	2.55e-05** (2.443)	2.56e-05** (2.444)
GROWTH	2.52e-07 (0.252)	2.44e-07 (0.244)	2.43e-07 (0.243)	2.48e-07 (0.248)
ROE	0.0206*** (30.02)	0.0206*** (29.99)	0.0206*** (29.99)	0.0206*** (29.98)
WOMEN			0.000825 (0.356)	0.00203 (0.745)
CONSTANT	-0.127*** (-15.82)	-0.135*** (-16.18)	-0.136*** (-15.92)	-0.135*** (-15.87)
OBSERVATIONS	17,073	17,073	17,073	17,073
R-SQUARED	0.191	0.191	0.191	0.191

t-statistics in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Notes: SIZE represents the size of the company. LEV represents the leverage ratio of the company. ROS represents return on sales. GROWTH represents the operating growth rate of the company. ROA represents return on assets. ROE represents return on equity. Fepro represents the proportion of female directors. WOMEN represents the existence of the female directors with shares. *Fepro*<sup>2</sup> represents the square value of the proportion of female directors.

### Robustness test

To obtain more reliable conclusions, I test the robustness of the empirical results. I reject the negative and positive standard deviation three times of the independent variable and then regress again. I get the following results, which shows in TABLE 4.

From TABLE 4, I can recognize that the significance of variable Fepro is the same as

TABLE 3. So the conclusion is stable and reliable.

TABLE 4				
VARIABLES	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Fepro		0.000194*** (4.729)	0.000189*** (4.262)	0.000149 (0.971)
Fepro <sup>2</sup>				8.97e-07 (0.271)
SIZE	0.0216*** (27.77)	0.0222*** (28.19)	0.0222*** (28.18)	0.0222*** (28.14)
LEV	-0.128*** (-57.61)	-0.127*** (-57.44)	-0.127*** (-57.44)	-0.127*** (-57.43)
ROS	2.67e-05*** (2.930)	2.64e-05*** (2.908)	2.65e-05*** (2.911)	2.65e-05*** (2.911)
Growth	1.95e-07 (0.225)	1.86e-07 (0.214)	1.85e-07 (0.213)	1.86e-07 (0.215)
ROE	0.0192*** (31.99)	0.0191*** (31.95)	0.0191*** (31.95)	0.0191*** (31.94)
WOMEN			0.000482 (0.239)	0.000819 (0.346)
CONSTANT	-0.115*** (-16.41)	-0.124*** (-17.09)	-0.124*** (-16.79)	-0.124*** (-16.76)
Observations	17,062	17,062	17,062	17,062
R-squared	0.222	0.223	0.223	0.223

t-statistics in parentheses

\*\*\* p&lt;0.01 , \*\* p&lt;0.05 , \* p&lt;0.1

Notes: SIZE represents the size of the company. LEV represents the leverage ratio of the company. ROS represents return on sales. GROWTH represents the operating growth rate of the company. ROA represents return on assets. ROE represents return on equity. Fepro represents the proportion of female directors. WOMEN represents the existence of the female directors with shares. Fepro<sup>2</sup> represents the square value of the proportion of female directors.

## VI. CONCLUSION

Although many foreign papers are talking about whether female directors have an impact

on company performance or not, the models are not suitable for Chinese companies because of the differences in economic principles, culture, and so on. In this paper, I adopt the data from Chinese A-share listed companies, which are representative of the Chinese market and explore the proportion of female directors and their impact on company performance. The result shows that female directors have a positive effect on the performance of Chinese A-share listed companies, though the proportion of female directors is not stable. However, over 90% of Chinese A-share listed companies have female directors with shares, which means female directors with shares are universal, and they will bring a positive effect on company performance.

The article also can attract the attention of scholars. First of all, the Chinese economic market is very different from foreign economic markets because of different cultures, laws, and so on. The article result may attract scholars to explore the differences between Chinese economic markets and foreign economic markets. It is very good for international economic science. Secondly, the effect of female directors can be proved positive. Scholars can examine the result in different ways. Besides, we need to figure out how and which aspects the female directors bring a positive effect. Then the enterprises and the government can balance the diversity in the working environment and maximize profitability.

To some extent, the conclusion of this paper provides a theoretical basis for enterprises to actively employ excellent women as directors of enterprises and participate in enterprise management. The behaviors are conducive to improving the discourse power of women directors to make suggestions for enterprise development and enhancing women's influence in enterprise management. We should pay more attention to strengthening the influence of female

directors and face up to gender differences. Female directors will have different sights to view the same problems with male directors, and they will have different solutions. Both two gender directors have disadvantages and advantages, so the companies need to determine how to combine the advantages and balance the management skills. An excellent internal environment will bring companies competitive power and opportunities.

Besides, the results of this study have some implications for government departments. The Chinese government strongly advocates gender equality and encourages the development of female leaders. In this context, how to give full play to the positive role of female directors in corporate governance has become an important issue. Therefore, the next research direction can be to explore how female directors have a positive impact on corporate governance and in what aspects.

Instead of merely emphasizing the proportion of women on boards and leadership, the government should take some concrete action. For example, to create a positive training environment for female directors and improve their decision-making level, to effectively improve the efficiency and performance of enterprises. For enterprises, the power of women directors in the board of directors can be enhanced, and the selection mechanism of women directors can be optimized, to make the diversity of the board of directors reasonable and create more value for the company and shareholders.

This article also encourages female directors and employees. Some females will lose self-confidence and hope for themselves. The positive effect proves the abilities and voice power of the female, which will make the female more confident. Besides, the female has already got the attention of the public, and the working environment is turning better. So it means the

female will have more chances to develop themselves. Because of the Glass Ceiling, many female employees are disappointed with the job career. The promotion structure will be adjusted by the enterprises., which means the invisible pressure will decrease gradually, and the proportion of female directors will increase in the future.

The article still has limitations and is not accurate enough. Firstly, the data of the A-share listed company is collected from 2010 to 2016. The period is not enough to fully explain a problem. The reliability of the conclusion still needs more data support. So in the next research, the data period can be increased longer. Secondly, the data only cover the Chinese A-share listed company, so the research range is not big enough. In the next research, B-share, H-share companies also can be analyzed. Thirdly, during the data filtering, I keep the companies which issue B shares, H shares, and N shares at the same time. I do not delete the companies with the leverage ratio is more than 1. So the data is not accurate enough. There is still room for improvement in data scope and filtering.

## VII. APPENDIX

### Appendix A

Variables	Definition and measurement
ROA	Return on assets, calculated as net income divided by total assets
Fepro	The proportion of female directors, calculated as numbers of female directors divided by number of total directors
SIZE	Size of the company, calculated as the natural logarithm of the total assets
LEV	Leverage ratio, calculated as total liabilities divided by total assets
ROS	Return on sales, calculated as operating income divided by total sales
GROWTH	Operating growth rate, calculated as revenue growth of current year divided by total revenue of last year
ROE	Return on equity, calculated as net income divided by shareholder's equity
WOMEN	Whether there is women directors with shares, if there is, the value is 1; if not, value is 0
Fepro <sup>2</sup>	Square value of the proportion of female directors

## VIII. REFERENCE LIST

- Adams, R. A. and D. Ferreira. 2009, Women in the boardroom and their impact on governance and performance, *Journal of Financial Economics*, 94(2): 291-309
- Adams, R. B. and D. Ferreira. 2004, Gender Diversity in the Boardroom, European Corporate Governance Institute, *Finance Working paper # 57*, 30 p.
- Adler, R. D. 2001. Women in the Executive Suite Correlate to High Profits
- Carter, D. A.B. J. Simpkins. and W. G. Simpson. 2003. Corporate Governance, Board Diversity, and Firm Performance. *The Financial Review*, 33–53.
- Catalyst. 2004. The Bottom Line: Connecting Corporate Performance and Gender Diversity. *Catalyst Publication Code D58*, New York, p28.
- Chen, Z., Cheung, Y., Stouraitis, A. and Wong, A. W. S. 2005, Ownership concentration, firm performance, and dividend policy in Hong Kong. *Pacific-Basin Finance Journal*, 13(4): 431–449.
- Cheng, S., Evans, J. H., and Nagarajan, N. J. 2007, Board size and firm performance: the moderating effects of the market for corporate control. *Review of Quantitative Finance and Accounting*, 31(2): 121–145.
- Claude Francoeur, Réal Labelle and Bernard Sinclair-Desgagne. 2008. Gender Diversity in Corporate Governance and Top Management. *Journal of Business Ethics*, Vol.81.
- Ehikioya, B. 2009, Corporate governance structure and firm performance in developing economies: evidence from Nigeria. *Corporate Governance*, 9(3) : 231-243.
- Fama, E. F., and Jensen, M. C. 1983, Separation of Ownership and Control. *The Journal of Law and Economics*, 26(2): 301–325.
- Fama, E. F. and K. R. French: 1992, ‘The Cross-Section of Expected Stock Returns’, *The Journal of Finance* 47(2), 427–465.
- Fama, E. F. and K. R. French: 1993, ‘Common Risk Factors in the Returns on Stocks and Bonds’, *Journal of Financial Economics* 33, 3–56.
- Ferdinand A. Gul, Bin. Srinidhi and Judy S. L. Tsui. 2009 *Board Diversity and the Demand for Higher Audit Effort*. Available at SSRN: <https://ssrn.com/abstract=1359450>
- Hall, M., & Weiss, L. 1967, Firm Size and Profitability. *The Review of Economics and Statistics*, 49(3), 319.
- Hambrick, D. C. and Mason, P. A. 1984, Upper Echelons: The Organization as a Reflection of Its Top Managers. *Academy of Management Review*, 9(2): 193–206.
- J. D. Westphal, L. P.H. Milton. 2000. How experience and network ties to affect the influence of demographic minorities on corporate boards, *Administrative Science Quarterly*, 45(2): 366-398
- Jarrow, R. 2013, A leverage ratio rule for capital adequacy. *Journal of Banking & Finance*, 37(3), 973–976.
- Li, C. A. and B. Wearing: 2004, ‘Between Glass Ceilings: Female Non-Executive Directors in UK Quoted Companies’, *International Journal of Disclosure and Governance* 1(4, Oct), 355–370.
- Mijntje. L. R. 2009. Female Directors on Corporate Boards Provide Legitimacy to a Company: A Resource Dependency Perspective. *Management Online Review*, pp. 1-13.
- Renée Adams and Daniel Ferreira. 2008. Women in the Boardroom and Their Impact on

- Governance and Performance. *European Corporate Governance Institute (ECGI) - Finance Working Paper No. 57/2004*.
- Ryan, M. K. and S. A. Haslam. 2006. What Lies Beyond the Glass Ceiling? *Human Resource Management International Digest* 14, 3–5.
- Ryan, M. K. and S. A. Haslam. 2005. The Glass Cliff: Evidence that Women Are Over-Represented in Precarious Leadership Positions, *British Journal of Management* 16, 81–90.
- Shrader, C. B., V. B. Blackburn and P. Iles: 1997, ‘Women in Management and Firm Financial Performance: An Exploratory Study’, *Journal of Managerial Issues* 9(3) (Fall), 355–372.
- Schwartz-Ziv, Miriam. 2017. Gender and Board Activeness: The Role of a Critical Mass. *Journal of Financial and Quantitative Analysis*. 52. 1-30. Vol. 81.
- TIAA-CREF. 1997. Policy statement on corporate governance