The search to discover what drives CEO remuneration has a long way to go.

WHAT UNDERPINS TOP PAY?

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THE LIVES OF THE men and women who run our largest organisations – the Chief Executive Officers, or CEOs – are both public and mysterious. We know who they are, though few observers could name their immediate subordinates – the CFOs and COOs – in even the largest companies. In the case of publicly-listed and state-owned companies, we also know how much CEOs are paid, and we are periodically and very publicly reminded how large their remuneration is, and how much it has gone up – as it always seems to do – compared with that of other wage and salary earners.
To put it bluntly: are CEOs worth what they get paid? If the answer to that is yes, were they being exploited when paid so much less twenty years ago? If the answer is no, then how has the difficulty of the job or the value of the output increased so as to justify the higher pay?

One reasonably concise proposition about the actual job of a top executive is advanced by researchers Peter Demerjian, Baruch Lev, and Sarah McVay in a 2012 *Management Science* article. In it, they write that they:

- expect more able managers to better understand technology and industry trends, reliably predict product demand, invest in higher value projects, and manage their employees more efficiently than less able managers.
- In short, we expect more able managers to generate higher revenue for a given level of resources or, conversely, to minimize the resources used for a given level of revenue (i.e. to maximize the efficiency of the resources used).

This is certainly language any economist can understand, but can economic analysis reliably identify and measure the efficiency of managers’ use of resources, and empirically link this to their (generally increasing) levels of remuneration? The present article investigates the topic by drawing on research that uses novel – indeed, unique – data to identify the deep structure of managers’ pay in New Zealand.

Since the 1993 revision of the Companies Act, all firms listed on the New Zealand stock exchange that are substantially locally owned have been required to include in their annual reports information on all employees with remuneration packages worth more than $100,000 per year.

This data, presented in the form of salary bands, enables us to infer the size and shape of the managerial hierarchy within each firm. It can be added to more conventionally available information on the structure and performance of firms, such as sales, assets, number of employees, profitability, and growth, to give new insights into what CEOs are paid to do, and what might justify – or, at least, explain – why their pay has tended to increase over time.

In 2014, CEOs in the New Zealand listed companies sector received an average compensation of $840,000 – a figure that has increased since 1995 by 85 per cent in constant dollars, even when corrected for company size. Over the same period, real weekly wage and salary earnings have increased by just 13.5 per cent. As a result, CEO pay is now on average 12 times higher than that of the average shop-floor worker.

The ‘explosion’ (as some have termed it) in top CEO REMUNERATION
CEO REMUNERATION

The highest-paid CEO (at telecoms company Spark) received a remuneration package in 2014 worth $3.8 million. The lowest paid, at start-up WindFlow Technology in 2005, earned just $110,000. Any idea that there is a rigid relation between company size and pay has been documented across the English-speaking corporate world, and indeed the process probably got underway well before 1995. In New Zealand, for example, the income share of the top 1 per cent of taxpayers almost doubled between 1985 and 1995.

So, how has this happened, and is it a problem for the firms themselves – that is, a governance or capital market issue – or indeed for the nation at large, through its effects on the overall income distribution and economic prosperity?

Here is where the mystery becomes evident. No one seems to know why CEOs are paid so much – if indeed it is a lot – because we do not know exactly what their jobs entail. That is, we do not know what tasks and responsibilities CEOs are being paid to shoulder, so we can hardly assess how effective they are, or how much that activity should be worth to the companies that employ them.

This may seem a surprising claim, because the pay and performance of CEOs – and sometimes of their most senior executives – has received considerable attention from researchers. These researchers have adopted one of two analytical perspectives in what could be termed “horizontal” bargaining power of (especially English-speaking) CEOs with globalization and benchmarking, and changes in the “upward-vertical” relationship between CEOs and their boards, as reflected in the structuring of remuneration packages.

These are, of course, important issues, but they leave unexplored another possibility. What if CEO pay actually has not risen much, if at all, when organisational structure is taken into account? The reasoning might go as follows: along with providing overall leadership and signing off on major resource allocation decisions, CEOs have the job of “managing” their companies. In practice, this has come to mean that the CEO directly supervises a small number of senior executives who report directly to him or her, and they in turn supervise their own cadres of less senior managers, and so on down to the supervisors on the shop or office floor. That is, most or all listed companies are organised as hierarchical bureaucracies.

Researchers agree that employees at higher levels in those bureaucracies should, and do, get paid more – even if there is disagreement about just what they are being paid more to do. That is, managers at each level get paid more than the people they supervise, and less than those to whom they report. So, if – for reasons yet to be explored – there has been a trend to larger managerial bureaucracies (for a given revenue size of firm), then this would naturally be reflected in increased pay for the person at the top of the pyramid. On the other hand, if the trend is to flatter bureaucracies, or wider spans of control, then it is conceivable that the greater skill required to manage such structures might equally justify higher pay for the CEO.

WHAT THE DATA LOOKS LIKE

Information was collected from the annual reports of locally-listed companies using the financial statements collected on the NZX database (companyresearch.nzx.com), often supplemented by the text of the reports – for example, to glean figures on employee numbers. For each company, data were obtained for the latest available financial year (usually 2014, when these data were gathered), and the earliest year in which the newly required remuneration numbers were offered (usually 1997).

Just over 5 per cent of our listed companies are in the “FIRE” (Finance, Insurance, Real Estate) business – a proportion that is probably lower than in the United States, Britain, and elsewhere. One quarter of the companies earned a better than 15 per cent rate of return (profit/assets), but nearly one in five were in loss-making territory – including some recent start-ups.

Although there were 110 listed companies with two years of data, most of these entered the database too recently, or departed too early to yield valid before/after comparisons. Table 1 shows averages for the 41 companies for which we have two years of data, and for which the earliest data year preceded 2001 and the latest was after 2011, with a sample average gap of sixteen years. All monetary data are converted to 2014 values.

The first data column is the average before the early year, the second shows the latest year, and the third column divides the
second by the first, to tell us the average growth over time of each variable.

Here, “Size” is the larger of revenue from sales and total cost of sales. For these companies size increased on average by more than the growth in assets and total employment, which in turn grew more than real value added (sales minus cost of materials and purchased services), implying an overall drop in productivity. The average wages or salaries of both non-managerial and managerial employees barely increased, in sharp contrast to the more than doubling of CEO remuneration. However, the largest growth was in the number of managers, which supports the hypothesis that some CEO pay growth is due to an increase in the number of managerial subordinates reporting to them. Over the sixteen year average span between the first and second observations for these 41 companies, the ratio of managers to firm size increased, on average, by 122 per cent – a striking change in organisational structure.

### TABLE 1:

**AVERAGES, 41 NZ LISTED COMPANIES (CONSTANT $NZ2014)**

<table>
<thead>
<tr>
<th></th>
<th>Average Before 2001</th>
<th>Average After 2001</th>
<th>Ratio After/Before</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SIZE $000s</strong></td>
<td>470672</td>
<td>823627</td>
<td>1.75</td>
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<tr>
<td><strong>VALUE ADDED $000s</strong></td>
<td>118372</td>
<td>142108</td>
<td>1.20</td>
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<td><strong>ASSETS $000s</strong></td>
<td>690263</td>
<td>1053602</td>
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<tr>
<td><strong>TOTAL NUMBERS EMPLOYED</strong></td>
<td>1320</td>
<td>1858</td>
<td>1.41</td>
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<tr>
<td><strong>NON MANAGERIAL WAGE $000s</strong></td>
<td>62</td>
<td>67</td>
<td>1.07</td>
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<tr>
<td><strong>CEO PAY $000s</strong></td>
<td>474</td>
<td>1092</td>
<td>2.30</td>
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<tr>
<td><strong>NUMBER OF MANAGERS</strong></td>
<td>30</td>
<td>85</td>
<td>2.84</td>
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<td><strong>MANAGERIAL PAY $000s</strong></td>
<td>208</td>
<td>231</td>
<td>1.11</td>
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<tr>
<td><strong>TOTAL PAY MANAGERS $000s</strong></td>
<td>7169</td>
<td>20166</td>
<td>2.81</td>
</tr>
<tr>
<td><strong>RATIO MANAGERS/ SIZE x1000</strong></td>
<td>0.077</td>
<td>0.171</td>
<td>2.221</td>
</tr>
</tbody>
</table>

### MODELLING TOP PAY

To dig deeper into the connections between pay, size, managers, and so on, econometric models were run on the full sample of 110 companies for which two years of data were available. These exercises can produce estimates of the magnitude and causation of linkages between variables, and they have striking implications:

- **Even controlling for changes and differences in firm size there is an unexplained secular upward trend in CEO pay in New Zealand listed companies of about 3 per cent per year.**

- **Size itself is important, as expected. On average, a company that is twice as large as another in terms of sales will pay its CEO 30 per cent more. This matches the findings in overseas studies.**
Possible ancillary factors such as changes in the regulatory burden facing listed companies will also be investigated. The extent to which New Zealand has become a “price-taker” in an increasingly globalised market for high-level executive talent will be explored, for example by checking for changes in the nationality of our CEOs over the past two decades.

A final note on context. In or around 2014, the companies in our database paid out $91 million in total annual remuneration to their chief executives. That is just 1/700th of total sales revenues of those companies, which totalled $65.5 billion. It is just 1/50th of the increase last year in the net wealth of New Zealand’s 180 or so richest individuals and families, as assessed by the National Business Review in its annual Rich Lists – up from $55 billion to more than $59 billion over the past twelve months. So why worry? Why even be interested in what our CEOs get paid?

Well, it may be that such rhetorical questions do occur to company boards and their compensation committees when they make their annual upward adjustments to top pay. But we have here also found a link between CEO remuneration and the size of the much larger managerial pay-bill, which totalled $653 million – around 25 per cent of total sales, and 20 per cent of total profits. Those numbers are beginning to get interesting.

From a different perspective, we have noted that the near-doubling of CEO pay since 1995 contrasts with increases in real wages and salaries just one sixth as large, on average. That could be a legitimate source of concern, from the point of view of fairness and social stability. Evidence on the actual productivity of top management should therefore be high on the agenda for future research.

**KEY TAKE-OUTS**

- The pay of CEOs of New Zealand companies has almost doubled over the past two decades.
- Managerial bureaucracy has expanded noticeably over the same period.
- There is no apparent systemic link between remuneration and productivity or firm profitability.