Promote or Inhibit?The Role of Female Executives in Tax Aggressiveness

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Abstract. Against the background of the macro-environment of China's increasingly perfect tax administration system reform, this paper tries to explore the influence mechanism of female executives on corporate tax aggressive behavior based on the current situation that the proportion of female executives in China has been increasing year by year. Moreover, this study introduces media coverage to explore the moderating effect between the female executives and tax aggressive behavior. This paper takes the A-share listed enterprises in Shanghai and Shenzhen of China between 2013 and 2020 as samples for empirical tests. The results of the study find that the female executives can significantly reduce corporate tax aggressiveness. And media coverage enhances the inhibitory effect of female executives on corporate tax aggressiveness. The results enrich the research on the influence factors of corporate tax aggressiveness from the perspective of gender of executives, and provide new thoughts on the rational use of media traffic for corporations.

Keywords: Female executives; Corporate tax aggressiveness; Media coverage.

1 Introduction

Based on the "advanced echelon theory" proposed by Hambrick and Mason [1] and the current macro background of China's increasingly perfect accounting system, more and more scholars have begun to explore management attributes such as the influence of executive incentives [2] and demographics academic characteristics [3] on corporate tax decisions. Since women are different from men in their inherent way of thinking in terms of work styles, management preferences, etc., women entering senior management can not only inject vitality into the company, but also alleviate the vision tunnel effect caused by homogeneous management [4]. Data reports from the "China Enterprise Tax Burden Report" show that from 2008 to 2017, the average total tax burden of Chinese enterprises was 25.89%. It can be seen from the data that tax expenditure has become a major item of corporate financial expenditure. In this case, companies often take advantage of preferential tax provisions or imperfections in tax laws to reduce their own tax expenditures, which is called corporate tax aggressive behavior. Although ex-

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isting research has addressed how female executives affect corporate tax aggressiveness, scholars have measured female executives differently. Accordingly, the impact of female executives on tax aggressiveness has yet to be clearly answered.

In addition, with the increase of China's media power, companies have to pay attention to the impact of media reports when making tax decisions. The media is a double-edged sword. If a company engages in proactive taxation decisions, media reports can help the company establish a positive corporate image and bring traffic and economic benefits to the company; but at the same time, the illegal behavior of the company will be reported by the media. Pushing a company into the limelight may even lead to bankruptcy. Media reports link the female executives to aggressive corporate taxation. In the capital market, the media is considered an institutional arrangement that effectively replaces insufficient legal protection and can play a corporate governance role by collecting and disclosing corporate governance issues [5].

Therefore, this paper develops an empirical model to analyze the relationship between female executives and tax aggressiveness and further analyzes the role of the media on both and the empirical results support the research hypotheses. The results support the research hypothesis. And it enriches the relevant theories on the relationship between the two and helps to reveal the impact mechanism of female executives on corporate tax aggressiveness.

2 Literature review and hypothesis development

2.1 The female executives and aggressive corporate taxation

From a gender perspective, female executives differ from male executives in aspects such as their management style. Specifically, they show more risk avoidance [6], high moral sense and social responsibility [7] and a cautious decision-making style [8]. Tax aggressiveness refers to the behavior of reducing tax expenditures due to corporate tax preferential provisions or imperfect tax laws [9][10]. Thus, tax aggressiveness represents a range of tax planning strategies that lies along the continuum between perfectly legal and illegal activities, throughout the gray area in between.

According to the higher echelon theory, the gender of executives will affect the corporate decision-making and behavior [1]. Higher levels of tax aggressive behavior increase the likelihood that firms will violate the law as well as be detected by tax authorities [11]. Management with high risk appetite tends to favor tax aggressive decisions. Thus, female executives will inhibit corporate tax aggressive behavior due to their risk aversion characteristics. Moreover, management is likely to engage in tax radicalization for personal benefit [12]. Female executives, due to their high ethical requirements and high sense of responsibility, have greater oversight of the firm and can, to some extent, restrain management from engaging in tax-aggressive activities for their own interests. Finally, the decision-making style of female executives is relatively cautious. They will consider the reputation of the firm, the risk of being investigated and punished and so on [13]. In this case, women tend to choose low-risk, high-stability decision-making options in the decision-making process. Therefore, female executives will give up aggressive corporate tax decisions. Based on the above discussion, hypothesis 1 is proposed.

Hypothesis 1: Holding other conditions unchanged, female executives discourage the corporate tax aggressiveness to some extent.

2.2 The impact of media coverage on the relationship between the female executives and corporate tax aggressiveness

As a carrier of information dissemination, media can help stakeholders know the true development status of enterprises and reduce information gaps [14]. Media can play the role of supervisor outside enterprises [5]. In addition, the media can also influence corporate decision-making by affecting the reputation of companies and managers [15]. In summary, media coverage can play a role in corporate external governance through information transmission, supervision and reputation mechanisms.

As it is difficult for external stakeholders to monitor companies in depth, media coverage reduces the information asymmetry between companies and stakeholders. With the increases of media attention, media information reporting can somewhat regulate and constrain the decision-making of female executives [14]. At this point, female executives are more inclined to be conservative in tax decision-making. Existing research suggests that in China, the media plays an important external governance role [16]. By collecting and disclosing corporate problems, media coverage increases the probability that corporate tax aggressiveness will be discovered by tax administration authorities [5]. And reputation, as an important intangible resource, helps enterprises create competitive advantages [17]. Under the attention of the media, the chances being disclosed and passed on are greatly increased. Once negative information related to corporate tax aggressiveness is reported by the media, both the company and management will face reputational losses, and may even affect the careers of management personnel [15]. As a result, media attention increases the potential costs of female executives' tax aggressiveness and constrains their motivations for tax aggressiveness. Based on the above discussion, hypothesis 2 is proposed.

Hypothesis 2: Holding other conditions constant, media coverage enhances the degree to which the female executives inhibits corporate tax aggressiveness.

3 Research methods

3.1 Sample selection and data sources

This study selects China's A-share listed firms in Shanghai and Shenzhen from 2013 to 2020 for the empirical study and screen out unsuitable companies such as the financial industry, ST and *ST firms, firms with negative pre-tax profits and so on. After the above screening steps, this study finally obtained 15,300 company-year samples. The data sources required in the research process are as follows: female executives, listed company executives and main financial data are from the CSMAR database; nominal income tax rates are obtained from the WIND database; media coverage data are from the CNRDS database.

3.2 Main variable measurement

Corporate Tax Aggressiveness. This study refers to Hu et al. [18], Jin and Lei [19]and other scholars to calculate the corporate tax radical (BTD) and (DDBTD) by formula (1) and formula (2):

$$BTD_{i,t} = \alpha TACC_{i,t} + \mu_i + \xi_{i,t} \tag{1}$$

$$DDBTD_i = \mu_i + \xi_{i,t} \tag{2}$$

Where $BTD_{i,t}$ is the difference between accounting book and actual tax liability; and $TACC_{i,t}$ = (net profit - net cash flow from operating activities) / total assets at the end of the previous year; The coefficient α is the portion of the difference between accounting book and actual tax liability that is affected by surplus management; and μ_i is the fixed constant portion of the firm's tax liability difference that does not vary over time; $\xi_{i,t}$ is the portion of the tax liability difference that varies over time. $DDBTD$ is used to represent corporate tax aggressiveness. The larger the value of $DDBTD$, the higher the corporate tax aggressiveness.

Female Executives. This study uses the proportion of the number of female excutives of supervisory boards and senior managers [20][21].

Media Coverage. This study draws on the research of Kölbel et al. and uses the natural logarithm of "1 + the number of media reports" to measure media coverage [22].

Control Variables. Drawing on previous literature, this study selected enterprise growth, enterprise size, financial leverage, return on total assets as the control variables of the study. This article also introduces dummy variables for year and industry to control time and industry. The definitions of the main variables are shown in Table 1.

Table 1. Definition table of main variables

variable name	variable symbol	Variable Definition
Corporate Tax Aggressiveness	TAX	Measured based on DDBTD
Female Executives	FEMA	Proportion of female directors and supervisors
Media Coverage	MEDI	Logarithm of "number of online news stories + 1" at the end of the previous year
Corporate Growth	GROW	Annual revenue growth rate
Company size	SIZE	Natural logarithm of total assets of the enterprise
Financial Leverage	LEV	Ratio of total liabilities at the end of the year to total assets at the end of the previous year
Return Total Assets	ROA	Ratio of net profit to total assets of the previous year
Year	Yea	Assign 1 if the firm belongs to the year, otherwise 0
Industry	Ind	Assign 1 if the firm is in the industry, otherwise 0

3.3 Empirical model setting

For hypothesis 1, the empirical equation model (3) was set up in this study:

$$TAX_{i,t} = \beta_0 + \beta_1 FEMA_{i,t} + \beta_2 GROW_{i,t} + \beta_3 SIZE_{i,t-1} + \beta_4 LEV_{i,t} + \beta_5 ROA_{i,t} + Yea + \mathrm{I}nd + \varepsilon_{i,t} \quad (3)$$

For hypothesis 2, the empirical equation model (4) was constructed:

$$TAX_{i,t} = \gamma_0 + \gamma_1 FEMA_{i,t} + \gamma_2 MEDI_{i,t} + \gamma_3 FEMA_{i,t} * MEDI_{i,t} + \gamma_4 GROW_{i,t} + \gamma_5 SIZE_{i,t-1} + \gamma_6 LEV_{i,t} + \gamma_7 ROA_{i,t} + \mathrm{Yea} + \mathrm{I}nd + \epsilon_{i,t} \quad (4)$$

4 Results

4.1 Descriptive statistics and correlation analysis

For the 15,300 samples involved in the study, this article conducts descriptive statistics and correlation analysis. The statistical results are presented in Table 2. The median and mean values of the main variable corporate tax aggressiveness are 0.549 and 0.555 respectively, and the median and mean values of the proportion of female executives are 0.143 and 0.161 respectively. Table 3 reports the correlation coefficients between variables. The maximum value of the correlation coefficient between variables is less than 0.700, which preliminarily shows that the model of this study does not have serious collinearity problems.

Table 2. Results of descriptive statistics

variant	N	upper quartile	average value	(statistics) standard deviation	minimum value	maxi-mum values
TAX	15,300	0.549	0.555	0.047	0.456	0.700
FEMA	15,300	0.143	0.161	0.163	0.000	0.667
MEDI	15,300	2.217	2.240	0.441	1.279	3.517
GROW	15,300	0.096	0.193	0.407	-0.211	3.088
SIZE	15,300	22.318	22.502	1.291	20.180	26.449
LEV	15,300	0.426	0.432	0.196	0.063	0.864
ROA	15,300	0.056	0.067	0.044	0.000	0.241
INTAN	15,300	0.034	0.048	0.054	0.000	0.360
PPE	15,300	0.182	0.216	0.164	0.002	0.701
MB	15,300	1.388	1.897	1.732	0.130	9.757
BIG10	15,300	1.000	0.504	0.500	0.000	1.000

Table 3. Results of correlation analysis

variant	A	B	C	D	E	F	G
A: TAX	1						
B: FEMA	-0.004	1					
C: MEDI	0.077**	-0.024	1				
D: GROW	-0.041**	0.013	0.087**	1			
E: SIZE	-0.023**	-0.129**	0.425**	0.056**	1		
F: LEV	-0.278**	-0.084**	0.211**	0.052**	0.542**	1	
G: ROA	0.698**	0.031**	0.108**	0.134**	-0.030**	-0.238**	1

Note: Correlation coefficients are Pearson's correlation coefficients; $^{+}$, *, ** are significant at the 10%, 5%, and 1% levels, respectively.

4.2 Regression analysis

Table 4 presents the regression results of the study. As shown in Model 1, the proportion of female executives has a significant negative impact on corporate tax aggressiveness ($\beta = -0.006$, $t = -3.011$, $p < 0.010$). In order to avoid multicollinearity problems caused by the product term, this article standardizes the female executives and media coverage, and based on this, constructs an interaction term between the female executives and media coverage in Model 2a. The hypothesis test results of the impact of media coverage on the relationship between female executives and corporate tax aggressiveness are shown in Model 2b. The coefficient of the interaction term between media coverage and female executives is significantly negative ($\beta = -0.015$, $t = -3.577$, $p < 0.010$), thus, media coverage intensifies the negative impact of female executives on corporate tax aggressiveness, and hypothesis 2 is supported.

Table 4. Regression results of direct and indirect effects

variant	TAX (DDBTD)		
	Model 1	Model 2a	Model 2b
FEMA	-0.006**	-0.006**	-0.006**
	(-3.011)	(-3.181)	(-3.381)
MEDI		0.003**	0.003**
		(3.538)	(3.461)
FEMA*MEDI			-0.015**
			(-3.577)
GROW	-0.012**	-0.012**	-0.012**
	(-14.072)	(-14.323)	(-14.279)
L.SIZE	0.002**	0.002**	0.001**
	(6.977)	(4.193)	(3.976)
LEV	-0.032**	-0.032***	-0.032**
	(-15.595)	(-15.710)	(-15.586)
ROA	0.735**	0.733***	0.733**
	(98.605)	(97.881)	(97.941)

Yea	Control	Control	Control
Ind	Control	Control	Control
Constant	0.449**	0.462**	0.464**
	(59.033)	(53.712)	(53.854)
R^2	0.562	0.562	0.563
F-value	442.292	429.717	417.900
N	11067	11067	11607

Note: Regression coefficients are unstandardized coefficients; values in parentheses are t-values, and^{+} ,* ,** are significant at the 10%, 5%, and 1% levels, respectively.

4.3 Robustness check

In order to test the robustness of the empirical results, we first replace the measurement of the explanatory variables and use the accounting book-to-actual tax liability difference (BTD) instead to estimate corporate tax aggressiveness in Table 5. For the sake of brief presentation, it is stated here that all the next robust-type test presentations will not list the regression results of the control variables[23]. The test shows that the proportion of female executives has a significant negative impact on tax aggressiveness ($\beta = -0.004$, $t = -4.466$, $p < 0.010$). The coefficient of the interaction term between media coverage and the proportion of female executives is significantly negative ($\beta = -0.008$, $t = -3.74$, $p < 0.010$). Therefore, the conclusions of this study are robust.

Table 5. Robustness test results (with replacement of explanatory variables)

variant	TAX (BTD)		
	Model 3	Model 4a	Model 4b
FEMA	-0.004**	-0.004**	-0.005**
	(-4.466)	(-4.779)	(-4.987)
MEDI		0.003**	0.003**
		(6.371)	(6.291)
FEMA*MEDI			-0.008**
			(-3.748)
Constant	-0.029**	-0.017**	- 0.016**
	(-7.660)	(-3.901)	(-3.703)
R^2	0.867	0.867	0.868
F-value	2255.427	2196.1577	2134.499
N	11067	11067	11607

Note: Regression coefficients are unstandardized coefficients; values in parentheses are t-values, and+ ,* ,** are significant at the 10%, 5%, and 1% levels, respectively.

5 Conclusions

According to the result, we draw the following conclusions: the propotion of female executives significantly inhibits corporate tax aggressiveness due to the fact that female executives have characteristics different from those of male executives; and further research finds that media reports strengthen the relationship between the propotion of female executives and the inhibition of corporate tax aggressiveness.

Our findings are of great significance to enterprises and the media[24]. Enterprises should fully consider the gender ratio of men and women when building their senior management teams to prevent problems such as homogenization, and at the same time, they should give full recognition to outstanding female managers to alleviate the plight of the "ceiling" of female employees in the workplace. Of course, the media should play an active role in monitoring the aggressive behavior of corporate tax. The media should report based on the facts of enterprises, so that the government and the public can truly understand the information of enterprises and urge them to develop healthily and stably.

This study also has limitations. The measurement of female executives only considers the dimension of gender, so the research conclusion cannot fully reflect the impact of female executives' traits on corporate tax aggressiveness[25]. In the future, we can combine other demographic characteristics of female executives, such as their education experience, years of service, political connections and other factors to build a more complete measurement index and research system for female executives.

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