

THE MARKET FOR VICE-CHANCELLORS

by

Lisa H C Soh*

Accounting and Finance Program

University of Western Australia

ABSTRACT

How homogenous is the market for top managerial talent? We analyse data from university annual reports on Vice Chancellors' remuneration for the period 1995-2002 and test to see whether there is alignment between the market for Vice-Chancellors and the market for CEOs in Australia. While the responsiveness of pay to institution size is not dissimilar, Vice-Chancellors receive on average about 60 percent less than CEOs. In addition, we also compare the remuneration of Australian Vice-Chancellors to those in the United States and the United Kingdom and find that the Australians receive the highest real remuneration when using purchasing power parity exchange rates. The remuneration of Australian Vice-Chancellors is even more attractive once taxation and quality of life factors are taken into consideration. We also construct a demographic profile of Vice-Chancellors, showing that relative to CEOs, Vice-Chancellors are appointed later in life and do not have shorter tenures. Regarding Vice-Chancellor backgrounds, there is an over-representation of Vice-Chancellors from social and pure sciences and an under-representation of Vice-Chancellors from management and commerce relative to the number of award completions in those areas.

* I would like to thank Ken Clements and acknowledge the helpful advice and discussions with Jeff Coulton, Jennifer Cross, Patricia Dechow, James Fogarty, Izan, Peter Robinson, Ray da Silva Rosa, Ann Tarca and Iain Watson. This paper has also benefited from the comments from those present at the University of Western Australia Accounting and Finance Honours Presentations and the University of New South Wales Honours Colloquium in Commerce and Economics.

1. INTRODUCTION

To what extent are universities becoming transformed into corporations? Marginson and Considine (2000) find that the modern university as we understand it today can be thought of as an “enterprise university” characterised by corporate style executive leadership. There is greater pressure on universities to improve their corporate governance practices as they are under increasing revenue pressure to find external sources of funding in the face of federal funding cuts to higher education. The tension lies in universities being seen as essential to the knowledge economy, yet the ability of universities to produce knowledge is threatened by funding cuts (Sargeant, 2001). In turn, this has led to increased commercial pressure on universities as they look to other forms of funding. An example of universities turning to the market is seen in the case of ANU, who are selling inflation indexed bonds to fund capital building projects (Morris, 2004). Given this pressure and the “corporatisation” of universities, how much of the existing literature related to Chief Executive Officers (CEOs) and firms is applicable to Vice-Chancellors and universities?

How are universities responding to this pressure? There is evidence suggesting that earnings quality for universities has improved over time, consistent with the theory that universities face increased pressure to become more like corporates and for greater public accountability as they seek to raise revenue from non-traditional sources. Soh (2004) looks at two dimensions of earnings quality for Australian universities: one based on the adherence of financial statements to prescribed requirements and the second based on accruals and earnings persistence. Although universities are nominally nonprofit organisations, there is evidence that they behave like companies and have incentives to avoid reporting negative earnings results. Although the reporting practices of universities and companies do not seem as dissimilar as one may think, there is little evidence of opportunistic accruals earnings management occurring within universities.

As the financial position of universities deteriorates due to commercialisation, their capacity to provide the public good aspect of their existence may be threatened, as they move toward more market oriented goals in order to be financially independent. This raises interesting implications for the future of higher education in Australia as universities face increased corporatisation pressures. In the extreme, universities will be viewed as providing private goods, with the public good perspective, such as having a well-educated and highly skilled population, being seen as having no substantial benefit (Lawrence, 2004). If

universities become corporatised, it is also possible that their incentive becomes to generate the greatest *private* benefit to higher education (Butler, 2001). While this may be seen in a negative light, it is possible that this move may be beneficial to universities, given the experience of private universities in the United States. Already, total university revenue has grown from \$5.5 billion in 1991 to \$10.4 billion in 2002, equivalent to a compound average annual growth rate of 9.5 percent, reflecting the greater diversification of funding sources and movement toward more commercial practices over time (Nelson, 2002).

How homogeneous is the market for top managerial talent? Much research has been done to date on CEOs and firms, however very little has been applied to Vice-Chancellors and universities, particularly in an Australian context. Swan (2001) comments on the disparity between remuneration in universities and firms in arguing that the Vice-Chancellor of the University of Sydney appears underpaid relative to the corporate model. Clements (2002) points to the impact of the size of the university on Vice-Chancellor remuneration and examines whether there is any evidence of a Group of Eight effect, finding that membership to this group of institutions adds on average approximately \$145,000 to Vice-Chancellor pay. In view of the importance of universities to society as a whole and the role of the Vice-Chancellor in leading these institutions, we study the workings of the market for Vice-Chancellors. It is of interest to discover how the market for Vice-Chancellors operates to ensure that the market works efficiently. This includes ensuring that the best individuals lead our universities, that universities do not waste resources (or overpay the Vice-Chancellor) and ensuring universities attract individuals with the necessary talent (and do not underpay for their services).

The issue of executive remuneration is often surrounded by controversy. For university Vice-Chancellors, there is often the same perception as in the private sector, that the remuneration packages of Vice-Chancellors are a sign of excess. A recent (November 15, 2004) article reported by CNN showed the spread of views on this topic. Roger Bowen, general secretary of the American Association of University Professors (and a former University President) comments “I don’t underestimate the important work they do...but I think they’re starting to look more like CEOs than college presidents, and I think public trust is a real issue.” The alternative view that the remuneration of these individuals is warranted, given the competition for leaders. David Ward, president of the American Council on Education is of the opinion that “in the private sector you’d be paying four, five, six times

more for the same function”, which suggests that the remuneration of these executives is looking relatively “cheap” in comparison. Jim Boyle, president of the College Parents of America believes that their salary packages are compensation for a strong leader who has the ability to hold tuition fees down in the long run (Associated Press, 2004).

Certainly, the role of a Vice-Chancellor is complex, given the importance of these institutions to society as a whole, their size and the funds they have at their disposal. To put this in perspective, the total revenue for all Australian universities for 2003 is approximately \$12 billion (Department of Education, Science and Training, 2004a), representing approximately $12 / 750 \approx 1.6$ percent of Australia’s GDP. This is approximately equivalent to Australian livestock income (\$12 billion), coal mining (\$12 billion), less than that of oil and gas extraction (\$19 billion) and metal ore mining (\$19 billion) and approximately twice that of the gold (\$5 billion) and iron industries (\$5 billion) (Australian Bureau of Statistics, 2004a, 2004b; Trewin, 2004).¹ As a result, it is somewhat surprising that these issues have not been investigated extensively in prior research.

The remainder of this paper is organised as follows. Section 2 discusses the existing literature on executive remuneration in nonprofits, concentrating on Vice-Chancellors, section 3 outlines the data used in the analysis, section 4 provides a profile of Vice-Chancellors, section 5 compares the remuneration of Vice-Chancellors in Australia to their counterparts in the United States and United Kingdom, section 6 compares remuneration between universities and companies, section 7 discusses further aspects of the market for Vice-Chancellors and section 8 concludes.

2. PREVIOUS LITERATURE

Universities are a small subgroup of nonprofit organisations that all face the common difficulty of measuring performance. Hallock (2002) looks at compensation of management in nonprofits and finds evidence of a size effect and a negative effect on top management compensation and the number of paid directors, suggesting substitution for managerial talent. Roomkin and Weisbrod (1999) look at the structure of executive compensation in nonprofits

¹ Grieg (1997) estimates that the total impact of the University of Western Australia’s expenditure on the output of Western Australia is approximately \$470 million, which is equivalent to approximately \$560 million in 2003 dollars. Calabu et al. (2000) estimate that the university sector contributes \$10.6 billion or approximately 2 percent of GDP, with an additional \$9.3 billion of human capital generated per year and benefits to industry of approximately \$2.2 billion, leading to a total sector wide economic impact of \$22 billion per year (4 percent of GDP).

and find that for top executives, monetary compensation is higher compared to for-profits. However, contingent payments (bonus schemes) make up a smaller proportion of compensation compared to for-profits, which they argue reflects differences in the goals and incentives provided to the market for nonprofit managerial talent.

Little has been done on the modelling of financial remuneration to Vice-Chancellors. Baimbridge and Simpson (1996) look at this for Vice-Chancellors at United Kingdom higher education institutions. Explanatory variables include institutional and personal characteristics, drawing on the findings of Pounder (1989) that salaries are significantly influenced by institutional characteristics.² They find strongest support for personal characteristics that try to capture the individual knowledge of Vice-Chancellors (Becker, 1962, 1964; Mincer, 1970, 1974; Medoff and Abraham, 1980, 1981) and some support for quantitative institutional factors. Economic and geographical factors are also significant. Baimbridge and Simpson propose that this is suggestive of regionality in wage setting. No factors capturing the quality of the institution are significant. Interestingly, they find some evidence consistent with remuneration committees taking advantage of monopsony power in setting compensation, consistent with the findings of Ransom (1993) and Baimbridge (1995).

Ehrenberg et al. (2001) look at United States college and university President³ remuneration from the perspective of the board of trustees who determine the structure of the package. They look at what factors these trustees seem to price into compensation. They find Presidents enjoyed an almost two-fold increase in salary relative to the increase of other faculty members. They also document some evidence that Presidents of private institutions are paid more than their public counterparts. In modelling the determinants of remuneration, they find results that are similar to those of Baimbridge and Simpson (1996). In looking at the path to presidency, they find that Presidents who held a prior presidency receive a moderate pay increase per year of prior presidency. Presidents who are members of the clergy are also paid less than other Presidents, all else constant. The authors suggest that these Presidents are less motivated by market forces. Institutional complexity also affects compensation, with Presidents of research or doctoral universities receiving higher compensation than other Presidents. However when analysing the pay-performance relation,

² See also Gomez-Mejia et al. (1987) and Allen (1981).

³ The CEO of universities in the British tradition (Australia, Canada, New Zealand, etc.) are known as “Vice-Chancellors”, while in the United States they are known as “Presidents”.

they find that overall, there is a weak relationship between salary, compensation changes and institutional performance.

The forerunners to Ehrenberg et al. are Pfeffer and Ross (1988) and Boulanger and Pliskin (1999) who explain differences in compensation across institutions. However, these studies do not look at whether Presidents' pay is structured to provide incentive alignment with that of the institution. The findings are generally similar, with the interesting finding of evidence of gender discrimination with female Presidents receiving less than males (Pfeffer and Ross).⁴

Sorokina (2003) looks at the pay (not total remuneration) of college Presidents at the top private liberal arts colleges in the United States. Due to their relatively small size (enrolments are usually below 2,500 students) and smaller executive, it is likely that the President has a larger influence on policies, so the pay-performance sensitivity is larger (Schaefer, 1998). She finds limited evidence of this relationship compared to the evidence arguing for the existence of a relationship between pay and human capital variables. She also finds evidence of gender discrimination but in the opposite direction to Pfeffer and Ross. In light of her findings, Sorokina suggests that the relatively weak pay-performance relationship may be due to a stronger correlation with performance to benefits or other rewards not connected to pay (her analysis did not pick up this effect as she analysed pay only). This highlights the importance of using a more extensive measure of rewards such as total remuneration or using alternative methodologies that capture the diversity in the role of the college President and different stakeholder relationships.

Cornell (2002) compares the income of S&P 500 CEOs to that of Presidents of leading US private research universities. He asks the questions: are private universities able to attract leaders with qualifications comparable to that of major corporate leaders and if so, how do they compensate and recruit these candidates? Cornell finds that the backgrounds of Presidents are not inferior to those of the S&P 500 CEOs. On the whole, it is difficult to argue that the calibre of Presidents is lower than that of CEOs. When comparing remuneration, he finds that the average total compensation for CEOs is a multiple of 32-36 times the average of the university President. Additionally, the compensation of CEOs grew

⁴ See also Chapman and Wagner (1986).

faster than that of university Presidents. In 1994, the ratio of CEO to university President compensation was 15. In 2000, the ratio was 33. This was driven by the much higher growth in CEO compensation relative to that of university Presidents. Part of this increase is also due to the use of executive options for CEOs.

The discrepancy between President and CEO compensation is so large that it is hard to argue that such a large differential is required to attract suitably qualified CEOs. Cornell suggests that it may indicate that CEOs play major roles in the determination of their own remuneration packages, consistent with the skimming hypothesis of Bertrand and Mullainathan (2000). That universities can also attract highly accomplished candidates at such a large discount relative to corporations also suggests that corporations may be able to do more to maximise shareholder wealth when recruiting and compensating CEOs. It also suggests that there may be a need to extend traditional agency theory models of incentive alignment when applying this to the most senior positions. The individuals in these positions are highly compensated relative to other positions and are likely to place more value on non-pecuniary aspects of the job due to diminishing marginal utility of wealth. While agency theory models ignore these factors, the ability of universities to recruit candidates who typically serve their institutions with energy, enthusiasm and dedication suggests that these other factors play an important role.

One possible explanation for the large multiple between CEO and President compensation is that Presidents and CEOs may now be in different markets. Whatever the reason for the huge discrepancy between President and CEO compensation, the evidence shows that universities have been able to attract accomplished candidates to the role of President, while paying less than 5 percent of the average CEO's compensation. The remuneration package is not designed to provide incentives, being largely fixed and independent of effort and results, yet universities expect that Presidents will expend best effort. The assumption is that candidates are those who value the non-pecuniary aspects of the job and possess a sense of personal pride that provides the motivation to work hard and in the interests of stakeholders. A summary of the papers on this topic is detailed in Table 1.

Table 1
SUMMARY OF MAJOR STUDIES OF REMUNERATION
OF PRESIDENTS/VICE-CHANCELLORS OF UNIVERSITIES

Author	Findings
1. Pfeffer and Ross (1988)	<p>Institutional type affects President pay. Positive relationship between pay and length of tenure and size.</p> <p>Overall, a weak relationship between change in salary and management control variables.</p>
2. Baimbridge and Simpson (1996)	<p>Stronger relationship for personal than economic or institution factors.</p> <p>Vice-Chancellor remuneration is positively related to revenue, the number of academic subject categories and the average gross weekly earnings in the region. Higher remuneration for Vice-Chancellors with public honours or previous professorships.</p> <p>Negative relationship to average house prices. Lower remuneration the longer the period of incumbency, for those with science backgrounds or holding a Doctor of Science relative to a Bachelors degree.</p>
3. Ehrenberg et al. (2001)	<p>Positive relationship between remuneration and length of tenure, holding of a prior presidency, higher average faculty salaries, endowments, enrolments and entry level scores.</p> <p>Presidents at research or doctoral universities receive higher compensation than those who are not. Presidents who are members of the clergy receive lower compensation.</p> <p>Overall, a weak relationship between changes in compensation and institutional performance.</p>
4. Cornell (2002)	<p>CEO pay is 32-36 times that of President pay. CEO compensation has grown faster than that of Presidents, despite there seeming to be little difference in the calibre of individuals in these positions.</p>
5. Sorokina (2003)	<p>Weak relationship between institution performance and pay. Stronger relationship between performance and benefits not connected to pay.</p> <p>Positive relationship between pay and length of tenure. More eminent Presidents are paid more and female Presidents are paid more than males.</p>

3. DATA

University reporting requirements are governed by Australian Accounting Standards, the Guidelines issued by the Commonwealth Department of Education, Science and Training (DEST) and the relevant state legislation governing the university. In terms of Vice-Chancellor's remuneration, universities are required to disclose as a note to the accounts the aggregate amount of remuneration to all directors and the number of executives falling within each \$10,000 band, commencing at \$100,000 (Australian Accounting Research Foundation, 1993; Australian Accounting Standards Board, 1997; Department of Education, Training and Youth Affairs, 2000).

Data for this project is primarily sourced from university annual reports and financial statements.⁵ The National Library of Australia holds most of the required annual reports, although data for a meaningful number of universities only available for the period 1996-2002.⁶

It is a requirement for any publication printed in Australia to be lodged at the National Library of Australia. However, the onus for lodgement rests with the publishers and as was discovered, in the case of university annual reports, not all universities have done this. La Trobe and Bond University, for example, have not lodged any copies of their annual reports at the National Library. Other universities, for which the National Library catalogue records indicate reports are held, have not lodged the entire report; for example, the University of Queensland have neglected to lodge their financial statements in many instances. Other institutions, such as the University of South Australia, have not lodged reports for all years. In an attempt to further fill gaps in the dataset, the State Library of New South Wales was also

⁵ Preliminary attempts to source data uncovered some difficulties in obtaining this dataset; namely that requests to universities generally resulted in poor results. The common problems cited were (1) that copies of prior reports were not held, (2) that copies were held but not available for distribution, or (3) non-response. Enquiries made to the Australian Vice-Chancellors' Committee (AVCC) also proved fruitless. An enquiry was made to the National Tertiary Education Union who responded with some data collected from annual reports, however this was not a complete dataset, as the majority of universities were excluded and the set only included data for three years. The Auditor-General for Western Australia also held some copies of reports but their dataset was confined to universities in Western Australia. Other enquiries made to DEST and the Western Australia Department of Education and Training were also unsuccessful, as they do not collect the data. Due to time and financial constraints, it was not feasible to travel to each individual university to obtain the data from university library holdings. Given that insufficient data was obtained from direct requests at each university, I visited the National Library of Australia in Canberra to obtain the required data.

⁶ University annual reports for the year ended 31 December 2003 were in the process of being prepared and published at the time of data collection (July 2004). As such, the majority of these reports were unavailable as they had not been lodged at the National Library, nor were they published on the majority of university websites.

visited. After repeated requests to the universities themselves, some institutions also provided annual reports. There are some notable anomalies in relation to the availability of data; for example, the University of Western Sydney has not lodged their 2002 report with the National Library or the State Library of New South Wales. A search of the University of Western Sydney Library catalogue records also fails to locate a copy within the university's own library! A copy of the financial statements is not available from the University webpage.

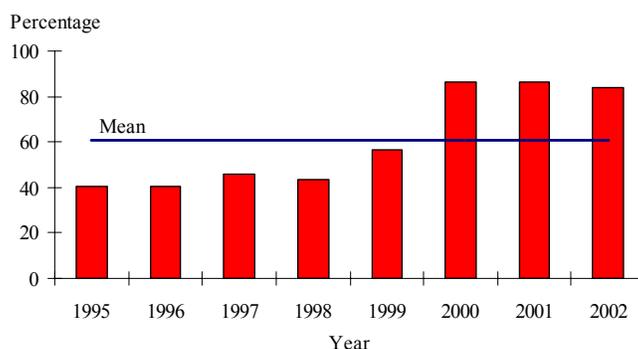
There is substantial variation in the quality and quantity of disclosure across institutions relating to Vice-Chancellor remuneration. Institutions in Western Australia report relatively early while those in New South Wales and Queensland report relatively late. Overall, in terms of data, the set covers 37 institutions⁷ over eight years (1995-2002), yielding a total of $37 \times 8 = 296$ theoretically available observations. Of these, data availability constraints regarding Vice-Chancellor remuneration reduced the number of observations to 179 across 34 of the 39 institutions in Australia, accounting for 60 percent of the total number of theoretically available observations. Figure 1 shows the proportion of institutions with observations by year. The figure shows that there is greater success in obtaining data for the period 2000-2002, reflecting the change in disclosure requirements requiring mandatory disclosure of remuneration that came into effect in 2000. The institutions where remuneration data was not available are the University of South Australia, Bond University, Notre Dame University, Flinders University and Charles Darwin University. The University of South Australia reports obtained did not include notes to the financial statements or an audit report, hence the required disclosures were not available and it would have been unclear if the figures could have been reasonably relied upon. Bond University has not lodged copies of their annual report at the National Library. They released the first publicly available report in 2000⁸ although the reports obtained did not include financial statements. Notre Dame University has not lodged reports at the National Library of Australia and responded to all requests made directly to the university for their annual reports with the statement that "Notre Dame is a private university and doesn't release annual reports or other financial statements...I have been asked to supply them [to others] over the years and the answer from our finance department is always no" (Oliver, 2004). Flinders University has not lodged annual reports at the National Library of Australia for the years covered in the sample.

⁷ The institutions where no data has been collected are Notre Dame University and Flinders University.

⁸ Available from the university homepage <http://www.bond.edu.au/exec/council.htm>. Bond University commenced operations in 1989, hence for 11 years the annual reports have not been available to the public.

Charles Darwin University⁹ has lodged reports at the National Library but remuneration is not disclosed in the notes to the financial statements. It is possible that the variation in disclosure and the difficulty in obtaining this data reflects either a lack of demand from stakeholders for information or a ploy by the institution to deflect accountability (da Silva Rosa, 2004). It appears that the first possibility is unlikely to drive the poor quality of disclosure, given that there has been considerable stakeholder interest for these institutions to increase disclosure. For example, in 2000, the New South Wales Auditor-General conducted a special review on Chief Executive Officer contracts (Audit Office of New South Wales, 2000) and in 2002 Senator Carr asked questions in the Senate relating to how public resources were being used in universities. With universities finding it increasingly difficult to avoid responsibility for their actions, it will be of interest to see if they improve the quality and quantity of their disclosures in the future.

Figure 1
VICE-CHANCELLOR REMUNERATION DATA COLLECTED



In terms of the disclosure of Vice-Chancellor remuneration, the remuneration of the Vice-Chancellor was taken to be the midpoint of the top band reported. Some cross-checks were made to ensure reasonableness of this assumption by obtaining the list of university Council members for reasonable assurance that the Vice-Chancellor would be the most highly paid executive¹⁰. Intuitively this would be expected if the Vice-Chancellor is taken to be the Chief Executive Officer of the institution. The quality and consistency of the disclosures themselves, however, is questionable. Some institutions include superannuation benefits while others exclude it and the structure of remuneration is, in the majority of cases, not

⁹ Formerly Northern Territory University (until 2004).

¹⁰ It is possible that some academics may be paid more than the Vice-Chancellor, however this disclosure is not required.

disclosed. No attempt was made to impute the superannuation contribution where this was excluded from the remuneration number disclosed, as Vice-Chancellors may voluntarily choose to contribute to superannuation more than that required under law. Again, there were no means to verify whether or not this was the case. It was also pointed out (Anonymous, 2004) that some institutions also vary what is disclosed under the remuneration figure from year to year. In some cases, certain non-cash fringe benefits will be included in one year and excluded in others. In others, the remuneration paid for the year, rather than the total remuneration payable, will be disclosed. This will distort the figures, particularly for those individuals who have only been present for part of the year. Further, where termination or long service payments are made, this will inflate the figure for the period. Table 2 shows the Vice-Chancellor remuneration by university and year. Figure 2 is a plot of the remuneration of Vice-Chancellors in 2002. The solid line represents the mean remuneration across all institutions for that year, while the dashed lines indicate plus and minus two standard errors.¹¹ On this basis, the Vice-Chancellor at the University of Tasmania appears to be the most underpaid on a relative basis while the Vice-Chancellor at the University of Queensland appears most overpaid. There is more than a hint of a “size effect” in this figure, and a more refined analysis of this issue is set out in Section 6.

Qualitative information was also obtained by interviewing four Vice-Chancellors. These individuals may not be identified for confidentiality reasons, however the Vice-Chancellors were not exclusively from Western Australia. Some further information was taken from interviews with Vice-Chancellors published in the Education section of the *Australian Financial Review* on Mondays.

¹¹ Monash University has been excluded from the calculation of the mean and standard errors as it is an outlier due to the resignation of the Vice-Chancellor in this year.

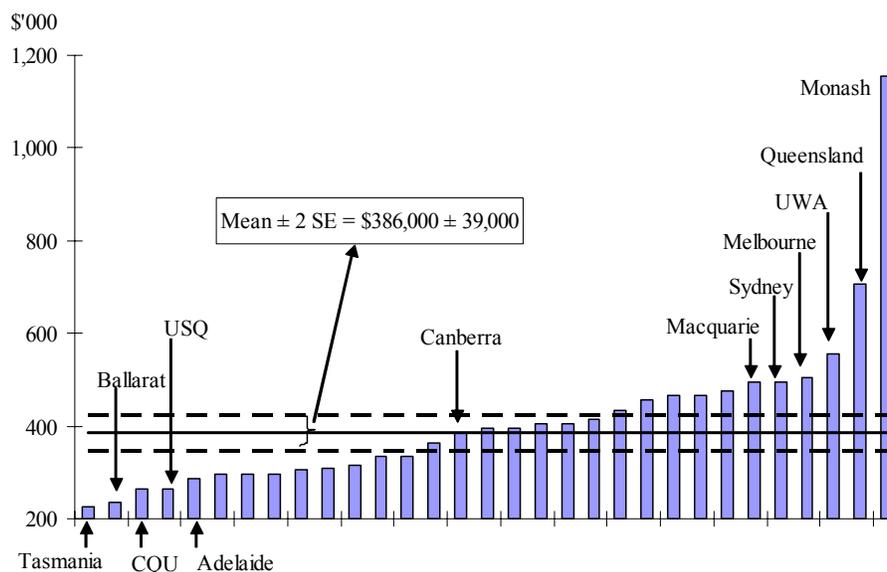
Table 2

VICE-CHANCELLOR REMUNERATION BY INSTITUTION AND YEAR (\$'000)

University	1995	1996	1997	1998	1999	2000	2001	2002
1. Australian Catholic University	195	225	-	-	-	-	-	-
2. Australian National University	235	255	295	295	305	325	385	465
3. Central Queensland University	-	-	-	-	325	305	-	265
4. Charles Sturt University	-	-	-	-	-	295	285	310
5. Curtin University of Technology	215	245	185	175	265	365	425	365
6. Deakin University	315	195	255	345	355	335	405	475
7. Edith Cowan University	165	165	185	210	270	275	345	395
8. Griffith University	-	-	-	-	-	335	335	-
9. James Cook University	185	-	-	-	-	245	275	295
10. La Trobe University	265	265	295	315	335	355	405	405
11. Macquarie University	-	-	-	-	-	475	485	495
12. Monash University	415	505	345	385	405	495	475	1,155
13. Murdoch University	165	185	225	275	275	275	275	335
14. Queensland University of Technology	-	-	-	-	325	365	375	415
15. RMIT	275	305	305	-	-	405	325	405
16. Southern Cross University	-	-	-	-	-	245	235	465
17. Swinburne University of Technology	215	245	265	275	285	285	335	335
18. University of Adelaide	235	185	375	255	255	545	1,605	285
19. University of Ballarat	-	195	195	235	245	315	205	235
20. University of Canberra	195	255	265	265	275	275	275	385
21. University of Melbourne	455	215	315	345	405	385	455	505
22. University of New England	-	-	-	-	-	275	295	305
23. University of New South Wales	-	-	335	375	395	465	495	295
24. University of Newcastle	-	-	-	-	275	275	305	315
25. University of Queensland	-	-	-	-	-	645	645	705
26. University of Southern Queensland	-	-	-	205	205	245	255	295
27. University of Sydney	-	-	-	-	-	465	495	495
28. University of Tasmania	-	-	-	-	295	295	305	225
29. University of Technology Sydney	-	-	-	-	255	275	315	395
30. University of the Sunshine Coast	-	-	-	-	-	-	275	265
31. University of Western Australia	210	230	495	275	355	355	385	555
32. University of Western Sydney	-	-	-	-	-	375	455	-
33. University of Wollongong	-	-	-	-	-	335	415	435
34. Victoria University	-	-	295	295	275	290	305	455
Mean	249	245	289	283	304	350	402	411

Source: University Annual Reports.

Figure 2
VICE-CHANCELLOR REMUNERATION, 2002



4. WHO ARE THE VICE-CHANCELLORS AND HOW LONG DO THEY LAST?

This section provides a “demographic profile” of Vice-Chancellors. By examining their education, age at appointment and length of tenure, we show that a fairly well-defined picture of the typical Vice-Chancellor emerges.

Table 3 shows the educational backgrounds of Vice-Chancellors by broad field of education and compares them to the proportion of award course completions as reported by the Department of Education, Science and Training (DEST) for the period 1993-2002. Details on the educational background of Vice-Chancellors were obtained from *Who's Who in Australia*, biographies provided by University Vice-Chancelleries and also from the Australian Vice-Chancellors' Committee (AVCC).¹² Figure 3 shows the under or over-representation of Vice-Chancellors by background relative to the proportion of award completions. The further the deviation from the 45 degree line, the greater the over or under-representation. Points to the right of the 45 degree line (Society and Culture, Natural and Physical Sciences) show an over-representation while those to the left of the 45 degree line show an under-representation of Vice-Chancellors relative to the proportion of award completions.

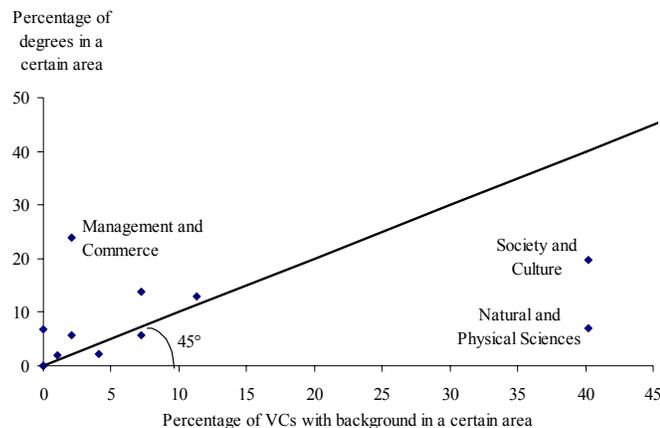
¹² The data provided by the AVCC contained considerable errors and gaps; when cross-checked, approximately 87 percent (84 of 97) of the listed disciplines were incorrect.

Table 3
 BACKGROUNDS OF VICE-CHANCELLORS
 (Percentages)

Broad Field of Education	Award Completions	Vice-Chancellors
Natural and Physical Sciences	7.08	40.21
Information Technology	6.85	.00
Engineering and Related Technologies	5.67	7.22
Architecture and Building	2.02	1.03
Agriculture, Environmental and Related Studies	2.18	4.12
Health	12.99	11.34
Education	13.76	7.22
Management and Commerce	24.00	2.06
Society and Culture	19.78	40.21
Creative Arts	5.63	2.06
Food, Hospitality and Personal Services	.02	.00
Mixed Field Programmes	.01	.00

Source: Awards: Department of Education, Science and Training (2004b). Vice-Chancellors: *Who's Who in Australia*, AVCC, University Vice-Chancellories.

Figure 3
 OVER/UNDER REPRESENTATION OF VICE-CHANCELLORS BY BACKGROUND



Source: *Who's Who in Australia*, AVCC, University Vice-Chancellories.

From Table 3, Vice-Chancellors with a background in natural and physical sciences or society and culture are over-represented relative to the proportion of award completions in those fields. The disparity is most stark for the pure sciences, with the difference being more than fivefold, while for social sciences the difference is twofold. Vice-Chancellors from these backgrounds interviewed believed that their background helped them in the role by teaching them pragmatism. In addition, science was thought to be of benefit to academic administration through its focus on solutions and answers, teaching investigative skills,

gathering data, analysing it, coming to conclusions and the associated implications as well as the ability to manage complex concepts. There is an under-representation of Vice-Chancellors with backgrounds in information technology (none) and management and commerce (a twelve-fold difference) relative to the number of award completions. This is somewhat surprising, given that the role of Vice-Chancellor is one of management and due to the corporatisation of universities, requires commercial expertise. During the course of interviews with Vice-Chancellors, it was observed that these individuals identified a need to understand and be comfortable with using and interpreting financial statements and data. The lack of Vice-Chancellors with information technology backgrounds may reflect the relatively recent emergence of this field of study compared to the age at which most Vice-Chancellors are appointed (discussed below). These results may also reflect the opportunity cost of postgraduate study relative to the earnings potential foregone, given that Vice-Chancellors tend to have some form of postgraduate qualification (most commonly a PhD). However, it is interesting to note that the results presented are not inconsistent with those found by Siegfried (1997), where US presidents with an economics background (social sciences) are over-represented relative to the number of undergraduate degrees awarded and has been increasing over time. He suggests that this may be due to the perception that those individuals with economics backgrounds are more likely to realise the constraints on resources.

Panel A of Table 4 shows the location of the educational institution where Vice-Chancellors received their Bachelor and postgraduate qualification. Panels B and C split this into internally versus externally appointed Vice-Chancellors (i.e. if the Vice-Chancellor was/was not appointed from the staff of the same institution), while Panel D looks at the location of the postgraduate institution conditional on the location of the Bachelor institution. The table is to be read in a “columnwise” manner; thus, looking at Panel A, for example, we see that 64 percent of Vice-Chancellors have Bachelor degrees from an Australian university, while the remaining 36 percent obtained their Bachelor degrees from a foreign institution. Breaking this down into internal versus external appointments, a higher proportion of internal appointments tend to have a domestic Bachelors qualification; when looking at the location of their postgraduate institution, regardless of whether the candidate is an internal or external appointee, the situation does not differ substantially between the two. Panel D shows that Vice-Chancellors who received a domestic Bachelors qualification are roughly evenly split between choosing to stay in Australia versus going overseas for their postgraduate qualification. However, those Vice-Chancellors who have a foreign Bachelors qualification

are three times as likely to also obtain their postgraduate qualification from a foreign institution as an Australian institution. Perhaps these individuals are imported into Australia for their careers in Australian universities.

Most Vice-Chancellors in Australia are appointed in their 50s. Panel A of Figure 4 shows the age distribution of Vice-Chancellors when appointed. Approximately 88 percent of Vice-Chancellors take on the role by age 60 while only about 15 percent have assumed the role by age 50. This is an important consideration for the motivation of potential candidates who aspire to the role of Vice-Chancellor.

Table 4
EDUCATIONAL QUALIFICATIONS OF VICE-CHANCELLORS
(Percentages)

Location	Bachelor	Postgraduate
Domestic	63.8	39.4
Foreign	36.2	60.6
Total	100.0	100.0
Domestic	75.9	41.4
Foreign	24.1	58.6
Total	100.0	100.0
Domestic	56.7	37.3
Foreign	43.3	62.7
Total	100.0	100.0
Postgraduate	Bachelors	
	Domestic	Foreign
Domestic	48.3	23.5
Foreign	51.7	76.5
Total	100.0	100.0

Source: *Who's Who in Australia*, AVCC, University Vice-Chancelleries.

Panel B of Figure 4 splits the age distribution to investigate whether there is a difference between the ages of internally versus externally appointed Vice-Chancellors. The mean age of internally appointed Vice-Chancellors is 55.0 years versus externals at 54.3

years, a difference that is not significant at conventional levels.¹³ It appears that the process of Vice-Chancellor appointment in Australian institutions is not consistent with the learning hypothesis, where internals are appointed at a younger age relative to externals, as the institution is better able to assess the capabilities of the candidate and therefore has a greater information set regarding the managerial expertise of the individual.¹⁴

Vice-Chancellors spend approximately six years in the post, on average, before turnover. Their length of tenure seems to be dependent on the age of appointment, with Vice-Chancellors appointed at an earlier age having longer tenure, as shown in Figure 5.¹⁵ For every later year in age that a Vice-Chancellor is appointed, the average tenure falls by approximately .4 years or between four and five months. For example, consider a person aged 50 who commences as a Vice-Chancellor. Then, according to the estimated regression equation of Figure 5 his/her expected tenure in the job is $-.40 \times 50 + 27.81 \approx 7.8$ years. The mean tenure of Vice-Chancellors is 5.8 years (panel C, Figure 4).¹⁶ Linking tenure with turnover, the average age of Vice-Chancellor turnover in Australia is 61. This follows intuitively; if the average age of appointment is 55 years (from Panel A of Figure 4) and given the average tenure is 6 years (Panel C, Figure 4) then the average age of turnover is $55 + 6 \approx 61$ (panel D, Figure 4).

Most turnovers occur after the age of 60; only 39 percent of Vice-Chancellors have left their post by age 60 and as shown in Panel E of Figure 4, half of all Vice-Chancellors are turned over by age 61. Once past sixty, there is a small window during which the majority of Vice-Chancellors leave their role; 63 percent of Vice-Chancellors have left by age 62. This reflects the relatively late age at which Vice-Chancellors are appointed.

¹³ The t-statistic for the difference is .55 (p-value .29).

¹⁴ The learning hypothesis has been used in the literature on CEO remuneration; see, for example, Murphy (1986).

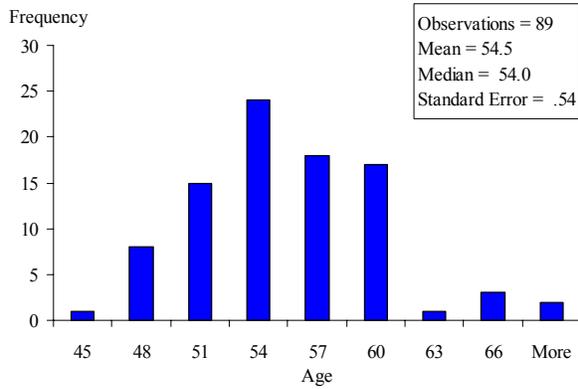
¹⁵ To construct Figure 5, we compute the average tenure of all Vice-Chancellors of a given age of appointment and then plot this average against age.

¹⁶ The slight discrepancy between the mean length of tenure in panel C of Figure 4 (5.8 years) and Figure 5 (6.0 years) is due to the different number of observations used to construct the Figures. Figure 5 has 57 observations (versus 60 for Figure 4) as details on age, while not necessary to construct Figure 4, were required to construct Figure 5.

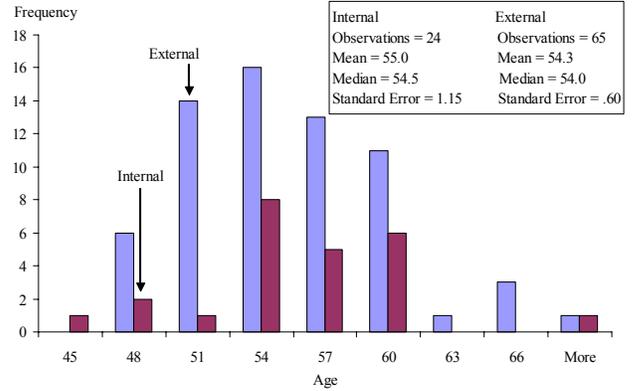
Figure 4

AGE DISTRIBUTION, TENURE AND TURNOVER FOR VICE-CHANCELLORS

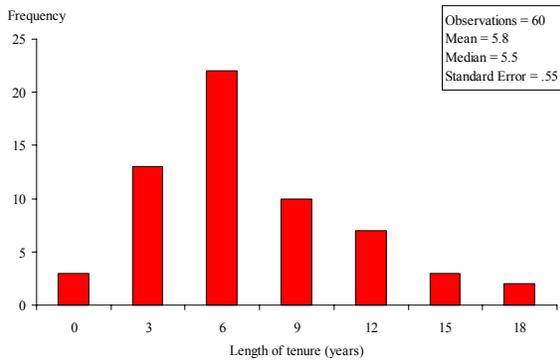
A. Appointment: All



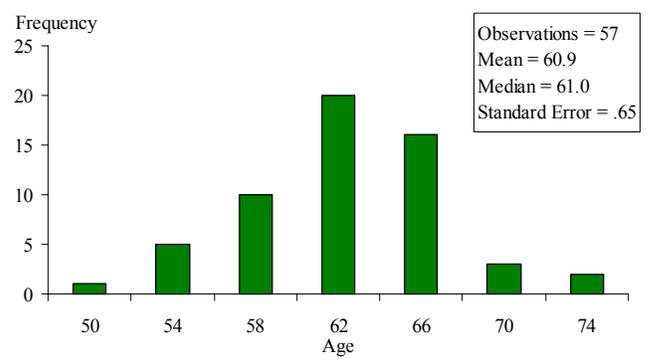
B. Appointment: Internals versus Externals



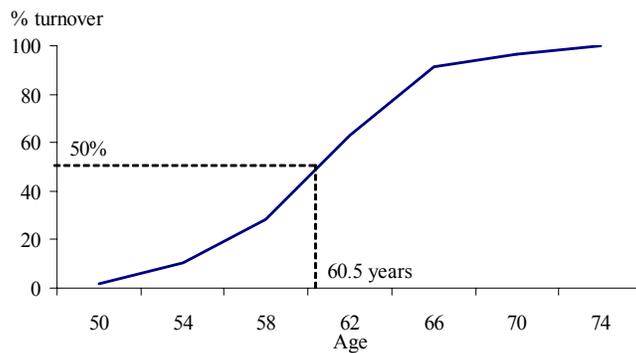
C. Tenure



D. Turnover

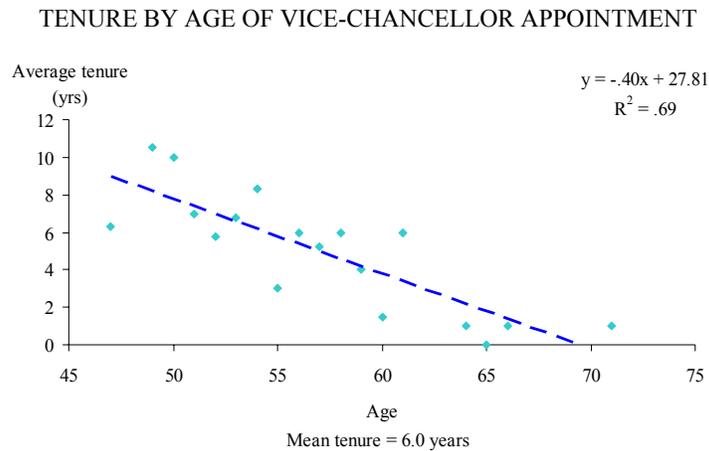


E. Cumulative Distribution of Turnover



Source: *Who's Who in Australia*, AVCC, University Vice-Chancelleries.

Figure 5



Source: *Who's Who in Australia*, AVCC, University Vice-Chancelleries.

How do Australian Vice-Chancellors' demographics compare to those of Australian CEOs? The two roles are similar in that they are both senior management roles. However, they differ in the structure of remuneration, risk, stress and job satisfaction. CEO remuneration is typically made up of four components: salary, bonus, options and other benefits (Murphy, 1999). Bonuses are typically based on financial measures such as earnings. Options are a form of long term incentive for the CEO. In the case of Vice-Chancellors, options are not feasible due to these institutions not having an identifiable market price and shares. Additionally, bonuses based on financial measures are unlikely to capture the non-financial aspects of institution performance.

The risks faced by CEOs and Vice-Chancellors are closely related to their tenure in the role, although the nature of these risks differ. CEOs face more a more explicit onus to maximise shareholder value while the case for Vice-Chancellors is not so clear. Additionally, while CEOs may be disciplined for poor performance by the market for corporate control or their shareholders, universities have government support and lack clearly defined ownership boundaries between their different stakeholders. The stresses of the two jobs are similar, with more firms now being concerned about the non-financial aspects of operations and universities more concerned about the financial aspects of their operations, although Vice-Chancellors are often subject to more complex relationships with their stakeholders than CEOs.¹⁷ In addition, Vice-Chancellors must also deal with the importance of maintaining

¹⁷ The nature of the risk associated with being a Vice-Chancellor can be illustrated by the following four instances where Vice-Chancellor turnover has been associated with universities in crisis; namely the turnover of Vice-Chancellors at RMIT, the University of New South Wales (UNSW), Monash and the University of

academic credibility, which is not so important to the majority of firms. Finally, the satisfaction derived from the job is likely to be different between the two roles. It is highly probable that Vice-Chancellors derive greater enjoyment from the non-pecuniary aspects of the role than CEOs, given the public good dimension to universities.

Looking at academic qualifications, 83 percent of CEOs have some sort of academic qualification, compared to 100 percent of Vice-Chancellors. Only 6 percent of Australian CEOs hold some sort of post-graduate qualification as opposed to the entire sample of Vice-Chancellors, reflecting the different nature of the two groups. Regarding age of appointment, CEOs are appointed at younger ages than Vice-Chancellors. Over 90 percent of CEOs assume the position by age 55, with the majority of appointments occurring between the ages of 41 to 55. In contrast, the mean age of Vice-Chancellor appointment is just under 55 years. The older age at which Vice-Chancellors tend to be appointed may reflect the importance of seniority in promotion in academia relative to the private sector. However, average tenure is dependent on the age of appointment for both Vice-Chancellors and CEOs, with the sensitivity being similar for both CEOs and Vice-Chancellors. For both groups of top management, for each additional year's increase in age that the individual is appointed to the post, the average tenure declines by .4 years.¹⁸ Panel A of Figure 6 shows the age distribution for CEO appointment while Panel B shows tenure across age of appointment.

In terms of tenure and turnover, a much publicised study looking at CEO turnover for ASX 200 companies in 2002¹⁹ found that the average tenure for CEOs leaving office is 4.4

Adelaide. The recent resignation of Professor Ruth Dunkin at RMIT appears to have been imminent for some time, with Victorian Education Minister Lynne Kosky calling for the Vice-Chancellor's resignation as early as 2001 (Tomazin and Guy, 2003). NSW has experienced three Vice-Chancellors in two years, all of which have been associated with the loss of Council support for the Vice-Chancellor (Cooper, 2004). In August 2001, the Vice-Chancellor at the University of Adelaide, Professor Mary O'Kane, resigned following loss of support from senior management (Crewther, 2003). Finally, turnover at Monash University of Vice-Chancellor Professor David Robinson occurred in July 2002, after it was discovered he had plagiarised text in books published earlier in his career. Although the Council unanimously passed a vote of confidence in Professor Robinson a month prior to his resignation, following the plagiarism allegations, the situation did an about-turn, as students and staff called for his resignation (Monash University, 2002). Despite these instances dealing with situations of intense pressure, at a minimum, they call into question the view that the role of a Vice-Chancellor is not risky. Vice-Chancellors are in the public domain with their activities and performance monitored and calls made for improvement or resignation when judged sub-standard. Despite performance being an ill-defined concept for universities, the public does appear to be able to differentiate between actions perceived as good or bad and are vocal in voicing their disapproval. In contrast to CEOs who are accountable predominantly to their shareholders, Vice-Chancellors are accountable and must answer to a wider group incorporating the different stakeholder interests in the university.

¹⁸ For CEOs, this holds only for those appointed after the age of 31.

¹⁹ The sample includes 178 companies from the top ASX 200, of which 22 organisations experienced CEO

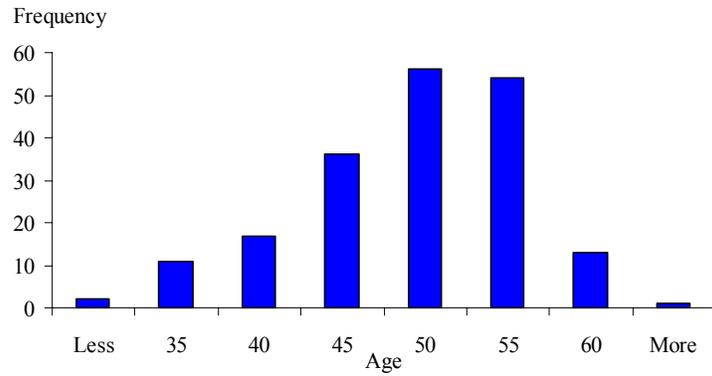
years, almost half of the global average of 8.6 years (Booz Allen Hamilton and Business Council of Australia, 2003). The shorter tenure may indicate that in Australia, top management are under greater pressure to perform and those in the private sector who fail to do so are disciplined by the market for corporate control.²⁰ However, Lieu (2003) finds that average tenure of all CEOs is 5.8 years, the same as that for Vice-Chancellors (panel C, Figure 4). The age distribution of CEOs leaving their post also shows that turnover occurs at younger ages for CEOs relative to Vice-Chancellors, with most CEOs leaving between the ages of 51 to 60 years. More than 85 percent of CEOs are replaced by age 60, while the mean age of turnover for Vice-Chancellors is 61. The age distribution of CEO turnover is shown in Panel C of Figure 6.

Overall, relative to Australian CEOs, Vice-Chancellors are more highly educated, appointed at older ages and do not have shorter tenure. This may reflect differences in demand and supply for top management in the market for Vice-Chancellors versus that of CEOs. On the supply side, the older age of Vice-Chancellor appointment relative to CEOs may reflect the opportunity cost of obtaining postgraduate qualifications. On the demand side, the costs involved in identifying a suitable individual for the role of Vice-Chancellor may be higher than that for a CEO, hence there is a tendency for these individuals to hold longer tenures. Alternative explanations may also include greater difficulty in monitoring and evaluating Vice-Chancellors relative to CEOs or the lack of market forces disciplining Vice-Chancellors for poor performance.

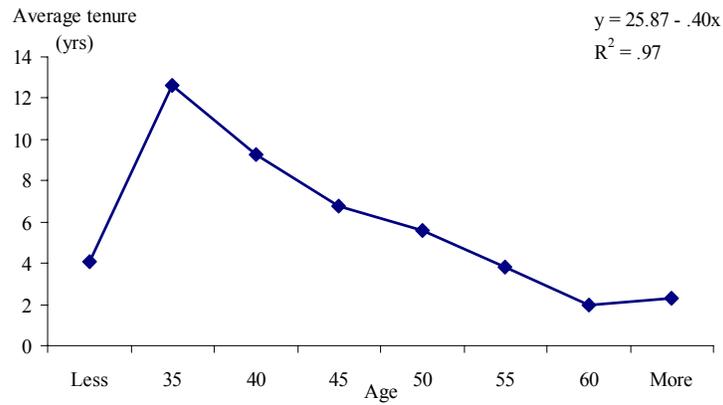
turnover in 2002.

²⁰ CEOs seen as not meeting Board expectations have an average tenure of 3.6 years (Business Council of Australia, 2004). CEO turnover in Australia was found to be disproportionately driven by merger activity, accounting for 21 percent of all turnover, versus 14 percent globally.

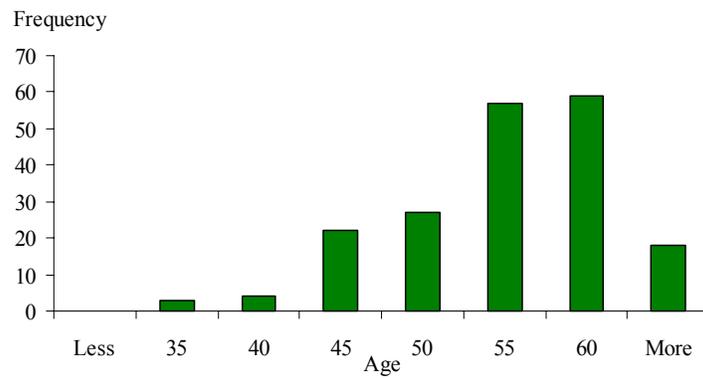
Figure 6
 AGE DISTRIBUTION, TENURE AND TURNOVER FOR CEOs
 A. Appointment



B. Tenure by Age of Appointment



C. Turnover



Source: Lieu (2003).

5. AN INTERNATIONAL COMPARISON OF VICE-CHANCELLORS

In this section, we compare the remuneration of Vice-Chancellors in Australia to their counterparts in the United States and the United Kingdom. This entails issues such as, is the market for Vice-Chancellors local or global? Is the market well arbitrated across countries? The analysis uses the approach of Ong and Mitchell (2000)²¹, who argue that what is relevant when comparing remuneration is the purchasing power of income. Using current exchange rates to compare remuneration is inappropriate because purchasing power differentials between countries are only reflected in exchange rates in the long run. A more meaningful measure is real Vice-Chancellor remuneration in each country.

The relative price index used is the Big Mac index. This is appealing as the Big Mac is representative of a standard basket of goods and services, being made to the same recipe in over 100 countries around the world. While the Big Mac index is not a perfect measure of purchasing power parity due to frictions such as barriers to trade caused by transportation costs, trade restrictions and taxes, differences in the cost of non-traded goods and different pricing methods (Pakko and Pollard, 2003), it has been found to be surprisingly accurate in tracking exchange rates in the long term (Ong, 2003). Table 5 shows the Big Mac Purchasing Power Parity (PPP).

Table 5
THE BIG MAC INDEX, 2002

Country	Big Mac price		Big Mac PPP in US\$	Actual Exchange Rate (local currency cost of US\$1)	Under/Over valuation (%)
	Local currency	in US\$			
United States	US\$2.49	2.49	-	-	-
Australia	A\$3.00	1.61	1.20	1.86	-35
Britain	£1.99	2.89	0.80	0.69	16

Source: *The Economist*, 25 April 2002.

²¹ Remuneration data for United Kingdom Vice-Chancellors is from the *Times Higher Education Supplement* for the 2001/2002 year (published in the *Times Higher Education Supplement* on 7 February 2003). Remuneration refers to the year ended 31 July 2002 and includes salary and other benefits but excludes superannuation contributions made by the university. The data covers 162 institutions. Remuneration data for United States Presidents is sourced from the *Chronicle of Higher Education* for the 2001-2 year. The data covers private college Presidents only and is taken from the Form 990 that each institution is required to file with the Internal Revenue Service and includes pay (defined as salaries, fees, bonuses and severance payments) and benefits (including health and pension plans) as well as other fringe benefits that are required to be counted as income by the Internal Revenue Service. In addition, deferred compensation paid or designated in the year is also included. Cases where the institution did not provide information for a particular category have also been included in the dataset. There are 594 observations in the dataset. Remuneration data for Australian Vice-Chancellors is sourced from university annual reports for the year ended 31 December 2002. There are 30 observations in the dataset.

From Table 5, in the United States US\$1 of earnings buys $1/2.49 \approx .40$ Big Macs, whereas in Australia, A\$1 buys $1/3.00 \approx .33$ Big Macs. Accordingly, to compare earnings in the two countries in terms of Big Macs, the purchasing power of US\$1 relative to A\$1 is about $.4 / .3 \approx 1.33$. From the second last column of Table 5, US\$1 costs A\$1.86, so we see that on the basis of the Big Mac Index the Australian dollar is substantially undervalued – the last column of the Table reveals that it is undervalued by 35 percent, while the British pound is overvalued by 16 percent. A Vice-Chancellor would have to earn A\$1.20 to maintain the same purchasing power in Australia for every dollar earned in the United States. Using the market exchange rate would overestimate the cost of living in Australia relative to that in the United States. One weakness of this analysis²² is that there is no control for size differences across institutions as the data is not readily available. The United States is used to standardise as a benchmark. The results are shown in Table 6.

Panel A of Table 6 shows the difference in real remuneration between countries. The final row of panel A reveals that Vice-Chancellors in Australia are the highest paid with real remuneration that is 43 percent higher than in the United States. However, the Vice-Chancellors in the United Kingdom have 31 percent less purchasing power relative to the United States. This indicates that Vice-Chancellors are the lowest paid in the United Kingdom and the highest paid in Australia. It is possible that the differential reflects that Australian Vice-Chancellors are better than those in the United States or United Kingdom. Alternatively, the remuneration differences may reflect differences in the size of the institutions. The standard errors are also higher in Australia than the United States or the United Kingdom which suggests that in Australia there is more dispersion in size across institutions relative to other countries, or it may just reflect the lower number of observations for Australia.²³

Panel C of Table 6 highlights the fallacy of using market exchange rates to compare remuneration across countries. If market rates are used, it appears that Australian Vice-Chancellors are slightly underpaid relative to the United States, as are Vice-Chancellors in the United Kingdom, although the extent of underpayment for the latter falls to 20 percent. If the medians are used, a different picture emerges; Australian Vice-Chancellors receive marginally

²² Monash University is excluded for Australia as this is an outlier due to the resignation of the Vice-Chancellor in 2002.

²³ As the standard error is inversely proportional to the square root of the number of observations.

(3 percent) higher remuneration relative to the United States, while Vice-Chancellors in the United Kingdom receive lower remuneration, but the extent of the underpayment is less severe at only 10 percent. However, using market rates means that these figures do not reflect purchasing power as cost of living differentials between countries are reflected in exchange rates only in the long run. Another problem is that due to the high volatility in exchange rates, the comparison is subject to substantial noise and inaccuracy. Figure 7 brings out the differences in using PPP exchange rates versus market rates to compare remuneration across countries. It shows that the cross-country dispersion of remuneration is higher when PPP is used. This is in contrast to the usual argument that currencies of rich countries tend to be overvalued relative to PPP such that incomes in these countries are overestimated, while those in poor countries are underestimated. The result is that international inequality is overestimated when market exchange rates are used (Clements and Lan, 2004).

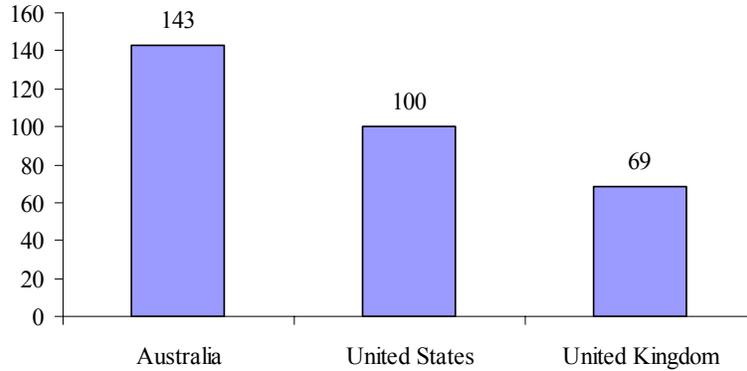
Table 6
INTERNATIONAL COMPARISON OF VICE-CHANCELLORS' REMUNERATION

	Australia	United States	United Kingdom
A. <u>Expressed in US PPP dollars</u>			
Mean	320,242	224,220	154,401
Median	323,700	203,697	157,658
Standard Error	16,253	5,599	2,730
Mean as a percentage of the US	143	100	69
B. <u>Local currency</u>			
Mean	A\$385,833	US\$224,220	£123,397
Median	A\$390,000	US\$203,697	£126,000
Standard Error	A\$19,582	US\$5,599	£2,181
C. <u>Expressed in US dollars at market exchange rates</u>			
Mean	207,437	224,220	178,926
Median	209,677	203,697	182,700
Mean as a percentage of the US	93	100	80
Number of observations	30	594	162

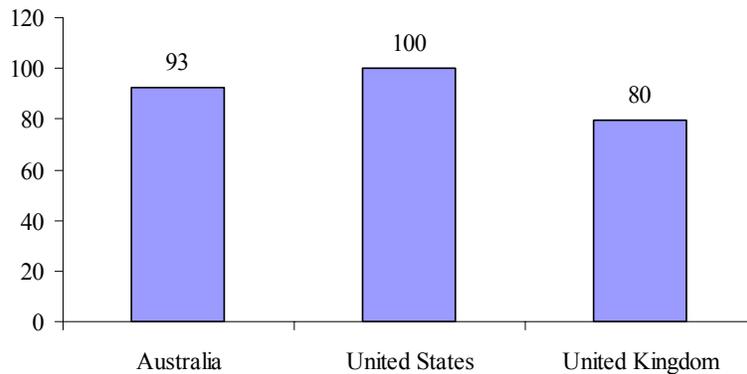
Figure 7

CROSS COUNTRY COMPARISONS OF VICE-CHANCELLOR REMUNERATION

A. PPP Exchange Rates



B. Market Exchange Rates



In addition to remuneration, a Vice-Chancellor also needs to consider the taxation arrangements in each country. One may be better off going to a country with lower remuneration but lower taxes than a country with higher remuneration and taxes. A modest attempt at examining this issue is contained in Table 7 which shows an index of gross and net wages for 2003, from UBS (2003).²⁴ This shows that, on average, taxes and other contributions take up a higher proportion of gross salaries in Chicago, Los Angeles and London than in Sydney. Wage deductions are similar in Los Angeles and London. Taking taxes and other social contributions into account, Vice-Chancellor remuneration in Australia is even more attractive, relative to the United States and United Kingdom.

²⁴ The index is constructed from unpublished data provided by UBS. The index uses the hourly wage averaged across the wages for primary school teachers, bus drivers, automobile mechanics, construction workers, machinists, cooks, department managers, electrical engineers, bank tellers, secretaries, saleswomen and female textile workers.

Table 7
INDEX OF GROSS AND NET WAGES, 2003

Country	Gross Wages	Net Wages	Tax
Chicago	100.00	72.92	27.08
Los Angeles	92.91	69.88	23.03
London	79.86	56.01	23.85
Sydney	50.22	36.28	13.94

Source: UBS (2003).

Another consideration for a Vice-Chancellor is the quality of life. A Vice-Chancellor may choose to trade off remuneration for other benefits offered by a particular country. To compare quality of life, the Quality of Life Survey produced by Mercer Human Resource Consulting is used.²⁵ This ranks countries on political, social, economic and environmental factors, personal safety and health, education, transport and other public services. Scores are standardised against New York as the base city with an index of 100. Results are shown in Table 8. While this index is surely imperfect, it suggests that of the cities in the sample, Australia is the best place to live overall with the highest quality of life measures relative to the United States and United Kingdom. Moreover, it appears that the United States and the United Kingdom have a similar quality of life.

Table 8
QUALITY OF LIFE RANKINGS, 2002

City	Country	Index
Chicago	United States	100.0
New York	United States	100.0
Boston	United States	100.0
London	United Kingdom	100.0
Sydney	Australia	105.5
Melbourne	Australia	104.0
Perth	Australia	103.0
Brisbane	Australia	102.0
Adelaide	Australia	101.0

Source: Mercer Human Resource Consulting (2003).

²⁵ Mercer surveys 235 cities worldwide based on 39 factors in 10 categories (political and social environment; economic environment; socio-cultural environment; medical and health considerations; schools and education; public services and transport; recreation; consumer goods; housing and natural environment) to provide tangible values for qualitative perceptions to allow objective assessments of the quality of living (Mercer Human Resource Consulting, 2003).

Overall, it appears that Vice-Chancellors in Australia are remunerated on the best terms, relative to their counterparts in the United States and United Kingdom. Not only do they have higher real salaries, their remuneration is also more attractive once taxation and social security deductions are considered. In addition, they also enjoy a higher quality of life. This analysis indicates that there is considerable variation in the way Vice-Chancellors are remunerated internationally. This finding leads to interesting further questions, such as, why is the market for Vice-Chancellors not well arbitrated internationally? In the future, can we expect to see more people from overseas becoming Vice-Chancellors in Australia? However, at least two qualifications to the analysis in this section need to be kept in mind. Firstly, there is no control for differences in institution size. Further, there are no controls made for cross-country differences in quality of either institutions or Vice-Chancellors.

6. ARE VICE-CHANCELLORS PAID LIKE CEOs?

In a university, the Vice-Chancellor is seen as the Chief Executive Officers. This raises an interesting question: how broad is the market for executives? Does the one market encompass both CEOs from the private sector and Vice-Chancellors? Although universities are traditionally viewed as nonprofits, compared to the profit motive of the corporation, are Vice-Chancellors remunerated on the same basis as their corporate counterparts? Forces exist that are driving the corporate and university models to converge; firstly, there is funding pressure on universities as public funding declines as a proportion of total revenue. The mechanism of funding allocation also creates pressure to attract students, analogous to firms looking to increase revenue by increasing their customer base. Universities are now finding that they have to take charge of their finances in order to ensure that they remain financially viable, with the implication that the Vice-Chancellor now has to take a more commercial view of the institution's activities. For firms, as corporate governance and social responsibility becomes an increasing focus, they have had to consider the interests of non-owner stakeholders. As a result, the two models are moving away from the extremes of the distribution toward one another.

In this section, we compare Vice-Chancellor to CEO remuneration drawing on past research that has identified size as the key driver of remuneration in the corporate sector (Murphy, 1999). Baimbridge and Simpson (1996) find that revenue is positively and significantly related to Vice-Chancellors' remuneration in the United Kingdom. Note that we are deliberately using only one variable here due to the data availability problems with

universities. Revenue is used as a proxy for size as it is available for universities (and companies). Vice-Chancellors are regarded as the CEOs of these institutions so it is of interest to see if there is any consistency between these two markets in terms of remuneration setting. Consider the following model:

$$\log y_{it} = \beta_0 + \beta_1 \log(\text{revenue})_{it} + \beta_2 D_{it} + \varepsilon_{it}, \quad i \in \text{universities and companies}. \quad (1)$$

In this equation, for institution i in year t , y_{it} is the remuneration of the Vice-Chancellor or CEO and ε_{it} is a disturbance term. The independent variable used here is revenue in year t , as this variable makes sense both as a corporate and university measure that may be related to remuneration. To control for the effects of inflation, remuneration and revenue are expressed in constant 1996 dollars. D is a dummy variable that takes the value of 1 for Vice-Chancellors and 0 otherwise. Accordingly, equation (1) controls for the size of institutions (universities and companies) by holding revenue constant and then says that relative to CEOs in the private sector, the logarithmic difference of Vice-Chancellors' remuneration is $\gamma \times 100$ percent.

Table 9 gives the results of estimating the variants of equation (1).²⁶ Figure 8 shows the results from panel B of Table 9. Prominent observations above and below the regression line for universities are also shown. It is perhaps not surprising that each of these correspond to a year in which Vice-Chancellor turnover occurred with the remuneration figure including termination payments.²⁷ If the coefficient on revenue is constrained to be the same for companies and universities, then an unambiguous measure of the discount to universities can be obtained. Figure 8 and panel B of Table 9 show this: relative to CEOs, the logarithmic difference of Vice-Chancellors is 90 percent lower, which translates into a percentage discount of about 60 percent. All coefficients are highly significant.

²⁶ The data for CEO remuneration is from Lieu's (2003) Honours dissertation on Australia's participation in the global market for CEOs. It includes firms among the top 125 in Australia (ranked by market capitalisation) during the years 1999-2003. Remuneration has been pro-rated for a full year of work, in the case that the CEO left the position mid-way through the year. For CEOs paid in foreign currency, remuneration has been converted to Australian dollars based on the rate as at annual reporting date. The sample consists of 124 company years and 179 university years.

²⁷ When the Vice-Chancellor/CEO remuneration model is re-estimated to control for turnover, the results show that turnover is not associated with significantly higher remuneration (for more detail, see Soh, 2004).

Table 9
 VICE-CHANCELLOR VERSUS CEO REMUNERATION
 (standard errors in parentheses)

Variable/Coefficient		Value	\bar{R}^2	df
A. $\log y_{it} = \alpha_0 + \alpha_1 \log(\text{revenue})_{it}^{\text{company}} + \alpha_2 \log(\text{revenue})_{it}^{\text{university}} + \alpha_3 D_{it} + \varepsilon_{it}$				
Intercept	α_0	8.59 (.37)		
$\log(\text{revenue})^{\text{company}}$	α_1	.39 (.03)		
$\log(\text{revenue})^{\text{university}}$	α_2	.27 (.05)		
D_{it}	α_3	.75 (.74)	.76	299
B. $\log y_{it} = \beta_0 + \beta_1 \log(\text{revenue})_{it} + \beta_2 D_{it} + \varepsilon_{it}$				
Intercept	β_0	8.95 (.33)		
$\log(\text{revenue})$	β_1	.37 (.02)		
D_{it}	β_2	-.90 (.07)	.76	300
C. $\log y_{it} = \gamma_0 + \gamma_1 \log(\text{revenue})_{it} + \gamma_2 D_{it} + \gamma_3 \text{Go8}_{it} + \varepsilon_{it}$				
Intercept	γ_0	8.82 (.35)		
$\log(\text{revenue})$	γ_1	.38 (.02)		
D_{it}	γ_2	-.86 (.08)		
Go8	γ_3	-.10 (.09)	.76	299

F statistic for $\alpha_1 = \alpha_2$ is 4.97 (p-value .03).

The slope coefficient of .37 represents the elasticity of remuneration to revenues. As it is less than one, it implies that there are economies of scale to remuneration – an institution that is 10 percent larger will pay its CEO 3.7 percent more. Murphy (1999) calculates this elasticity using S&P 500 CEO salaries and bonuses; for the period 1990-1996 the elasticity is .21.²⁸ It is of interest that the two numbers are comparable in magnitude. What is the marginal effect on remuneration of an increase in size? As the elasticity of remuneration with respect to revenue is .37, the marginal effect $\partial P/\partial R$ in universities is $.37(P/R) = .41$ if we use sample means. In other words, if an institution were to increase its revenues by one thousand dollars, the corresponding average increase in remuneration is 41 cents.

Cornell (2002) in a study on US Presidents finds that CEO pay is 32-36 times that of

²⁸ This is calculated as the average of the elasticity of compensation with respect to sales revenue for each industry group.

President pay. Why is there such a large discount and why do we not see more discontent from Vice-Chancellors about this? This finding suggests that the market for Vice-Chancellors is segmented from the market for CEOs in Australia and internationally (Merhebi et al., 2003). It also suggests that there are large differences in goals and incentives provided in the market for university managerial talent, consistent with Roomkin and Weisbrod (1999). Panel C of Table 9 shows that after controlling for revenue, membership of an institution to the Group of Eight has no significant effect on remuneration.²⁹ This suggests that the key driver of remuneration is size rather than reputational considerations.

Table 10 and Figure 9 give the average over time of the residuals from the model in panel A of Table 9 converted into percentages for each institution; this represents the average percentage over/underpayment to the Vice-Chancellor relative to what is expected on the basis of size.³⁰ As we use the model with the university dummy included, we are comparing remuneration in each university with the all-university average; this means that the measure of the over/under payment is zero on average. Hence, relatively speaking, Vice-Chancellors at the University of Technology Sydney are, on average, the most underpaid, while those at the University of Queensland are the most overpaid. Some qualifications to this conclusion are appropriate, firstly, that these relativities are made exclusively on the basis of size. Additionally, there may be legitimate reasons for the deviations from the curve, for example, reflecting differences in quality, experience and effectiveness of Vice-Chancellors across institutions.

²⁹ Panel C of Table 9 includes a Group of Eight dummy variable that is equal to one if an institution is a member of the Group of Eight and zero otherwise.

³⁰ When the model is re-estimated to control for turnover (see Soh, 2004), the rankings for relative over/underpayment of Vice-Chancellors do not change substantially and the coefficient on the turnover variable is not significant. The effect of adding a turnover control is to decrease (increase) the magnitude of the average relative over/underpayment for institutions where turnover has (not) occurred. Overall, there does not appear to be any evidence of systematically large termination payments associated with Vice-Chancellor turnover.

Figure 8

VICE-CHANCELLOR VERSUS CEO REMUNERATION: THE UNIVERSITY DISCOUNT

$$\log(\text{Remuneration})_{it} = 8.95 + .37\log(\text{revenue})_{it} - .90D_{it}, \bar{R}^2 = .76$$

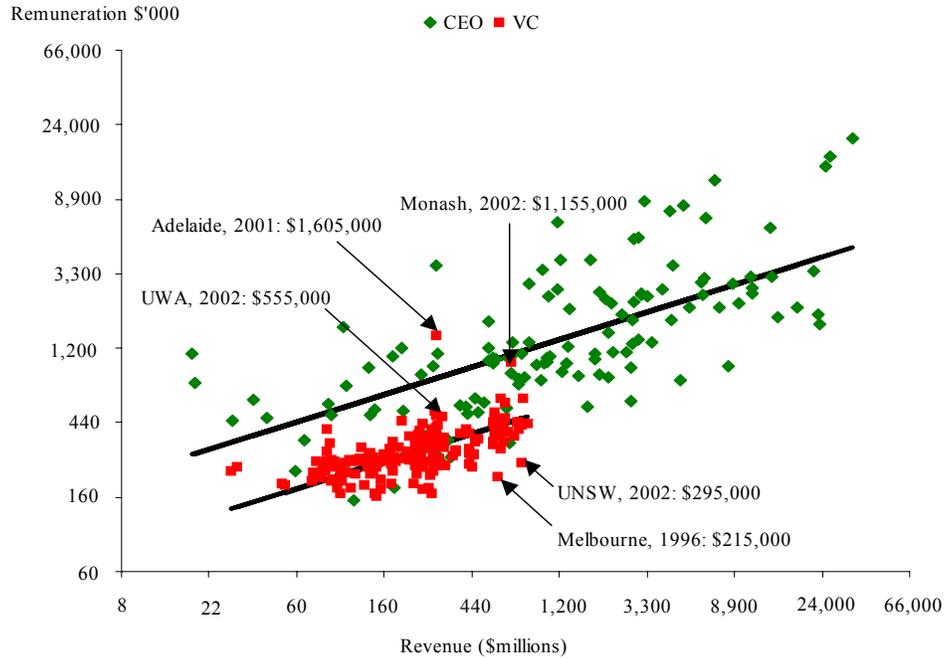
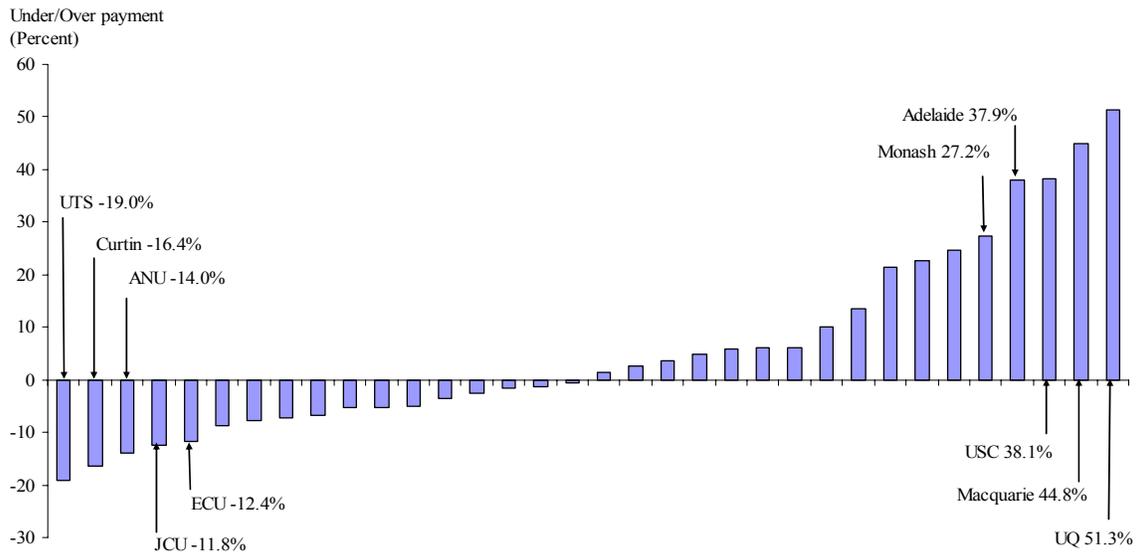


Table 10

OVER/UNDER PAYMENT OF VICE-CHANCELLORS

Institution	Percent	Institution	Percent
1. University of Technology Sydney	-19.0	18. Victoria University	1.3
2. Curtin University of Technology	-16.4	19. La Trobe University	2.6
3. Australian National University	-14.0	20. Deakin University	3.6
4. Edith Cowan University	-12.4	21. University of New England	4.9
5. James Cook University	-11.8	22. University of Western Australia	5.9
6. University of Newcastle	-8.8	23. QUT	6.2
7. RMIT	-7.7	24. Central Queensland University	6.2
8. University of Melbourne	-7.2	25. University of Sydney	10.2
9. University of Southern Queensland	-6.7	26. University of Canberra	13.6
10. University of Tasmania	-5.4	27. University of Wollongong	21.4
11. University of New South Wales	-5.3	28. University of Western Sydney	22.8
12. Murdoch University	-5.0	29. Southern Cross University	24.7
13. Swinburne University of Technology	-3.5	30. Monash University	27.2
14. Australian Catholic University	-2.5	31. University of Adelaide	37.9
15. Charles Sturt University	-1.7	32. University of the Sunshine Coast	38.1
16. Griffith University	-1.4	33. Macquarie University	44.8
17. University of Ballarat	-0.7	34. University of Queensland	51.3

Figure 9
OVER/UNDER PAYMENT OF VICE-CHANCELLORS



Overall, when comparing remuneration across universities and companies, for a similar sized institution, there is a remuneration differential depending on whether the institution is a company or a university, with Vice-Chancellors accepting a discount of 60 percent relative to their private sector counterparts. This is illustrated by the regression line for universities lying everywhere below that for companies. This suggests that top management remuneration does not appear to be set on a similar basis across universities and companies.

7. FURTHER RESULTS

Other aspects of this market investigated include the determinants of Vice-Chancellor tenure, appointment and the modelling of the determinants of Vice-Chancellor remuneration. Here we provide a brief overview of this additional material; for a more in depth analysis, see Soh (2004).

There is weak evidence that average length of Vice-Chancellor tenure appears to be increasing over time, with an increase in each year of calendar time leading to an increase in the length of average tenure of 9 percent. There is some evidence that age is a determinant of tenure, with older Vice-Chancellors spending a shorter time in the role, although the effect is small in magnitude, with an additional year in age leading to a 7 percent decrease in the

length of tenure. However, earnings of the university do not appear to be significant determinants of tenure, suggesting that there is little evidence of a link between the financial performance of an institution and the length of time spent in office.

Vice-Chancellor appointment does not appear to follow a tournament theory-like process, where outsiders are handicapped relative to insiders.³¹ There is little evidence of “culture effects” at these institutions, with institutions where the former Vice-Chancellor was an external appointment not significantly more likely to appoint another external over an internal. While tournament theory suggests that the more staff at an institution, the greater the potential pool of internal applicants from which to draw upon and the greater the handicap to outsiders, institutions with more staff are equally as likely to appoint an external or internal Vice-Chancellor. Additionally, there appears to be no significant Group of Eight effect where these institutions favour external over internal appointments.

Modelling the determinants of Vice-Chancellor remuneration, the period of incumbency is significant and the size of the institution, measured by total assets, weakly so. A 10 percent increase in total assets leads to a 1.4 percent increase in Vice-Chancellor remuneration. This is consistent with the private sector model, where CEO remuneration is driven by size (Murphy, 1999). It is also consistent with Leone and van Horn (1999) who find that executive compensation in nonprofits increases by moving from smaller to larger organisations. The marginal effect of an increase in total assets evaluated at the means is .07; in other words, if an institution increases its asset base by one thousand dollars, Vice-Chancellor remuneration increases (on average) by 7 cents.

In contrast to Baimbridge and Simpson (1996), there is a positive relationship between the period of incumbency and remuneration. The relationship is consistent with human capital theory where the longer the period spent in the position, the more experienced and productive is the worker and the higher the reward. A positive relationship between the length of time as Vice-Chancellor and remuneration is consistent with the accumulation of valuable institution-specific human capital by the Vice-Chancellor. In this instance, it may be advantageous for an institution to retain this institutional knowledge by encouraging the Vice-Chancellor to stay by offering higher remuneration. Sorokina (2003) finds a positive and

³¹ For more information on tournament theory, see Lazear and Rosen (1981), Lazear (1995), Chan (1996) and Agrawal et al. (2003).

significant relationship between pay and tenure, with Presidents receiving approximately .4 percent higher pay for each year of tenure. For Australian Vice-Chancellors, an additional year of tenure leads to an increase in remuneration of approximately 2 percent. This may reflect Australian Vice-Chancellors accumulating institution-specific human capital at a faster rate relative to United States Presidents, making them more valuable to the institution over time.

Sorokina finds that female Presidents are paid more than their male counterparts, with an average gender differential of 8 percent. The Australian experience shows that there do not appear to be appreciable differences in remuneration between the genders. This suggests that the labour market characteristics correlated with gender are not appreciably different in Australia. Another possible explanation may be that there is less competition for female Vice-Chancellors in Australia relative to the United States. Additionally, there appear to be no regional effects in remuneration setting and research capacity and student enrolments do not appear to significantly affect remuneration. This suggests that the market for Vice-Chancellors in Australia is national rather than local and while universities strive to improve their research capabilities and student numbers, this does not appear to have an impact on the remuneration of the Vice-Chancellor. If an analogy is drawn to the corporate setting, neither research and development nor the customer base appear to be priced factors in top executive remuneration setting. Further, in contrast to the corporate situation, there appears to be no significant relationship between performance (measured by earnings) and compensation.

8. CONCLUDING COMMENTS

What is so special about a university? Summers (2003) argues that part of the answer is that the most valuable assets of a university are not its physical capital, but the people in the community and the knowledge they possess. Another is the less formal, decentralised environment of the university where guidelines and resources are provided in order to create environments where individuals can do their best work. Summers comments that the nurturing of the development and flow of ideas is what the success of today's firms is dependent upon and that they could benefit by adopting some aspects of this culture. The ability of universities to encourage and reward creativity and novel thinking is partly how universities add value to society. By allowing ideas to reign supreme, universities position themselves to be able and ready to respond to new challenges. Perhaps it is in this that universities have stood the test of time.

We see that a well-defined image of the typical Vice-Chancellor emerges. It appears that there is an over-representation of Vice-Chancellors in Australia from natural and physical science and society and culture backgrounds and an under-representation of Vice-Chancellors from management and commerce and information technology backgrounds. This may reflect the opportunity cost of postgraduate study in each respective area, given that the Vice-Chancellors in the sample all have postgraduate qualifications.

Regarding where Vice-Chancellors studied to obtain their qualifications, it appears that the majority of Vice-Chancellors obtained their undergraduate qualification in Australia before choosing to go overseas for their postgraduate qualification. This situation holds regardless of whether the sample is split into internally versus externally appointed Vice-Chancellors. However, Vice-Chancellors who obtained their undergraduate qualification in Australia are almost equally as likely to go overseas as to remain in Australia for their postgraduate study, while those who obtained their Bachelors qualification from a foreign institution are three times as likely to also undertake postgraduate study overseas than in Australia.

Comparing Australian Vice-Chancellors to their counterparts in the United States and United Kingdom, Australian Vice-Chancellors clearly top the stakes. Not only is the real purchasing power of their remuneration higher by 43 percent measured according to the Big Mac index, the tax considerations are more favourable and the quality of life in Australia exceeds that of the United States and United Kingdom. Vice-Chancellors in the United Kingdom, on the other hand, appear to be the losers in the international comparison, with lower real remuneration and a less favourable tax situation. This may be an important consideration for potential future Australian university Vice-Chancellors currently residing overseas. It may also reflect that Australian Vice-Chancellors are of higher quality, on average, than their international counterparts, although it must be emphasised that the comparisons are made purely on the basis of remuneration only, with no controls for size differences between institutions.

Comparing the remuneration of Australian Vice-Chancellors to Australian CEOs, while the sensitivity of remuneration to size is similar, those individuals accepting the role of Vice-Chancellor receive, on average, a discount of 60 percent relative to the private sector.

This is consistent with the disparity found between United States Presidents and CEOs. It appears that the market for Vice-Chancellors is separate from the market for CEOs, despite the belief of Vice-Chancellors that their roles are equally, if not more so, demanding and complex.³²

What are the implications of the corporatisation of universities? Firstly, it seems plausible that increased pressure for accountability may result in greater pressure for VCs to perform and greater incentive alignment so that in the future, we may see evidence of performance driven turnover in this sector. Secondly, Vice-Chancellor remuneration may increase to a level more comparable to CEOs, if they are indeed regarded as the CEOs of these institutions. However, the two markets may never meet if the goals of the two segments are divergent enough to keep these markets distinct. Given that universities are classified as non-profit organisations with complex stakeholder relationships and multiple objectives and the difficulty in obtaining meaningful measures of certain outcomes in a university context, it is possible that the disparity in the way top executives are remunerated between firms and universities will persist.

Overall, it appears that while there is considerable convergence between the role of Vice-Chancellors relative to CEOs, the labour market does not appear to be pricing Vice-Chancellors on the same basis as CEOs. Perhaps this dates back to the roots of universities as public nonprofit institutions, although the evidence would suggest that Australian universities have in reality moved away from this traditional view.

REFERENCES

- Agrawal, A., C. R. Knoeber and T. Tsoulouhas (2003). "Are Outsiders Handicapped in CEO Successions?" Working Paper, Culverhouse College of Business, University of Alabama, December 2003.
- Allen, M. P. (1981). "Power and Privilege in the Large Corporation: Corporate Control and Managerial Compensation." *American Journal of Sociology*, 86: 1112-1123.
- Anonymous, (2004). Personal Communications.
- Associated Press (2004). "Top Pay for College Presidents Up Again." CNN.com, November 15.
- Audit Office of New South Wales (2000). *Auditor-General's Report to Parliament 2000: Volume Four*. Audit Office of New South Wales: Sydney.

³² Perhaps this self belief is not surprising.

- Australian Accounting Research Foundation (1993). *AAS 22: Related Party Disclosures*. Australian Accounting Standard 22, issued on behalf of the Australian Society of Certified Practising Accountants and The Institute of Chartered Accountants in Australia.
- Australian Accounting Standards Board (1997). *AASB 1017: Related Party Disclosures*. Accounting Standard 1017, Australian Accounting Standards Board: Melbourne.
- Australian Bureau of Statistics (2004a). Australian System of National Accounts 2002-03. Catalogue 5204.0, table 1: Gross Domestic Product and Associated Statistics.
- Australian Bureau of Statistics (2004b). Australian System of National Accounts 2002-03. Catalogue 5204.0, table 61: Agricultural Income, current prices.
- Baimbridge, M. (1995). "Academic Staff Salaries: Equity and Exploitation." *Applied Economics Letters*, 2: 469-472.
- Baimbridge, M. and C. Simpson (1996). "Rewards to Academia: the Remuneration of Vice-Chancellors and Principals." *Applied Economics*, 28: 631-639.
- Becker, G. (1962). "Investment in Human Capital: A Theoretical Analysis." *Journal of Political Economy*, 70(5-2): 9-49.
- Becker, G. (1964). *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*. Columbia University Press: New York.
- Bertrand, M. and S. Mullainathan (2000). "Agents with and without Principals." *American Economic Review*, 90: 203-208.
- Booz Allen Hamilton and Business Council of Australia (2003). *CEO Turnover in 2002: Trends, Causes and Lessons Learned*.
- Boulanger, K. and J. Pliskin (1999). "Determinants of Compensation of College Presidents." Working Paper, Hamilton College, Clinton, NY.
- Business Council of Australia (2004). "Executive Remuneration." Position Paper.
- Butler, G. (2001). "Notes to aid Discussion of the Appropriate Mix of funding to Australia's Public Universities." *The Drawing Board: An Australian Review of Public Affairs*, 1(3): 87-101.
- Calabu, H., P. Kenyon and P. Koshy (2000). *Of Dollars and Cents – Valuing the Economic Contribution of Universities to the Australian Economy*. Business/Higher Education Round Table Report, Melbourne, August 2000.
- Chan, W. (1996). "External Recruitment versus Internal Promotion." *Journal of Labour Economics*, 14(4): 555-570.
- Chapman, D. W. and A. P. Wagner (1986). "Gender and Salaries: The Case of Admissions Officers." *Review of Higher Education*, 10: 85-104.
- Clements, K. W. (2002). "Comments on Rachel Merhebi: Australian CEO Remuneration: A Non-Anomaly in the Global Market." PhD Conference in Economics and Business, Australian National University, Canberra, 6-8 November.
- Clements, K. and Y. Lan (2004). "Exchange Rates, Productivity, Poverty and Inequality." Discussion Paper 04-13, Economics Program, University of Western Australia.
- Cooper, D. (2004). "Uni in Turmoil as Head Rolls." *The Australian*, 10 April.

- Cornell, B. (2002). "Compensation and Recruiting: Private Universities versus Private Corporations." First Draft, April 2002. Anderson Graduate School of Management, University of California, Los Angeles.
- Crewther, R. (2003). "Submission to Senate Employment, Workplace Relations and Education References Committee Inquiry into Higher Education Funding and Regulatory Legislation." Submission 442, Parliament of Australia Senate.
- Department of Education, Science and Training (2004a). "Finance 2003: Selected Higher Education Statistics." Commonwealth of Australia: Canberra.
- Department of Education, Science and Training (2004b). "Students 2003: Selected Higher Education Statistics." Commonwealth of Australia: Canberra.
- Department of Education, Training and Youth Affairs (DETYA, 2000). *Guidelines for the Preparation of Annual Financial Reports for the 2000 Reporting Period by Australian Higher Education Institutions*. Higher Education Division, Department of Education, Training and Youth Affairs: Canberra.
- Economist, The (2002). "Big MacCurrencies." 25 April.
- Ehrenberg, R., J. Cheslock and J. Epifantseva (2001). "Paying our Presidents: what do Trustees Value?" *Review of Higher Education*, 25: 15-37.
- Gomez-Mejia, L. R., H. Tosi and T. Hinkin (1987). "Managerial Control, Performance and Executive Compensation." *Academy of Management Journal*, 30: 51-70.
- Grieg, B. (1997). *Study of UWA Importance*. Economic Research Centre Project, University of Western Australia, June 1997.
- Hallock, K. F. (2002). "Managerial Pay and Governance in American Nonprofits." *Industrial Relations*, 41(3): 377-406.
- Lawrence, C. (2004). "Higher Education: Public Good or Private Benefit?" Chiefley Lecture, Melbourne University.
- Lazear, E. P. (1995). *Personnel Economics*. MIT Press: Massachusetts.
- Lazear, E. P and S. Rosen (1981). "Rank-Order Tournaments as Optimum Labour Contracts." *Journal of Political Economy*, 89(5): 841-864.
- Leone, A. J. and R. L. van Horn (1999). "Earnings Management in Not-for-Profit Institutions: Evidence from Hospitals." Working paper, William E. Simon Graduate School of Business Administration, University of Rochester.
- Lieu, D. (2003). *Australia's Participation in the Global Market for CEOs*. Honours dissertation, Bachelor of Commerce, University of Western Australia.
- Marginson, S. and M. Considine (2000). *The Enterprise University: Power, Governance and Reinvention in Australia*. Cambridge University Press: Cambridge.
- Medoff, J. L. and K. G. Abraham (1980). "Experience, Performance and Earnings." *Quarterly Journal of Economics*, 95: 703-736.
- Medoff, J. L. and K. G. Abraham (1981). "Are those paid more really more Productive? The Case of Experience" *Journal of Human Resources*, 16: 186-216.
- Mercer Human Resource Consulting (2003). Quality of Life Survey.

- Merhebi, R., P. Swan and X. Zhou (2003). "Australian CEO Remuneration: a Non-Anomaly in the Global Market." Paper presented at the School of Banking and Finance Seminar Program, University of New South Wales, September 2003.
- Micheli, C. de and M. Herd (eds.) (2003). *Who's Who in Australia 2003*. 39th edition, 2003. Crown Content: Melbourne.
- Mincer, J. (1970). "The Distribution of Labour Incomes: A Survey." *Journal of Economic Literature*, 8: 1-26.
- Mincer, J. (1974). *Schooling, Experience and Earnings*. Columbia University Press: New York.
- Monash University (2002). "Council to meet on new VC for Monash." Monash Newline, 16 July.
- Morris, S. (2004). "ANU Hits the Road in Search of New Funds." *Australian Financial Review*, p. 3, 21 September.
- Murphy, K. J. (1986). "Incentive, Learning and Compensation: A Theoretical and Empirical Investigation of Managerial Labour Contracts." *Rand Journal of Economics*, 17(1): 59-76.
- Murphy, K. J. (1999). "Executive Compensation." *Handbook of Labour Economics*, vol. 3, O. Ashenfelter and D. Card (eds.), Elsevier Science B. V.
- Nelson, B. (2002). "Higher Education at the Crossroads: An Overview Paper." Department of Education, Science and Training, Canberra.
- Oliver, S. (2004). Personal Communications.
- Ong, L. L. and J. D. Mitchell (2000). "Professors and Hamburgers: An International Comparison of Real Academic Salaries." *Applied Economics*, 32: 869-876.
- Ong, L. L. (2003). *The Big Mac Index: Applications of Purchasing Power Parity*. Palgrave Macmillan: Basingstoke.
- Pakko, M. R. and P. S. Pollard (2003). "Burgernomics: A Big Mac Guide to Purchasing Power Parity." *Federal Reserve Bank of St Louis Review*, 85(6): 9-28.
- Pfeffer, J. and J. Ross (1988). "The Compensation of College and University Presidents." *Research in Higher Education*, 29(1): 79-91.
- Pounder, D. G. (1989). "The Gender Gap in Salaries of Educational Administration Professors." *Educational Administration Quarterly*, 25: 181-201.
- Ransom, M. R. (1993). "Seniority and Monopsony in the Academic Labour Market." *American Economic Review*, 83: 221-233.
- Roomkin, M. J. and B. A. Weisbrod (1999). "Managerial Compensation and Incentives in For-Profit and Nonprofit Hospitals." *Journal of Law, Economics and Organisation*, 15(3): 750-781.
- Sargeant, B. (2001). *Hansard*, p. 1270, 13 August, Canberra.
- Schaefer, S. (1998). "The Dependence of Pay-Performance Sensitivity on the Size of the Firm." *Review of Economics and Statistics*, 80(3): 436-443.
- Siegfried, J. J. (1997). "Should Economists be Kicked Upstairs?" *Southern Economic Journal*, 63(4): 853-871.
- Silva Rosa, R. da (2004). Personal Communications.

- Soh, L. H. C. (2004). *How Different are Universities from Companies? Financial Reporting Perspectives and the Market for Vice-Chancellors*. Honours Dissertation, Bachelor of Commerce, University of Western Australia.
- Sorokina, O. V. (2003). "Executive Compensation: the Case of Liberal Arts College Presidents." *Issues in Political Economy*, vol. 12, August 2003.
- Summers, L. H. (2003). "The Authority of Ideas." *Harvard Business Review*, 81(8): 144.
- Swan, P. (2001). "Vice-Chancellors' Pay Package is Modest, Relatively Speaking." *Sydney Morning Herald*, June 9.
- Tomazin, F. and R. Guy (2003). "Dunkin Given Six Months." *The Age*, June 5.
- Trewin, D. (2004). *2004 Year Book Australia*. Number 86, Australian Bureau of Statistics. ABS Catalogue No. 1301.0. Commonwealth of Australia: Canberra.
- UBS (2003). Unpublished Data. UBS: Zurich.