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The Determinants of CEO Compensation in the U.S. General Merchandise Sector

Alan Harper and Zhenhu Jin

Abstract

The purpose of this study is to examine the relationships between CEO compensation and firm level performance in the U.S. General Retail Store Sector. We performed cross sectional regressions on the entire sample and found no significant relationship existed between the level of CEO compensation and a set of independent variables that proxy for firm performance. We then performed a Stepwise regression and found that Market Capitalization and Gross Margin were significantly related to the level of CEO compensation and a set of independent variables that proxy firm performance. Our findings suggest that CEO compensation is positively related to market capitalization and gross profit margin.

1. Introduction

Since the great recession of 2007-2008 CEO compensation has drawn a great deal of attention and scrutiny from academics, regulators and the general public at large. However, most of the attention has focused on top executive compensation in the financial services sector. Many other industries have received less attention, most notably the U.S. Retailing Industry. This paper is an attempt to fill this void by empirically examining the relationship between CEO compensation and firm performance in the U.S. Department Store Industry.

In this study, we used for a sample of large General Merchandisers in the U.S. retrieved from *Fortune Magazine* list of the top 500 companies. We chose a single industry to control for firm heterogeneity (Chadwick, Hunter & Watson, 2004). Firms with similar operating characteristics may provide more reliable comparisons and better explain CEO compensation and firm performance (Crumley, 2006).

We develop cross sectional regression and stepwise regression models using variables that proxy for CEO compensation and firm performance. Stepwise regressions have been used in prior studies to examine the relationships between CEO pay and firm performance (Agarwal, 1981; Jalbert, Jalbert, and Furumo, 2013). We do this in order to determine whether a significant relationship exists between the level of CEO compensation and a set of variables proxies for firm performance for a sample of U.S. General Merchandise chains. Our results indicate that market capitalization and gross margin are significantly related to CEO compensation.

The theoretical framework used in this study is agency theory. Agency theory suggests that there might be conflicts of interest between to executives who manage the firm and the

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stockholders who own the firm. Managers may seek to maximize their own well-being at the expense of the shareholders. The conflict of interest may be mitigated if top executive compensation is significantly related to firm performance. The remainder of the paper is organized as follows. In section one, we present a brief review of literature and the theoretical background. Section II discusses the hypotheses, data and methodology. Section III provides the empirical results,

1. Theoretical background

In their seminal work Jensen and Meckling's (1976) demonstrate that managers will pursue their own self interest when they do not own the entire of the firm. This self-interest behavior might cause the manager to behave in a manner that may cause harm to the firm in an attempt to increase their own compensation and other compensation related perks. Agency theory provides the theoretical framework for examining this important topic. Kim and Gu, (2005), argue that compensation based on managerial performance maybe better as opposed to monitoring the CEO because monitoring managerial performance maybe more efficient due to the expensive nature of monitoring. One way to gain a better understanding of managerial compensation is to examine the relationship between CEO compensation and a set of specific firm variables that proxy performance. Many studies have been conducted examine this relationship in several industries. For example, Demirer and Yuan (2013), examine the relationship between executive compensation and firm performance in the restaurant industry. They find that part of the problem associated with executive compensation and firm performance is due to separation of management from ownership. Kim and Gu (2005), examined the determinants of CEO cash compensation for 73 U.S. Restaurant firms in 2002. They found a significant relationship existed between CEO compensation and total assets and asset turnover. Brick, Palmon and Wald (2006) examined the relationship between CEO pay, director pay, firm characteristics, CEO characteristics, and governance variables. They found evidence that excessive CEO pay and director compensation were correlated with firm underperformance. Yet in a prior study, Deckop (1988) examined the relationship between CEO compensation and firm performance and found that CEO's were not given an incentive to increase the size of the firm at the expense of profits. In 2013, Nulla examined the relationship between CEO compensation, firm size, accounting firm performance and corporate governance from 2005 to 2010 for 25 companies randomly selected from the NYSE. Nulla (2013) found a positive relationship between CEO salary and bonus, total compensation, firm size, accounting performance, and corporate governance. In another study, Nulla (2013) examined the relationship between firm size and CEO compensation and found a significant relationship existed between firm size and CEO compensation. The literature is replete with studies that have examined CEO compensation and firm performance in many industries. But very few studies have examined the determinants of CEO compensation and firm performance of the Retailing Industry.

2. Hypotheses, data and methodology

2.1. Hypotheses

The question addressed by this paper is whether a significant relationship exists between CEO compensation and firm performance. It is hypothesized that CEO compensation should be positively related to firm performance.

H0: There is no significant relationship between CEO compensation and firm performance.

H1: There is a significant relationship between CEO compensation and firm performance

2.2 The data

The data for this study consists nine large U.S. General Merchandise chains that are publicly traded on major stock exchanges. We identify our general merchandise chains using the *Fortune 500 June 2016* issue along with Morning Star's database. Our sample consists of annual data collected from 2010 to 2015. Tables 1 lists the companies used in the study as well as their annual revenues for year ending 2015.

Table I

Name	Revenue
Wal-Mart Stores	\$482,130,000,000.00
Target	\$73,785,000,000.00
Macy's	\$27,079,000,000.00
Sears Holdings	\$25,146,000,000.00
Dollar General	\$20,369,000,000.00
Kohl's	\$19,204,000,000.00
Nordstrom	\$14,437,000,000.00
J.C. Penney	\$12,625,000,000.00
Dillard's	\$6,755,000,000.00

2.3 Methodology

Cross sectional and Stepwise regressions are performed on the dependent and independent variables in order to examine the relationship between CEO compensations and firm

performance. Previous studies that have examined the relationship between CEO compensation and firm performance have used both cross sectional and stepwise regressions performance (Agarwal, 1981; Jalbert, Jalbert, and Furumo, 2013).

2.4 Proxies for the determinants of CEO Compensation

The proxies used are as follows:

Dependent Variable

CEO Compensation (CEOCOMP): CEO compensation is measured as total salary, which includes grants of stock options, with the options, stock awards, non-equity incentive plan, change in pension value and non-qualified deferred compensation, all other compensation.

Independent

Variables

1. Firm Size (SIZE): Firm size is measured as the natural log of the market value of equity during our sampling period. Firm size or market capitalization is defined as the price per share multiplied by the number of shares outstanding. Increasing the total market value should have a positive relationship with CEO pay. The sign of the coefficient is expected to be positive.
2. Return on Equity (ROE): Return on equity is a proxy for profitability. This metric examines how shareholders were rewarded in the past year. It is hypothesized that the coefficient between CEO compensation and ROE is positive.
3. Return on Assets (ROA): Return on assets is a proxy for how well the company is using assets to generate profits. It is hypothesized that the coefficient between CEO compensation and ROA is positive.
4. Gross Margin % (GM): Gross margin is a proxy for how well the company is managing its gross profit to cover its selling and administrative costs.
5. Total Sales (TS): Total sales are measured as the natural log of the annual revenue.
6. Annual Stock Price Change (ASPC): The annual stock price change is measured as the percentage change for the year. The months range from February to January. Retail companies close their year-end January 31st.
7. Earnings per share: Earnings per share is computed as Net Income divided by the number of shares outstanding.
8. Financial Leverage: Financial leverage is defined as the amount of debt used in the capital structure of the firm.
9. Market Capitalization: Market capitalization is defined as the natural log of the number shares outstanding times the share price.

3. Empirical results

Table II: Descriptive Statistics

	Mean	Std. Deviation	N
CEO	13,121,152	9.52471E6	55
ROA	7.1893	9.58428	55
GM	32.2631	5.53054	55
ROE	10.1571	65.76560	55
Revenue	64,702,000,000	1.31257E8	55
MCAP	35,638,000,000	6.47875E7	55
EPS	1.3918	6.18437	55
Stock	9.2322	31.39405	55
Leverage	4.5702	9.17274	55

Table 2 reports the means and standard deviation of the variables used in the cross section regression for the entire sample. The sample size includes 55 observations for each variable. There are a total of 495 observations. Not including revenue, market capitalization and CEO compensation, the highest mean belongs to GM (Gross Margin) at 32.26 while the lowest mean belongs to EPS at 1.39. Again, not including revenue, CEO compensation and market capitalization, the highest standard deviation belongs to ROE (Return on Equity) at 65.76 while the lowest standard deviation belongs to It is interesting note that the standard deviation for revenue is .489 but the standard deviation for annual stock price change is 31.394. This indicates that variability associated with annual stock price change is greater that the variability of the market index which is 20.

Table III: ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.130	8	.266	3.232	.005 ^a
	Residual	3.789	46	.082		
	Total	5.919	54			

a. Predictors: (Constant), Leverage, Revenue, Stock, ROE, GM, EPS, ROA, MCAP

b. Dependent Variable: CEO compensation

Table IV: Coefficients

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients		
				Beta		
1	(Constant)	3.984	.930		4.285	.000
	ROA	.001	.008	.040	.167	.868

GM	.016	.010	.270	1.678	.100
ROE	.000	.001	.024	.150	.881
revenue1	.242	.239	.358	1.011	.317
MCAP	.101	.215	.174	.469	.641
EPS	.000	.010	.003	.016	.987
Stock	.002	.002	.166	1.121	.268
Leverage	-.009	.005	-.238	-1.746	.087

a. Dependent Variable: Comp1

Table 3 provides the results of the ANOVA. The ANOVA table shows a significant value of .005 and we can reject the null hypothesis that the value of the regression coefficient = zero. Table 4 shows the results of the cross sectional regression. The cross sectional regression results indicate that none of the independent variables are significantly related to CEO compensation. Based on these results, we can reject the alternative hypothesis that there is a significant relationship between CEO compensation and firm performance. Since our initial findings were not significant, we decided to perform a Stepwise regression. Other studies such as Jeppson, Smith and Stone (2009) and Joubert (2016) have used Stepwise regression to examine the relationship between CEO pay and firm performance. Table 5 depicts the model summary. In model 1, the R-square is .249, which indicates that 24.9% of the variability in CEO compensation is explained by the independent variables. Model 2 indicates that .305 or 30.5% of the variability in CEO compensation is explained by the independent variables. The R square changed by .056 when the second variable, GM (Gross Margin) is entered into the model and is significant. Are results are similar to the results found by Nulla (2013) when examining the determinants of CEO pay in the Restaurant Industry.

Table V: Model Summary

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate	Change Statistics				
						R Square Change	F Change	df1	df2	Sig. F Change
1	.499 ^a	.249	.235		.28962	.249	17.561	1	53	.000

2	.552 ^b	.305	.278	.28127	.056	4.194	1	52	.046
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a. Predictors: (Constant), MCAP

b. Predictors: (Constant), MCAP, GM

Table 6 provides the results of the Stepwise regression. Model 1 shows that MCAP (Market Capitalization) is significantly related and important for the determination of CEO compensation. The regression equation is $\text{CEO compensation} = 4.940 + .289 \text{ MCAP}$. This says that a unit increase in market capitalization will increase CEO compensation by .289. Model 2 shows that market capitalization and gross margin are significantly related to the level of CEO compensation and is an important determinant of CEO compensation. The regression is $\text{CEO compensation} = 4.256 + .319 \text{ MCAP} + .015 \text{ GM}$. This says that a unit increase in gross margin will increase CEO compensation by .015.

Table VI: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.940	.494		9.992	.000
	MCAP	.289	.069	.499	4.191	.000
2	(Constant)	4.256	.585		7.279	.000
	MCAP	.319	.069	.551	4.654	.000
	GM	.015	.007	.242	2.048	.046

a. Dependent Variable: CEO compensation

4. Conclusion

The purpose of this study was to examine the relationships between CEO compensation and firm level performance in the U.S. General Retail Store Sector. We performed cross sectional regressions on the entire sample and found no significant relationship existed between the level of CEO compensation and a set of independent variables that proxy for firm performance. We then performed a Stepwise regression and found that Market Capitalization and Gross Margin were significant related to the level of CEO compensation and a set of independent variables that

proxy firm performance. The implications from our findings suggest that CEO's who increase market capitalization and improve gross margins may increase the level of compensation they receive. Further research should examine if these results are the same for other retail sectors. Also, the determinants of CEO compensation could include factors beyond those used in this study.

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