

The Influence of Top Management Team Characteristics on Internal Control Quality——An Empirical Analysis Based on GEM Listed Companies

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Keywords: Internal control; Top management team characteristics; GEM

Abstract: In recent years, the issue of internal control construction has received much attention. Based on the upper echelon theory, the article takes the 2013-2017 GEM listed companies as research samples, and empirically analyzes the impact of top management team (hereinafter referred to as TMT) characteristics on internal control quality. It shows that the age, education level, tenure and industry experience of the TMT are significantly positively correlated with the quality of internal control. The research results provide certain reference for GEM listed companies to improve internal control construction and improve the quality of TMT.

Introduction

With the advent of the era of knowledge economy, GEM listed companies are receiving more and more attention from the government and the public. Compared with listed companies on the main board, the biggest characteristic of GEM listed companies is high growth and high risk. In addition, the management power of entrepreneurial enterprises is mostly concentrated in the hands of family members, and internal control issues are more prominent. In the "White Paper on Internal Control of China's Listed Companies in 2018", the level of internal control of the company on the GEM that is not included in the scope of enforcement is significantly lower than that of the listed company listed in the mandatory internal control regulations. The quality of internal control environment of listed companies on the GEM is generally different from that of listed companies on the main board. Compared with the main board and small and medium-sized board companies, the overall quality of internal control of the GEM listed companies is the lowest. (Wang Hailin et al., 2017)^[1]. Therefore, the GEM listed companies need to establish and improve the internal control system suitable for their own development, in order to ensure the long-term development of the company.

Internal control directly affects the business performance of the enterprise, controls the business risk of the enterprise, and high-quality internal control contributes to the long-term development of the enterprise. China's "Basic Standards for Internal Control of Enterprises" and its supporting guidelines and the "Internal Control - Integration Framework" issued by the COSO Committee emphasize the responsibility and role of corporate executives in internal control, clearly indicating the internal control of executives. The attitude will affect the control activities.

Theoretical analysis and research hypothesis

Upper echelon theory believes that demographic characteristics (including age, gender, education level, work experience, etc.) are the main factors affecting the ability of executives to acquire and analyze information^[2]. The psychological structure of the TMT's cognitive ability, perception and values determines the strategic decision process and the corresponding performance results, but the psychological structure of the top management team is difficult to measure. Upper echelon theory can effectively explain under different cognitive abilities and values. The different strategic choices made by business executives also include the relevant decisions of the internal control system (Guo Qun et al., 2018)^[3]. This paper attempts to study the impact of the TMT on the

internal control quality, in order to provide reference for the internal control construction and improvement of the GEM listed companies.

TMT age and internal control. Generally speaking, older and younger executives may have different attitudes toward organizational commitments, so age may be an influential factor for executives to establish internal control systems (Yu-Chen Lin et al., 2014)^[4]; Older executives in GEM-listed companies will avoid risk and avoid investing in high-risk projects compared to young executives (Liu Jin et al., 2016)^[5]. The lack of experience of younger executives tends to make short-term results, while the older executives of low-risk preference are more willing to make sound decisions based on their own experience. Internal control is a corporate management activity aimed at preventing risks. Low-risk decision-making by older executives is more conducive to internal control construction (Li Duansheng et al., 2017)^[6]. Therefore, the following hypothesis is proposed: Hypothesis 1: The age of the TMT is positively correlated with the quality of internal control.

TMT education level and internal control. The level of education reflects the cognitive and learning abilities of executives. The higher the average education level of the TMT, the more favorable it is to obtain access to and process information, and it will be more scientific and reasonable in decision-making, avoiding financial risks (Wang Xiaoyan, 2013)^[7]. Highly educated executives, with solid professional skills and rich knowledge reserves, pay more attention to risk management and control, can understand the internal control defects of the company itself (Guo Qun et al., 2018)^[3], which is conducive to the improvement of internal control quality. Based on this article, a second hypothesis is proposed: Hypothesis 2: The level of education in the TMT is positively related to the quality of internal control.

TMT tenure and internal control. Executives play a key role in identifying and improving internal control deficiencies. As the term increases, executives have accumulated a wealth of experience, are more familiar with the internal and external environment of the enterprise, and are more likely to discover internal control defects that may occur in the enterprise. (Fraser, 2006)^[8]; The soundness of internal control depends on a good communication platform. The longer the top management term, the better the communication within the team, the better the internal control defects and the quality of internal control (Chen Chen et al., 2018)^[9]. Based on this article, a third hypothesis is proposed: Hypothesis 3: The TMT's tenure is positively correlated with the quality of internal controls.

TMT industry experience and internal control. TMT's industry experience refers to the work experience of the team members in the industry, reflecting the team members' perception of specific industries, which is the human capital that other people outside the industry cannot obtain. For entrepreneurial enterprises, the industry uncertainty is more prominent. The longer the executives work in the same industry, the more they understand the problems and risks that may arise in the industry, the early prevention of risk measures or the resolution of problems that have already occurred based on past experience. Managers with rich industry experience have a strong sense of risk management and control in the industry, and are conducive to the smooth implementation of internal control. Based on this, the article proposes a fourth hypothesis: Hypothesis 4: The TMT industry experience is positively related to internal control.

Research design

Sample selection and data source. The article selects the panel data of the top 356 companies of the GEM listed companies for five years as the research object, excluding the companies with missing data in the study interval, and finally obtained the annual data of 1752 companies in 5 years. The relevant data of the executive team of the article are all from the Guotaian database.

Variable design. 1. Explained variable: The article draws on previous research and uses the internal control index issued by Shenzhen Dibo Enterprise Risk Management Technology Co., Ltd. as the explanatory variable to measure the quality of internal control. Referring to the existing literature practice, since the Dibo internal control index ranges from 0 to 1000 and the interval span is too large, to ensure the value range, the index is divided by 100 as a measure of internal control, then Variables range from 0-10. 2.Explanatory variables: (1) Age: sample year - manager year of

birth; (2) Edu: 1 = secondary school and technical secondary school, 2 = junior college, 3 = undergraduate, 4 = master's degree, 5 = doctor postgraduate; (3) Tenure: ample year - first time in the company as manager year; (4) Exp-Industry: year of sample - year of work in the industry for the first time. 3. Control variable: Referring to the practices of Chi Guohua^[10], the article selects the company size (natural logarithm of total assets at the end of the year), asset-liability ratio (year-end debt book value/asset book value), profitability (net profit/asset average balance), company growth [(current operating income - previous operating income) / previous operating income] and time to market [sample year - the year of listing (less than one year)] as control variables.

Model establishment.

$$IC_{i,t} = \beta_1 + \beta_2 Age_{i,t} + \beta_3 controlvariables + \varepsilon_{i,t} \quad (1)$$

$$IC_{i,t} = \beta_1 + \beta_2 Edu_{i,t} + \beta_3 controlvariables + \varepsilon_{i,t} \quad (2)$$

$$IC_{i,t} = \beta_1 + \beta_2 Tenure_{i,t} + \beta_3 controlvariables + \varepsilon_{i,t} \quad (3)$$

$$IC_{i,t} = \beta_1 + \beta_2 Exp-Industry_{i,t} + \beta_3 controlvariables + \varepsilon_{i,t} \quad (4)$$

Empirical Research

Descriptive statistics. The minimum internal control is 2.19, the maximum is 7.85, and the average is 6.51. It can be seen that the internal control quality of the GEM listed companies is generally good, but the gap between the internal control indicators of the GEM listed companies is still large. The average age of the TMT is 34.67, the highest value is 60, and the average is 46.82. This shows that the TMT has a large age difference. The average average education level of the TMT is 3.3, indicating that the TMT members are mostly undergraduates. The minimum duration of the TMT's tenure is 1.25, with a maximum of 19 and an average of 7.15, indicating that the TMT has changed frequently. The minimum industry experience in the TMT was 2.83, with a maximum of 37.33 and an average of 7.15, indicating a high level of change in the executive industry. The relevant data for descriptive statistics of the main variables are shown in Table 1.

Correlation analysis. After correlation analysis, it is concluded that the TMT is positively correlated with the internal control at the 1% significance level, which indicates that the higher the average term of the top management, the more favorable the internal control construction, and the hypothesis 3 is preliminarily verified. In addition, the correlation coefficient between the variables did not exceed 0.7, indicating that there is no multi-collinearity between the variables. The specific data is shown in Table 2.

Regression analysis. The regression results from Model 1 to Model 4 show that the executive team's age, education level, tenure, and industry experience are all significantly positively correlated with internal controls. The age of the executive team and the quality of internal control are significantly positively correlated at the level of 5%. This shows that the older the executives, the stronger the risk awareness and the stronger management philosophy, so they will make sound decisions. Contribute to the execution of internal control activities, hypothesis 1 is verified. The education level of the TMT is significantly positively correlated with the internal control level of 10%, indicating that the higher the education level of the TMT, the stronger their cognitive ability, learning ability and problem-solving ability, thus contributing to the quality of internal control. Hypothesis 2 is verified. The term of the TMT is significantly positively correlated with the internal control at the 1% level, indicating that the longer the TMT, the more attention is paid to the construction of internal control. As the term increases, the professional experience of the executives is accumulated, which can effectively identify the operation of the enterprise. The risks appearing and the related control measures are proposed. In addition, the construction of internal control needs a good communication platform. The longer the TMT is, the more favorable the communication is to the internal members of the team, thus ensuring the effectiveness of internal control. Hypothesis 3 is verified. The industry experience of the TMT and the quality of internal control are significantly positively correlated at the 5% level, indicating that the executives have the ability to respond to the crisis that may arise in the industry based on relevant management experience in the

industry, and have good control over the risks of the industry. In order to better control the risk of the company, the quality of internal control will also be improved, and Hypothesis 4 is verified. The regression results are shown in Table 3.

Table 1 Descriptive statistics of variables

Variabel	Obs	Mean	Std.Dev	Min	Max
IC	1752	6.510941	0.6329131	2.1943	7.8507
Age	1752	46.82496	3.573712	34.66667	60
Edu	1752	3.308915	0.5144595	1.375	5.5
Tenure	1752	7.151305	2.593689	1.25	19
Exp-Industry	1752	17.34182	4.678228	2.833333	37.33333
Size	1752	21.39124	0.7903556	19.55501	24.54398
Roe	1752	0.0491917	0.0524158	-0.463875	0.372519
Lev	1752	0.3004333	0.1663741	0.011054	0.886428
Growth	1752	0.2815274	0.6553328	-0.990014	16.22603
Cage	1752	5.307648	1.679176	2	9

Table 2 Correlation analysis of variables

	IC	Age	Edu	Tenure	ExpIndustry
IC	1.0000				
Age	0.0149	1.0000			
Edu	0.0335	-0.0375	1.0000		
Tenure	0.0656**	0.3816**	0.0759***	1.0000	
Exp-Industry	0.0334	0.6148**	0.2058***	0.4422**	1.0000
Size	0.0209	0.0503	0.2170***	0.0140	-0.0331
Roe	0.2771**	-0.0278	0.0446*	0.0825**	0.0317
Lev	-0.0170	-0.0484	0.0684***	-0.0375**	-0.0877***
Growth	0.1424**	-0.0651**	0.0341	-0.0343	-0.0644***
Cage	-0.1312**	0.2093**	0.02030**	0.2061**	0.0616***

"***", "**", "*" indicate the significance level at 1%, 5%, and 10% (both sides); N = 1752.

Table 3 Regression results of variables

	(1)	(2)	(3)	(4)
VARIABLES	IC	IC	IC	IC
Constant	5.730***	6.171***	5.964***	6.080***
	(0.500)	(0.465)	(0.469)	(0.469)
Age	0.0106**			
	(0.00413)			
Edu		0.0485*		
		(0.0288)		
Tenure			0.0196**	
			(0.00571)	
ExpIndustry				0.00609*
				(0.00309)
Size	0.0149	0.00965	0.0220	0.0162
	(0.0235)	(0.0237)	(0.0235)	(0.0235)
Roe	3.177***	3.146***	3.046***	3.143***
	(0.295)	(0.296)	(0.297)	(0.296)
Lev	0.208**	0.191*	0.190*	0.199*
	(0.103)	(0.103)	(0.103)	(0.103)
Growth	0.0977**	0.0944**	0.0974**	0.0972**
	(0.0224)	(0.0224)	(0.0224)	(0.0225)
Cage	-0.0532**	-0.0500**	-0.0562**	-0.0497**
	(0.00995)	(0.00983)	(0.0100)	(0.00979)
F	34.55	33.85	35.52	34.04
R-squared	0.106	0.104	0.109	0.105

Conclusion and suggestion

The article uses the data of the GEM listed companies from 2013 to 2017 to analyze the impact of the characteristics of the TMT on the quality of internal control. The research results show that the age, education level, tenure and industry experience of the TMT are significantly correlated with the quality of internal control.

The empirical results of the article are not exactly the same as the impact of the TMT characteristics of the listed company on internal control. This is mainly because the GEM listed companies are still in the initial stage, and there is still a big difference with the listed companies on the Main Board. When the GEM listed companies are conducting corporate governance, they cannot copy the governance model of the listed companies on the main board, according to the company's own characteristics. Develop a reasonable system to improve internal control and improve the company's business performance through high-quality internal control.

When improving the quality of internal control, listed companies on the GEM must first consolidate the internal control environment, and control the environment as the basis for the implementation of internal control, directly affecting the implementation of internal control. Second, enterprises should strengthen the corporate governance structure, strengthen supervision and governance mechanisms, and strengthen supervision and incentives for TMT. Finally, improve the

TMT selection system, improve the overall quality of TMT, hire executives with rich industry experience, improve the education level of TMT, and then develop a set of internal control system suitable for the company's own development.

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