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**MAF 08: LONG-TERM INCENTIVES: DO SHAREHOLDERS
GET WHAT THEY PAY FOR?**

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Abstract

As a result of high economic inequality, executive remuneration has long been a fierce topic of debate in South Africa (SA). The high levels of long-term incentives awarded are often highlighted as a source of discontent amongst stakeholders. The literature offers various theories surrounding executive pay: Labour market theory suggest that high pay is required to secure the talent required for better company performance, while optimal contracting theory advocates the use of long-term incentive compensation (LIC) to achieve goal congruence between managers and shareholders.

The findings of international studies on the link between CEO pay and future company performance, however, cast doubt over the efficacy of LIC to motivate shareholder value creation. Excess CEO-compensation was found to be negatively associated with abnormal future total shareholder returns for up to five years (Balafas & Florackis, 2014; Cooper, Gulen & Rau, 2014; Core, Holthausen and Larcker, 1999). Due to the difficulty in valuing LIC, it tends to be neglected in South African studies. The relationship between CEO pay and future company performance has also not been investigated in the local context.

This paper aimed to contribute to the field in two ways: 1) establishing the significance of LIC pay levels and the proportion of LIC to total compensation for the top 100 JSE listed companies, overall and by size grouping, 2) by investigating the relationship between excess LIC and future abnormal total shareholder return (TSR).

The findings show that while LIC makes up a significant proportion of pay in SA, there seems to be no clear relationship between the levels of excess LIC and abnormal future TSR.

Key words: Pay-performance sensitivity; Optimal contracting; Agency theory; Executive remuneration; Long-term incentives; South Africa

Introduction

The level of compensation earned by executive managers of companies in the private sector is a contentious issue worldwide. Discontent is fuelled by the increasing disparity in compensation between executives and the average worker (AFL-CIO, 2015; COSATU, 2014). Long-term incentive plans, specifically, have driven executive pay up to “unwarranted levels” without delivering the same improvement in company performance (Garside, 2015). Cooper *et al.* (2014) found that companies in the United States (U.S.) that pay their CEOs in the top ten percent of excess pay earn negative abnormal returns of nearly -8% in the subsequent three years. This casts doubt over the economic justification for ever increasing executive compensation, and similar results in SA would be concerning.

On the other end of the debate, proponents of labour market theory argue that in a competitive environment good leaders are required (Chalmers, Koh and Stapleton, 2006) and companies need to compensate CEOs adequately in order to retain quality talent (Bizjak, Lemmon & Naveen, 2008). According to agency theory, once the appropriate talent has been secured, management needs to be incentivised to act in the best interest of the shareholders of the company. It is further argued that if companies perform well, they contribute to the economy and more jobs are created.

South African studies that investigate this link between company performance and executive pay ignore long-term incentives due the difficulty of determining the values, as well as the insignificance of LIC in some industries (Shaw, 2011). This study aims to establish the significance of long-term incentive compensation of CEOs in South Africa, and whether there is a positive association between CEO long-term incentive compensation and future company performance.

Background and literature review

Most of the studies that investigate executive remuneration mainly focus on the compensation of the highest paid individual, the CEO (Balafas & Florackis, 2014; Chalmers *et al.*, 2006; Cooper *et al.*, 2014; Core *et al.*, 1999; Edmans & Gabaix, 2009; Jensen & Murphy, 1990a; Jensen & Murphy, 1990b; Tosi & Gomez-Mejia, 1994) and as a result this study excludes compensation of other executives.

The literature review is arranged as follows: First a brief explanation of the various theories that aim to explain CEO compensation, followed by defining the components of CEO pay and measures of company performance. A short summary of international and local pay-performance sensitivity studies are presented, before the research objectives are formulated.

Theories explaining managerial pay

There are various theories that try to explain the levels of CEO compensation. Agency theory arose due to the separation of the control and ownership of companies, which might cause self-serving managers pursue their personal goals above that of the company (Jones & Vile, 1996). These undesirable activities of the managers can be limited by establishing appropriate incentives for the managers (Jensen & Meckling, 1976). Optimal contracting

theory suggests that a well-designed pay package should attract the right CEOs; incentivise them to exert effort and exploit growth opportunities; and reject wasteful projects while limiting the cost of doing so (Edmans & Gabaix, 2009). Optimal contracting theory suggests that the problem of appropriate CEO compensation is not just a question of how much the executive managers should be paid, but also how their compensation packages should be structured (Jensen & Murphy, 1990b). Labour market theory views CEO compensation levels as the efficient outcome of a labour market in which companies optimally compete for managerial talent (Frydman & Jenter, 2010). A positive association between pay and future performance would support agency theory, optimal contracting and labour market theory.

Compensation and company performance variables

Studies that investigate the sensitivity of CEO compensation to company performance – pay-performance sensitivity studies – have to decide on how to measure CEO compensation and company performance respectively.

Total compensation (TC) is made up of two major components, namely: short-term cash compensation (SCC) and long-term incentive compensation (LIC). SCC mainly comprises base salary, other benefits and cash bonus, while LIC is made up of one or more of the following: deferred short-term incentives, performance shares, share options and gains on shares held. The value of the SCC earned by the CEO is readily available from annual reports and databases such as INETBFA. The value of LIC in South Africa is however only disclosed by a handful of the largest listed companies and has to be calculated for the remainder of the companies using the information published in remuneration reports, a time consuming exercise.

Company performance may be measured in various ways that can be broadly categorised as either accounting measures or market-related measures of company performance. Accounting measures include absolute measures such as revenue or profit, or ratios, including earnings per share (EPS), return on equity (ROE) and return on assets (ROA). The basic problem with using accounting measures as an indication of company performance is that accounting measures do not measure shareholder value (Correia, Flynn, Uliana & Wormald, 2013) and it may be manipulated in various ways (Healy, 1985). Due to the shortcomings of accounting ratios as a measure of company performance the trend in the pay-performance sensitivity literature is moving towards a market related measure of shareholder wealth: total shareholder return (TSR) (Abowd, 1990; Conyon & Leech, 1994; Main, Bruce & Buck, 1996; Masson, 1971; Murphy, 1986; Stathopoulos, Espenlaub & Walker, 2005). TSR is generally regarded as the best indicator of company performance, since it combines capital growth (gain in share price) and cash flow (dividends) to provide ultimate shareholder returns (O'Neill & Iob, 1999). A study that aims to investigate the link, between CEO pay and company performance, would be most valuable if LIC is included in CEO pay and company performance is measured in terms of TSR.

The link between CEO pay and company performance

Early studies on the link between company performance and CEO pay found that the size of the company is more closely related to the level of CEO compensation than the performance (McGuire, Chiu & Elbing, 1962; Roberts, 1959). Later studies rejected this theory of sales

maximisation, reporting that executive compensation is primarily related to share market returns (Lewellen & Huntsman, 1970; Masson, 1971).

Studies that exclude LIC report a weak relationship between pay and performance in large listed companies (Benito & Conyon, 1999; Conyon & Leech, 1994). Girma, Thompson & Wright (2007) also exclude long-term incentives from compensation and use accounting-based measures of company performance and found a weak pay-performance relationship.

In contrast to studies that focus on SCC, studies that include LIC and measure company performance in terms of TSR, report a positive relationship between pay and performance (Jensen & Murphy, 1990a; Main *et al.*, 1996; Murphy, 1986; Stathopoulos *et al.*, 2005). Barber, Ghiselli and Deale (2006) similarly report a positive but weak correlation among CEO compensation (including long-term share-based incentives), sales, profit and share price in the U.S. restaurant industry.

Eichholtz, Kok and Otten (2008) use both accounting and market-related measures of performance, and include long-term incentive compensation and report that compensation is strongly linked to company size (similar to the findings of Girma *et al.* (2007)). Eichholtz *et al.* (2008) also report that long-term incentives – but not cash pay – are explained by performance, consistent with the earlier studies of Lewellen and Huntsman (1970), and Masson (1971).

One study, however, reported an inverse relationship between compensation (including share options) and TSR over the previous five years and concluded that job size and complexity largely determine compensation (O'Neill & Iob, 1999). The results reported by pay-performance sensitivity studies are as varied as the measures of pay and performance that are included. It is, however, clear that the inclusion of LIC and some market related measure of company performance is preferable. These studies all investigated the effect of company performance on CEO pay, without considering the effect that the pay package has on the future performance of the company.

Pay for future performance

How performance affects compensation is well researched, but limited research exist on the reciprocal relationship of how compensation affects future performance (Murphy, 1999), in other words: whether shareholders get what they pay for.

Abowd (1990) investigated whether the sensitivity of cash based compensation to company performance is positively related to company performance in the subsequent year and reports that where there was a stronger relationship between company performance and CEO pay in the base year, companies performed better in the subsequent year. Other studies that investigated whether CEOs that earn in excess of their peers perform better, all report a negative association between abnormal future share returns and excess CEO compensation (Balafas & Florackis, 2014; Cooper *et al.*, 2014; Core *et al.*, 1999). If similar results were to be found in South Africa, where pay inequality is arguably more severe, it would be very concerning.

South African pay-performance studies

In South Africa, the literature on the link between executive pay and performance is in its infancy, with pay-performance sensitivity of executive compensation only attracting the interest of SA researchers since 2011. Local studies on executive compensation mainly focus on the correlation between accounting measures of company performance and short-term cash compensation, neglecting long-term incentives (Bradley, 2011; Dommissie, 2011; Modau, 2013; Shaw, 2011). Reasons for excluding LIC include the lack of available information and relative insignificance of LIC compared to TC (Shaw, 2011). Some studies include the change in the share price as a market related measure of company performance, but report no consistent relationship with SCC (Barrett, 2014; Scholtz & Smit, 2012; Theku, 2014). Only one study adequately include LIC and use TSR to measure company performance (Bussin & Blair, 2015), but it investigated which performance measures are included in the composition of the LIC, rather than the incentivisation effect of CEO pay on future company performance.

The South African literature has clear shortcomings when compared to the norms internationally: Firstly, no local study adequately included LIC as part of CEO compensation. Cooper *et al.* (2014) reported a 99% correlation between LIC and TC, and only 38% between SCC and TC. A similar composition in SA would cast doubt over the majority of pay-performance sensitivity studies. Secondly, local studies mainly measure company performance using accounting measures, rather than TSR. Finally, the link between pay and future performance has not been considered in South Africa.

Research objectives

The norm in the international literature to include LIC and measure company performance using TSR, as well as the shortcomings in the local literature lead to the formulation of two research objectives:

Research objective 1 is to establish the significance of long-term incentive compensation relative to total compensation for the largest 100 companies listed on the Johannesburg Stock Exchange (JSE) for 2011 to 2013.

Research objective 2 is to investigate and analyse the relationship between the level of CEO long-term incentive compensation (LIC) and the abnormal future total shareholder returns (TSR) in South Africa. This relationship between total compensation (and short-term cash compensation) and future TSR is the focus of another study.

Research design and methodology

This study examines the significance of CEO long-term incentive compensation for the largest 100 companies listed on the JSE in South Africa for the period 2011 to 2013. The relationship between CEO long-term incentive compensation (LIC) and future company performance (as measured by abnormal total shareholder return (TSR)) is then investigated.

Data

The study is based primarily on data that is publicly available (namely the companies' annual reports and INETBFA), but also includes information that was calculated and supplied by PricewaterhouseCoopers (PwC) that is subject to a confidentiality agreement (further details are provided below).

The study focused on the largest 100 companies in terms of market capitalisation that are listed on the JSE. The reason for limiting the population to the top 100 (which includes large- and mid-cap companies) is the availability of the expected value of the long-term incentives for these companies as calculated and supplied by PwC. Included in the top 100 company codes on the JSE are other instruments, including exchange traded notes (ETNs) and warrants which are not operating companies managed by a CEO, and consequently were excluded from the sample. The number of companies remaining in the sample is 79 in 2011, 92 in 2012 and 92 in 2013.

The variables used to measure CEO pay and company performance in this study are defined in sections 3.1.1 and 3.1.2 respectively.

Compensation variables

The categories of long-term incentive compensation identified in the literature that are included in this study are shown in Table 11. Gains on shares held are excluded since executives may decide to retain or dispose of these shares at any time. This is supported by Main *et al.* (1996) who are of the view that these constitute a personal investment, not compensation.

Table 11: Compensation variables included in this study

Long-term incentive compensation (LIC)	
<u>CASH</u>	This study:
Deferred STI (bonus)	Included
<u>SHARE-BASED</u>	
Performance shares	Included
Share options	Included
Gains on shares held	Excluded

The compensation data has been obtained from PwC who publishes an annual report on the practices and trends of executive remuneration (PwC, 2014). The number of options and performance shares granted, as well as the vesting conditions, were retrieved directly from the annual financial statements by PwC. The valuation methodology of the expected values of the long-term incentives was discussed with PwC to confirm that the valuation methodology is consistent with generally accepted finance theory and that the assumptions are considered to be reasonable. Spot checks to INETBFA were also performed on certain data to verify the reliability of the thereof.

In order to describe compensation levels and structures, raw pay levels were used. Compensation for 2011 and 2012 was adjusted for inflation to reflect 2013 values. The year-on-year Consumer Price Index (CPI) (StatsSA, 2015) for the financial year-end month of each company was used to adjust the compensation level of the CEO of each company. Excess LIC was calculated as the difference between the absolute level of LIC of an individual CEO and the median LIC of the peer group based on size. This study follows the same classification as Steyn (2015) who defined four different size groups (based on revenue), namely: “Mega”, “Large”, “Medium” and “Small” as per Table 12.

Table 12: Size groups (based on revenue)

Size group	Revenue (R Billions)	Number of observations		
		2011	2012	2013
Mega	>100	8	9	11
Large	40 – 100	17	22	21
Medium	10 – 40	33	35	36
Small	< 10	21	26	24

Steyn (2015) tested whether mean total compensation differs between groups using a t-test and the Mann-Whitney u-test. Both tests reported statistically significant differences in means when comparing pairs of size groups. Similar tests were performed on four major industry groupings to test whether evidence of benchmarking on industry exists. Steyn (2015) found no such evidence and concluded that size plays a bigger role in determining pay levels than industry.

Performance variables

Total shareholder return (TSR) is used to measure company performance and is calculated as $(P_1 - P_0 + D) / P_0$ where:

- P_1 is the closing share price at the end of the quarter
- P_0 is the closing share price at the end of the previous quarter
- D is the dividends declared and paid of which the last day to trade (LDT) falls within the specified quarter

Closing share prices and dividends for the top 100 JSE listed companies were downloaded from the Sharenet database for the period 2010 to 2015. The TSR for each quarter was calculated by adding the dividend to the share price appreciation for the quarter in which the LDT for the dividend fell. For dividends disclosed in foreign currency, the relevant exchange rates were downloaded and applied on the inclusion date (LDT). Daily historical midpoint exchange rates were downloaded from Oanda.com.

Research design

First research objective

The first research objective of this study is to establish the significance of long-term incentive compensation relative to total compensation for the largest 100 companies listed on the Johannesburg Stock Exchange for 2011 to 2013.

The international literature identifies the significance of long-term incentives in terms of the value thereof relative to total compensation. Further, the contrast in findings between pay-performance sensitivity studies that include and exclude long-term incentives is also evident, potentially as a result of LIC being a more significant driver of total compensation than short-term cash.

The first two research questions respond to the lack of readily available information regarding the significance of LIC in South Africa, given that the importance of these is dismissed in the local literature (Shaw, 2011).

Research question 1: What is the proportion of long-term incentive compensation (LIC) relative to total compensation (TC)?

In order to address research question 1, the mean and median level of LIC, as well as the proportion of LIC to TC were calculated for the largest 100 companies listed on the JSE in South Africa for the period 2011 to 2013 overall, and per size group (based on revenue). The proportion was calculated by dividing the total LIC by the total TC, as well as dividing the median LIC by the median TC, overall and for each size group.

Most South African pay-performance sensitivity studies use SCC as a proxy for TC and exclude LIC. In the U.S., Cooper *et al.* (2014) reported a near perfect correlation between LIC and TC (99%), compared to a correlation between SCC and TC of only 38%. Similar results in SA would cast doubt over the reliability of SA pay-performance sensitivity studies.

Research question 2: Is LIC more closely correlated to TC than SCC?

In order to address the second research question the following hypothesis was set:

Hypothesis 1 (H_1): The correlation between LIC and TC is stronger than the correlation between SCC and TC.

In order to test hypothesis 1 the correlation between the components of compensation was determined.

Second research objective

The second objective of this study is to investigate and analyse the relationship between the level of CEO long-term incentive compensation (LIC) and the abnormal future total shareholder returns (TSR) in South Africa.

The general experience reported in the international literature is a positive pay-performance relationship where long-term incentives are included in total compensation and lagged TSR

is used to measure company performance. The pay-performance sensitivity relationship using this combination of variables has not been tested in South Africa.

A handful of studies in the international literature extend the investigation of the pay-performance relationship to consider future company performance. Surprisingly, most of these studies found the association between LIC and future abnormal TSR to be negative (Balafas & Florackis, 2014; Cooper *et al.*, 2014; Core *et al.*, 1999).

The third research question considers this un-researched relationship in the South African context, questioning whether a positive relationship between long-term incentive compensation and future company performance (measured by TSR) exists.

Research question 3: Does a positive relationship between LIC and future company performance (as measured by TSR) exist?

The relationship between LIC and TSR was investigated in terms of excess LIC and abnormal future TSR. It was necessary to use excess compensation – that is, the absolute value of LIC less the median of LIC of the peer group – rather than the absolute value of LIC in order to control for the effect of benchmarking on compensation. The peer groups are based on size groupings defined by Steyn (2015) as previously described in section 3.1.1. Abnormal TSR was used in order to eliminate the effect of general share market movements, calculated as the TSR of each company less the benchmark of the equally weighted (EW) TSR of the top 100 JSE listed companies. In order to address research question 3, the following hypothesis was set:

Hypothesis 2 (H₂): A positive relationship between excess long-term incentive compensation (LIC) and abnormal future total shareholder return (TSR) exists.

The approach taken to test hypothesis 2 was to firstly analyse the situation descriptively in order to establish the apparent relationship between excess LIC and abnormal TSR. This relationship was then tested statistically in order to confirm or reject the hypothesis.

Descriptive relationship

The approach taken in the descriptive analysis was to first compare the abnormal returns of the extreme cases of excess pay, since the distinction would be clearest when contrasting the situations of companies with highest and lowest excess pay relative to peers, given the obvious existence of other factors affecting abnormal returns. In order to do this, companies were ranked on excess LIC and decile portfolios were formed. The abnormal TSR of the top and bottom deciles of excess pay were compared.

In order to investigate whether the relationship between excess compensation and abnormal returns was consistent across the remaining deciles, with abnormal returns declining as excess pay diminished, the remaining deciles were taken into consideration. The groupings were progressively broadened to include the next highest/lowest decile and the average abnormal returns for the larger groups were calculated. This process was repeated until the entire sample was split into two groups, being the top and the bottom half. A steadily

decreasing abnormal return across groupings from highest to lowest decile would indicate a consistently positive relationship between excess LIC and abnormal TSR.

The abnormal future TSR was calculated for the top and bottom decile portfolios of excess LIC. The return holding period was limited to nine quarters due the availability of compensation data. Even though the incentivisation effect of compensation on company performance may take several years to manifest, international studies on the pay for future company performance relationship have reported significant results for holding periods as short as one year (Cooper *et al.*, 2014; Core *et al.*, 1999).

Decile portfolios were formed at the start of the calendar year in which the CEO compensation was reported. The companies' actual financial years were disregarded for simplicity of the calculation. This simplification is supported by the findings of Cooper *et al.* (2014) who report that a similar relationship between pay and future performance exists regardless of forming portfolios on calendar year ends or financial year ends. Steyn (2015) also reports a similar relationship between SCC and future abnormal TSR regardless of calendar year-end or financial year-end portfolio formation. Portfolios were created at the start of the calendar year, since it is argued that a CEO will be aware of how his/her compensation package is structured at the start of the year and any incentivisation effect would commence immediately. The equally weighted abnormal TSR for the companies in the top and bottom deciles of excess compensation were then calculated. Equal weighting eliminates the disproportionate effect that large companies may have on portfolio returns.

In order to investigate whether the relationship appears to be consistent when testing the relationship in different ways, an alternative measure of future returns, as well as an alternative measure of excess pay was tested, as follows:

- Due to the variability in share returns, the relationship may be skewed by the effect of extreme cases. The median abnormal TSR was calculated for the top and bottom deciles of excess compensation in order to eliminate the effect of outliers.
- As a result of the small sample size and the high variability in total compensation, calculating excess pay using different cut-off points between size groups may affect the relationship between pay and future performance. In order to eliminate the effect of different size groupings, LIC was regressed on company revenue and the resultant residual plots of each observation were used as excess pay. Excess pay calculated in this manner is referred to as "residual pay" for the remainder of this study, to distinguish this approach from the primary method determining excess pay used in this study. Abnormal returns were equally-weighted and portfolios formed on calendar years.

A summary of the various descriptive analyses performed and the sections in which the results can be found is presented in

Table 13 below.

Statistical relationship

In order to test the statistical significance of any relationships that appear to exist in the descriptive analysis, the Pearson's r was calculated to measure the linear correlation between the excess long-term incentive compensation (in terms of the median per size group) and the abnormal TSR for quarter. Due to the large variation in LIC in the population, the Spearman's Rho is also calculated for corroborative purposes. The abnormal returns were calculated from the start of the financial year to which the total compensation relates, in order to better match the compensation and return periods.

As a result of the small sample size, the Pearson's r and the Spearman's Rho were re-calculated by defining excess LIC as the residual plots, relative to the predicted LIC, when regressing LIC on revenue. A summary of the statistical tests performed is presented in

Table 13 below.

Table 13: Summary of various descriptive analyses and statistical tests

Panel A: Descriptive analyses

Abnormal total shareholder return		Excess total compensation	Results
Weighting	Year-end	Basis for determining excess	Section
Equal	Calendar	Absolute vs. median per size group	5.1.1
Median	Calendar	Absolute vs. median per size group	5.1.1
Equal	Calendar	Residual vs. predicted	5.1.1

Panel B: Statistical tests

Test	Abnormal total shareholder return	Excess total compensation	Results
Correlation	Year-end	Basis for determining excess	Section
Pearson's r	Financial	Absolute vs. median per size group	5.1.2
Spearman's Rho	Financial	Absolute vs. median per size group	5.1.2
Pearson's r	Financial	Residual vs. predicted	5.1.2
Spearman's Rho	Financial	Residual vs. predicted	5.1.2

Relative significance of long-term incentive compensation

The level of CEO total compensation (TC) varies greatly amongst the largest 100 companies, ranging from a maximum annual TC of R137 million to a minimum annual TC of R1.4 million being paid to CEOs across the three year period. This excludes one CEO who did not earn any compensation at all over the three year period.

Table 14 reports descriptive statistics on inflation adjusted levels of CEO compensation and its components (short-term cash compensation (SCC) and long-term incentive compensation (LIC)) for the pooled population over 2011 to 2013.

Table 14: Descriptive statistics on compensation components for the JSE Top 100 companies

	Short-term cash compensation (SCC) [TGP + CB] R'000	Long-term incentives (LIC) R'000	Total compensation (TC) [SCC + LIC] R'000
Mean	12 737	7 757	20 494
Median	10 348	3 479	14 709
Standard deviation	9 146	13 058	18 882
Maximum	52 842	130 454	136 713
Minimum	1 431	-	1 431
% of sum	62%	38%	100%
% at median	72%	28%	100%

The maximum cash compensation granted to any CEO during the three years from 2011 to 2013 was R53 million, whereas the maximum long-term incentive compensation was two and a half times higher at R130 million. Although maximum SCC was smaller than maximum LIC, the difference between the two is not as extreme as in the U.S., where the maximum LIC was nearly six times that of the maximum SCC (Cooper *et al.*, 2014). Similar to the U.S., the standard deviation in South Africa showed less variation in cash compensation than LIC, although the difference in variation between SCC and LIC is smaller locally. The standard deviation of cash compensation in SA is nearly 70% of that of incentive compensation, while the same relationship is only one fifth in the U.S. (Cooper *et al.*, 2014).

The median short-term cash compensation and long-term incentive compensation were R10.3 million and R3.5 million respectively, in contrast to \$1 million and \$1.4 million respectively in the U.S. (Cooper *et al.*, 2014). It is clear from the above results that in South Africa, cash compensation makes up a relatively larger portion of total pay than in the U.S. Out of the 263 observations (over the three year period 2011 to 2013), 70 pay packages (nearly 27%) did not include any long-term incentive compensation as part of overall compensation and 74% of CEOs earned below average LIC suggesting a small proportion of CEOs earn a large portion of their wealth in the form of LIC.

Proportion of long-term incentive compensation

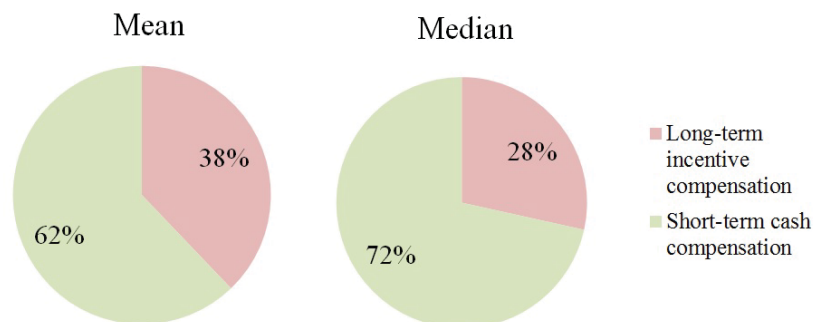
This section considers the relative importance of LIC and SCC as expressed in research question 1. The proportion of LIC is calculated by dividing the total LIC by the total TC, as well as dividing the median LIC by the median TC, overall (section 4.1.1) and for each size grouping (section 4.1.2).

Overall

Even though the mean and median long-term incentive compensation (LIC) is less than that of short-term cash compensation (SCC) locally, the relative proportions of LIC to total compensation (TC) are not insignificant. The median LIC of R3.5 million is less than half of the mean (R7.8 million) due to 27% of companies not awarding any long-term incentives over the three year period 2011 to 2013.

When considering the pay of all the companies cumulatively, total compensation comprises of 62% SCC (salary, benefits and bonus) and 38% LIC. At the median level of all observations, 72% is SCC and 28% is LIC (refer to Figure 4). Even though the relative proportion of LIC to TC in South Africa is smaller compared to the U.S., where Cooper *et al.* (2014) reported a 48/52 split between cash and incentive compensation respectively at the median level, the proportion of LIC to TC is large enough not to be ignored.

Figure 4: Proportion of long-term incentive compensation and short-term cash compensation

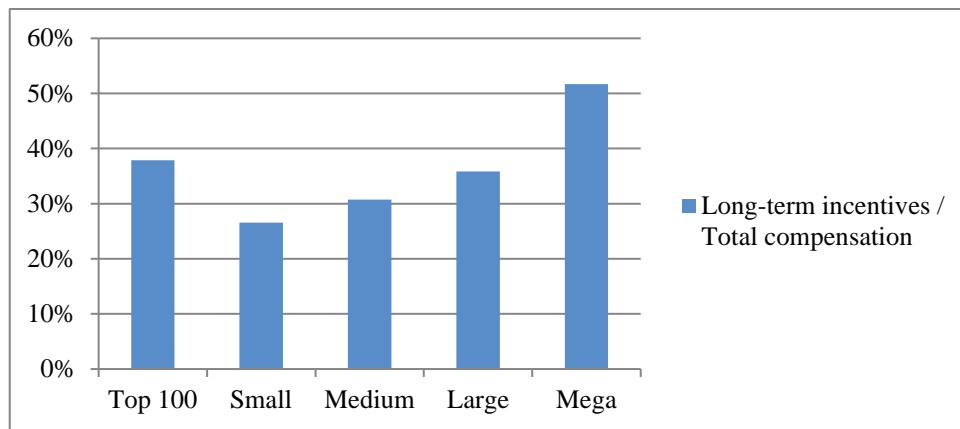


Compensation structure per size group

The median short-term cash compensation for small- and medium sized companies (R6.3 million and R9.2 million respectively) was three to four times as much as the median incentive compensation (R2.1 million and R2.3 million respectively), with large companies paying roughly twice as much cash compensation as incentive compensation (R14.5 million and R7.4 million respectively). Only the group of mega-sized companies reported higher median long-term incentive compensation (LIC) than short-term cash compensation (SCC) (R31.1 million and R27.6 million respectively).

Figure 5 clearly shows the relationship between company size and the proportion of long-term incentive compensation to total compensation.

Figure 5: Proportion of long-term incentives to total compensation per size group



A large proportion of the companies in the mega size group are dual listed multinational companies, thus reflecting the higher incentive component that was found by Cooper *et al.* (2014) in the U.S. Mega companies in total reported a proportion of 52% long-term incentive compensation followed by large-, medium- and then small companies (36%, 31% and 27% respectively).

Correlation of compensation components

In order to address research question 2, the correlation is calculated between the different components of CEO compensation: total compensation (TC), short-term cash compensation (SCC), and long-term incentive compensation (LIC).

The variation in total compensation is driven by both incentive and cash compensation, being positively correlated to all aspects of compensation (refer Table 15). It is interesting to note that even though short-term cash compensation comprises a larger proportion of total pay overall and at the median level (refer Table 14 earlier), the long-term incentive compensation is more closely correlated to total pay than short-term cash compensation and consequently hypothesis 1 is accepted.

Table 15: Correlations between components of raw compensation

	TC	SCC	LIC
Total compensation (TC)	1.000		
Short-term cash compensation (SCC)	0.781	1.000	
Long-term incentive compensation (LIC)	0.899	0.429	1.000

Our findings suggest relatively close relationships between both SCC and TC, as well as between LIC and TC. This is inconsistent with results from the U.S. where total incentive pay showed a near perfect correlation of 98.6% with total pay, but total cash pay only explaining 37.7% of total pay (Cooper *et al.*, 2014).

It appears as if cash compensation plays a relatively more important role in determining total pay in South Africa than the U.S. The strong correlation between SCC and TC (78.1%) may suggest that using short-term cash compensation as a proxy for total compensation (as most prior SA studies have done) is not entirely inappropriate.

The relationship between long-term incentive compensation and future company performance

The negative abnormal returns reported for the highest paid executives internationally (Balafas & Florackis, 2014; Cooper *et al.*, 2014; Core *et al.*, 1999) suggest that managerial compensation components such as long-term incentives – meant to align the interests of management with shareholder value – do not necessarily translate into higher future shareholder returns.

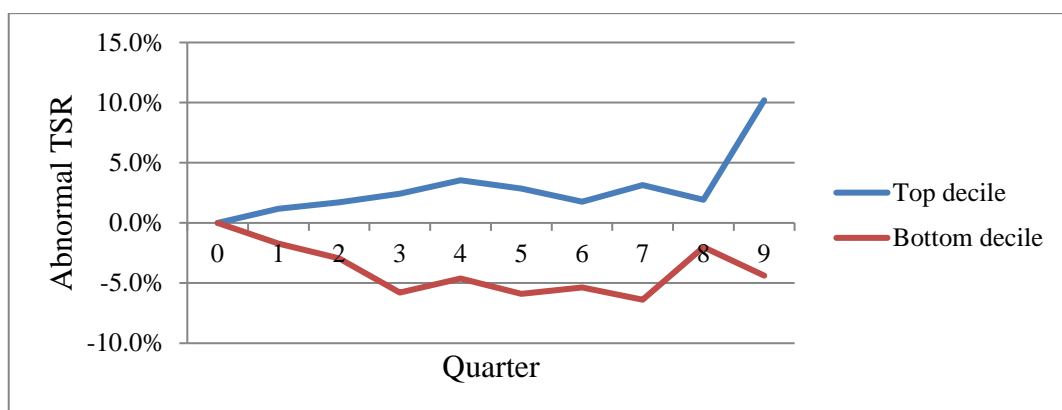
This section reports on this relationship in South Africa in addressing the second research objective of this study, to investigate and analyse the relationship between the level of CEO long-term incentive compensation and future total shareholder returns in South Africa.

Descriptive relationship

The abnormal TSR of the top and bottom deciles was calculated on the basis of equal weightings of abnormal TSR for each company. Abnormal TSR was calculated from the start of the calendar year to which the excess LIC relates, defined as the excess TSR over the equally weighted TSR of the top 100 JSE listed companies.

From Figure 6 it is evident that the companies in the top decile of excess LIC outperform the companies in the bottom decile.

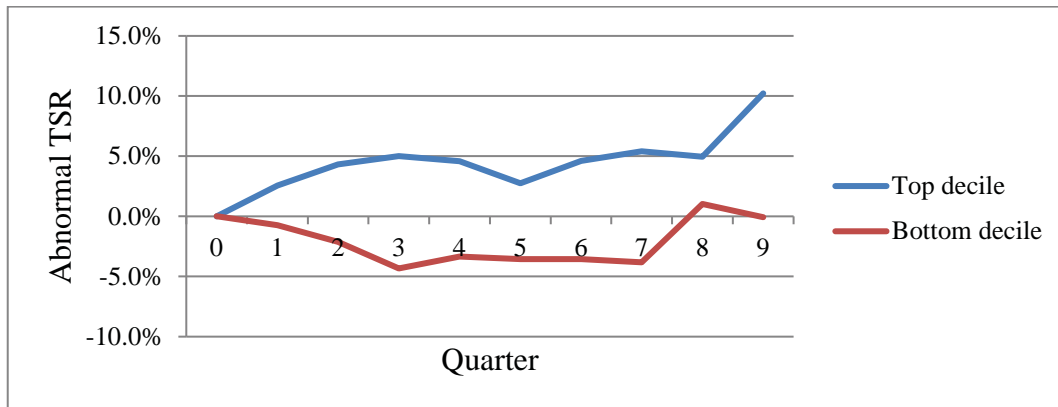
Figure 6: Equally-weighted abnormal returns earned by companies with CEOs in the top and bottom deciles of excess long-term incentive compensation



The companies with CEOs earning the highest excess long-term incentive pay earn abnormal returns of 3.6% in the first year, which improve to 10.2% over the subsequent five quarters. The CEOs in the lowest excess LIC decile earned a negative return of -4.6% in the first year.

The relationship between LIC and abnormal future TSR was also investigated on the basis of median abnormal returns, in order to investigate the influence of outliers. A similar pattern is reported using median returns. The negative abnormal TSR of the bottom decile disappeared, while the positive abnormal TSR of the top decile remain largely unchanged, suggesting that only the bottom decile is significantly affected by outliers (refer Figure 7).

Figure 7: Median abnormal returns earned by companies with CEOs in the top and bottom deciles of excess long-term incentive compensation

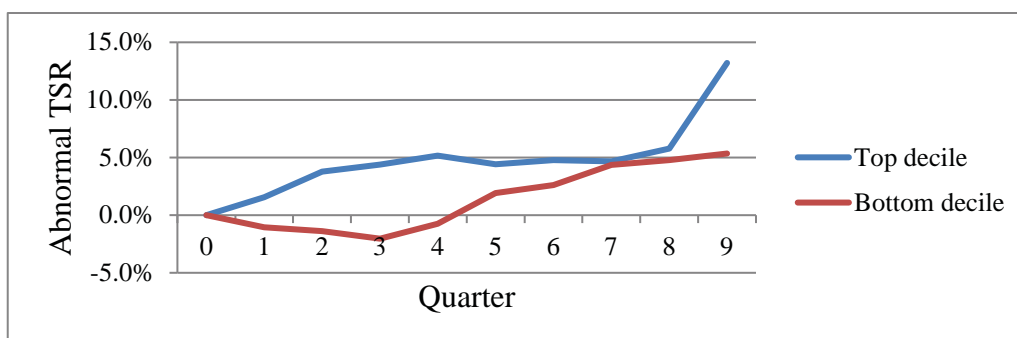


The small negative abnormal returns of the bottom decile of excess LIC that disappear after two years is consistent with the findings of Cooper *et al.* (2014). The top decile of excess LIC, however, moves in the opposite direction from the U.S. study, where the top 10% of companies in terms of LIC is associated with negative abnormal returns of up -9.38% after three years.

Lastly, in order to test whether the relationship between LIC and future performance remain consistent regardless of the company size groupings used as peers to benchmark LIC, companies were ranked according to residual LIC (instead of excess LIC) to form decile portfolios.

The top decile remains associated with higher positive and increasing abnormal returns (13.2% after nine quarters), while the bottom decile reports negative cumulative abnormal TSR only for the first year, after which it turns positive to end on 5.3% after the full nine quarters (refer to Figure 8).

Figure 8: Equally-weighted abnormal returns earned by companies with CEOs in the top and bottom deciles of residual long-term incentive compensation



The graphical relationship between LIC and abnormal TSR changes when excess compensation is calculated in different ways, suggesting that the apparent relationship is not that clear, and in fact there may be little to no such relationship.

Conclusion to descriptive analysis

The graphs depicting the relationship between excess/residual LIC and abnormal TSR when reporting only the extreme deciles suggest top paid CEOs outperform CEOs earning the least. Caution should however be taken when only comparing the top and bottom deciles, since there may be greater variation in the rest of the sample.

The remaining eight deciles were also considered and no consistent relationship is visible across the remaining deciles. There could be several reasons for this lack of a clear trend: Firstly, it could be that, as a result of mega companies paying such large LIC relative to the other size groups, the mega companies paying positive excess LIC would be in high deciles while the mega companies paying lower LIC than their peers (negative excess LIC) would be in lower deciles. This is in comparison to the medium and small companies that have much lower median LIC, where any excess LIC paid by these smaller companies (whether positive or negative) would be much less than the excess paid by the mega companies, and thus would be concentrated in the middle deciles. This would result in a small or medium company paying no LIC (with a small negative excess LIC of less than R2.1 million or R2.3 million respectively) being ranked in a higher decile than a mega company paying a large LIC that is less than the median of R31 million for their peer group.

Secondly, the negative returns earned by the resource companies in the mining sector that still paid large LIC resulted in a concentration of the mining companies in certain of the higher deciles, having a strong negative influence on the abnormal TSR of those deciles.

Finally, it could be that unlike the SCC package of CEOs that remain relatively constant from year to year, the LIC component varies notably within the same company from year to year. For example, 30% of companies (for which three years' data were available) were found to pay no LIC in one year, but make a large LIC payment in another. The company that paid the highest LIC in the population as a whole in one year paid no LIC in the following year. To control for the lumpiness of LIC payments the average inflation adjusted LIC for the three year period was calculated and the portfolios reformed on this basis. The results, however, were no more consistent than originally found, with the top two deciles showing strong positive abnormal TSR, while the rest of the deciles remained jumbled.

In conclusion, the abnormal TSRs of the top and bottom deciles show that the top decile of excess LIC consistently outperforms the bottom decile. The gap does, however, narrow when using median abnormal TSR. Other than the top two deciles, the remaining deciles appear jumbled and no clear relationship between LIC and abnormal TSR for these deciles is evident. When using residual LIC to form portfolios the gap between the top and bottom deciles is severely diminished.

These results find no support in South Africa for the suggestion in the international literature that LIC is an optimal component of the CEO's pay package, except where LIC is very large relative to the peer group. This brings into question the effectiveness of LIC as a mechanism

to incentivise future performance and potentially supports the argument that LIC is merely an unjustified inflation of the CEO's pay package.

The superior performance of the top two deciles of excess LIC does, however, stand out. This may be explained by the high proportion of "mega"-sized companies that pay higher LIC in those deciles, supporting labour market theory which suggests that larger companies can afford the best talent, which is capable of outperforming their peers.

Pearson's r and Spearman's Rho

Descriptively, no clear relationship between excess LIC and future TSR appears to exist, except at the extreme cases of excess LIC. In order to confirm the descriptive relationship, the correlation between excess LIC (as well as residual LIC) and abnormal TSR was calculated.

From the results of the statistical tests that are reported in Table 16 below, it is clear that there is no correlation between excess LIC and abnormal TSR.

Table 16: Pearson's correlation coefficient and Spearman's rank correlation coefficient for excess LIC and abnormal TSR

Quartile	2011 n = 79				2012 n = 92				2013 n = 92			
	Pearson		Spearman		Pearson		Spearman		Pearson		Spearman	
r	r	p-val.	ρ	p-val.	R	p-val.	ρ	p-val.	r	p-val.	ρ	p-val.
Q1	-0.05	0.68	-0.05	0.68	0.15	0.16	-0.11	0.28	0.13	0.20	0.08	0.46
Q2	-0.00	1.00	0.00	1.00	0.15	0.16	-0.11	0.30	0.09	0.40	0.04	0.73
Q3	-0.02	0.90	-0.02	0.87	0.11	0.28	-0.05	0.64	0.09	0.39	0.04	0.72
Q4	0.02	0.86	-0.04	0.70	0.13	0.23	-0.04	0.68	0.08	0.47	0.01	0.94
Q5	0.04	0.75	-0.04	0.72	0.10	0.33	-0.04	0.67	0.09	0.39	0.06	0.59
Q6	0.04	0.74	-0.08	0.47	0.11	0.28	-0.05	0.62	0.09	0.41	0.08	0.46
Q7	0.05	0.68	-0.05	0.66	0.08	0.45	-0.03	0.78	0.11	0.29	0.09	0.40
Q8	0.06	0.58	-0.04	0.75	0.12	0.27	-0.08	0.46	0.10	0.34	0.09	0.40
Q9	0.08	0.50	-0.03	0.83	0.08	0.43	-0.04	0.68	0.10	0.36	0.11	0.29

Based on the lack of a steady decline in the cumulative abnormal TSR from highest to lowest deciles, the absence of a statistically significant relationship between excess LIC and abnormal TSR was not unexpected. This is in stark contrast to the U.S. experience where the pay-performance relationship is generally stronger when including LIC. It also contradicts the findings of Cooper *et al.* (2014) who report a statistically significant negative relationship

between excess LIC and abnormal TSR for the top three deciles as a result of CEO overconfidence.

In order to test whether the calculation of excess LIC affected the relationship, the Pearson's and Spearman's correlations are recalculated using residual LIC instead of excess LIC. The results confirm that there is no statistically significant relationship between LIC and future company performance, for the three year period.

Conclusion to research objective 2

Even though the top decile in terms of excess LIC outperforms the bottom decile, the abnormal TSRs of the remaining deciles are jumbled and the statistical tests indicate that there is no relationship between excess LIC and abnormal TSR and hypothesis 2 is rejected.

These results are largely corroborative of those of Cooper *et al.* (2014), who similarly found a lack of a relationship between LIC and company performance, (other than for companies paying in the top deciles of excess compensation, where a negative relationship exists). These results however are in contradiction to those of other international studies who find that CEO LIC is negatively associated with future company performance (Balafas & Florackis, 2014; Cooper *et al.*, 2014; ore *et al.*, 1999).

Limitations and scope restrictions

This study only covers three years (2011 to 2013) due to the limited data available on LIC. Future returns are also limited to nine quarters. International studies include up to 18 years of CEO compensation (Cooper *et al.*, 2014) and return holding periods of up to five years (Balafas & Florackis, 2014; Cooper *et al.*, 2014). Core *et al.* (1999), however, report a significant relationship for a sample including only three years and some studies report significant relationships for holding periods as short as one year (Cooper *et al.*, 2014; Core *et al.*, 1999).

International studies regularly include very large sample sizes, but despite the limitation of this study to the top 100 companies, it contributes to the literature by extending the population size over prior local studies (Bradley, 2011; Shaw, 2011; Theku, 2014). Furthermore, the largest 100 companies represents 94% of the total JSE capitalisation as at 7 May 2015 (calculated using fundamentals data downloaded from the Sharenet database).

This study is limited to the relationship between excess LIC and abnormal future TSR and ignores other potential variables that may affect CEO pay (for example CEO age, CEO tenure and composition of the board of directors) as well as other factors that may affect the abnormal TSR (for example the slump in commodity prices in the resources industry). This study also focuses on TSR as a measure of company performance, since accounting measures do not measure shareholder value.

Conclusion and areas for future research

Even though it seems that South African companies rely less on long-term incentive compensation than companies in the U.S., long-term incentive compensation (LIC) is not insignificant in the local context and cannot be ignored in studies investigating the link between CEO pay and company performance. While LIC is more closely correlated to total compensation (TC) than short-term cash compensation (SCC), both SCC and LIC is highly (positively) correlated to TC.

The link relationship between excess LIC and abnormal future total shareholder returns (TSR) is non-existent, which presents a disturbing picture: Long-term incentives are intended by corporates to provide incentivisation regarding long-term company performance and represents substantial amounts of cash. If LIC is a generally ineffective (or negatively effective) form of incentivisation, or only sporadically effective (as the broad distributions, non-linear relationship and lack of statistical significance suggest), then the question must be asked – why? It is beyond the ability of quantitative empirical research to answer this question and it is suggested that qualitative research into the question of why LIC schemes may lack effectiveness (or even be detrimental to company performance, as Cooper *et al.* (2014) suggest) is required. The interpretive approach intrinsic in qualitative research would be helpful in allowing the reality of the causal effects of long-term incentive schemes to show themselves freely, without conditioning it by the parameters set in place by quantitative empirical research, contributing to generating new knowledge that explains the inconclusive and sometimes contradictory results reported in the body of existing literature (Ciao, 2010). Due to the time it takes for the potential influence of a CEO in the performance of a company, a similar study that covers a longer time frame and an extended return holding period might provide more reliable results.

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