Influence of Characteristics of Female Executives on the Company's Financial Performance

Jiaqi Huang
Northeastern University, Shenyang 110000, China.

Abstract: The financial data of A-share listed companies during the fifteen years from 2005 to 2020 are selected for analysis as the thesis samples, but excluding the listed enterprises of the financial insurance, ST category, etc. Combined with the tenure length, academic degree and education background of female executives, the empirical analysis method is adopted to analyze the correlativity between the female executives and enterprise's financial performance. The enterprise's industrial nature and enterprise's growth cycle are experimented and concluded in combination with the research results.

Keywords: Characteristics of Female Executives; Financial Performance

1. Definitions of relevant concepts

1.1 Definition of female executives

Based on current conditions of China's listed companies, the collected data and their accessibility are researched. In consideration of the difference in each industry, the female executives in this thesis implicate President, General Manager, Deputy General Manager, Chief Executive Officer, Independent Director, and the key personnel with certain decision-making power of enterprise.

1.2 Characteristics of female executives

The characteristics of female executives can be roughly divided into the population aspect and psychology aspect. One aspect is the population characteristic, such as the age, tenure, academic degree, political background, overseas experience, etc. Those quantifiable characteristics are collectively called as population characteristics. Those data are easy to be counted. Therefore, in most researches, such quantifiable characteristics can be used to map the overall characteristics of female executives. The other aspect is the psychological characteristic, mainly including the female executives' personal cognition, value concept, religious belief, etc. Affected by the individual growth experience, such characteristic isn't conducive to the enterprise's comprehensive understanding of statistics. Compared with the above two characteristics, mainly from the perspective of population characteristic, the tenure, academic degree and salary level are adopted to analyze the influence of the enterprise's female executives on the enterprise's financial performance.

2. Research Design

2.1 Research hypothesis

2.1.1 Relations between tenure of female executives and company's financial performance

Higher qualifications mean that female executives are on the job for a long time and understand company's development and growth strategy. There is an apparent association between the market knowledge level of female leaders and the enterprise. In the face of the external environment full of challenge, different managers have different level of understanding, which may result in different development decisions, further generating different influence on enterprise performance.

Hypothesis 1: Based on the unchanged other conditions, there is a positive correlation between the tenure of female executives

and the financial performance of enterprise.

2.1.2 Relations between academic degree of female executives and enterprise's financial performance

The Theory of Human Capital points out that the human capital plays a non-negligible important role in the development of enterprise. Enterprise's human capital mainly includes two types: transfer type and non-transfer type. The human capital generates a great influence on enterprise performance.

Hypothesis 2: Based on the unchanged other conditions, there is a positive correlation between the academic degree of female executives and the financial performance of company.

2.1.3 Contact between remuneration of female executives and enterprise's financial performance

The remuneration, a kind of incentive factor, is a kind of method to acknowledge the manager's contribution to the company. To stimulate environment enough, the operating potential of company resources would be motivated greatly and can make a certain contribution to the company's development. The company's salary standards also accord with the value of such contribution. The managers stimulated are deemed an important factor of the company's growth and development.

Hypothesis 3: Based on the unchanged other conditions, female executives can generate proactive influence on the company's financial performance.

2.2 Sample selection

Based on the annual data in this thesis, all A-share listed companies from 2005 to 2020 are researched as the initial samples. To guarantee the effectiveness and accuracy of research results, the initial samples of the research are inspected in the following conditions.

The samples of financial department are eliminated. The companies of the financial industry are excluded, because the listed companies of the financial industry are constrained by some government regulations in the respect of market access and business development. Besides, their accounting practice presents great difference with that of the listed companies of other industries.

Samples excluding the ST, SST, *ST and PT category. Generally speaking, it is more possible for the listed companies of ST, SST, *ST and PT to select the financial statement to avoid delisting on account of apparent business environment problems.

Samples eliminating the deficiency or separation of relevant variable value.

Eventually, after a series of filtration as per the above-mentioned conditions, the unweighted panel samples of annual observed value of 35,660 companies are obtained, which guarantees the reliability of the research results.

2.3 Indicator selection

Tobin's Q ratio is relatively common, because it refers to the ratio between market value of capital and its exchange value, and is often deemed the important indicators to measure the enterprise efficiency and growth potential. Therefore, the Tobin's Q value is adopted in this thesis to measure the financial performance of company to guarantee the comparability of financial performance of different listed companies.

Table 1 Variable definition and calculation formula

Variable type	Variable name	Indicator calculation
Explained variables	Tobin's Q	Tobin's Q = company's market value/ asset replacement cost
Explaining variables	Tenure of female executives	A1= total number of tenures of female executives / the number of female executives
	Academic degree of female	A2= total number of academic degrees of female

	executives	executives / the number of female executives
	Salary level of female executives	A3=Ln(total salary of female executives / the number of female executives)
Control variables	Stock right concentration (CR)	Shareholding proportion of the first majority shareholder of listed company
	Size of number of persons in Board of Directors	B2=Ln (number of persons in Board of Directors)
	Total asset turnover (TAT)	B3= total sales incomes / average total assets
	Growth rate of operating revenue	B4= growth rate of operating revenue/total operating income of the previous year
	Size of the total assets	Size=Ln (total assets)
	Liability-on-asset ratio (Lev)	Lev= liability/asset

3. Empirical Analysis

3.1 Descriptive statistics

To better reflect the influence of characteristics of female executives on the financial performance and to make the data more stable, the original data are handled properly and standardized, and the abnormal value is eliminated. After mergence and before regression of female executives, the descriptive statistics are adopted to research the variables: 35660 master samples during 15 years are collected and are analyzed via EXCEL. The descriptive statistical analysis is carried out for the length of service, educational level, salary, stock right concentration, etc. of female executives.

Table 2 Descriptive statistics of main variables

	N	MEAN	SD	MIN	MEDIAN	MAX
ROA	35660	0.0372	0.0649	-0.5475	0.0378	0.2129
ROE	35660	0.0536	0.1654	-2.0786	0.0703	0.3776
TobinQ	35660	1.9827	1.3443	0.7992	1.5673	17.6525
Top	35660	0.1775	0.1110	0.0000	0.1667	0.5455
Tenure	35660	36.0598	24.8949	0.0000	32.2679	132.0000
lnTenure	35660	3.2395	1.1107	0.0000	3.5046	4.8903
Degree	35660	2.4095	1.4884	0.0000	3.0000	5.0000
Salary	35660	11.5603	4.2690	0.0000	12.9636	15.9115
Size	35660	22.0243	1.2839	19.4151	21.8373	26.4299
Lev	35660	0.4292	0.2062	0.0274	0.4261	0.9054
Board	35660	2.1455	0.2012	1.6094	2.1972	2.7081

CR	35660	0.3516	0.1496	0.0833	0.3314	0.7584
TAT	35660	0.6755	0.4677	0.0554	0.5667	3.1663
Growth	35660	0.1492	0.3329	-0.6677	0.1074	2.6556

The following conclusions may be drawn based on the descriptive statistical results of the above variables:

(1) The EXCEL statistical results of the number of female executives in each industry show that the female executives of real estate industry take up the most proportion in the listed companies, namely 55.55%, then come to the wholesale and retail industry (47.36%) and the manufacturing industry (46.15%). The demands of consumers in the above three industries shall be understood fully. The female entrepreneurs are more sensitive to the demands of consumers and find the demands of consumers more easily. The demands of consumers in the above three industries shall be understood fully. The female entrepreneurs are more sensitive to the demands of consumers and recognize demands more accurately as well as support the business decisions.

(2) The Tobin's Q coefficient is selected in this thesis to measure the financial performance of listed company. The minimum value, the maximum value, the mean value and the standard deviation of the Tobin's Q coefficient in the master samples is 0.7992, 17.6525, 1.9827 and 1.3443, respectively. Those data show the difference of financial performance of the listed companies in different industries. The higher Tobin's Q value is corresponding to the higher monopoly profits obtained by the company, the lower social welfare and the reduction of the productivity.

(3) Among the explaining variables, the maximum working hour of female managers reaches 132 months, which is the longest working hour for the female managers of listed enterprises in manufacturing industry; The highest academic degree and average academic degree of female managers are Doctor and Bachelor, respectively. Moreover, 53.2% female managers in China's listed companies own the academic degree of above Bachelor's Degree, which indicates that most female managers own the academic degree of above Bachelor's Degree and the female managers in China's listed companies own relatively high educational level. The mean economic compensation and the highest economic compensation of female managers reach USD 0.76 million and USD 286,500, respectively.

(4) In respect of the control variable, the stock ownership concentration of listed companies is between 8.33% and 75.84%, which indicates that the leading role of the single stock in the listed company in the past reduces. As a result, the managers can exercise the top management function. Among the whole samples, the average proportion, the maximum proportion, the minimum proportion and the standard deviation of the independent directors reach 37.2002%, 80%, 0 and 0.05540, respectively, which indicates that most listed companies strictly abide by the regulations of independent directors. The independent directors shall conform to the 30% requirement at least. Some companies even surpass that standard greatly. The average asset availability of the listed company reaches 67.55%, and its scope is between 5.5% (bottom) and 3.1663 (top), which indicates that great difference exists in the asset utilization ratio of the listed company possibly on account of the characteristics of different industries. The average growth amplitude and the standard deviation of sales volume of the listed company reach 14.92% and 0.332854, respectively, which indicates that, affected by different commodity transactions of each industry, there is still a difference in the sales volume, profits, etc. among listed companies. The minimum value, maximum value and average value of return on sales of the listed company reach - 54.75%, 21.29% and 3.72333%, respectively.

3.2 Correlation analysis

In respect of the correlation analysis, the degree of correlation among variables is investigated on the one hand, and the apparent multiple multicollinearity problems among variables are checked on the other hand. Pearson's Coefficient and Spearman's Coefficient are used to check the correlation among variables. The inspection results are shown in Table 2. The Pearson's Correlation Coefficient results and Spearman's Correlation Coefficient results are on the bottom left corner and on the top right corner, respectively.

Table 3 Correlation analysis result among variables

	ROE	Tenure	Degree	Salary	Top	Board	CR	Indep	TAT	Growth

ROE	1.0000	-0.0605***	0.0060	0.1607***	0.0124**	0.0206***	0.1779***	-0.0182***	0.3180***	0.3693***
Tenure	-0.0196***	1.0000	-0.0000	0.1273***	0.0404***	0.0189***	-0.0379***	-0.0054	-0.0173***	-0.0398***
Degree	0.0051	0.0207***	1.0000	0.1176***	0.0515***	0.0315***	-0.0314***	0.0021	-0.0341***	0.0262***
Salary	0.0951***	0.1110***	0.1096***	1.0000	0.1063***	0.0078	-0.0225***	0.0296***	0.0120**	0.0366***
Top	0.0398***	0.0316***	-0.0105*	0.1008***	1.0000	0.6006***	0.0272***	-0.2767***	0.0403***	-0.0127**
Board	0.0296***	0.0203***	0.0007	0.0098	0.6450***	1.0000	-0.0142**	-0.6027***	0.0290***	-0.0072
CR	0.1643***	-0.0494***	-0.0321***	-0.0162***	0.0419***	0.0030	1.0000	0.0318***	0.1169***	0.0020
TAT	0.2001***	-0.0178***	-0.0265***	0.0219***	0.0493***	0.0205***	0.1090***	-0.0328***	1.0000	0.2176***
Growth	0.2697***	-0.0420***	0.0330***	0.0224***	-0.0308***	-0.0181***	-0.0186***	0.0025	0.1462***	1.0000

Under normal conditions, the absolute value of the correlation coefficient among variables between 0.5 and 0.75 indicates the moderate correlation among variables; the absolute value of the relevant coefficients among variables between 0.25 and 0.5 indicates the low correlation among variables; the absolute value of the relevant coefficients among variables of less than 0.25 indicates very weak correlation or uncorrelation among variables.

Based on the correlation analysis results, the absolute value of correlation coefficients of variables used in the thesis doesn't surpass 0.75, which indicates that the multiple multicollinearity problems don't exist among variables, so, the empirical regression model in this thesis is reliable.

3.3 Regression analysis and hypothesis testing

Table 4 Main regression analysis results

	(2)	(4)	(6)	(8)	(2)	(4)	(6)	(8)
	TobinQ	TobinQ	TobinQ	TobinQ	ROA	ROA	ROA	ROA
Top	0.2540*				0.0040			
	(1.70)				(0.62)			
Tenure		0.0025***				0.0000**		
		(6.62)				(1.99)		
Degree			-0.0070				-0.0003	
			(-0.91)				(-0.95)	
Salary				0.0047**				0.0001
				(2.09)				(1.31)
Size	-0.6263***	-0.6284***	-0.6282***	-0.6289***	0.0174***	0.0174***	0.0174***	0.0174***
	(-19.78)	(-19.96)	(-19.95)	(-19.97)	(15.11)	(15.06)	(15.06)	(15.05)
Lev	0.4515***	0.4424***	0.4543***	0.4549***	-0.1782***	-0.1783***	-0.1782***	-0.1782***

	(4.69)	(4.62)	(4.73)	(4.74)	(-36.39)	(-36.34)	(-36.37)	(-36.37)
Board	-0.0626	-0.0681	-0.0619	-0.0723	0.0000	-0.0000	0.0001	-0.0002
	(-0.74)	(-0.80)	(-0.73)	(-0.86)	(0.01)	(-0.01)	(0.03)	(-0.05)
CR	-0.9031***	-0.8667***	-0.9099***	-0.9036***	0.0704***	0.0710***	0.0703***	0.0705***
	(-7.45)	(-7.10)	(-7.50)	(-7.45)	(9.90)	(9.91)	(9.88)	(9.90)
TAT	0.2152***	0.2170***	0.2139***	0.2138***	0.0399***	0.0399***	0.0399***	0.0399***
	(5.50)	(5.58)	(5.49)	(5.47)	(16.50)	(16.50)	(16.50)	(16.49)
Growth	0.1480***	0.1506***	0.1485***	0.1484***	0.0335***	0.0335***	0.0335***	0.0335***
	(7.06)	(7.20)	(7.09)	(7.08)	(26.38)	(26.42)	(26.40)	(26.40)
_cons	14.1111***	14.1538***	14.2046***	14.1821***	-0.3240***	-0.3232***	-0.3223***	-0.3231***
	(20.06)	(20.35)	(20.40)	(20.36)	(-11.99)	(-12.00)	(-11.97)	(-11.98)
Firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	No	Yes	Yes	Yes	No	Yes
N	35660	35660	Yes	35660	35660	35660	Yes	35660
R2	0.278	0.279	35660	0.278	0.255	0.255	35660	0.255
adj. R2	0.277	0.279	0.278	0.277	0.254	0.254	0.255	0.254
			0.277					

Note: *, ** and *** indicate the significance at 10%, 5% and 1% significant level (two-tailed test); The items within brackets refer to the t test values after cluster adjustment at enterprise level.

The results of regression model 1 show that the correlation coefficient between qualifications of female managers and company's financial performance R=0.0025. Although the correlation coefficient is relatively small, the correlation coefficient (1%) is significantly positive, which indicates that the qualifications of female managers generate certain positive influence on the company's financial performance. The research results show that the total asset turnover and operating profit growth rate generate positive influence on economic value added, while the stock concentration ratio generates the passive influence on economic value added. The hypothesis 1 is tenable.

The results of model 2 show that the correlation coefficient between academic degree of female executives in listed companies and enterprise's financial performance R=-0.007, so, there isn't apparent correlation. Such result is different from that of many theses, mainly because the coverage time of data selected by the author is longer, and the education isn't one of the decisive factors of female executives in listed companies at early stage, so, some misreading may occur in research.

The results in model 3 show that the financial performance would increase by 0.47% when the salary level of female manager increases by 1%, so, the salary level of the female manager generates a positive influence on the financial business of company. The hypothesis 3 is verified.

4. Conclusions

The empirical research results show that, from the perspective of state-owned enterprises and non-stated-owned enterprises, the tenure of female executives presents the positive correlation with the enterprise's financial performance, and the tenure of female executives in non-stated-owned enterprises generates greater influence on performance; In respect of the academic degree level, the academic degree level of female executives in state-owned enterprises and non-stated-owned enterprises is negatively proportional to

enterprise performance. The salary level of state-owned enterprises doesn't have principal association with the enterprise performance, while the salary level of female executives in non-state-owned enterprises would generate the positive influence on enterprise performance.

From the perspective of different industries, for the enterprises of manufacturing industry, there is an apparent positive correlation between the tenure of female executives and the financial performance of enterprises, but in the real estate industry and retail and wholesale industry, there isn't apparent relations between the tenure of female executives and the financial performance level of enterprise. Especially in the manufacturing industry and the retail and wholesale industry, the academic degree level of female executives working in those industries presents the negative correlativity with the company's financial performance. In respect of salary, the salary level of female executives in the manufacturing industry presents significant positive correlation with enterprise's financial performance. The higher salary level is corresponding to larger positive influence on financial performance.

References

[1] Ren T, Wang Z. Influence of female participation in top management team on enterprise performance: Empirical study based on China's private enterprises [J]. Nankai Business Review, 2010,13(05): 81-91.

[2] Wang MJ, Zhu RY. Research on influence of female directors in listed companies on company performance [J]. Statistics & Decision, 2010(05): 145-148.

[3] Xu JC, Wang SH. Research on relations between characteristics of core executives and company growth-- empirical research based on the data of the listed companies in Shanghai and Shenzhen [J]. Economic Theory and Business Management, 2010(06): 58-65.

[4] Ji J. Empirical research on relations between characteristics of executive background and enterprise performance [J]. The Theory and Practice of Finance and Economics, 2011,32(05): 54-59.

[5] Xu J. Empirical research on the influence of female executives on enterprise performance [D]. Nanjing: Nanjing Normal University, 2014.

[6] Ye SX. Research on correlation between background characteristics of female executives in listed companies and enterprise performance [D]. Shanghai: East China Jiaotong University, 2017.

[7] Xin X. Empirical research on relations between female participation in executive team and enterprise performance [D]. Harbin: Harbin Institute of Technology, 2016.

[8] Lin N. Empirical research on relations between female directors ratio in the Board of Directors and company performance [D]. Nanchang: Nanchang University, 2010.

[9] Hu Q, Zhou DM. Empirical research on influence of female directors on enterprise performance-- empirical data of China's listed companies based on stock right nature division [J]. Journal of Financial and Economic Theory, 2016(03): 78-87.

[10] Jia MQ and Du R. Influence of female directors and market competition intensity on performance of listed companies [J]. Enterprise Economy, 2018, 37(02): 125-131.

[11] Tidball ME. Women's colleges and women achievers revisited[J]. Signs: Journal of Women in Culture and Society, 1980, 5(3): 504-517.

[12] Ruderman MN, Ohlott PJ, Panzer K, et al. Benefits of multiple roles for managerial women[J]. Academy of Management Journal, 2002, 45(2): 369-386.

[13] Francoeur C, Labelle R, Sinclair-Desgagné B. Gender diversity in corporate governance and top management[J]. Journal of Business Ethics, 2008, 81(1): 83-95.

[14] Reinert RM, Weigert F, Winnefeld CH. Does female management influence firm performance? Evidence from Luxembourg banks[J]. Financial Markets and Portfolio Management, 2016, 30(2): 113-136.

[15] Reguera-Alvarado N, de Fuentes P, Laffarga J. Does board gender diversity influence financial performance? Evidence from Spain[J]. Journal of Business Ethics, 2017, 141(2): 337-350.