# FIRM-SIZE ELASTICITY OF TOP MANAGEMENT TEAM COMPENSATION IN SAUDI ARABIAN LISTED FIRMS

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# Abstract

We evaluate the firm-size elasticity of top management team (TMT) compensation with a sample of 80 firms listed in Saudi Arabian stock market. We find that the TMT compensation increases with firm size. The results are found to be robust when the total assets as the firm size measure is altered with other proxies, sales and market value of the firm. We show that the firm size and TMT compensation relationship is same as in the case of all firms sample when the firms are grouped into family firms and nonfamily firms. This finding is in line with the results of the previous studies that analyze the link between CEO compensation and firm size. We conclude that the large firms are willing to pay high compensation not just to their CEOs but also to the entire team at the top.

Keywords: Top Management Team Compensation, Family Firms, Firm Size, Remuneration Policy, Saudi

Arabia

**JEL codes:** M12, M52, L25, J33, J24

#### 1. INTRODUCTION

Remuneration policy plays a vital role in helping the firm attract high caliber executives, motivating them to contribute to the firm's performance and not lose them to the competitors. Monetary incentives should help align the goals of the executives with the strategic plans of the firm and the goals of the Researchers and practioners are shareholders. interested in studying the most appropriate remuneration policy that could serve all these Chief Executive Officer purposes. (CEO)compensation has been a matter of interest to researchers from varied areas like finance, economics, accounting, management and policy making. Though the executive compensation studies have been carried out since 1980s, they have regained focus after the recent financial crisis. Researchers are interested in figuring out the determinants of executive compensation and its linkages to firm performance as it has increased leaps and bounds over the years, even during the years of economic crisis. Many arguments are put forth to justify the increase in executive compensation. According to Jensen et al. (2004), the rise is due to realization on the part of shareholders about the significance of financial reward. Hermalin (2005) looks at the increased executive pay as a compensation for the increased risk that the executives face when the complexity of the firm's operations increases. This is because the executives face the risk of losing their jobs if they do not deliver performance. Gabaix and Landier (2008) attributes it to the competitive forces in the market for executives. Studies are carried out in the context of many countries like USA (see for example, Joskow

and Rose 1994), UK (Cosh 1975), Japan (Kaplan 1994), New Zealand (Lau and Vos 2004), Canada (Zhou 2000), Finland (Vittaniemi, 1997) and India (Raithatha and Komera 2016).

However, top management compensation has received meagre importance as a subject of research for both theory building and empirical analysis. While CEO compensation may be deemed to represent the incentive alignment in a firm, existing literature shows that the top management team (TMT) remuneration is not uniform. (See for example, Henderson & Fredrickson, 2001) Carpenter and Sanders (2002) show that the CEO compensation varies from TMT compensation. This may be attributed to the differences in the skill set of the top management team and the variations in their organizational responsibilities. According to agency theory, the wide variations in the top executives pay is to mitigate the agency problems and to motivate the executives to align their goals along with those of shareholders. Top management team is an integrated unit and should work in roles which are interwoven. (Hambrick, 1995) Jensen and Murphy (1990) show that the alignment of the goals of top executives and shareholders is greatly impacted by the managerial pay determination process. Fairness in the pay determination will create a trust in the pay determination process for the executives (Kim & Mauborgne, 1996) which can motivate the executives to work in alignment. (Hambrick, 1995). A top management team that works in close integration with each other and deliver their interdependent responsibilities in alignment is a prerequisite for effectively handling the intense competition. (O'Reilly et al. 1993) Such a top management team will lead the firm to enhanced financial performance. (Hambrick, 1995)

One of the important determinants of CEO compensation is firm size. That executive compensation differs widely and is greatly influenced by the size of the firm is well documented in the literature. (See for example, Tosi et al., 2000) Kole (1977) shows that compensation negotiations are tied to the assets that executives manage. Literature also argues that compensation is also linked to the size of investment made in the total assets. As a firm grows in size the managers should get a higher compensation. As the size of the firm increases, the managerial decisions get complex, the risk of failure for the managers' Hence they demand a higher increases remuneration. Allocation theory of control argues that the marginal productivity of managerial decisions increases with firm size as it impacts a larger number of employees in a large firm. As a result, in an equilibrium market condition, top managerial positions are offered to the most efficient managers. Obviously they will demand a higher pay. (Roshan, 1992) Agency theory argues that as the firm grows large in size, the operations become intricate and the probability of managers pursuing their personal goals at the cost of the shareholders' welfare increases. Monetary benefits may be used to align the goals and alleviate the agency conflicts. However, there is also another polarized view of this theory which argues that in a large organization sophisticated systems will be in place. This can result in the removal of the problem of asymmetric information. Agency theory does not provide a concreate suggestion to how the managerial compensation is related to firm size.

We intend to study the firm size elasticity of TMT compensation in listed companies in Saudi Arabia. This study is carried out for four reasons: (1) Most of the studies in the literature relate CEO compensation and firm size while we analyze the relationship between TMT compensation and firm size; (2) we study TMT compensation in family firms and non-family firms to check if there are any significant differences between the firm size elasticity of TMT compensation in the two categories of firms; (3) We fill the gap in literature that has arisen due to lack of any study on TMT compensation and firm size in Saudi Arabia and (4) Firms in Saudi Arabia pay only cash compensation to executives that includes basic salary, allowances, annual rewards and motivational incentives unlike their western counterparts that pay stock compensation as well and the results of the study will bring out the differences in the relationship between TMT compensation given this unique compensation package.

# 2. LITERATURE REVIEW

Compensation designing process in a firm has an important role to play in various aspects of the firm like employee motivation, alignment of their goals with those of the shareholders of the firm. Remuneration scheme should send sufficient signals to all the employees of the firm that it follows an equitable and just system in incentive alignment. Two models are put forth to explain the effective process of compensation determination namely tournament model and behavioral model.

#### 2.1. Tournament model

The model assumes that the people can be motivated effectively by monetary rewards. When the firm runs a tournament among employees for promotion that promises higher pay, it can motivate them. This assumption draws strength from the agency theory which argues that the employees, the agents employed by the principal-owners, have a tendency to pursue their self-interests at the cost of the welfare of the owners. Lazear and Rosen (1981) show that better performance can be extracted from the employees by offering incentives. The model favors widening the wage spread as workers will have to achieve higher productivity to achieve higher levels of reward. As an employee moves towards the higher positions in the organizational hierarchy, his opportunity for further elevations decreases. This race stops at the level of CEO. Hence, the CEO should get the highest pay in a firm while all others are still left to run in the tournament to reach this highest position. Tournament model forecasts a wide pay gap between CEO and the executives at the lower level. (Eriksson, 1999) Bogonanno (2001) lists the organizational circumstances that are supports to the proponents of tournament theory like high probability of promotions within the organization, large monetary rewards offered by promotions, association of pay with the level of organizational hierarchy and pay-gap between the

#### 2.2. Behavioral Model

This model offers another approach to structuring compensation. Unlike the tournament model that emphasizes competition as the hasis remuneration design, this model focuses teamwork importance. The model argues that employees' performance is not just driven by monetary reward. According to the relative deprivation theory, employees in a firm feel deprived of their due pay when they compare their compensation with those of their fellow executives at a higher levels. Teamwork and employees roles that interwoven will suffer if the employees are not motivated by the perception of an equity and just system in pay design. Wide dispersions in the pay will work as a deterrent to firm performance if it is dependent on the cooperation among employees. (Henderson and Fredreickson, 2001) Lazear (1989) favors keeping pay differences low to promote cooperation among employees.

Of the two theoretical models, tournament model is supported more by empirical research. (See for example, Lin et al., 2013) As tournament model propagates for wider gap between the compensation of the CEO and the other executives of the firm, results from the studies that evaluated the relationship between CEO pay and firm size can be generalized to make it applicable to the compensation of the TMT team as a whole. Hence, we see a gap in the literature due to lack of studies that related TMT remuneration and firm size.

# 3. RESEARCH METHODOLOGY

Data on the compensation paid to the top five executives of the firms for the study period, 2010-2015, is extracted by the researchers from the

annual reports of the firms for each year. The top five executives are defined by the firm in its disclosure in annual report. These executives normally include chief executive officer, chief finance officer, chief operations officer, etc. These executives may or may not be included in the board of directors of the firm. The data relating to total

assets, market value of equity, book value of longterm debt and total sales are extracted from Compustat global fundamentals provided by Wharton research data services. We study a sample of 80 listed firms belonging to 12 sectors. The sector wise distribution of the sample firms is given in table 1.

**Table 1.** Sector wise distribution of sample firms

Sector	Number of sample firms
Agriculture & food industries	13
Building & construction	13
Cement	8
Energy & utilities	2
Hotel & tourism	2
Media & publishing	2
Multi-investment	6
Petrochemical industries	14
Real estate development	5
Retail	8
Transport	4
Telecommunication & information technology	3
All	80

Firms are classified as family firms if they fulfil one of the following criteria. The definition adopted is in line with the previous studies which suggest the classification of a firm as belonging to the family firm category if the family is a major shareholder (Barontini & Carpiro, 2006), a member of the family is on the board of directors (Rutherford et al., 2008), and firm leadership is with the family. (McConughy et al., 2001) We define a firm as belonging to the

category of family firm if any of the following conditions are fulfilled.

- 1. If one of the family members is a blockholder having a shareholding of 5% or more.
  - 2. Firm has a family CEO.
- 3. Firm has a family member chairing the board of directors.
- 4. Firm has at least one of the family members as a director on the board.

Table 2. t-test Results Comparing Family Firms and Non-family Firms on TMT Compensation

Firm Type	N	Mean	Standard deviation	T	df	р
Family	138	9,536,306	6,987,573	2.046	475	.041
Non-family	339	7.677.934	9.689.448			

We find a significant difference in the TMT compensation paid in family firms and non-family firms. Family firms' mean TMT compensation is

higher than the mean TMT compensation paid by non-family firms.

Table 3. Descriptive Statistics

	TMT Compensation SAR	Total assets SAR million	Sales SAR in million	Market Capitalization of equity SAR million	Book Value of Debt SAR million
Mean	8,215,576.08	15,901.21	6,853.60	11,916.77	4,958.64
Maximum	72,095,000.00	358,029.95	189,898.25	334,500.00	97,198.93
Minimum	23,455	53	8.24	219.50	0.00
Standard deviation	9,023,913.31	49,134.87	22,603.24	34,883.90	13,500.03
N	477	474	427	480	404

TMT compensation ranges from a maximum of SAR 72,095,000 to SAR 23,455 with the mean at SAR 8,215,576. Mean total assets held by the sample firms during the study period is SAR 15,901.21 million. The difference between the maximum and

minimum sales of the firms stands at SAR 189,890.01 million. Mean values of market value of equity and book value of equity are SAR 11,916.77 million and SAR 4,958.64 million respectively.

Table 4. Correlation Matrix

Variable	LPY	LTA	LSA	LMV
LPY	1	0.622*	0.726*	0.623*
LTA		1	0.915*	0.928*
LSA			1	0.863*
LMV				1

It can be seen from table 4, that the three proxies that we employ in this study to measure firm size are highly correlated and hence may yield similar results.

# 3.1. TMT compensation growth

Corporate governance regulations in Saudi Arabia stipulates that in every firm, the board of directors should form a remuneration committee which is made of three members. Remuneration committee should not include any of the executive members of the board. Remuneration committee formulates the policy on remuneration to the directors and It then recommends the policy for executives. approval to general assembly. The policy should be drafted in such a way that sufficient incentives are provided to attract good talent and make it deliver good performance. The committee is responsible for reporting the details of dispersion of remuneration to executives and directors. nonexecutive member or independent director of the board receives a remuneration over SAR 250,000 the committee should explain how this remuneration is linked to the performance of the director concerned. It is mandatory for the committee to meet at least once in six months. TMT compensation packages in Saudi Arabia, typically consist of base salary of 55% to 65%, guaranteed allowances such as housing and transport accounts for 20% to 30%, benefits are around 10% and short-term incentives stand at 5%. Variable pay and stock options are not in vogue around Saudi Arabian firms. TMT compensation includes the CEO compensation.

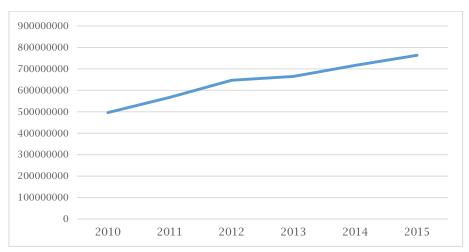


Figure 1. TMT pay growth rate

TMT pay has risen during 2010-2012 period and suffered a temporary setback during 2013 because of financial crisis and is recovering in the last two years.

Sector	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2010-2015
Agriculture & food industries	-3.25	20.27	11.15	0.53	10.69	43.90
Building & construction	15.63	52.11	-7.86	0.05	0.48	62.92
Cement	10.43	9.49	9.88	-2.19	26.28	64.08
Energy & utilities	6.04	-6.48	36.89	-14.23	17.11	36.35
Hotel & tourism	-5.80	89.49	10.64	187.60	-59.27	131.29
Media & publishing	210.62	-58.43	97.15	14.69	0.00	191.96
Multi-investment	63.91	-46.72	135.24	-33.71	20.43	64.01
Petrochemical industries	17.28	23.61	-15.67	26.01	5.43	62.41
Real estate development	-16.31	45.54	0.77	22.96	24.14	87.37
Retail	11.95	7.27	-26.20	73.91	6.37	63.94
Transport	32.87	30.73	32.96	17.29	20.90	227.50
Telecommunication & information	15.14	-0.75	5.20	-31.95	-4.24	56.77
technology All	14.42	13.98	2.90	7.63	6.58	53.95
All	14.44	15.96	2.90	7.03	0.36	55.95

**Table 5.** TMT compensation growth over the period, 2010-2015 (in percentage)

Sector wise year on year growth rate of the TMT compensation and the growth rate over the entire study period, 2010-2015, is provided in table 5. Though the overall growth rate for sample firms has registered an increase of 53.95%, it can be seen that the growth rate in the first two years is a double digit figure, with the decrease in global oil prices, the TMT compensation in the country where oil prices play a prominent role, the TMT compensation growth rate has fallen to a single digit numbers.

# 3.2. The model applied

We estimate the following models.

$$\begin{aligned} LPY_{it} &= \alpha + \beta_1 LTA_{it} \\ LPY_{it}^{it} &= \alpha + \beta_1 LSA_{it} \\ LPY_{it}^{it} &= \alpha + \beta_1 LMV_{it} \end{aligned}$$

$$LPY^{it} = \alpha + \beta^{1} LSA^{1}$$

$$LPY_{ii} = \alpha + \beta_i LMV$$

 $LPY_{ij} = Log of cash component of the total$ compensation paid to the top five executives of firm i at time t.

LTA<sub>i</sub> = Log of total assets of firm i at time t LSA<sub>it</sub> = Log of total sales of firm i at time t



LMV<sub>11</sub> = Log of market value of the firm i at time t defined as the sum of market value of equity and book value of long-term debt

As both the dependent and independent variables are in logarithmic form,  $\beta_1$  captures the elasticity of TMT compensation with regard to the firm size as measured by total assets. The robustness of this model findings will be tested by other proxies of firm size namely total sales and

market value of the firm. The coefficient depicts the percentage change in TMT compensation for a percentage change in the size of the firm. The sign of the coefficient will show the direction of the association between the two variables.

#### 4. RESEARCH RESULTS

**Table 6.** Regression Results

Variables	Model 1 All firms	Model 2 All firms	Model 3 All firms
Intercept	12.7335* (77.2320)	12.8710* (102.4243)	12.3499* (66.7587)
LTA	0.7973* (17.1316)		(1.2.2.2.)
LSA		0.3747* (21.6682)	
LMV			0.8805* (17.3230)
R-square	0.3864	0.5272	0.3882
Adjusted R-squared	0.3851	0.5261	0.3869
F-statistic	293.4923*	469.5106*	300.0844*

<sup>\*</sup> Significant at 1% level Dependent variable: LPY

Table 6 shows the regression results. It can be seen that the firm size as measured by total assets is positively related to the TMT compensation. This finding is found to be robust when the total assets as firm size measure is altered with total assets and the market value of the firm. This finding is in line with the results of earlier studies that evaluated CEO pay and firm size. (See for example Kostiuk, 1989) Previous works normally argue that the positive relationship is due to the fact that larger firms hire

executives with higher qualification and hence demand higher compensation. (Kostiuk, 1990) Besides, firm size is also correlated with the complexity of operations and information handling. Henderson & Fredrickson (1996) shows that as the firm grows in size, the volume of information to be processed for decision making increases due to increase in complex operations. This decision making process demands high skill set and talent which comes at a higher compensation.

Table 7. Regression Results

Variables	Model 4 Family firms	Model 5 Family firms	Model 6 Family firms	Model 7 Non-family firms	Model 8 Non-family firms	Model 9 Non-family firms
Intercept	14.0353* 32.9982	13.5401* 29.5193	14.0033* 31.1978	12.2446* 77.7269	12.7392* 111.8213	11.7746* 65.6838
LTA	0.5171* 4.1426			0.8937* 20.4093		
LSA		0.3072* 4.7966			0.3826* 24.5448	
LMV			0.5019* 3.9922			1.0040* 20.5412
R-square	0.1120	0.1632	0.1049	0.5595	0.6668	0.5574
Adjusted R-squared	0.1055	0.1561	0.0983	0.5581	0.6657	0.5561
F-statistic	17.1613*	23.0073*	15.9373*	416.5398*	602.4458*	421.9404*

<sup>\*</sup> Significant at 1% level Dependent variable: LPY

We report in the descriptive statistics analysis section that mean TMT compensation paid by family firms is higher than that paid by nonfamily firms. The difference in the TMT compensation between these two categories of firms is found to be statistically significant. In this section, we analyze

the firm size elasticity of firms. We find a positive association between TMT compensation and firm size in both family and nonfamily firms for all the measures of firm size adopted by the study.

Table 8. Regression Results with lagged independent variables

Variables	Model 10 All firms	Model 11 All firms	Model 12 All firms
Intercept	12.7820*	12.9421*	12.3399*
LTA(-1)	0.7962*		
LSA(-1)		0.3714*	
LMV(-1)			0.8938*
R-square	0.3716	0.5083	0.3841
Adjusted R-squared	0.3699	0.5069	0.3826
E-etatietic	220.4028*	361.7612*	245 7645*

F-statistic

\* Significant at 1% level
Dependent variable: LPY

Tables 8 and 9 report the results of the regression run with one period lagged independent variable. It is possible that the TMT compensation and firm size may not increase simultaneously. It can be expected that the firm size increases and the incentive for handling higher responsibilities that results from the increased firm size is paid. Hence,

we decide to lag the firm size variable by one period and test the relationship between one period lagged firm size variable and TMT compensation. TMT compensation and firm size variables are positively associated even when the firm size is lagged by one period.

Table 9. Regression Results with Lagged Independent Variable in Family and Nonfamily Firms

Variables	Model 13 Family firms	Model 14 Family firms	Model 15 Family firms	Model 16 Non-family firms	Model 17 Non-family firms	Model 18 Non-family firms
Intercept	14.2177*	13.9211*	13.9734*	12.2371*	12.7628*	11.7357*
LTA(-1)	0.4828*			0.9055*		
LSA(-1)		0.2627*			0.3848*	
LMV(-1)			0.5293*			1.0211*
R-square	0.0934	0.1145	0.1101	0.5584	0.6684	0.5591
Adjusted R-squared	0.0854	0.1055	0.1022	0.5568	0.6671	0.5575
F-statistic	11.6455*	12.6765*	13.9800*	345.2638*	503.8718*	353.7490*

\* Significant at 1% level Dependent variable: LPY

## 5. CONCLUSIONS

We find a positive link between TMT compensation and firm size. Larger firms require good quality talent to occupy the top position (See for example, Firth et al., 2006). In a competitive market environment, executives with better talents get In a competitive market allocated to larger firms. (Brunello et al., 2001) Our study which evaluates the firm size elasticity of TMT compensation presents results which are in line with the results of the earlier studies that analyze the relationship between firm size and compensation. (See for example, Zhou 2000, Ryan & Wiggins, 2001) Gabaix et al., (2013) analyze the link between the average non-CEO executive compensation and firm size. They find results which are similar to those on CEO compensation analysis. They find a positive relationship between firm size and compensation in both the cases. We study the compensation of top five executives which includes besides CEO, CFO, COO and other executives like financial controller and internal auditor who occupy the top positions in the firm. The decisions made by this TMT can be expected to impact the firm in a way similar to that of the decisions of the CEO. Both decisions will have firm wide implications and affect a large number of employees in a large firm. Large firms are found to pay higher TMT compensation. The explanation for this may be due to the high talent required for managing a large firm where the operations get complex because of the size and also the problem of asymmetric information that is generally associated with firm size. As firms in Saudi Arabia has a meagre 5% of the TMT compensation as variable pay linked to performance, firm size playing a central role in the compensation policy is quite expected. Besides, firms in Saudi Arabia has an additional challenge that arise due to the limited number of highly qualified and talented Saudi citizens to occupy these top positions. Hence, we can notice a stiff competition among firms and generally the large firms emerge winners as they could offer higher compensation. Even during the unfavorable economic conditions, firms are still willing to hire or maintain its high caliber TMT who could lead these companies in difficult times and restore its value and enhance its profits. This argument seems to be

applicable equally both to family firms and nonfamily firms and hence we find the positive relationship between TMT compensation and firm size is applicable both to the sample of both categories of firms.

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