Executive Compensation Concentration and Institutional Ownership Power

by

WEI LI
Bachelor of Finance, Nanjing University, 2012

And

TINGTING GUO
Bachelor of Actuarial science, Southwestern University of Finance and Economics, 2014

PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE IN FINANCE

In the Master of Science in Finance Program
of the
faculty
of
Business Administration

SIMON FRASER UNIVERSITY
(Fall) 2015

Approval

Name: **Wei Li and Tingting Guo**

Degree: **Master of Science in Finance**

Title of Project: **Executive Compensation Concentration and Institutional Ownership Power**

Supervisory Committee:

_____

Dr. Amir Rubin
Associate Professor
Senior Supervisor

_____

Dr. Alexander Vedrashko
Associate Professor
Second Reader

Date Approved: _____

Acknowledgements

First and foremost, we would like to give our thanks to our senior supervisor, Dr. Amir Rubin, who offered us invaluable advices in every step of completing this project. Without his encouragement and patience, we would not have accomplished this paper successfully.

We shall also extend our sincere gratitude to Dr. Alexander Vedrashko for his support to our project.

Last but not least, we want to give our appreciation to the faculty at the Beedie Business School who led us to a path towards success in last 16 months.

Abstract

In this paper, we examine whether institutional shareholders prefer concentrated or dispersed executive compensation structure. To address this question, we study the relationship between executive compensation concentration and institutional ownership power because institutional investors can influence executive compensation more when they have more power. We measure institutional ownership power using institutional ownership level and institutional ownership concentration. We find a significant negative relationship between executive compensation concentration and institutional ownership power.

Keywords: executive compensation concentration; institutional ownership level; institutional ownership concentration

Table of Contents

1.Introduction

The percentage of stock held by institutional investors exhibits a significant increase in the U.S market since the 1950s. In 1950s and 1980s, institutional investors were estimated to hold 8% and 33% of total shares, respectively (Taylor, 1990), but this level has increased to an estimated 75% in 2012. This increase in institutional ownership signifies an increased active influence on firm management decision by institutional investors (Brickley, Lease and Smith, 1998). Some prior studies, such as that of McConnell and Servaes (1990), indicate a positive relationship between firm value and ownership held by institutional investors. McConnell and Servaes (1990) suggest that institutional investors can effectively monitor managers and therefore, there is a significant positive correlation between the percentage of shares held by institutional investors and firm performance.

There are also studies suggesting that executive compensation concentration significantly correlates with firm performance. Tournament theory asserts that it is beneficial to set compensation policy based on relative ranking within firm. High concentration compensation policy can be used as an incentive to encourage effectivity and efficiency amongst firm managers resulting in improved firm performance (Lazear & Rosen, 1981). Conyon, Peck and Sandler (2001) also argue that compensation gap in different position levels promotes competition within a firm and managers have to improve their productivity for better firm achievement and thus be promoted to a high level position. Contrary to the tournament theory, equity fairness theory asserts that large compensation gap breeds disharmonious and non-cooperative working environment, negatively impacting firms' performance (Wade, O'Reilly and Pollock, 2006).

Multiple studies have analyzed the relationship between institutional ownership and firm performance, and the relationship between executive compensation concentration and firm performance. However, few studies have investigated the relationship between institutional ownership structure and executive compensation

concentration. We assume that a high institutional ownership concentration within a firm or a high institutional ownership level indicate that the institution owners have the power to influence compensation structure in the firm. In order to maximize the firm's profits, institutions would provide the executives with the optimal incentives to improve the firm's performance. In our paper, we will examine if institutional ownership power has a relation with executive compensation concentration and if yes, how. Our two hypotheses are that (1) according to the tournament theory, firms have a higher executive compensation concentration if institutions have more power; (2) according to the fairness theory, firms have a lower executive compensation concentration if institutions have more power;

We measure the power of institutional investor in two aspects: institutional ownership level and concentration of institutional ownership. The first is the institutional ownership level, which is the total share percentage held by institutional investor within a firm. The second is institutional ownership concentration, which describes the concentrated extent of these shares. In doing so, we quantify executive compensation concentration using compensation HHI from 2247 firms for 22 years from 1992 to 2014. Compensation HHI is Herfindahl-Hirschman Index of concentration generated from the total compensation of the top 5 executives. We compute institutional ownership level as the sum of total percentage institutional holdings reported on 13F schedule. We determine Institutional ownership concentration using Institutional HHI, which is Herfindahl-Hirschman Index of concentration reported in Thomson-Reuters database.

We begin with correlation analysis and find that there is a significantly negative relationship between executive compensation concentration and institutional ownership concentration and a significantly positive relationship between executive compensation concentration and institutional ownership level. Then, we proceed the t-tests across ten different industries. The result demonstrates that six out of ten

industries show significant negative relation between institutional ownership concentration and executive compensation concentration, and nine out of ten industries show significant positive relation between institutional ownership level and executive compensation concentration. Finally, we do the regression analysis of executive compensation concentration regressed on institutional ownership concentration and institutional ownership level. Neither of the two variables are significant if we control for firm fixed effects. However, in the high institutional ownership concentration subsample, we discover that there is significantly negative relationship between institutional ownership level and executive compensation concentration. This regression result supports our second hypothesis that firms in which institutions have more power have a lower executive compensation concentration.

2.Literature review and our hypotheses

Prior studies suggest a significant relationship between executive compensation concentration and firm performance. Tournament theory argues that reward should be based on relative ranking of individuals instead of absolute output level. Lazer and Rosen (1981) argue that large pay gap can incentivize managers exert greater effort and thus improves the performance of a firm. In addition, these studies also suggest a significant positive relationship between institutional ownership and firm performance. McConnell and Servaes (1990) point out that a positive relationship between institutional ownership and firm value as institutional investors can effectively monitor managers' performance. They also propose a significant positive relation between the percentage of shares held by institutional investors and firm performance. Beatty and Zajac (1994) also argue that institutional investors want to provide large pay gap to firm manager as a strong incentive to increase firm value, which is consistent with the tournament theory. Therefore, institutions with high ownership and high concentration have more power to influence the management decision and they prefer to use high concentration compensation policy as an

incentive to improve firm performance. Based on the theory and reasoning, we develop our first hypotheses.

H1: Firms have a higher executive compensation concentration if institutions have more power.

Some prior studies also examine the relationship between firm performance and institutional ownership concentration. Alireza (2011) argues that institutional ownership concentration has a negative effect on firm performance. He explains that when an institutional investor owns the majority of a firm's share, the managers would only try to satisfy the institutional block shareholder and this would harm the firm performance as a whole. Along with the positive relationship between executive compensation concentration and firm performance, there could be a negative relationship between executive compensation concentration and institutional ownership concentration. In addition, Wade, O'Reilly and Pollock (2006) suggest that a large pay gap has a negative effect on firm performance as it can lead to a disharmonious firm environment and sub-par employee productivity. Therefore, the block institutional investors would prefer not to use concentrated compensation policy. Therefore, because institutions with high ownership level and high compensation concentration have more power to influence the management decision, they prefer to have low concentration compensation policy.

H2: Firms have a lower executive compensation concentration if institutions have more power.

3.Descriptive Statistics

3.1 Data source

Our executive compensation data is derived from Execucomp of WRDS, which covers 2247 firms from 1992 to 2014. We obtain data of ticker, sic, tdc1 and year.

We use ticker as identification number of a firm and we use tdc1 to calculate top 5 executive compensation concentration. tdc1 is total direct compensation, which includes salary, bonus, restricted stock and long-term incentive. SIC is standard industrial classification code, which is the identification code of the industry type of a firm. We measure executive compensation concentration using compensation HHI, which is calculated from the top five executive total compensation. We use the following formula to calculate compensation HHI.

$$HHI_i = \sum \{\frac{each\ executive's\ total\ compensation}{Total\ compensation\ of\ all\ executives}\}^2$$

Next, We obtain institutional information from Thomson Reuters of WRDS. Institutional information includes instown_perc, instown_hhi shrout, prc. , SIC, year and ticker. Instown_perc is the sum of total percentage institutional holdings reported on 13F schedule. We measure institutional ownership level using instown_perc, which we directly get from WRDS. Instown_hhi is Herfindahl-Hirschman Index of concentration. We measure institutional ownership concentration using instown_hhi, which we can also directly get from WRDS. Shrout is the share outstanding each year. We calculate market value using prc times shrout and then divided it by 1000 to get the value in millions. Prc is the price per share each year. SIC is standard industry classification， which is used to distinguish each industry. We use ticker as identification number of a firm. Market value is our control variable. We obtained other control variable information from CRSP of WRDS such as ticker and ret. ret is the holding period return and was used to calculate the annual return of a firm.

After acquiring all the required data, we use ticker as firm identification number to consolidate the compensation, institutional, and control variable data. We then set standards to filter the data. For executive compensation, we eliminate firms whose total number of executives is less than five and we only keep the first five executive compensation in the rest firms. For institutional ownership, we drop firms whose market value was less than 50 million USD and institutional ownership percentage

higher than 1. For annual return, we exclude firms with less than 12 month of annual returns. After filtering the data, we construct our final data sample of 2247 firms from 1992 to 2014.

3.2 Sample and variable

The sample we obtained includes 2247 firm for 22 years during the period 1992 to 2014. The total number of firm-year observations in our sample is 24257. We measure executive compensation concentration using compensation HHI. As we can see from Table 1; the mean and standard deviation of executive compensation concentration are 0.271 and 0.065 respectively. The mean and standard deviation of institutional ownership level are 0.670 and 0.197 respectively. We measure institutional ownership concentration using institutional HHI, which has a mean of 0.058 and standard deviation of 0.058. In addition, we add two control variables - firm size and and firm annual return. It is widely recognized that firm size has a significant relationship with executive compensation. Tosi et al (2000) convey that more than 40% of the change of compensation can be explained by firm size. Previous studies also suggest that firm size is positively associated with concentration of pay within organization (Simon, 1957).

Simon finds that large firms with many hierarchical levels prefer to maintain a significant pay gap between different levels. We measure it using natural logarithm of market cap. The second one is annual return of a company. Its mean is 0.190 and standard deviation is 0.643.

4.Methodology

4.1 Correlation analysis

We conduct the correlation analysis among executive compensation concentration, institutional ownership level, institutional ownership concentration, size and annual return. As we can see from the Table 2,the relation between executive compensation

concentration and institutional ownership level, institutional ownership concentration and size is significant at 1% level.

The relation between executive compensation concentration and annual return is significant at 10% level. The correlation coefficient between executive compensation concentration and institutional ownership level is positive, which is around 0.072. The correlation coefficient between executive compensation concentration and institutional ownership concentration is negative, which is around -0.045.

4.2 T-test analysis

We conduct t-test among these variables based on 10 industries. We divide the sample into 10 industries using sic code, which we obtain from WRDS. The original sic code is a four-digit number. We divide the original sic code by 100 and then we get two-digit number, which represent 10 main industries. They are agriculture, mining, construction, manufacturing, transportation, wholesale trade, retail trade, finance, service and public administration. We conduct the difference of mean t-test by dividing the compensation HHI into two groups. The first group is above the median of HHI. The second group is below the median of HHI. As we can see from Table 3, when we consider the entire sample ,the means of executive compensation HHI across the two subsamples of institutional ownership level are significantly different, and this is similar in the case of institutional HHI.As for the control variable, when we consider the entire sample, the means of executive compensation HHI across the two subsamples of size are significantly different, similar to the case for annual return. Size is higher for the high HHI and annual return is also higher for high HHI. When we consider size and annual return into these ten industries, we find that nine out of the ten industries remain significantly different between executive compensation concentration and institutional ownership level. However, only six out of ten industries show significance between executive compensation concentration and institutional ownership concentration. The industries that show significance between executive compensation concentration and institutional

ownership level are agriculture, mining, construction, manufacturing, wholesale trade, retail trade, finance, service and public administration. And the industries that show significance between executive compensation concentration and institutional ownership concentration are manufacturing, transportation, wholesale trade, retail trade, finance and service.

4.3 Regression analysis

In order to explore the relationship better, we conduct three types of regression analysis, which includes two control variables. The first type is that we conduct the regression within the entire sample. The second type is that we divide the entire sample into two subsamples with high/low institutional ownership level and then conduct the regression on institutional ownership concentration. The third type is that we divide the entire sample into two subsamples with high/low institutional ownership concentration and then we conduct the regression on institutional ownership level. The first control variable is size. The second control variable is annual return . We measure annual return by using every year's holding period return in natural business year.

Then we develop our regression model as follows:

$$\begin{aligned} &Executive\ compensation\ dispersion_i \\ &\quad = \beta_0 + \beta_1 * Institutional\ ownership\ concentration_i \\ &\qquad + \beta_2 * Institutional\ ownership\ level \\ &\qquad + \beta_3 * SIZE_i + \beta_4 * annual_i \\ &\qquad + \sum \beta_l\ Firm\ indicators \\ &\qquad + \sum \beta_m\ Industry\ indicators_i \\ &\qquad + \sum \beta_n\ Time\ indicators_i + \varepsilon_i \end{aligned}$$

The dependent variable is executive compensation concentration. There are 4 independent variables in our regression, and we include firm indicators for each of the firm, the 10 indicators for industry as well as year indicators for each of the sample years.

5.Empirical results and Discussion

There are three plots in the Figure 1. The first plot describes normalized average executive compensation concentration from 1992 to 2014. We calculate normalized value using variable minus its mean and then divided by its standard deviation. The second plot describes normalized average institutional ownership level from 1992 to 2014. The third plot describes normalized average institutional ownership concentration from 1992 to 2014. According to the first plot, we can see how executive compensation concentration change over year. We find that, in general, executive compensation concentration significantly increased from 1992 to 2014, which is peaked at 2000. This raises a question: What could influence the change of executive compensation concentration. In the second plot, we find that in general, institutional ownership level experienced an increase from 1992 to 2014. Therefore, we think there might be a positive relation between executive compensation concentration and institutional ownership level. This would support our hypotheses 1. Next, in the third plot, we find that in general, institutional ownership concentration experienced a decrease from 1992 to 2014. Therefore we think there might be a negative relationship between executive compensation concentration and institutional ownership concentration. This supports our hypotheses 2.

In Figure 2, we provide a bar chart of executive compensation concentration, institutional ownership level and institutional ownership concentration based on 10 industries. We arrange the bar from the biggest executive compensation concentration to smallest executive compensation concentration. As we can see the bar chart, Agriculture has the highest executive compensation concentration while Public administration has the lowest executive compensation concentration. When it comes to institutional ownership level, service has the highest institutional

ownership level while public administration has lowest institutional ownership level.

We then plot similar bar charts for institutional ownership level and institutional ownership concentration. The bar chart across industries follows the same ordering as we have done for executive compensation concentration. This allows us to see whether the downward trend that we see in executive compensation concentration over these industry ordering has a corresponding relation with changes in intuitional ownership level and institutional ownership concentration. As for institutional ownership concentration, agriculture has the highest institutional ownership concentration while construction has the lowest institutional ownership concentration. As for the trend, institutional ownership level experienced a decreasing trend with the decreasing trend of executive compensation concentration. This supports our hypotheses 1 again. However, the trend of the Institutional ownership concentration is not clear in this bar chart.

In the Table 4, we provide the regression results. There are five columns in the table. The first column only includes institutional ownership level, institutional ownership concentration, size and annual return as independent variables. The second column also includes the fixed year effect and fixed industry effect. The third column considers the fixed year effect and fixed firm effect. The fourth column includes the fixed year effect and fixed firm effect but excluded institutional ownership concentration as independent variable. The fifth column includes the fixed year effect and fixed firm effect but excluded institutional ownership level as independent variable. As we can see from this Table 4, in the first column, the coefficient between executive compensation concentration and institutional ownership level is significantly positive, which is around 0.018. It shows that a company with a high percentage of shares holding by institutional investor has a high pay gap. The coefficient between executive compensation concentration and Institutional ownership concentration is negative, which is -0.002. It shows that a company with a more concentration level on institutional ownership has a low pay

gap. However, this coefficient is not significant. In the second column, the coefficient between executive compensation concentration and institutional ownership level is also significantly positive, which is 0.017. The coefficient between executive compensation concentration and institutional ownership concentration is negative, which is -0.003. However, it still not significant. In the third column, we control for the firm fixed effects. The coefficient between executive compensation concentration and institutional ownership level is positive, which is 0.003. The coefficient between executive compensation concentration and institutional ownership concentration is positive, which is 0.009. However, both coefficients are not significant. It is the same case for the fourth column and the fifth column. For all of the five columns, we do not find support for either of our two hypotheses.

In the Table 5, we provide the results of regressions in Table 4 but on high/low institutional ownership level subsamples and high/low institutional HHI subsamples. We find in column (3) that in the subsample of high institutional HHI, there is a significant negative relation between executive compensation concentration and institutional ownership level. It shows that because a high institutional ownership concentration and a high institutional ownership level suggest that institutions have the power to influence management's decision, institutional owners prefer a low executive compensation concentration policy. It supports our second hypotheses that firms in which institutions have more power have a lower executive compensation concentration.

6.Limitations

Our study has some limitations. As for the regression model we conduct, there may be some weakness in our model. We could have misspecified the model. If the independent variable is correlated with error term, it shows that our model may omit some important variables. This may cause endogeneity problem, and as we have seen in model (1) and (2), the firm fixed-effect takes the explanatory power,

suggesting that there may be many other variables influencing compensation structure.

7.Conslusion

This paper examines the relationship between executive compensation concentration and institutional ownership power. According to our analysis, we find that there is a significantly negative relationship between executive compensation concentration and institutional ownership power. This proves our second hypothesis about the dominance of the equity fairness theory relative to the tournament theory. Besides, we always find there is a significant positive relation between executive compensation concentration and size of a firm, which is consistent with the argument of Tosi (2000).

8.Appendix

TABLE 1 *Descriptive Statistics*

This table presents the distribution of the main variables. The unit of observation is firm-year. The sample includes 2247 firms during the period from 1992 to 2014. Compensation HHI is the Herfindahl-Hirschman Index of concentration generated from the total compensation of the top 5 executive compensations. Institutional ownership level is the sum of total percentage institutional holdings reported on 13F schedule. Institutional HHI is Herfindahl-Hirschman Index of concentration reported in Thomson-Reuters database. Market cap is the share price times shares outstanding in millions of $ US. Annual return is the annual return in a given calendar year (i.e., raw return from December to December of the following year).

Variable	n	Mean	Standard Deviation	p5	p25	p50	p75
Compensation HHI	24257	.271	.065	.210	.231	.255	.289
Institutional Ownership level	24257	.670	.197	.300	.546	.698	.822
Institutional HHI	24257	.058	.058	.023	.034	.046	.063
Market value	24252	7.628	1.598	5.201	6.476	7.503	8.662
Annual Return	24257	.190	.643	-.480	-.102	.121	.363

TABLE 2 *Correlation matrix*

The table provides correlation matrix. Variables are defined in Table 1. *, ** or *** mean the coefficient is significant at 10%, 5% or 1% level respectively.

	Compensation HHI	Institutional Ownership Level	Institutional HHI	Size	Annual Return
Compensation HHI	1.0000				
Institutional Ownership level	0.0724***	1.0000			
Institutional HHI	-0.0457***	-0.2670 ***	1.0000		
Size	0.1016***	0.1609 ***	-0.3076***	1.0000	
Annual Return	0.0255*	0.0050***	-0.0306***	0.0649***	1.0000

TABLE 3 *Difference of Means t-tests*

The following table presents the differences of means t-tests. Based on the median of each variable, we divided the sample into two groups and compare the means of executive compensation concentration between the groups. *, ** or *** indicate significant t-statistics at 10%, 5% or 1% levels, respectively.

	n	Low	High	t-statistic
Variables				
Institutional Ownership level	24252	0.2671	0.2758	-10.38***
Institutional Ownership Concentration	24252	0.2758	0.2671	10.53***
Size	24252	0.2653	0.2775	-14.67***
Annual Return	24257	0.2707	0.2722	-1.8141*
Agriculture				
Institutional Ownership level	66	0.2637	0.2898	-1.7142*
Institutional HHI	66	0.2843	0.2692	0.9766
Mining				
Institutional Ownership level	1361	0.2673	0.2806	-3.9288***
Institutional HHI	1361	0.2743	0.3737	0.1669
Construction				
Institutional Ownership level	3810	0.2655	0.2821	-8.7388***
Institutional HHI	3810	0.2776	0.2700	3.9879
Manufacturing				
Institutional Ownership level	6696	0.2691	0.2780	-5.5792***
Institutional HHI	6696	0.2798	0.2672	7.9336***
Transportation				
Institutional Ownership level	2620	0.2655	0.2681	-1.1751
Institutional HHI	2620	0.2687	0.2649	1.6821*
Wholesales Trade				
Institutional Ownership level	2525	0.2673	0.2804	4.6726***
Institutional HHI	2525	0.2803	0.2675	4.5566***
Retail Trade				
Institutional Ownership level	3963	0.2604	0.2647	-2.2883**
Institutional HHI	3963	0.3653	0.2598	2.9561***
Finance				
Institutional Ownership level	2437	0.2800	0.2734	2.0044**
Institutional HHI	2437	0.2807	0.2727	2.3949**
Service				
Institutional Ownership level	741	0.2663	0.2837	-3.6250***
Institutional HHI	741	0.2839	0.2661	3.7280***
Public Administration				
Institutional Ownership level	38	0.2685	0.2343	2.1515**
Institutional HHI	38	0.2580	0.2448	0.7851

TABLE 4 *Regression of compensation HHI on Institutional ownership level and Institutional HHI*

This table presents regression results where the dependent variable is compensation HHI. All variables are defined in Table 1. *, ** or *** mean the coefficient is significant at 10%, 5% or 1% level, respectively. t-statistics are in parentheses.

	Executive Compensation Concentration				
	1	2	3	4	5
Institutional ownership level	0.0189*** (5.17)	0.0175*** (3.88)	0.0033 (0.58)	0.0026 (0.67)	
Institutional HHI	-0.0022 (-0.17)	-0.0037 -(0.31)	0.0094 (0.65)		0.0078 (0.77)
Size	0.0037*** (7.65)	0.0041*** (8.02)	0.0054*** (4.91)	0.0052*** (7.61)	0.0054*** (7.90)
Annual Return	0.0020** (1.9)	0.0021* (1.85)	0.0013 (1.35)	0.0013** (2.04)	0.0013** (2.05)
Intercept	0.2305*** (52.96)	0.2392*** (23.22)	0.2096*** (21.25)	0.2116*** (13.25)	0.2104*** (13.09)
Year Fixed Effects	No	Yes	Yes	Yes	Yes
Industry Fixed Effects	No	Yes	No	No	No
Firm Fixed Effects	No	No	yes	Yes	Yes
Number of Observation	24525	24252	25242	25242	25242
Adjusted-R Squared	0.0137	0.0372	0.2507	0.2503	0.2507

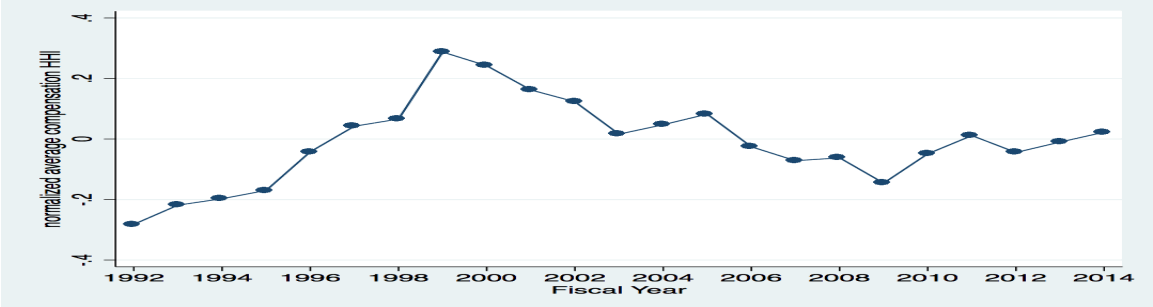
TABLE 5 *Regressions of compensation HHI on Institutional ownership level and Institutional HHI in subsamples*

The table shows regressions of Executive Compensation HHI on Institutional HHI in high/low (based on the median) institutional ownership level subsamples and regressions of compensation HHI on Institutional ownership level in high/low (based on the median) institutional HHI subsamples. *, ** or *** mean the coefficient is significant at 10%, 5% or 1% level, respectively. t-statistics are in parentheses.

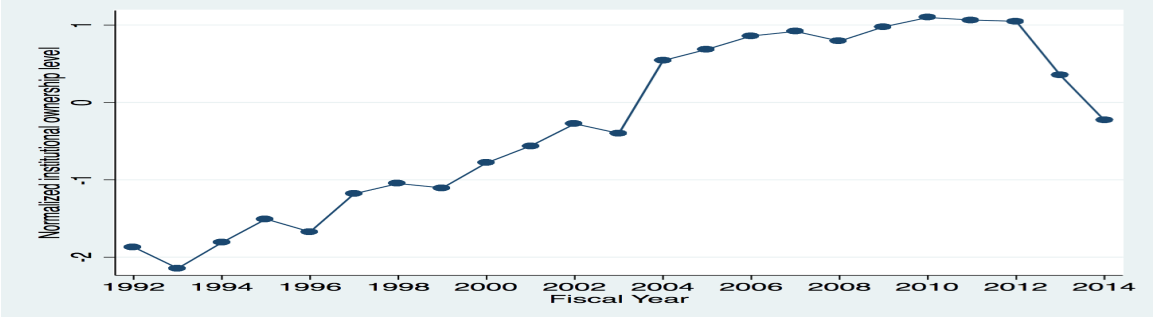
	Institutional ownership level		Institutional HHI	
	High	Low	High	Low
Institutional ownership level			-0.018*** (-2.59)	0.0226*** (3.88)
Institutional HHI	-0.0022 (-1.11)	0.0060 (0.39)		
Size	0.0060*** (5.54)	0.0050*** (4.09)	0.0072*** (5.21)	0.00551*** (5.36)
Annual Return	0.0020* (1.72)	0.001* (0.70)	0.0001 (0.05)	0.0015* (1.80)
Intercept	0.1810*** (7.88)	0.234*** (9.22)	0.2105*** (7.30)	0.1984*** (11.44)
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	No	No	No	No
Firm Fixed Effects	Yes	Yes	Yes	Yes
Number of Observations	13424	13424	13424	13424
Adjusted R-Squared	0.2661	0.2701	0.3090	0.2581

FIGURE 1

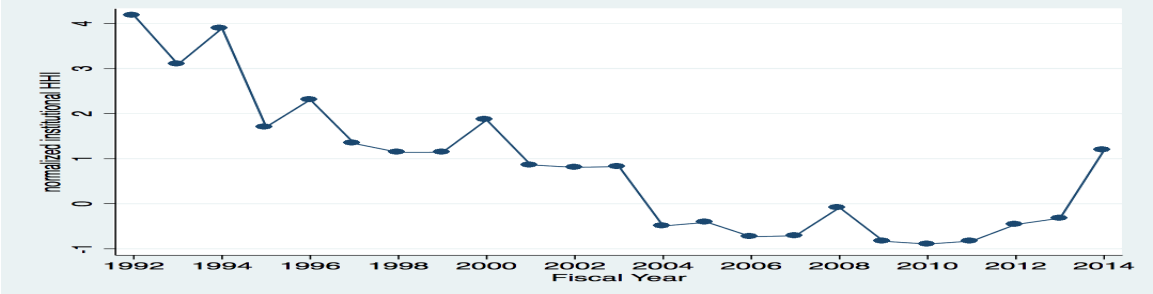
Trend of normalized average compensation HHI, normalized Institutional ownership level and normalized Institutional HHI overtime



Executive compensation concentration 1992 to 2014



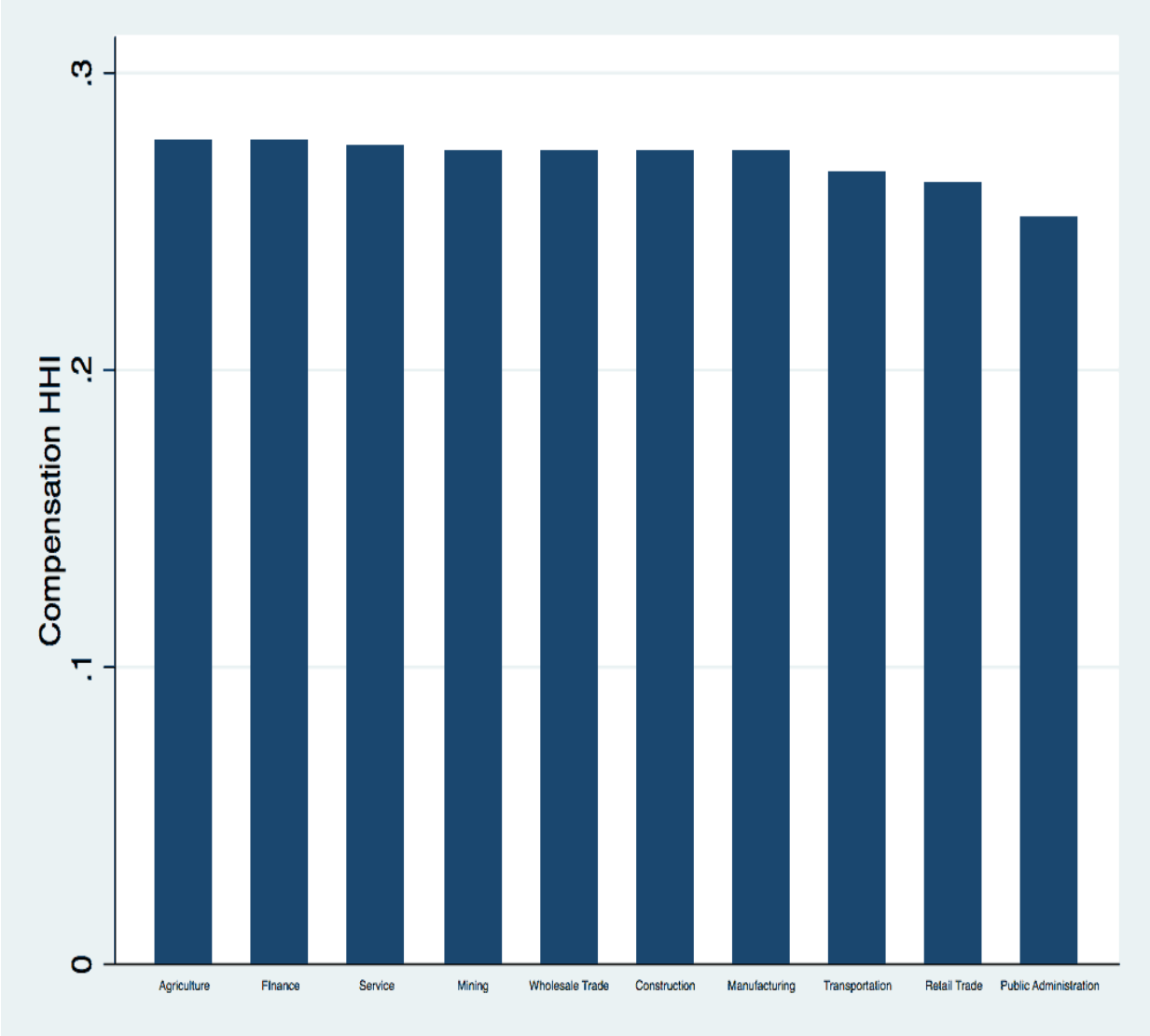
Institutional ownership level 1992 to 2014



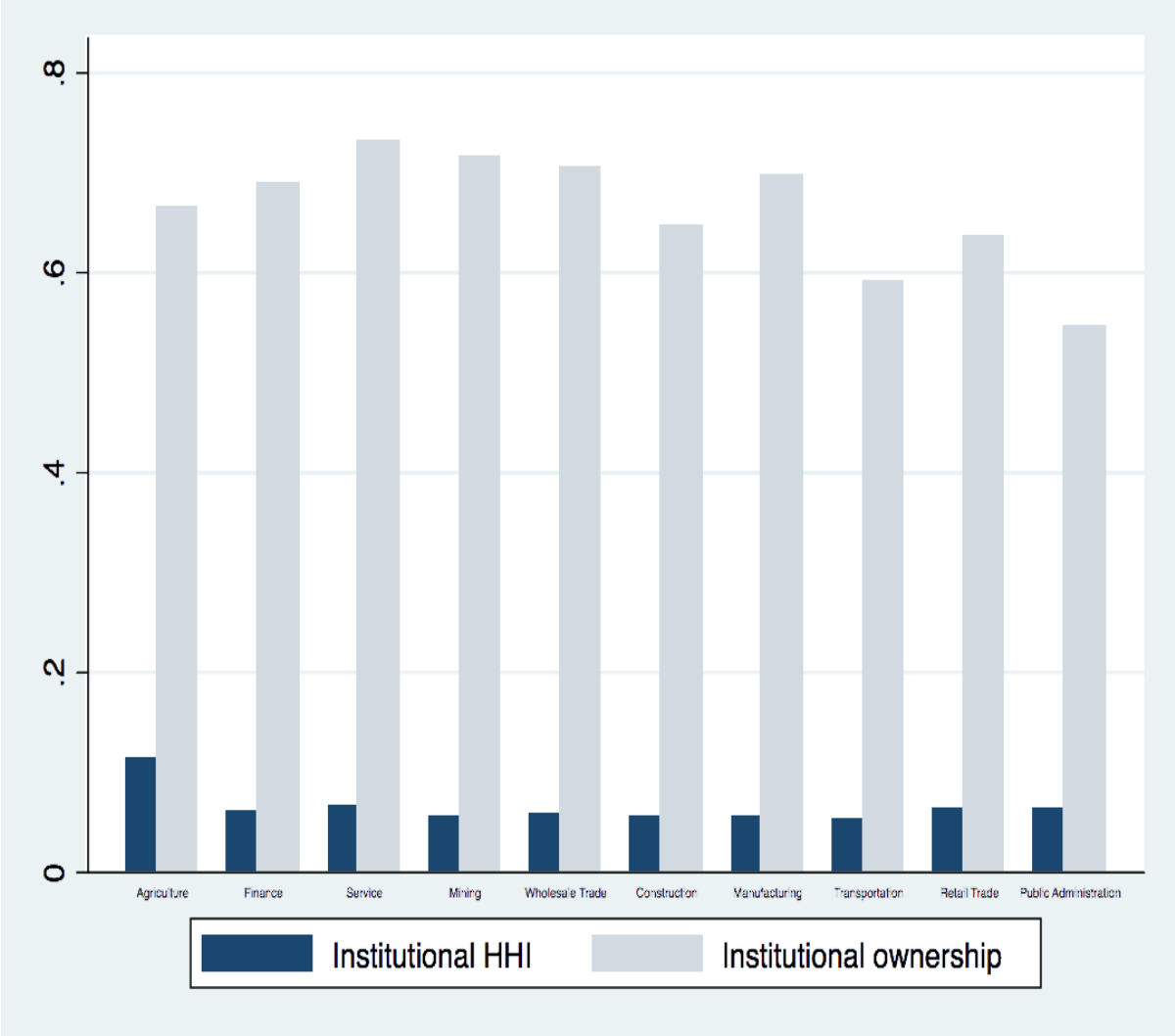
Institutional ownership concentration 1992 to 2014

FIGURE 2

The following graph represents 10 industries comparison of HHI compensation, Institutional HHI and Institutional ownership level. It is arranged from the biggest to smallest industry based on HHI Compensation.



Industry Comparison



Industry Comparison

Reference list

1. Beatty, Randolph P., and Edward J. Zajac. 1994. "Managerial Incentives, Monitoring, and Risk Bearing:A Study of Executive Compensation, Ownership, and Board Structure in Initial Public Offerings." Administrative Science Quarterly 39: 313-335.

2 Brickley J A, Lease R C and Smith C W (1998), “Ownership Structure and Voting on Antitakeover Amendments”, Journal of Financial Economics, Vol. 20, Nos. 1 and 2, pp. 267-291.

3. Conyon M, Peck S, Sandler G (2001) Corporate tournaments and executive compensation: evidence from the UK. Start Manage J 22: 805-815

4. Edward P. Lazear and Sherwin Rosen, 1981. "Rank-Order Tournaments as Optimum Labor Contracts," Journal of Political Economy, 89(5), pp. 841-864

5. Fazlzadeh, Alireza, Ali Tahbaz Hendi, Kazem Mahboubi (2011) The Examination of the Effect of Ownership Structure on Firm Performance in Listed Firms of Tehran Stock Exchange, International Journal of Business and Management, Vol. 6, No. 3,

6.McConnell J J and Servaes H (1990), “Additional Evidence on Equity Ownership and Corporate Value”, Journal of Financial Economics, Vol. 27, No. 2, pp. 595-612.

7. Simon, Herbert A. 1957. “The Compensation of Executives.” Sociometry 20(1): 32-35.

8.Tosi, H.L., Werner, S., Katz, J.P., and Gomez-Mejia, L.R. (2000). How Much Does Performance Matter? A Meta-Analysis of CEO Pay Studies. Journal of Management, 26, 301-339.

9.Taylor W (1990), “Can Big Owners Make a Big Difference?” Harvard Business Review, Vol. 68, No. 5, pp. 70-82.

10. Wade , James B., Charles A. O’Reilly , Timothy G. Pollock (2006) Overpaid CEOs and Underpaid Managers: Fairness and Executive Compensation, Organization Science, Vol. 17, No. 5, pp. 527–544