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Examination of the Relationship Between Executive Ownership and Firm Performance Based on Evidence from Chinese Publicly Listed Companies

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Abstract: Nowadays, increasing attention has been placed on monitoring managers on their contribution to firm performance. It is important to design the correct compensation contract to motivate the best behaviors. This study examines the impact of executive ownership on firm performance through OLS and fixed effects model, based on a sample of Chinese listed companies from 2015 to 2018. The time period is selected to avoid the disruptions from the COVID-19 pandemic. The results suggest that higher executive ownership can improve market performance such as stock return but does not have significant influences on accounting performance such as return on equity. This is likely due to the fact hat higher executive ownership is a positive signal to the market that the managers believe their companies' stocks are undervalued and thus boost market confidence.

Keywords: Executive Compensation, Corporate Governance, Firm Performance, China

1. Introduction

In modern corporations, agency problem is one of the major concerns for the shareholders, who do not have full control to encourage the best behaviors other managers to maximize shareholder value. Executive compensation contracts are thus designed to connect executive earnings to corporate performance and thus aim to align the interests of shareholders and managers. Based on a sample of publicly traded Chinese enterprises, this study investigates the effects of Exec salary on firm performance.

Previous studies do not have a consensus on the impact. Some studies suggest that executive compensation is positively related to firm performance [1] while others argued no such relationship [2]. It is thus meaningful to examine the issue again with a recent dataset. This study collects data from CSMAR and uses both OLS and fixed effects model to estimate the relationship.

The remaining portions of this study are structured as follows. The second portion examines relevant literature on executive compensation and agency issues. The third section illustrates empirical methodologies used and outlines data collection strategy. Results of the quantitative study are presented and their consequences are discussed in the fourth part. The research comes to an end in the last segment.

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2. Literature Review

Agency problem is one of the prevailing challenges in modern corporate governance. Managers and shareholders often have different interests and priorities in managing the companies [3]. While shareholders want to maximize firm value and thus their return, managers often have alternative motives such as shirking or empire building [4]. Furthermore, managers tend to use cash flow from the corporations less efficiently than the shareholders require and thus fail to maximize shareholder value, which is their core responsibility [5]. Thus, the interests of shareholders and managers are misaligned and create problems.

One common solution to address agency problems in modern corporations is to design motivating executive compensation contracts. A properly designed executive compensation contract can properly encourage suitable and complying behaviors from the managers and thus can maximize shareholder value at an acceptable cost [6]. The common forms of goal-motivating executive compensation contracts include salary by tier, bonus, stock options, and other compensation or perks associated with firm performance. The intuition is that managers would earn more for better firm performance. The most prominent form of interesting-aligning executive compensation contract is equity ownership through stock grant or options. Here, in this study, executive ownership is sued as proxy for such executive ownership contract.

Current empirical evidence suggests that higher executive compensation can motivate managerial performance to some extent but the improvement is not guaranteed. Firm performance is mainly evaluated from two perspectives: the market performance and accounting performance. Market performance preliminary refers to the stock market performance such as annualized stock return and volatility while accounting performance is financial statement measures such as profitability and liquidity. This section reviews empirical evidence on both perspectives.

For instance, one study argues that executive ownership is positively related to firm profitability but the relationship is not necessarily always linear [7]. At some range, higher executive ownership can improve managerial performance and thus improve profitability. A later study further illustrated the curvilinear relationship between nominal amount of executive ownership and financial performance of the firm. Specifically, at low ownership (less than 30%), executive ownership is negatively related to firm performance. As such ownership, it is possible that executives' wealth is not majorly tied to firm performance and thus it is hard to motivate the best actions out of them purely through higher ownership. At higher ownership (more than 50%), the relationship between quite significant since firm equity becomes a significant portion of the executives' wealth, who are more likely to comply with the interests of the shareholders to maximize firm value. On the other hand, stock market performance is highly related to executive ownership [8]. The higher the executive ownership, the higher return achieved by the stock. It is theorized that executives, by holding stocks of their own company, send a positive signal to the market to let investors believe their companies are undervalued at the moment [9].

Nonetheless, not all studies suggest that higher executive ownership can be effective at solving the agency issue inside modern corporations. Some studies argue that executive ownership is not significantly related to firm performance [4]. It is also possible that management might fabricate financial statements to mislead shareholders and earn incentive compensation [8]. This creates further corporate governance problems for the companies.

3. Methodology

The major intention of this study is to examine the impacts of executive compensation on firm performance. Specifically, this study aims to use executive ownership as a proxy for executive compensation contract to examine whether higher ownership (compensation) can lead to more

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desirable firm performance, both market and accounting measures. To achieve the objective, some data needs to be collected to conduct quantitative analysis. Table 1 below presents an overview of the variables needed for later analysis.

Table 1: List of variables.

Independent Variable	**Description**
Executive Ownership	Number of Shares Owned by Executives / Shares Outstanding
Stock Return	Annualized Stock Returns of the Most Recent 100 Weeks
Tobin's Q	Market Value of the Firm / Book Value of the Firm
Profitability	Return on Equity
Size	Total Assets
Leverage	BV of Long-Term Debt / BV of Assets
Liquidity	Quick Ratio
Growth	YoY Earnings Growth

In this study, three variables—annualized stock return, Tobin's Q, and return on equity—are used to assess how well the firm is performing. Tobin's Q is a widely used measure for relative firm value (market to book value). It is served as an alternative measure of market performance. Typically, a Tobin's Q value over 1 would indicate overvaluation, and vice versa. The independent variables include executive ownership, size, leverage, liquidity, and growth. The first one serves as the main variable of interest and the remaining four are control variables.

The dataset contains major publicly-listed Chinese companies from 2015 to 2018. The time period is selected to avoid the impacts of the COVID-19 pandemic, which has considerable disruption to the financial market and might distort common patterns exist in incentive compensation. To remove the impacts of the outliners, all variables are trimmed for the top and bottom 0.5%. In total, there are 2,654 observations in the dataset from 748 unique companies. The dataset is retrieved from China Stock Market & Accounting Research (CSMAR), which is a well-known public financial database for the Chinese market.

The common method for casual inference is the ordinary least squares (OLS) method, which provides a simple and intuitive way to conduct casual inference on linearly dependent variables. It is widely used in existing studies as quoted above. The linear regression equation is described in equation (1) below.

$$Performance_{i,t} = \beta_0 + \beta_1 * ExecutiveOwnership_{i,t} + \beta_2 * Size_{i,t} + \beta_3 * Leverage_{i,t} + \beta_4 * Liquidity_{i,t} + \beta_5 * Growth_{i,t} + u_{i,t} \quad (1)$$

The dependent variable is corporate governance, which is measured by annualized stock return, ROE, and Tobin's Q respectively. The independent variables include executive ownership and control variables such as size (logarithmic of total assets), leverage (debt-to-assets ratio), and liquidity (quick ratio).

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In addition to OLS, fixed effects are also implemented since the dataset are panel in form. Within-industry temporal effects and company fixed effects are also controlled for in this study. The regression formula is shown below.

$$Performance_{i,t} - \overline{CorporatePerformance_i} = \beta * \left(ExecutiveOwnership_{i,t} - \overline{ExecutiveOwnership_i}\right) + c * \left(Control_{i,t} - \overline{Control_i}\right) + \left(\alpha_{i,t} - \overline{\alpha_i}\right) + \left(u_{i,t} - \overline{u_i}\right) \quad (2)$$

Compared to OLS, the fixed effects model is better at controlling time-varying heterogeneity in the dataset and tends to achieve better results in panel dataset. This study will fit both models and assess whether their results are consistent.

There shouldn't be any ethical issues because all of the data used in this study came from open sources.

4. Results

The first step in the quantitative analysis is to present some summary statistics for the variables presented in table 1. The summary statistics are shown in table 2.

Table 2: Descriptive statistics.

	(1)	(2)	(3)	(4)	(5)
VARIABLES	N	mean	sd	min	max
Executive Ownership	2,654	11.04	14.63	0.000394	60.35
Return	2,654	24.97	34.57	-45.70	118.7
Tobin's Q	2,654	2.682	1.398	0.939	9.213
ROE	2,654	7.859	6.183	-15.76	28.09
Assets	2,654	4,958	7,881	482.0	73,749
Leverage	2,654	37.32	16.67	7.896	75.95
Liquidity	2,654	2.344	1.546	0.528	10.43
Growth	2,654	27.54	102.1	-502.7	541.3

The average executive ownership in the dataset is 11.04% but the variation is quite significant across different companies as the standard deviation is 14.63%, which is larger than the mean. Some companies might have very minimal ownership (less than 0.1%) while the highest ownership is above 30%. This is the trend for nearly all variables.

The average stock return for the Chinese public companies in the time period is 24.97%, which is quite considerable. Nonetheless, performance also varies greatly and a significant portion of the companies do have negative returns. Average Tobin's Q is 2.682 and this shows that Chinese listed companies, on average, are overvalued. Lastly, ROE is 7.859 on average but profitability also has a wide range, from -15.76% to 28.09%. There is no considerable outliner after removing the top and bottom 0.5% from all variables.

The last four variables are control variables. Average asset is 4.958 billion RMB and average leverage is 3.732%. Average liquidity is 2.344 and average growth is 27.54%. Overall, Chinese

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companies are showing good performance on average, but there is a huge performance difference across different companies.

Table 3: Correlation matrix.

	(1)							
	Return	ROE	Tobin's Q	Executive Ownership	Assets	Leverage	Liquidity	Growth
Return	1							
ROE	0.143***	1						
Tobin's Q	0.569***	0.176***	1					
Executive Ownership	0.089***	-0.0003	0.143***	1				
Assets	-0.089***	0.122***	-0.274***	-0.173***	1			
Leverage	-0.049*	0.0006	-0.352***	-0.157***	0.333***	1		
Liquidity	0.036	0.0137	0.253***	0.140***	-0.190***	-0.739***	1	
Growth	0.140***	0.317***	0.0501**	0.0177	0.0230	0.0437*	-0.060**	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

This study calculates a correlation matrix in addition to summary statistics to evaluate the pair-wise movement relationship between the variables. Table 3 presents the outcomes.

From the table, it is clear to see that executive ownership is correlated with both return and Tobin's Q but show very weak correlation with ROE. This demonstrates that Corporate executive ownership and market performance have a strong and meaningful link, but not as strongly for accounting performance measures. Nonetheless, correlation does not necessarily imply causation, as the OLS and fixed effects models will later address.

Table 4 presents the OLS results based on equation (1).

Table 4: OLS regression results.

	(1)	(2)	(3)
VARIABLES	Return	ROE	Tobin's Q
Executive Ownership	0.17***	0.00	0.01***
	(0.05)	(0.01)	(0.00)
Assets	-0.00***	0.00***	-0.00***

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Table 4: (continued).

	(0.00)	(0.00)	(0.00)
Leverage	-0.02	-0.01	-0.02***
	(0.06)	(0.01)	(0.00)
Liquidity	0.31	0.13	0.00
	(0.61)	(0.10)	(0.03)
Growth	0.05***	0.02***	0.00***
	(0.01)	(0.00)	(0.00)
Constant	23.37***	6.90***	3.61***
	(3.47)	(0.60)	(0.14)
Observations	2,654	2,654	2,654
R-squared	0.03	0.12	0.16

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The effects of executive ownership on annualized stock return are estimated in column (1). A coefficient estimate of 0.17 indicates that executive is significant at 5% and that for every 1% increase in executive ownership, stock return can increase by 0.17%, holding everything else constant. This would translate every 1 standard deviation increases in executive ownership will lead to a 2.49% in annualized stock return. The result is quite economically important and can significantly affects return of the company. Similarly, every 1% increase in executive ownership can increase Tobin's Q by 0.01. It is significant at 5%. The impact of executive ownership on Tobin's Q seems to be less than the impacts on the stock market but it is nevertheless still positive and significant. For the control variables, size is negatively related to market performance while growth is positively related to it. Large companies tend to have valuation discounts while high-growth companies are favored by the market, which satisfy the intuition.

Return and Tobin's Q are both marketing performance and they are positively related to executive ownership. However, the accounting performance does not show the same relationship. Column (2) examines the relationship between ROE and executive ownership. The coefficient estimate is not significant at 5% and thus there is no meaningful relationship between the two variables.

In addition to OLS, this study also estimates the causal relationship by the fixed effects model according to equation (2). The results are shown in table 5.

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Table 5: OLS regression results.

	(1)	(2)	(3)
VARIABLES	Return	ROE	Tobin's Q
Executive Ownership	0.17***	0.00	0.01***
	(0.05)	(0.01)	(0.00)
Assets	-0.00***	0.00***	-0.00***
	(0.00)	(0.00)	(0.00)
Leverage	-0.02	-0.01	-0.02***
	(0.06)	(0.01)	(0.00)
Liquidity	0.31	0.13	0.00
	(0.61)	(0.10)	(0.03)
Growth	0.05***	0.02***	0.00***
	(0.01)	(0.00)	(0.00)
Constant	23.37***	6.90***	3.61***
	(3.47)	(0.60)	(0.14)
Observations	2,654	2,654	2,654
R-squared	0.03	0.12	0.16

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The results from the fixed effects model are largely consistent with the OLS results. The market performance, both annualized stock return and Tobin's Q, are positively related to executive ownership. By the model, every 1% increment in executive ownership can increase annualized return by 0.44% and Tobin's Q by 0.01. The signs are the same with the OLS results. Meanwhile, the impacts of executive ownership on accounting performance (ROE) remain insignificant from the fixed effects model.

5. Conclusion

To sum up, this study examines the impact of executive compensation on firm performance from a sample of Chinese publicly listed companies. Executive compensation is proxied by executive ownership since equity incentive is a major part of executive compensation contracts to motivate the best interests of the managers. The results show that higher executive ownership can significantly improve market performance such as stock return and Tobin's Q but does not have significant impact on accounting performance such as profitability (ROE). The results are consistent under both OLS and fixed effects model.

This study is significant since it extends previous study by performing analysis of executive compensation based on a recent sample of Chinese listed companies. The results compliment previous study by substantiating the signifcant impact on market performance and non-significant impact on accounting performance, which is consistent with previous studies [2, 10].

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This study also has several limitations. First, executive ownership might not be a perfect proxy for executive compensation contracts for firms in China. Different companies might use equity incentive differently and the impacts of executive ownership might not be representative of compensation. Second, the data only contains 784 listed Chinese companies from 2015 to 2018. It is a sample of large Chinese firms. The smaller firms might behave much differently. For future studies, more detailed analysis on executive compensation components and more elaborated models can be used to derive a more complete picture of the issue.

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