Plato
INVESTMENT MANAGEMENT

Assessing executive remuneration in Australia: Perhaps performance does pay?

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Executive Summary

In this paper, we develop a statistical model to analyse the determinants of executive remuneration, using firm-specific variables such as firm size, complexity, and profitability. The model is updated from Plato's 2011 study, and is based on six years of data from 2015 to 2020 for S&P/ASX 300 listed companies. The purpose of this paper is to determine the extent of the pay-performance relationship for Australian CEOs, and evaluate how this relationship has evolved over the sample period. The model is used to estimate each CEO's appropriate remuneration level in the latest financial year, and identify significant outlier CEOs. This study provides corporate governance insights for investors, investment managers and other stakeholders, especially in terms of proxy voting. The model aims to assist in the assessment of the total quantum of pay for a remuneration report agenda item.

The findings of Plato's 2011 study were that the only significant determinants of executive remuneration are firm size and complexity.[1] In this study, the only two variables that demonstrate a significant, positive correlation for all components of executive remuneration are firm size and complexity. This relationship was relatively stable over the six-year period, indicating that firm size and complexity remain the most robust predictors of executive remuneration. We identify a positive pay-performance relationship for EPS growth, 1-year returns and 3-year returns for incentive-based components of executive remuneration. However, we find that there is a significant, negative relationship between ROE and total remuneration. An assessment of results from each individual sample year finds contradicting evidence regarding whether the pay-performance link is strengthening over time. The statistical model identifies six outlier CEOs: News Corporation, Emeco Holdings, ResMed, CSL Limited, Macquarie Group and Goodman Group. Notably, all these companies either have large US operations; or have the controlling shareholder as founder, CEO, or chairperson.

Our findings suggest that Australian companies have displayed greater commitment to incentivising shareholder value creation since 2011, through remuneration packages that link remuneration level to company performance. The advent of the 'two strikes' rule in 2011 appears to have increased scrutiny and transparency regarding remuneration practices, with proxy voters reining in excess pay quantum and supporting rigorous performance indicators.

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[1] Plato Investment Management. (2011). *Assessing executive remuneration: Does performance pay?*

Introduction

Since the introduction of the 'two strikes' rule in 2011, investment managers and shareholders have the opportunity to vote once a year on the remuneration policy of listed companies. When over 25% of the votes are cast against the remuneration report in two successive years, it triggers a vote on a motion for the entire board of directors to face re-election. During the recent annual general meeting season, 13 companies have received a strike, including Cromwell Property Group – the first company since the rule's inception to receive a second strike and a vote in favour of a board spill.[2]

Evaluating executive remuneration is no easy task. Remuneration reports have become an increasingly complex section of the annual report, with the mechanisms and performance targets varying between companies and over time. While the structure of remuneration packages and their effectiveness at aligning managerial and shareholder interests is frequently the subject of scrutiny, it is difficult to assess the sheer quantum of executive pay. The average Australian CEO earned nearly 30 times more than the average Australian worker in 2020.[3] Concerns over the fairness and equity of executive remuneration remain a controversial issue in the financial press, especially with weak economic growth and low wage growth. But is this pay multiple really too high?

To support the assessment of remuneration reports with numerical rigour, we have developed a statistical model to identify anomalies in CEO total remuneration among S&P/ASX 300 listed Australian companies between 2015 to 2020. Sourcing remuneration data from Bloomberg and Ownership Matters, we explain four measures of executive remuneration using firm characteristics such as firm size, complexity, accounting-based performance and market-based performance. The model provides empirical evidence regarding the determinants of executive remuneration over the period, particularly the relationship between CEO pay and performance. The statistical model has identified six significant outliers who appear to have remuneration levels higher than what our model would predict based on firm-specific variables. While a pure statistical model does not capture all remuneration nuances, we do believe it is a useful tool to identify outliers, providing a starting point for investors to have dialogue with companies.

Data and Methodology

Remuneration data was sourced from Bloomberg and Ownership Matters for companies included in the S&P/ASX 300 in any year between 2015 and 2020. Companies with missing or incorrect data were eliminated, and companies with CEO turnover in a given year were eliminated to exclude sign-on bonuses and termination payments. Our final sample is an unbalanced panel dataset of 1210 observations, relating to 360 distinct companies. We provide and analyse four remuneration measures – total remuneration, base remuneration including superannuation benefits, short term incentive (STI) and long term incentive (LTI).

Table 1 contains descriptive statistics for the 1210 observations. Over the six-year period, the average CEO earned $1.23m in base pay, $656k in short term incentive and $1.29m in long term incentive, providing total remuneration of $3.18m. However, the remuneration statistics are quite positively skewed, with the average pay figures always exceeding the median figures.

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[2] PwC. (2020). *2020 AGM Season: In a year like no other, some things remain the same.* Retrieved from
https://www.pwc.com.au/people/assets/10-minutes-on-2020-AGM-Season.pdf
[3] Based on mean total remuneration in sample from 2020 and Australian Bureau of Statistics "Survey of the Average Weekly Earnings" May 2020.

Table 1: Actual Remuneration Descriptive Statistics

	Base Remuneration	Short Term Incentive	Long Term Incentive	Total Remuneration
Mean	$ 1,234,793	$ 656,332	$ 1,285,516	$ 3,176,641
Median	$ 1,044,817	$ 364,930	$ 652,645	$ 2,177,104
Standard Deviation	$ 762,224	$ 1,006,803	$ 1,918,001	$ 2,996,439
Count	1210	1210	1210	1210

Source: Bloomberg, Ownership Matters

Table 2 contains mean remuneration by year. There is substantial temporal variation in remuneration, with all four remuneration measures experiencing a sharp drop in 2020, attributed to 102 companies in the sample reporting lower CEO remuneration, most likely in response to COVID-19. Total and base remuneration has remained relatively stable over the period with the exception of 2020, while short term incentive has declined over the last two years. Over the period, long term incentive as a ratio of total remuneration has steadily increased, indicating that higher proportions of share-based compensation are being included in Australian remuneration packages.

Table 2: Mean Actual Remuneration by Year

	2015	2016	2017	2018	2019	2020
Mean Total Remuneration	$ 3,061,706	$ 3,137,026	$ 3,358,889	$ 3,184,906	$ 3,231,092	$ 2,748,135
Mean Base Remuneration	$ 1,218,330	$ 1,207,705	$ 1,285,565	$ 1,236,031	$ 1,281,583	$ 1,169,740
Mean Short Term Incentive	$ 676,553	$ 679,871	$ 671,688	$ 932,976	$ 588,124	$ 373,917
Mean Long Term Incentive	$ 1,126,437	$ 1,248,315	$ 1,401,636	$ 1,342,237	$ 1,361,384	$ 1,204,478
Count	188	185	210	214	215	198

Source: Bloomberg, Ownership Matters

In order to explain and predict remuneration levels, we constructed a cross-sectional multiple regression model over the period 2015 to 2020 using various firm-specific variables. There is empirical evidence that remuneration is strongly positively associated with firm size.[4] We consider two proxies for firm size – average market capitalisation over the year and total assets at the end of the latest financial year. There is also evidence that remuneration and company complexity are positively related.[5] In order to account for the complexity of a company's business, we developed a proprietary complexity score.

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[4] R. Merhebi, K Pattenden, P. Swan and X. Zhou "Australian chief executive officer remuneration: pay and performance", *Accounting and Finance* 46 (2006) 481-497.

[5] G. O'Neill and M. Iob "Determinants of Executive Remuneration in Australian Organizations: An Exploratory Study", *Asia Pacific Journal of Human Resources* 37(1) (1999) 65-74.

Previous Australian studies have differing findings regarding the pay-performance relationship. Most studies in the 1980s to 1990s found an insignificant or negative pay-performance link, including Plato's 2011 study, whereas some recent studies have found a positive pay-performance link.[6] We have considered five measures of performance – 1-year total return, 3-year total return, return on equity (ROE), one year change in ROE, and earnings per share (EPS) growth. Total shareholder returns, ROE, and EPS have been frequently used in the Australian literature. We have also added the one year change in ROE, as in practice many Australian companies use short-term changes in profitability as a measure of executive performance. EPS growth was used instead of EPS to prevent skewed data arising from variations in shares on issue. To increase the model's power by controlling for negative earning companies, we created a control variable which is 0 for profitable companies and 1 for unprofitable companies in a given financial year.

Table 3 contains descriptive statistics for the explanatory variables. All data has been winsorised for extreme outliers. The statistics are quite positively skewed, with an average market capitalisation of $7B, while the median firm was capitalised at only $1.7B. Total assets is even more skewed. The extreme skewness is caused by the big four banks, who hold on average $905B of assets, which is over 500 times the median total assets figure. The natural logarithm of these two skewed variables is used in the model to mitigate the effect of extreme values. The control variable of 0.19 indicates that 19% of the firm-year observations made losses in the six-year period.

Table 3: Explanatory Variable Descriptive Statistics

	Market Capitalisation ($m)	Total Assets ($m)	Complexity	1 Year Return	3 Year Return	ROE	ROE Change	EPS Growth	Loss Control
Mean	$7,029	$24,789	1.38	13.66%	84.65%	10.01%	-0.08%	29.49%	0.19
Median	$1,745	$1,585		8.22%	44.16%	10.49%	-0.56%	9.60%	
Standard Deviation	$18,257	$118,802	0.66	45.12%	144.96%	23.02%	22.39%	88.67%	0.39
Count	1210	1210	1210	1210	1210	1210	1210	1210	1210

Source: Datastream, Worldscope, S&P Capital IQ, Plato

Our remuneration model is defined as:

Remuneration = α + β_1 Size + β_2 Complexity + β_3 Return + β_4 Profitability + β_5 Change in Performance + β_6 Loss Control + ε

Where:
Remuneration = Base Remuneration, STI, LTI or Total Remuneration
Size = Natural Logarithm of Market Capitalisation or Total Assets
Complexity = Plato Proprietary Complexity Variable
Return = 1 Year Total Return or 3 Year Total Return
Profitability = ROE
Change in Performance = 1 Year Change in ROE or 1 Year EPS Growth
Loss Control = 0 for Profitable Firms and 1 for Loss Making Firms

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[6] H. Doucouliagos, J. Haman and S. Askary "Directors' Remuneration and Performance in Australian Banking", *Corporate Governance: An International Review,* 15(6) (2007) 1363-1383.

Results

Eight model specifications were estimated using the alternate measures of size, returns and change in performance. In the interests of brevity, we only present results for our preferred and most significant model for each of the four remuneration measures, which uses the less skewed market capitalisation measure of size, and the more significant performance measures of 3-year total returns and EPS growth.[7] The short term incentive model uses 1-year total returns, as this remuneration component is based on contemporaneous performance, not lagged performance. Tables 4 to 7 contain the results. The total remuneration model has significant explanatory power, with an adjusted R-squared statistic of 48.37%.

Table 4: Plato Total Remuneration Model

	Coefficients		t Stat		P-value
Intercept	-	25,864,682	-	24.17	0.00%
Log Market Cap		1,319,025		25.32	0.00%
Complexity		616,171		5.74	0.00%
3 Year Return		17,183		0.39	69.49%
ROE	-	1,618,966	-	4.68	0.00%
EPS Growth		184,616		2.63	0.87%
Loss Control	-	335,238	-	1.63	10.43%

Adjusted R^2 48.37%, F statistic 189.77, significant at the 0% level.

Table 5: Plato Base Remuneration Model

	Coefficients		t Stat		P-value
Intercept	-	5,888,785	-	22.52	0.00%
Log Market Cap		322,057		25.30	0.00%
Complexity		197,195		7.52	0.00%
3 Year Return	-	79,211	-	7.40	0.00%
ROE	-	64,026	-	0.76	44.88%
EPS Growth		45,536		2.65	0.81%
Loss Control		16,157		0.32	74.86%

Adjusted R^2 52.36%, F statistic 222.47, significant at the 0% level.

Table 6: Plato Short Term Incentive Model

	Coefficients		t Stat		P-value
Intercept	-	6,170,527	-	14.35	0.00%
Log Market Cap		311,417		14.82	0.00%
Complexity		129,712		2.98	0.30%
1 Year Return		111,053		1.94	5.29%
ROE	-	275,338	-	1.97	4.89%
EPS Growth		60,337		2.11	3.48%
Loss Control	-	203,771	-	2.44	1.49%

Adjusted R^2 24.96%, F statistic 68.01, significant at the 0% level.

Table 7: Plato Long Term Incentive Model

	Coefficients		t Stat		P-value
Intercept	-	14,912,518	-	19.36	0.00%
Log Market Cap		739,501		19.72	0.00%
Complexity		285,339		3.69	0.02%
3 Year Return		89,945		2.85	0.44%
ROE	-	1,309,730	-	5.26	0.00%
EPS Growth		75,284		1.49	13.66%
Loss Control	-	143,888	-	0.97	33.25%

Adjusted R^2 34.73%, F statistic 108.22, significant at the 0% level.

There is a significant positive association between all four remuneration measures and both firm size and complexity. ROE is significantly related to total remuneration, short term incentive and long term incentive, but with a negative coefficient. However, when not controlling for any other variables, ROE has a significant positive relationship with short term incentive, and no explanatory power for total remuneration and long term incentive. Despite this negative pay-performance relationship seeming counterintuitive, the findings are consistent with previous Australian studies.[8] A plausible explanation is that firms with poor performance may respond by replacing their CEO with an expensive hire as effective leadership is worth an additional premium, or alternatively they may need to pay their CEO a risk premium to compensate for low profitability.[9] This could also be the result of the board's decision-making process – some Australian companies may have inefficient remuneration packages and inappropriate performance targets regarding ROE.

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[7] It is noted that ROE change is the only variable that was insignificant in all the regressions.
[8] Refer O'Neill and Iob (1999).
[9] Refer O'Neill and Iob (1999).

There is also evidence of a strong positive pay-performance relationship, as EPS growth is significantly related to total remuneration, base remuneration and short term incentive. In terms of market-based measures, 1-year returns are positively related to short term incentive nearing the 5% level of significance, and 3-year returns are positively related to long term incentive at the 1% level of significance. However, 3-year returns are significantly and negatively related to base salary, and are not significantly related to total remuneration overall. A negative relationship between performance and base salary may indicate managerial power issues. CEOs of unprofitable firms with low probability of satisfying performance indicators may attempt to maximise their wealth by bargaining for a higher base salary.[10]

Extension of Results

A separate model was built for each of the sample years to analyse the evolution of the pay-performance link over the period. Our finding that firm size and complexity are significant determinants of total remuneration is robust to the use of the combined or individual models. Both variables are significant across all six years, with a positive coefficient. Figure 1 and 2 plot the change in the coefficient on 3-year returns and ROE respectively over the sample period. Despite the negative coefficient on ROE for the combined model, the association between total remuneration and ROE has steadily become more positive over the period. The jump in the ROE coefficient between 2019 and 2020 could be the result of COVID-related CEO pay cuts in loss-making companies. Conversely, the association between total remuneration and 3-year returns has steadily become more negative over the period. This provides conflicting evidence of whether the pay-performance link is strengthening in Australia over time.

Figure 1: 3 Year Return Coefficient Over Time

Figure 2: ROE Coefficient Over Time

As recent Australian studies include corporate governance variables, we built another model for 2020 only,[11] with the following explanatory variables: board size, board independence, proportion of shares held by CEO and proportion of shares held by directors. Table 8 contains the results. The only corporate governance variable significant at the 10% level is board size. The positive coefficient is consistent with evidence that larger boards are less effective and susceptible to CEO influence, resulting in higher CEO remuneration.[12]

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[10] A, Capezio "Does Performance Pay? An Economic and Structural Analysis of CEO Cash Reward and Firm Performance in Australian Public Companies", *University of Sydney* (2008).
[11] Accurate data was only available for 2020, and not the entire sample period.
[12] J. Coulton and S. Taylor "Option Awards for Australian CEOs: The who, what and why", *Australian Accounting Review* 12(1) (2002) 25-35.

<div align="center">**Table 8: Plato Total Remuneration Model – 2020**</div>

	Coefficients	t Stat	P-value
Intercept	- 19,509,287	- 5.81	0.00%
Log Market Cap	935,407	4.97	0.00%
Complexity	575,010	2.10	3.69%
3 Year Return	- 5,088	- 0.04	96.70%
ROE	1,623,479	1.43	15.49%
EPS Growth	288,064	1.75	8.12%
Loss Control	570,123	1.14	25.66%
Proportion Shares CEO	- 4,746,402	- 1.42	15.77%
Proportion Shares Directors	- 1,359,365	- 0.69	49.19%
Board Independence	- 326,032	- 0.38	70.68%
Board Size	257,200	1.69	9.31%

Adjusted R^2 41.78%, F statistic 13.99, significant at the 0% level.

Identifying Outliers

The statistical model has explained a significant amount of the variation in remuneration among CEOs of 360 of Australia's largest companies over a six-year period. We can use the model to identify CEOs whose remuneration exceeded the model's prediction by a large margin in the latest financial year. Table 9 contains CEO total remuneration in 2020 which appears to differ substantially from our model's estimates, given the firm-specific variables of size, complexity, and profitability. The outliers are robust to the choice of model specification, as the results are insensitive to whether market capitalisation or total assets are used for size; 1-year or 3-year returns are used for returns; and change in ROE or EPS growth are used for change in profitability. Furthermore, the same group of outliers are identified using the individual 2020 regression. The six outlier CEOs identified are the six highest paid CEOs in the sample for 2020.

<div align="center">**Table 9: Significantly Large Total Remuneration Packages 2020**</div>

Company	Predicted Total Remuneration	Actual Total Remuneration	Residuals	Standard Residuals
NWS	$ 6,216,470	$ 20,156,666	$ 13,940,195	6.31
CSL	$ 6,362,047	$ 16,555,163	$ 10,193,116	4.61
RMD	$ 5,437,327	$ 15,532,018	$ 10,094,691	4.57
EHL	$ 1,815,213	$ 9,957,943	$ 8,142,730	3.68
MQG	$ 8,088,509	$ 14,905,737	$ 6,817,228	3.08
GMG	$ 5,779,715	$ 11,994,034	$ 6,214,319	2.81

The CEO of News Corporation has the highest total remuneration in the sample for 2020, and is the most significant outlier according to the model. Other significantly overpaid CEOs based on the model are from Emeco Holdings, ResMed, CSL Limited, Macquarie Group and Goodman Group. It is noted that all these companies either have large US operations, or have the controlling shareholder as founder, CEO, or chairperson. However, running an additional regression with a binary variable to indicate companies with large US operations identified the same group of outlier CEOs. Additionally, all these companies have between approximately 60% to 90% of their total remuneration provided through long term incentives, while the median company in the sample has a ratio of only approximately 30%.

We caution the use of a pure statistical model to capture all remuneration nuances, but we do believe it is a useful tool to identify outliers, providing a starting point for investors to have dialogue with companies.

Conclusion

Executive remuneration is a controversial topic among the financial press, investors, and regulators alike. We have developed an impartial statistical model to assist in assessing executive remuneration for Australia's largest companies. Using the firm-specific variables of size, complexity, and profitability, we have attempted to explain variations in CEO remuneration across 360 listed Australian companies over the last six years. Overall, the model for total remuneration was highly significant, explaining over 48% of the variation in remuneration across CEOs.

We find that firm size and complexity have a significant, positive correlation with all components of remuneration, and this relationship is consistent across all sample years. This suggests Australian companies primarily reward CEOs based on firm size and complexity, with larger and more complex roles attracting higher levels of remuneration. Unlike Plato's 2011 study, our findings suggest evidence of a positive pay-performance relationship. EPS growth is positively related to total remuneration and short-term incentive, while 1-year returns and 3-year returns are positively related to short term incentive and long term incentive, respectively. We find that there is a significant, negative relationship between ROE and total remuneration. However, by analysing the model for each sample year separately, the pay-performance link for ROE has strengthened over time. Our findings indicate that, since 2011, there appears to have been an uptake of incentive-based remuneration packages among Australian companies that better align the interests of CEOs and shareholders.

We used the model to identify CEOs who appear to have been remunerated significantly greater than our model would predict in the latest financial year, given firm-specific variables. While a pure statistical model does not capture all contextual or situational factors that may affect executive remuneration, we do believe that it is a useful tool to identify outliers. Six CEOs were identified with statistically significant large levels of remuneration, noting that nearly all these companies have large US operations or highly ranked controlling shareholders. While individual circumstances may warrant high remuneration, we can use these results as part of our decision-making framework when determining our proxy voting intentions on remuneration reports.