Article

The Relationship between CEO Compensation and Company Performance Measurements of listed South African Companies

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Abstract

Some commentators argue that increased chief executive officer (CEO) compensation may lead to increased company performance, while others contend that increased CEO compensation does not necessarily cause increased company performance. These different opinions generated several pay-performance studies to identify and analyse the relationship, if any, between CEO compensation and company performance. The aim of the present study was to investigate the relationship between CEO compensation and a wide range of performance measurements of listed South African companies. The study was based on quantitative, empirical and archival research on secondary data over a period of 10 years, namely 2006–2015. Statistical techniques were used to perform a correlation analysis. Additional objectives were to determine whether different performance measurements in a pay-performance study would provide different results, and also to determine whether certain companies' performance measurements correlate better to compensation than those of other companies' performance measurements. The main results of the study were that there is a substantial difference in the correlational relationships identified between CEO compensation and company performance, depending on the performance measurement used. In this study earnings per share showed the strongest positive correlation at 0.89 and return on assets reflected the strongest negative correlation with CEO compensation at -0.79. The results suggest that researchers should carefully consider what performance measurement to use when conducting pay-performance studies, as very different results could be delivered. In addition, stakeholders should take note of the specific performance measurements that they should apply if they want to negotiate a performance-based compensation system.

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Introduction

Chief executive officer (CEO) compensation attracts a lot of attention from various stakeholders. CEOs, in their personal capacity, are almost always seen as the "face" of the companies they manage. Consequently, the performance of CEOs is closely scrutinised (Carrothers 2019). The growing disparity between the high levels of remuneration "earned" by executives and that of the average remuneration of "blue collar" workers, is according to Steyn (2015), increasing, with CEOs having higher compensation growth rates than minimum wage workers. Graefe-Anderson, Pyo, and Zhu (2018) have found that CEOs with higher equity-based compensation tend to pay their employees lower wages.

A wealth of literature on the relationship between managerial compensation and company performance exists. Studies by Cosh (1975); Lewellen and Huntsman (1970); and Meeks and Whittington (1975) investigated the relationship between these variables more than 40 years ago. Pay-performance studies, such as those of Barber, Ghiselli, and Deale (2006); Cooper, Gulen, and Rau (2016); Eichholtz, Kok, and Otten (2008); and Jensen and Murphy (1990), all deal with the same aspects, namely, measuring compensation and measuring company performance and the direction of the relationship between the two variables. Compensation, when used as a variable in pay-performance studies, differentiates between long-term, short-term, total compensation and sensitivity of compensation. Several theories explaining managerial compensation have been formulated, such as the agency theory, optimal contracting theory, stewardship theory, managerial power theory, and labour market theory. Company performance measurements differentiate between accounting measures and market-related measures. In the past, "traditional" accounting performance measurements, such as return on assets (ROA), return on equity (ROE), earnings per share (EPS) and dividends per share (DPS), to name a few, were used to measure company performance.

In view of the above, the present study wants to investigate whether there is a relationship between CEO compensation and company performance, using a comprehensive company performance measurement range over a period of 10 years. This study expanded on previous studies by including market-related performance measurements, such as economic value added (EVA), market value added (MVA), total shareholder return (TSR) and Tobin's q ratio. The use of different variables in previous pay-performance studies has yielded diverse results. Steyn (2015) used TSR and found a positive correlation with CEO compensation; Theku (2014) used ROE, earnings before interest, taxes, depreciation and amortisation (EBITDA) and EPS and also found a positive correlation; Cooper, Gulen, and Rau (2016) used future share performance and found a negative correlation; and Eichholtz, Kok, and Otten (2008) used TSR and found mixed correlations with compensation. These differences could be due either to

dissimilarities in the samples studied, the statistical techniques used, the industry and/or the country from which the data originated.

The main objective of this study was to determine the correlation between CEO compensation of the Johannesburg Stock Exchange (JSE) Top 40 companies and company performance measurements. This objective was achieved by correlating CEO compensation with a wide range of company performance measurements, which provided empirical evidence that could be compared to previous pay-performance studies. A secondary objective was to determine the company performance measurement that correlated the strongest with CEO compensation in the JSE Top 40 companies. An additional objective was to identify the JSE Top 40 company with the strongest correlation to all of the company performance measurements used in this study.

This study made a number of contributions to existing knowledge. Firstly, unlike some previous studies that only used one or two company performance measurements, this study used a wide range of accounting and market-related company performance measurements. Secondly, this study covered a 10-year period as opposed to previous studies that used shorter periods. Lastly, as this study used a range of measurements, these could be ranked in terms of the measurements with the strongest correlation to CEO compensation. This approach may be valuable to CEOs, boards and shareholders, as the relationship between CEO compensation and company performance is under constant scrutiny. Measuring CEOs by using the most appropriate performance measurement should be beneficial for management, shareholders, analysts and other stakeholders.

The remainder of this paper is organised as follows: the next section provides an overview of the relevant literature, where after the research methodology is described. Next the empirical results are presented and discussed. The final section offers a conclusion and includes specific recommendations.

Literature Review

The literature study deals firstly with the financial theories applicable to managerial compensation, and secondly with past studies on the relationship between compensation and corporate performance.

Compensation Theories

Research into managerial compensation started over four decades ago. Several theories were proposed by previous researchers.

The *agency theory* is concerned with resolving problems that may exist in agency relationships, such as those between principals (such as shareholders) and agents of the principals (such as CEOs) (Donaldson and Davis 1991). Fama and Jensen (1983) stated

that, since managers make important decisions on behalf of the shareholders but are not the biggest receivers of the dividends and are therefore not the biggest carriers of risks associated with the decisions, agency problems can occur.

The *optimal contract theory* suggests that presenting the optimal contract to the right CEO will motivate the CEO to create shareholder value (Shaw 2011). CEOs are not required to pledge their own capital, and besides, CEOs are hired to run the company free from emotions (Shaw 2011).

The *stewardship theory* suggests that if managers are left to their own devices, they will indeed act responsibly and in the best interest of the shareholders (Donaldson and Davis 1991). Donaldson and Davis (1991) and Fox and Hamilton (1994) found that the results of their studies supported the stewardship theory but they did not support the agency theory.

The *managerial power theory* argues that CEOs have so much power and influence over their boards that they can determine their own compensation, even if it is in excess of the optimal contract (Van Essen, Otten, and Carberry 2015). Van Essen, Otten, and Carberry (2015) found that the managerial power theory is useful for predicting core compensation variables, such as total cash and total compensation.

The *labour market theory* suggests that employers compete to hire the best and workers compete for the most satisfying job. Shaw (2011) states that labour market forces create a natural supply and demand relationship.

Benchmarking is the practice of determining CEO compensation in relation to CEO compensations of other similar public enterprises (Holmstrom and Kaplan 2001). Benchmarking is perhaps the most convenient way to ensure that CEO compensation is adjusted for CEO talent, changes in supply-and-demand forces and to establish a CEO's reservation wage (Holmstrom and Kaplan 2001).

As this study investigated the relationship between CEO compensation and company performance, the results could be checked against the theories developed by previous researchers.

CEOs are compensated in several ways—from monetary compensation, such as base salary, bonus pay, employee benefits, share options and other monetary incentives to non-monetary compensation, such as a good working environment and the professional growth and experience gained. This study focused only on monetary compensation, specifically short-term compensation. Short-term compensation has quantifiable values in present terms, whereas long-term compensation is difficult to quantify. Moreover, studies similar to this investigation all used short-term compensation for analysing the relationship between compensation and company performance (Barrett 2014; Benito

and Conyon 1999; Bradley 2011; Girma, Thompson, and Wright 2007; Jensen and Murphy 1990; Scholtz and Smit 2012; Shaw 2011; Theku 2014).

Studies on Compensation and Corporate Performance

According to Steyn (2015), it is necessary to establish a suitable measure for company performance in order to investigate the relationship between managerial compensation and company performance. Studies by Barber, Ghiselli, and Deale (2006); Jensen and Murphy (1990); Lewellen and Huntsman (1970); and Masson (1971) used accounting measures. Later studies, such as those by Balafas and Florackis (2014); Cooper, Gulen, and Rau (2016); Main, Bruce, and Buck (1996); and Murphy (1986) used market-related measures. Baker (1992) used sales/revenue as a performance measurement when he examined the characteristics of incentive contracts, but the results were mixed. A study by Murphy (1999) found that 91 of 177 large US companies used EBITDA as a performance measurement, and also that public companies are more likely to choose external standards to measure performance. Ismail (2006) found that net operating profit after tax (NOPAT) has a higher correlation to share returns compared to economic profit measures. Gerhart and Milkovich (1990) used ROA as the measure of company performance in their pay-performance study. Whiting (1986) argued that return on capital (ROC) profits stand up to the capital being used to generate it. Finkelstein and Boyd (1998) used ROE in their pay-performance study, but Steyn (2015) disregarded ROE as he contended that ROE does not reflect changes in the wealth of shareholders. Shaw (2011) used EPS in his pay-performance study, as he argued that share performance allows one to evaluate how absolute performance translates into value for the shareholder. De Wet (2012) concluded that MVA is a reasonable proxy for the measurement of owner wealth maximisation. Steyn (2015) claimed TSR to be the most direct measure of shareholder wealth. Steyn (2015) supported this claim by referencing O'Neill and Iob (1999), who argued that TSR is regarded as the best indicator of company performance, as TSR combines capital growth and cash flow. Stern (2010) claimed that EVA is the best measurement tool for creating shareholder value, as it correlates better with share prices than any other measure. Wu, Levitas, and Priem (2005) used Tobin's q as a performance measurement in their study on CEO tenure. Li and Singal (2018) found that CEO compensation in the hospitality industry is positively related to ROA.

As can be seen from the above, several performance measurements have been used in past studies. This study aimed to investigate the correlation of CEO compensation with the following performance measurements:

- GIT: growth in turnover, sales growth.
- EBITDA: earnings before interest, taxes, depreciation and amortisation.
- DPS: dividends per share.
- NOPAT: net operating profit after tax.
- ROA: return on assets.
- ROC: return on capital.

- ROE: return on equity.
- ROI: return on investment.
- EPS: earnings per share.
- MVA: market value added.
- PE ratio: price earnings ratio.
- TSR: total shareholder return.
- EVA: economic value added.
- Tobin's q ratio.

Previous researchers used some of these measurements in their respective studies. Lewellen and Huntsman (1970) investigated whether sales, profits or share returns are determinants of CEO compensation and found that sales were not strong determining factors. Masson (1971) argued that compensation is determined by market performance and he found that if shareholders' interests were aligned with the basis of CEO compensation, the share returns improved. Meeks and Whittington (1975) found that the size of the company was the biggest contributing factor in CEO compensation, but they rejected the notion that increased pay incentives increased profitability.

Murphy (1986) found a positive relationship between compensation and company performance using TSR as a performance measurement. Abowd (1990) investigated the relationship between the sensitivity of cash-based compensation and company performance and found a positive relationship, although the relationship was stronger in market-related measures than in accounting measures. Jensen and Murphy's (1990) comprehensive study found that the relationship between CEO wealth and shareholder wealth is small and has been decreasing. The results of Gerhart and Milkovich (1990) indicate that contingent pay is associated with financial performance, but that the base pay is not.

Main, Bruce, and Buck (1996) decided to use long-term share options as well as short-term components of compensation in their research and found that executive pay is significantly more sensitive to company performance than suggested by previous literature. Benito and Conyon (1999) found that the link between pay and performance became quantitatively stronger over their sample period. Fatemi, Desai, and Katz (2003) examined the relationship between managerial compensation and company performance, using EVA and MVA as performance measurements, and the results of their research suggest that managers of highly-globalised companies tend to be paid at higher levels. Barber, Ghiselli, and Deale (2006) assessed the relationship between CEO compensation and company performance in the restaurant segment of the hospitality industry and the results showed that a positive, albeit weak, correlation exists between CEO compensation, gross revenue, net income, and stock prices.

Lilling (2006) used regression techniques and found a positive relationship between CEO compensation and the market value of a company. He concluded that incentive-based contracts are effective. Girma, Thompson, and Wright (2007) examined the

relationship between pay and performance of UK executives and the results indicated a weak relationship. However, the relationship was stronger when linked to larger-sized companies. Eichholtz, Kok, and Otten (2008) studied the drivers of executive compensation in the UK property sector and their results agreed with Girma, Thompson, and Wright (2007): they found only a weak pay-performance sensitivity for cash and long-term compensation.

Shaw (2011) found that the relationship between company performance and CEO remuneration was favourable, but this relationship experienced a decline over time. Scholtz and Smit (2012) found evidence that there is a strong relationship between executive remuneration and some company performance variables. Theku (2014) found a moderate to strong relationship between CEO compensation and company performance in the South African mining industry. His study also confirmed that company size plays a significant role in CEO compensation levels.

Cooper, Gulen, and Rau (2016), in contrast to some of the above-mentioned studies, found evidence that CEO compensation is negatively related to future shareholder wealth changes. Balafas and Florackis (2014) found that CEO incentive pay is negatively associated with short- and medium-term returns, although the results were not statistically significant. Steyn (2015) found a positive relationship between future abnormal shareholder returns and short-term cash compensation. However, he found that no relationship exists between future abnormal shareholder returns and long-term incentive contracts.

Allen and McAllister (2018) found that a positive pay-performance association exists across time.

Research Method

This study was based on quantitative, empirical and archival research on secondary data over a period of 10 years, namely 2006–2015. Statistical techniques were used to perform a correlation analysis.

The sample for the present study consisted of the Top 40 companies listed on the JSE, as they represent more than 80% of the total market capitalisation of South African listed companies (Cooper, Gulen, and Rau 2016). As the JSE Top 40 companies can differ from year to year due to changes in market capitalisation, the list of the JSE Top 40 companies as at 30 April 2015 was selected. The dependent and independent variables of these companies were collected for the period 2006 to 2015. Of the 40 companies, 28 had data available for 10 years and two companies had data for eight years, while the rest of the companies had insufficient data for analysis. Data for 30 companies, which is 75% of the initial sample, were therefore deemed to be sufficient for the analysis to be performed for this study. To standardise the units of analysis, all compensation figures and related variables were converted to South African Rands, (ZAR) using the average exchange rate for the relevant year.

A Pearson correlation was calculated and analysed to determine the relationship between CEO compensation and company performance measurements. Several previous pay-performance studies, such as those of Shaw (2011), Steyn (2015) and Theku (2014), used correlation analysis in their studies to determine relationships. A causal link/relationship between compensation and company performance was not unequivocally established in previous studies.

CEO compensation used in the present study was the total guaranteed compensation package as disclosed in the financial statements, including the basic salary, bonus and fixed benefits without gains on shares held. The company performance measurement variables, as stated before, were: GIT, EBITDA, DPS, NOPAT, ROA, ROE, ROI, ROC, EPS, MVA, PE, TSR, EVA, and Tobin's q ratio. The data were collected from IRESS (2018), a South African supplier of reliable financial data. CEO compensation (the independent variable) is stated as an absolute value, but some of the performance measurements are given as a percentage and some as an absolute value. This should not have affected the results of the correlation analysis. A factor/percentage describing the correlation between CEO compensation and a performance measurement was obtained. A total of 420 factors, based on the sample above, were obtained and analysed further.

Results and Interpretation

Descriptive statistics for CEO compensation in the sample are shown in Table 1.

Table 1: Descriptive statistics: CEO compensation in ZAR ('000)

Year	Average	Median	Minimum	Maximum	Standard deviation
2006	12 375	10 407	3 300	37 837	7 935
2007	15 347	11 732	3 673	51 522	12 425
2008	17 141	11 737	1 546	83 187	17 302
2009	16 744	9 382	1 712	116 701	20 658
2010	18 309	10 610	1 825	113 740	20 359
2011	21 702	14 705	1 777	118 431	21 954
2012	23 286	12 016	2 045	141 733	26 810
2013	34 002	21 553	2 504	172 720	38 806
2014	32 778	21 516	3 192	174 789	33 582
2015	50 214	30 968	2 892	308 716	68 654

It was observed that CEO compensation increased steadily over the study period with an average increase of 18.24% year-on-year. Considering that the inflation rate from 2006 to 2015 never exceeded 10%, with an average of 6%, CEO compensation increases were three times that of inflation. The years 2009 and 2014 reported negative growth, which may be related to the recessions South Africa experienced in those years. From 2006 to 2015 the average CEO compensation increased by 306%.

A detailed analysis of the correlation results is provided below. The standard deviation indicates that CEO compensation is spread out over a wide range of values. This could be due to the range of industries represented in the sample and also currency fluctuations during the study period.

Correlation Results

The main objective was to determine the relationship between CEO compensation of the JSE Top 40 companies and 14 relevant company performance measurements for the period 2006–2015. The correlation results were analysed using guidelines for the interpretation of correlation coefficients in order to determine their strength. According to Pallant (2010), the following guidelines indicate the strength of the relationship: a weak correlation between r = +-0.1 to +-0.29; a moderate correlation between r = +-0.30 to +-0.49; and a strong correlation between r = +-0.50 to +-1.

The analysis involved correlating the average and median values of CEO compensation shown in Table 1 with all the averages and medians of the company performance measurements during the same time period. Table 2 shows the results.

Table 2: Correlations of the total sample

Performance measurement	Average correlation	Median correlation	Relationship
GIT	-0.50	-0.25	Weak negative relationship
EBITDA	0.61	0.86	Strong positive relationship
DPS	0.91	0.80	Strong positive relationship
NOPAT	0.48	0.62	Strong positive relationship
ROA	-0.83	-0.79	Strong negative relationship
ROC	-0.32	-0.62	Strong negative relationship
ROE	-0.54	-0.52	Strong negative relationship
ROI	-0.69	-0.54	Strong negative relationship
EPS	0.82	0.89	Strong positive relationship
MVA	-0.09	-0.29	Weak negative relationship
PE	0.89	0.88	Strong positive relationship
TSR	-0.17	-0.30	Moderate negative relationship
EVA	-0.52	-0.45	Moderate negative relationship
Tobin's q	0.48	-0.35	Moderate positive relationship

The results of the relationships were mixed. There were differences between the average's relationship and the median's relationship. For the present study the discussion is based on the median, due to the big outliers in the data. Nine strong relationships were identified with only two weak relationships. Five positive relationships and nine negative relationships highlight the diverse results. Table 3 ranks

the company performance measurements from the strongest positive relationship to the strongest negative relationship based on the median.

Table 3: Company performance measurement correlation rankings based on the median.

Ranking	Performance measurement	Average correlation	Median correlation
1	EPS	0.82	0.89
2	PE	0.89	0.88
3	EBITDA	0.61	0.86
4	DPS	0.91	0.80
5	ROA	-0.83	-0.79
6	NOPAT	0.48	-0.62
7	ROC	-0.32	-0.62
8	ROI	-0.69	-0.54
9	ROE	-0.54	-0.52
10	EVA	-0.52	-0.45
11	Tobin's q	0.48	-0.35
12	TSR	-0.17	-0.30
13	MVA	-0.09	-0.29
14	GIT	-0.50	-0.25

Very strong positive relationships were identified for EPS, PE, EBITDA and DPS. These results indicate that CEO compensation increased from 2006 to 2015 in tandem with EPS, PE, EBITDA and DPS. In contrast, strong negative relationships were identified for ROA, ROC, ROI and ROE, indicating that CEO compensation increased from 2006 to 2015 whilst ROA, ROC, ROI and ROE decreased during the same period.

The results of this study indicated the following relationships between CEO compensation and accounting-based measurements over the analysis period.

- A very strong positive relationship exists between CEO compensation and EPS. Of the 420 relationships with CEO compensation analysed, the strongest was EPS. Shoprite Holdings Ltd showed a very strong positive relationship of 0.99 (see Appendix A), indicating that as EPS increased, so did the CEO's compensation. These results are in contrast with those of Theku (2014) who found no relationship between EPS and the fixed pay component of CEO compensation. Shaw (2011) found a generally weak to moderate relationship between CEO compensation and EPS. The results of this study confirm the agency theory, which suggests that shareholders/stakeholders are happy to compensate CEOs well as long as they (the shareholders) are rewarded for their investments. This result is, therefore, likely to satisfy shareholders.

- There is a very strong positive relationship between CEO compensation and PE ratio. A strong relationship was to be expected, as the PE ratio is very closely related to EPS. The strongest relationship with the PE ratio was found in Woolworths Holdings Ltd at 0.86 (see Appendix A).
- A very strong positive relationship exists between CEO compensation and EBITDA. The strongest positive relationships were found in Shoprite Holdings Ltd and Bidvest Group Ltd at 0.98 and 0.97 respectively (see Appendix A). Since EBITDA is also "earnings" related, this relationship was expected. The results of Lewellen and Huntsman (1970) support these results, as they also found a positive relationship with earnings, as did Theku (2014) who found a positive statistically-significant relationship between CEO compensation and EBITDA.
- A strong positive relationship was identified between CEO compensation and DPS. The results suggest that the more CEOs are compensated, the more the dividends per share increase. A relationship as strong as 0.98 was found in Mondi Plc (see Appendix A).
- There is a moderate positive relationship between CEO compensation and NOPAT. With the strong positive relationships identified for EPS, PE, EBITDA and DPS, a stronger relationship was expected between CEO compensation and NOPAT. However, this performance measurement is after tax. As the sampled companies have different tax rates the company tax clearly had an effect. Very strong relationships were again found with Shoprite Holdings Ltd and Bidvest Group Ltd at 0.98 and 0.97 respectively (see Appendix A). These results are supported somewhat by Barber, Ghiselli, and Deale (2006) and Shaw (2011) who also found a positive, albeit weak, relationship with net profit after tax.
- A weak negative relationship was identified between CEO compensation and GIT. Growth in turnover is not related to profits, meaning that CEOs and stakeholders would be more concerned with declines in profits than declines in sales. A strong positive relationship was found in Woolworths Holdings Ltd at 0.79 (see Appendix A). Similar results were found by Lewellen and Huntsman (1970).

Turning to market-related measurements, the following relationships with CEO compensation were found over the analysis period.

- A weak negative relationship was found between MVA and CEO compensation. The strongest positive relationship found was in Mondi Plc at 0.97 (see Appendix A).
- A weak negative relationship was found between TSR and CEO compensation. These results were surprising, as the relationships with EPS, DPS and PE ratios were very strong and positive (TSR is determined by using dividends and changes in share prices). Previous literature reported very different relationships between TSR and CEO compensation. O'Neill and Iob (1999) found an inverse relationship, Benito and Conyon (1999) reported a positive

relationship, Eichholtz, Kok, and Otten (2008) had mixed positive results, and Steyn (2015) found a positive relationship. No other studies found as weak a relationship as the present study. Only two of the positive correlations found in the Top 40 related to TSR. Discovery Ltd had the strongest relationship at 0.71 (see Appendix A) and Shoprite Holdings Ltd had the most negative relationship at -0.67 (see Appendix A). These results should be a concern for shareholders, as it means that the more CEOs are compensated, the more the shareholders' returns will decrease.

- A weak negative relationship was found between Tobin's q ratio and CEO compensation. This means that the closer the value of the company's physical assets gets to the replacement value of the assets, the more the CEO's compensation decreases, although only slightly.
- The moderate negative relationship found between EVA and CEO compensation was in direct contrast to the results of Fatemi, Desai, and Katz (2003) who found that EVA is an important determinant of CEO compensation for global enterprises. However, it is important to note the direction of Fatemi, Desai, and Katz's study, which was causal. By contrast, the present study only tested correlational relationships.
- A moderate to strong negative relationship was found between ROE and CEO compensation. This means that the more CEOs are compensated, the more ROE decreases. Abowd's (1990) study found mixed results (weak, positive and negative) indicating that increased compensation does not necessarily lead to increased performance. Shaw (2011), in contrast to the present study, found a weak relationship with CEO compensation, while Theku (2014) found no relationship at all.
- A moderate to strong negative relationship was found between ROI and CEO compensation. No previous pay-performance studies used ROI as a performance measurement.
- A moderate to strong negative relationship was found between ROC and CEO compensation. ROE, ROI and ROC all show negative relationships with CEO compensation. These results were expected, as these measures are all based on book values.
- A strong negative relationship was found between ROA and CEO compensation. This is in contrast to Theku (2014), who found a weak positive relationship with ROA. As with most of the other accounting measures, a negative relationship was reported with ROA, with Discovery Ltd showing the strongest negative relationship at -0.92 (see Appendix A).

A secondary objective of this present study was to identify the JSE Top 40 company with the strongest correlation between CEO compensation and company performance measurements over the 10 years studied. The process involved correlating each company performance measurement with the relevant company's CEO compensation. The average of all of the 14 correlations was calculated and ranked per company, from

the strongest correlation to the weakest correlation. The results are presented in Table 4.

Table 4: Correlations between CEO compensation and the average of all 14 performance measurements

Ranking	Code	Name	Correlation	Type
1	MNP	Mondi Plc	0.73	Strong positive
2	BTI	British American Tobacco Plc	0.52	Strong positive
3	WHL	Woolworths Holdings Ltd	0.49	Moderate positive
4	FSR	FirstRand Ltd	0.41	Moderate positive
5	SHP	Shoprite Holdings Ltd	0.32	Moderate positive
6	BGA	Barclays Africa Group Ltd	0.32	Moderate positive
7	AGL	Anglo American Plc South Africa	-0.29	Weak negative
8	NPN	Naspers Ltd	0.27	Weak positive
9	AMS	Anglo American Platinum Ltd	-0.27	Weak negative
10	SLM	Sanlam Ltd	0.22	Weak positive
11	GRT	Growthpoint Properties Ltd	0.21	Weak positive
12	OML	Old Mutual Plc	0.21	Weak positive
13	CFR	Compagnie Financiere Richemont	0.21	Weak positive
14	APN	Aspen Pharmacare Holdings Ltd	0.19	Weak positive
15	NED	Nedbank Group Ltd	0.15	Weak positive
16	SAB	SAB Miller Plc	-0.15	Weak negative
17	INP	Investec Plc	0.15	Weak positive
18	RMH	RMB Holding	-0.12	Weak negative
19	BIL	BHP Billiton Plc	-0.12	Weak negative
20	SNH	Steinhoff International Holdings Ltd	0.11	Weak positive
21	SBK	Standard Bank Group Ltd	0.09	No relationship
22	CPI	Capitec Bank Holdings Ltd	0.08	No relationship
23	BVT	Bidvest Group Ltd	0.07	No relationship
24	DSY	Discovery Ltd	0.07	No relationship
25	TBS	Tiger Brands Ltd	0.06	No relationship
26	REM	Remgro Ltd	0.05	No relationship
27	MTN	MTN Group Ltd	-0.01	No relationship
28	ANG	Anglogold Ashanti Ltd	-0.01	No relationship
29	SOL	Sasol Ltd	0.01	No relationship
30	ITU	Intu Properties Plc	-0.00	No relationship

Ranking	Code	Name	Correlation	Type
		AVERAGE	**0.13**	
		MEDIAN	**0.10**	

Results varied substantially with only two companies showing a strong positive relationship with CEO compensation (Mondi Plc and British American Tobacco Plc). If GIT was to be ignored in the case of British American Tobacco Plc, the average relationship would rise to 0.61. It is, therefore, very important to identify the performance measurement with the strongest relationship to CEO compensation.

Four companies delivered moderate positive relationships, nine companies had weak positive relationships, five companies had weak negative relationships and 10 companies had no relationships. On a company-per-company basis the results suggest that there is a positive relationship, albeit weak, with CEO compensation. The results show an average relationship of 0.13 and a median relationship of 0.10. The results correlate on a performance measurement basis, as there are a larger number of strong positive relationships (2) than strong negative relationships (none). An overall positive relationship of 0.10 is very weak, but it does coincide with the results of Abowd (1990); Barber, Ghiselli, and Deale (2006); Benito and Conyon (1999); Fatemi, Desai, and Katz (2003); Girma, Thompson, and Wright (2007); Jensen and Murphy (1990); Masson (1971); Murphy (1986); Oxelheim and Randoy (2005); Shaw (2011); Steyn (2015); and Theku (2014), who also found a positive relationship/correlation between managerial compensation and company performance.

Conclusions and Recommendations

This study's main objective was to identify and analyse the correlation of short-term CEO compensation with company performance of the JSE Top 40 companies. The secondary objective was to identify and analyse the company performance measurement with the strongest correlation to short-term CEO compensation of the JSE Top 40 companies.

The results indicate that EPS (an accounting-based indicator of profitability) is the performance measurement with the strongest positive correlation between CEO compensation and company performance. EPS reported a very strong correlation of 0.89, slightly more than the PE ratio (a market-based indicator) of 0.88.

The strongest negative correlation between CEO compensation and company performance was found with ROA. ROA reported a very strong negative relationship of -0.79. The weakest correlation, positive or negative, was found with GIT, which showed a weak relationship of -0.25.

The motivation for this study was to identify the company performance measurement that correlates "best" with CEO compensation. It can be concluded that strong correlations were found for five of the 14 company performance measurements, of which four were positive. The results indicate that stakeholders reward CEOs if and when EPS increase and that CEOs will "push" to increase EPS because it will increase their compensation. The results also indicate that, as CEO compensation increases, the ROA decreases. This could lead CEOs to reduce investment in assets, as this will decrease ROA and increase their compensation.

The last additional requirement was to identify the JSE Top 40 company with the strongest correlation to all of the company performance measurements used in this study. The results between CEO compensation and the 14 company performance measurements show that Mondi Plc had the overall strongest positive correlation at 0.73, Anglo American Plc South Africa showed the strongest negative correlation at -0.29, and Intu Properties Plc showed no relationship at -0.0.

Considering the process of determining CEO compensation, it would be beneficial for CEOs to base their compensation on EPS in the negotiating process. It would also be advantageous for CEOs to steer clear of ROA, ROC and ROI as bases for their compensation, as this study's results indicate that negative relationships exist between CEO compensation and these performance measurements. However, these comments are based on the assumption that CEOs are happy to have a pay-performance based compensation.

If the board is willing to base CEO compensation on company performance, finding the correct or "best" measure of company performance is very important according to Shaw (2011). The board members would need to decide what performance measurements they consider to be the most valuable or important to them. Aligning the interests of the stakeholders to those of the CEO is the ultimate goal. The correlations found between CEO compensation and the relevant company performance measurements in this study can be used by the board when negotiating and determining CEO compensation.

All shareholders should evaluate the CEO's compensation and the performance of the companies in which they hold shares. As CEO compensation information is publicly available for listed companies, the relationships found in this study may be useful to shareholders. On the other hand, judging a CEO harshly based on ROA could be risky, as this study suggests that a negative relationship already exists between CEO compensation and ROA.

This study has contributed to the body of knowledge regarding the relationship between CEO compensation and company performance due to its use of a comprehensive range of performance measurements. There are, however, limitations to this study. Observations made during this investigation suggest that there are opportunities for future research. These include increasing the number of companies in the sample size,

expanding the study to international companies, broadening the study to include long-term compensation, testing for causality between compensation and company performance measurements, and including qualitative performance measurements.

The results obtained from the different performance measurements varied substantially. Based on the different relationships identified in this study, it can be concluded that the performance measurements used in pay-performance studies are very important as they can provide very different results, depending on the input factors and variables.

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Appendix A

APPENDIX A			Correlation between CEO compensation and various company performance measurements: 2006-2015													
	CODE	COMPANY NAME	GIT	EBITDA	DPS	NOPAT	ROA	ROE	ROI	ROC	EPS	PE	MVA	EVA	TSR	TQ
1	BTI	Brittish American Tabacco Plc	- 0.55	0.84	0.64	0.81	- 0.11	0.54	0.75	0.36	0.70	0.61	0.75	0.73	0.56	0.70
2	SAB	SAB Miller Plc	0.29	- 0.11	- 0.25	0.03	- 0.09	- 0.12	0.10	- 0.10	- 0.29	0.06	- 0.17	- 0.90	- 0.36	- 0.22
3	NPN	Naspers Ltd	0.01	0.25	0.74	0.92	- 0.50	- 0.06	- 0.12	0.00	0.71	0.83	0.77	- 0.78	0.13	0.84
4	CFR	Compagnie Financiere Richemont	0.13	0.94	0.62	0.56	0.50	- 0.47	- 0.14	- 0.47	0.49	0.53	0.19	- 0.43	0.24	0.25
5	ANG	Anglogold Ashanti Ltd	- 0.67	0.15	n/a	0.36	0.24	0.22	0.20	0.27	0.40	0.02	- 0.56	n/a	- 0.14	- 0.60
6	BIL	BHP Bilitin Plc	- 0.20	0.27	0.28	- 0.00	- 0.21	- 0.34	- 0.32	- 0.32	0.16	- 0.10	- 0.41	0.09	- 0.10	- 0.43
7	SNH	Steinhoff International Holdings Ltd	- 0.20	0.94	0.85	0.97	- 0.49	- 0.97	- 0.31	- 0.73	0.79	0.67	0.08	- 0.92	0.35	0.52
8	SOL	Sasol Ltd	- 0.37	0.90	0.90	0.90	- 0.67	- 0.49	- 0.45	- 0.45	0.94	- 0.71	- 0.53	0.59	- 0.05	- 0.41
9	MTN	MTN Group Ltd	- 0.52	0.71	0.88	0.69	- 0.60	- 0.30	- 0.28	- 0.09	0.51	- 0.02	- 0.45	0.31	- 0.48	- 0.52
10	FSR	Firstrand Ltd	n/a	0.14	0.93	0.87	0.21	0.04	0.60	- 0.04	0.92	0.44	0.66	0.11	- 0.22	0.62
11	OML	Old Mutual Plc	0.30	0.21	0.29	0.13	0.28	0.05	0.17	0.54	0.49	0.15	0.35	- 0.24	0.06	0.16
12	SBK	Standard Bank Group Ltd	n/a	- 0.12	0.70	0.78	0.13	0.06	0.69	0.48	0.88	- 0.54	- 0.33	- 0.34	- 0.42	- 0.83
13	AGL	Anglo American Plc South Africa	- 0.24	- 0.50	n/a	- 0.56	- 0.51	- 0.51	- 0.53	- 0.49	- 0.38	0.43	- 0.32	0.38	- 0.21	- 0.31
14	APN	Aspen Pharmacare Holdings Ltd	0.08	0.94	n/a	0.95	- 0.10	- 0.90	- 0.23	- 0.97	0.97	0.75	- 0.34	0.69	0.11	0.56
15	SLM	Sanlam Ltd	0.12	- 0.67	0.83	0.73	- 0.53	0.08	- 0.13	0.48	0.77	0.40	0.63	0.64	- 0.31	- 0.01
16	BVT	Bidvest Group Ltd	- 0.04	0.97	n/a	0.98	- 0.70	- 0.83	- 0.48	- 0.81	0.97	0.66	- 0.24	- 0.01	0.08	0.38
17	REM	Remgro Ltd	0.37	- 0.40	0.24	- 0.17	- 0.53	0.10	- 0.55	0.26	0.52	0.33	0.34	0.03	- 0.22	0.34
18	BGA	Barclays Africa Group Ltd	n/a	0.52	0.16	0.15	0.74	0.84	0.77	0.65	0.32	- 0.61	0.23	0.18	- 0.02	0.22
19	MNP	Mondi Plc	0.25	0.86	0.98	0.83	0.80	0.79	0.83	0.79	0.96	0.00	0.97	0.81	0.39	0.96
20	AMS	Anglo American Platinum Ltd	- 0.08	- 0.30	n/a	- 0.40	- 0.35	- 0.44	- 0.41	- 0.38	- 0.35	0.36	- 0.26	- 0.28	- 0.31	- 0.24
21	SHP	Shoprite Holdings Ltd	- 0.53	0.98	0.96	0.98	0.02	- 0.56	0.06	- 0.55	0.99	0.84	0.19	0.97	- 0.68	0.84
22	ITU	Intu Properties Ltd	- 0.34	0.26	- 0.30	0.17	0.23	0.23	0.16	0.18	- 0.16	- 0.05	- 0.13	- 0.39	0.15	- 0.06
23	WHL	Woolworths Holdings Ltd	0.79	0.96	0.71	0.87	0.41	- 0.27	0.14	- 0.13	0.83	0.86	0.23	0.84	- 0.08	0.64
24	NED	Nedbank Group Ltd	n/a	- 0.59	0.79	0.84	0.15	- 0.46	0.07	- 0.20	0.79	0.03	- 0.01	0.45	- 0.07	0.10
25	DSY	Discovery Ltd	0.39	0.85	0.95	0.80	- 0.92	0.26	- 0.87	- 0.93	0.81	0.02	0.52	- 0.86	0.71	- 0.73
26	RMH	RMB Holding	n/a	0.52	- 0.19	- 0.28	0.46	- 0.03	- 0.20	- 0.50	- 0.21	- 0.30	- 0.23	- 0.25	0.06	- 0.38
27	INP	Investec Plc	n/a	0.39	0.07	0.54	0.37	0.23	0.34	0.35	0.03	- 0.00	0.34	- 0.28	- 0.65	0.17
28	GRT	Growthpoint Properties Ltd	- 0.42	0.86	0.81	0.75	0.27	- 0.17	0.73	0.70	0.89	0.50	- 0.50	- 0.77	- 0.11	- 0.56
29	TBS	Tiger Brands Ltd	- 0.14	- 0.20	- 0.30	- 0.04	0.43	0.58	0.37	0.44	- 0.60	- 0.05	0.48	0.01	- 0.03	- 0.19
30	CPI	Capitec Bank Holdings Ltd	0.35	- 0.16	0.32	0.24	0.14	0.16	- 0.44	- 0.44	0.30	0.45	0.20	- 0.00	- 0.25	0.25
		Source: Authors' own calculation and compilation														