

Female Executives and Firm Performance in China

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Abstract

This paper investigates the impact of female executives on firm financial performance based on a sample of 5684 Chinese non-financial listed companies during the period of 2000 - 2015. The findings show that female executives can help a firm to have a better financial performance only under the circumstances where there are enough female executives so that their voice can be heard.

Keywords

Female Executives, Financial Performance.

1. Introduction

Traditionally, in china women were supposed to act as a good wife and mother. They were educated to take more responsibility of a family other than society or economy. However, as time passes, the traditional role of women has changed dramatically. And nowadays they account for many essential jobs in society especially in business. Women have gradually had the right to suggest vote or even decide. More specifically women executives have become an important part of board and they achieved as many awards as men. Catalyst (2010) suggests that in the past decade the proportion of women executives remained beyond 10 percent. There are several European countries even set up the requirement about the lowest rate of women executives such as Sweden and Spanish. In China women executives become more and more in listed firms. Although the relationship between gender proportion in top management team and firm financial performance captures extensive attentions in western countries. In china, the correlation of it and risk appetite of corporation is largely neglected. In fact, it is believed that when it comes to management men are more dependent competitive while women are more communicative and corporative. So some may believe that women are actually more suitable for the jobs as executives.

Zuckman (1994) holed the view that women can be more careful and conservative when it comes to run a company. This opinion is supported by Almazan and Suarez (2003) who claim women executive may be over guide. Hence in some extent women are more suitable for the job. There hasn't been a conclusion about the how the influence women executives have on firms. Alder (2001) did a research based on 215 American companies from 1980 to 1998.he came to a conclusion that firms with better women Shenzhen record have a higher earning ability, roughly 18~69%higher. Carter (2003) firstly finds a positive relationship between women executives and firm value. Ding (2004) find that during the announcement of hiring women executives, firms share price increased by 2.3%. Francoeur et al. (2008) suggest that in a comprehensive environment firms having higher women executives had a considerate positive income. However, on the contrary, Lee and James (2007) conclude that compared with male CEOs, female CEOs have a negative influence on the market. The research Adam and Ferrera (2009) did with s firms from 199 to 2003 find that women board have improved the governance level but have a negative influence on firm value. Rose (2007) suggests there is no relationship between the two in Denmark firms.

Due to the conflicting findings mentioned above, the effect of gender proportion in the top management team on firm financial performance is worth discussing. This paper contributes to the literature in the following aspects. Firstly, most researches in this field are conducted in western countries. There is still little information in China, which is worth paying attention to. Especially

those unlike western countries, corporations in china not only have board of directors but also have board of supervisors. This paper comprehensively investigates the influence of female executives on firm financial performance using china listed non-financial firms from 2000 to 2015.

This work is composed by five sections. This first section provides an overview of the entire work. It set out the research questions as well as aims of the work. It also presents a review of current literature which provides a snapshot of current opinion in the subject area as examines the issue in detail. The second section provides the procedure of data collection and the discussion of data. Section three included the empirical methodologies adopted in the work. Section four presents the results from the statistical data analysis and discusses this in light of the findings from the previous research. Section five wraps up the work, providing a summary of the research findings and identifying further areas for research.

2. Data and Variables Explanation

2.1 Section Headings

This research focuses on whether women executives will improve firm financial performance and influence financial risks. Hence, this analysis is based on a sample of 50000 Chinese listed non-financial firms during the time period between 2000 and 2015. The data in this paper mainly obtained from the China Stock Market Financial Statements Database (CSMAR). The database used in this paper contains information about total assets, total current assets, total liability, total current liability, long term debt, sales revenue, earnings before interest and cost, total cost, net income, shareholders' equity, executive age, amount of firm stock held by the executives, number of executives, and so on.

2.2 Data Description

Table 1 introduces the variables used in this paper (including the dummy variables), with the notation and data sources. Further information related to some of these variables is provided in the following section.

Table 1 Data Description

This table summarizes all of the variables used throughout the research and a detailed description of the method of calculation. It also provides the notation for each variable in this paper.			
Variables	Notation	Definition	Data Source
Female Executive			
Gender Dummy	GD	Dummy variable equals to 2 if firms have female executives and 1 otherwise.	CSMAR
Female Ratio	FR	The ratio of the number of female executives to that of total executives.	CSMAR
Firm Characteristics			
Total Assets	TA	Firm total assets	CSMAR
Total Liability	TL	Firm total liabilities	CSMAR
Revenue	REV	Firm revenue or net sales	CSMAR
Return On Assets	ROA	EBIT/ total assets	CSMAR
Firm Size	SIZE	Natural logarithm of the book value of assets	CSMAR
Leverage	LEV	Long term debt/ shareholder's equity	CSMAR
Liquidity	LIQ	current asset/ current liability	CSMAR
Earnings Before Interest and Tax	EBIT	Firm earnings before interest and tax	CSMAR

Long Term Debt	LTD	Firm long term debt	CSMAR
Stockholder Equity	SE	Firm shareholder's equity	CSMAR
Current Assets	CS	Firm current assets	CSMAR
Executive Age	AGE	The age of executive	CSMAR
Current Liabilities	CL	Firm current liability	CSMAR

Table 2 illustrates the summary of the statistics of the full sample over 2000- 2015 period.

Table 2 Descriptive Statistics of Whole Sample

Table 2 presents the summarised statistics for the sample of 5684 firms from the period 2000 to 2015. It included the female executives use and firms' characteristics variables. All variables are defined in Table 1.					
	No	Mean	Std.Dev.	Min	Max
Derivatives use					
Gender Dummy	54,017	1.141622	0.3486653	1	2
Female Ratio	54,017	0.1416221	0.2576474	0	1
Firm characteristics					
Total Assets	56,463	7.16E+09	4.28E+10	0	2.41E+12
Total Liability	56,460	3.87E+09	2.28E+10	-2033024	1.09E+12
Revenue	56,110	4.70E+09	4.51E+10	-8.89E+07	2.88E+12
Return On Assets	56,458	-0.1006633	13.95895	-2059.244	37.674
Firm Size	56,458	21.49107	1.286064	10.8422	28.50873
Leverage	56,453	7023.66	1668311	-1785.021	3.96E+08
Liquidity	56,446	25.20305	1315.11	-212.9111	173679.7
Earnings Before Interest and Tax	56,464	3.37E+08	3.21E+09	-3.64E+10	1.94E+11
Long Term Debt	47,925	7.66E+08	5.19E+09	0	3.29E+11
Stockholder Equity	56,461	3.29E+09	2.19E+10	-1.11E+10	1.34E+12
Current Assets	56,457	3.16E+09	1.58E+10	0	8.32E+11
Executive Age	53,804	46.61092	8.842932	21	102
Current Liabilities	56,456	2.77E+09	1.57E+10	-5.38E+07	6.45E+11

Table 3 present the pair wise correlation matrix among the variables used in this analysis. It can be seen as a univariate analysis.

Table 3 Correlation Matrix

This table provide a correction coefficients for all variables tested in this research. All variables are defined in Table 1.									
	SIZE	AGE	CPS	SH	LIQ	ROA	FR	GD	LEV
SIZE	1								
AGE	0.1077	1							
CPS	0.1651	-0.0193	1						
SH	0.0116	0.0253	0.1598	1					

LIQ	0.0207	0.0096	-0.0074	-0.0014	1				
ROA	0.0719	-0.0001	0.0047	0.0011	0.0002	1			
FR	-0.0534	-0.0811	-0.023	-0.0033	-0.0047	0.0048	1		
GD	-0.0386	-0.0998	-0.0338	-0.0117	-0.0025	0.0035	0.739	1	
LEV	-0.0055	0.0012	-0.0005	-0.0004	-0.0001	0	-0.0024	-0.0017	1

2.3 Variable Explanation

This subsection presents all the dependent variables used in this study for the effect of the women executives. In line with the prior research, we use the ratio of return on assets (ROA) as proxies for firm financial performance. It refers to the ratio of earnings before interest and tax (EBIT) divided by the total assets. Return on equity (ROE) is not employed in this paper as a performance measurement because it can be manipulated due to a SEO requirement. As this research is based on Chinese listed firms Tobin's Q, which is widely used by former researchers to measure performance, is not conducted in this paper. Most of Chinese listed firms are originated from state-owned-enterprises (SOEs) with majority shares not tradable in the secondary market. Since there is a big pricing gap between tradable and non-tradable shares, Tobin's Q would not correctly reflect a firm's financial performance or value. In addition, Chinese stock markets are highly speculative and a firm's share price bears little relationship to its fundamental value (Bai et al. 2004; Peng, 2004; and Markoczy et al., 2013).

The key variable in this paper is the board gender diversity. The variable named sex dummy represents a dummy variable which is set to one if firms have female executives and zero otherwise. The second variable named female ratio presents the ratio of female executives to total executives.

In addition, there are other factors that affect firm performance, including firm size, leverage, executive age, and so on. To be specific, a firms' capital structure may have an effect on firm performance (Allayannis and Weston, 2001). To control for effect of capital structure, *leverage* is defined as the ratio of long term debt to book value of equity. *The age of executives* is also an important factor that can have effect on people's financial choice. *Amount of firm stock held by the executives* may affect firm performance in the sense that the more stocks the executives hold the more they will devote themselves in the management of the firms hence improve the firm performance. Also, it is suggested by Jensen (1986) that firms with excessive cash flow are more likely to invest in projects of negative present value. Liquidity decreases the probability of financial distress, the cost of external financing and make valuable projects affordable. *The current ratio*, current assets to current liability, is used here as a proxy for the firm liquidity.

3. Empirical Strategy

There are many factors that can have an influence on firm performance. As the univariate test cannot control for other factors, multivariate analysis is conducted in order to exclude the effect of all other determinants that could have an impact on firm finance performance and firm financial risks. Hence, the study controls for executives age, size, leverage and liquidity. The OLS regression model is used in this study. This method helps to estimates the coefficient of the linear relationship between the dependent and independent variables.

In this paper 2 models are developed to evaluate the first two hypotheses. The formulas are listed below:

$$\ln ROA = \alpha + \beta \times \text{Dummy} + \sum_j \gamma_j \times \text{Control variables}_j + \varepsilon$$

$$\ln ROA = \alpha + \beta \times \text{female ratio} + \sum_j \gamma_j \times \text{Control variables}_j + \varepsilon$$

Where:

Dummy is the indicator variable of the existence of female executives of a firm, which equals 1 if firms have female executives.

The set of control variables include size, leverage, executive age and liquidity;

α is the constant term;

ε is the regression error term.

Note that β_1 , β_2 and θ means the regression coefficients which will be estimated in the next section

Similarly, the test for the financial risk of women executives applies the following regressions.

$$\ln Y = \alpha + \beta_1 \times \text{Dummy} + \sum_j \gamma_j \times \text{Control variables}_j + \varepsilon$$

Where Y indicates z-score or standard deviation of roa; the other control variables include size, executive age and stock hold.

4. Results

Table 4 reports the results on the effect of female executives on firm performance.

Table 4 OLS Results of Gender Dummy

This table reports the impact of having female executives on firm financial performance, the regression model is described before. All variables are well defined in Table 1. P-value are reports in parentheses below the coefficients and *,**,*** denote statistical significance at the 10%,5% and 1% level, respectively	
Variable	ROA
Gender Dummy	0.2319 (0.191)
Size	0.8384*** (0.000)
Liquidity	-0.00001 (0.752)
Leverage	4.04E-09 (0.911)
Age	-0.0122** (0.083)
Constant	-17.81 (0.000)
No of observations	53781
Adj. R2	0.0055
Mean VIF	1.01

Generally, the result of ROA is not consistent with the hypothesis that the adoption of women executives improves firm financial performance. On the contrary it shows no relevance with it.

Surprisingly only one of the control variables is statistically significant and has the expected sign. The estimated coefficient of size is positive and statistically significant. This result suggests that firms with larger size also result in higher ROA, consistent with the expectation that bigger would have a better financial performance.

However, there are also several variables shows the opposite results. For instance, the estimated coefficient of leverage is positive and statistically significant. Nevertheless, this result suggests that there is no relationship between leverage and firm financial performance, which is not consistent with the expectation that firms with a higher leverage would benefit more from tax shield and thus have a better firm performance. Liquidity also seems to have no relation with ROA, indicating that higher cash flow turnover does not necessarily improve firm financial performance as expected. Executives' age is negatively related to firm performance. Unlike expectation that age implies experience which can be use in the management process.

There are quite a few companies with female executives which are really short in number. This can compromise the influence of female executives since they have little power and right. The female ratio is then employed to better test the correlation between female executives and performance. The result is listed in Table 5.

Table 5 OLS Results of Female Ratio

This table reports the impact of having female executives on firm financial performance, the regression model is described before. All variables are well defined in Table 1. P-value are reports in parentheses below the coefficients and *, **, *** denote statistical significance at the 10%, 5% and 1% level, respectively	
Variable	ROA
Female Ratio	0.4583*** (0.056)
Size	0.8408*** (0.000)
Liquidity	-0.00001 (0.755)
Leverage	4.13E-09 (0.909)
Age	-0.0121** (0.086)
Constant	-17.67 (0.000)
No of observations	53781
Adj. R2	0.0055
Mean VIF	1.01

The result from Table 5 reveals that female executives actually have a positive effect on firm performance. This proves the suspicion before that women executive can lead to a better performance as long as there are enough of them in the corporation so that they can actually go into effect.

To better test this theory, firms with lower than 50% female executive are deleted from the whole sample. The new result is shown in table 6.

Table 6 OLS Results of Female Ratio-Part Sample

This table reports the impact of having female executives on firm financial performance, the regression model is described before. All variables are well defined in Table 1. P-value are reports in parentheses below the coefficients and *, **, *** denote statistical significance at the 10%, 5% and 1% level, respectively	
Variable	ROA
Female Ratio	0.066***
	(0.041)
Size	0.088***
	(0.000)
Liquidity	-3.72E-06
	(0.593)
Leverage	-0.0001
	(0.710)
Age	-0.0004
	(0.477)
Constant	-1.884
	(0.000)
No of observations	13204
Adj. R2	0.0269
Mean VIF	1.01

Just as expectation, the correlation is significantly positive. This result again confirms that the suspicion that women executives do play an important role in improving firm performance. However, their hands are tied if the proportion is too low. When there are enough women in the top management team, they can use their characteristics to better run the corporations.

5. Conclusion

This study revisits the question that whether firms employ female executives in a manner with improve firm financial performance and lower risk by analysing a sample of Chinese listed non-financial firms from 2000 to 2015.

The findings reveal mixed results for association between women executive and firm performance and risk preference. At first, there is no direct relevance between the usage of female executives and firm performance, which is quite surprising considering our hypothesis. Then when using female ratio to do the same test, a converse conclusion is drawn that female executives can actually improve firm financial performance. These opposite result may be due to the reason that in some firms, female executives only take account for little positions so they may not have too much influence on firm financial decisions that can affect a firm's performance. Considering this, we then use firms with female ratio higher than 50 percent. We find that the higher the female ratio is the better performance is. This confirms our intuition about the relative little influence from female if they are too few.

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