

CHAPTER 3

THE DATA

1.1 Introduction

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). This chapter discusses the sources of data used throughout the dissertation. More detailed versions of the annual report database are contained in Appendix A3 and the attached CD.

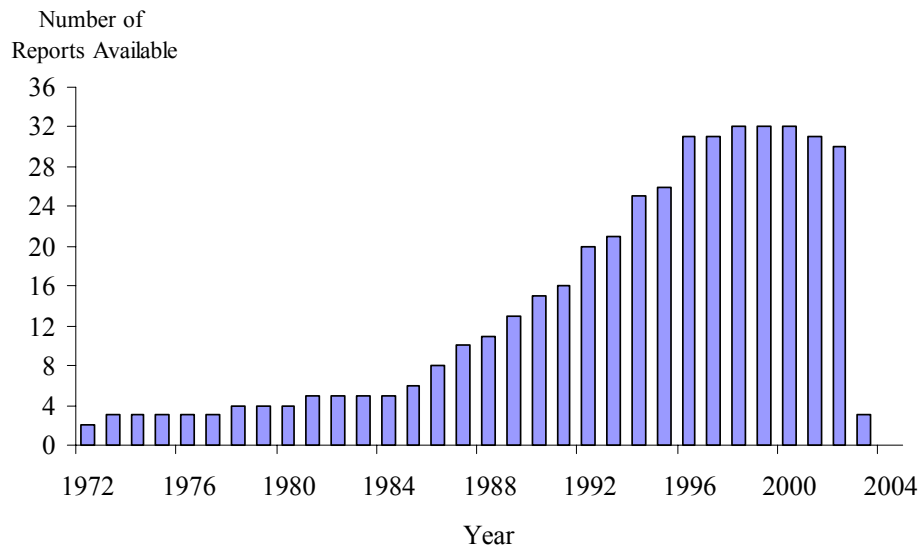
1.2 The Challenges of Data Collection

Data for this project is primarily sourced from university annual reports and financial statements. All regression data used in this dissertation is available in Appendix A3. 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, the alternative plan was to travel to the National Library of Australia in Canberra to obtain the required data. An examination of the National Library's catalogue shows they hold most of the required annual reports, shown in Table 1.1. Figure 1.1 shows the number of university reports held by the National Library by year. This shows that data for a meaningful number of universities is only available for the period 1996-2002.¹

Figure 1.1
HISTOGRAM OF DATA AVAILABILITY



Notes: The distribution relates to National Library of Australia catalogue holdings, found through an advanced keyword (annual report) and author (name of university) search. The most recent continuous time period of holdings as at May 2004 is reported.

¹ 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.

Table 1.1

NATIONAL LIBRARY OF AUSTRALIA CATALOGUE RECORD HOLDINGS¹

University	Date Range of Available Data	University	Date Range of Available Data
1. Australian Catholic University	1996-2002	22. Swinburne University of Technology	1995-2002
2. Australian Defence Force Academy	1986-2002	23. The University of Melbourne	1998-2002
3. Australian National University ¹	1993-2002	24. The University of New England	1985-2002
4. Bond University	None	25. The University of New South Wales ³	1992-2001
5. Central Queensland University	1992-1994	26. The University of Newcastle	1996-2002
6. Charles Darwin University ²	None	27. The University of Queensland	1981-2002
7. Charles Sturt University	1990-2002	28. The University of Sydney	1998-2002
8. Curtin University of Technology	1987-2002	29. The University of Western Australia	1992-2003
9. Deakin University	1996-2002	30. University of Adelaide	1994-2002
10. Edith Cowan University	1991-2002	31. University of Ballarat	1978-2003
11. Flinders University	1980-1990	32. University of Canberra	1996-2000
12. Griffith University	1972-2002	33. University of Notre Dame	None
13. James Cook University	1994-2002	34. University of South Australia ⁴	1996-1997
14. La Trobe University	None	35. University of Southern Queensland	1992-2002
15. Macquarie University	1991-2002	36. University of Tasmania	1986-2003
16. Monash University	1990-2002	37. University of Technology Sydney	1988-2002
17. Murdoch University	1973-2002	38. University of the Sunshine Coast	2002
18. Northern Territory University ²	1989-2002	39. University of Western Sydney	1989-2001
19. Queensland University of Technology	None	40. University of Wollongong	1987-2002
20. Royal Melbourne Institute of Technology	1994-2002	41. Victoria University ⁵	1995-2002
21. Southern Cross University	1994-2002		

- Notes:
1. National Library of Australia catalogue holdings were found through an advanced keyword (annual report) and author (name of university) search. The most recent continuous time period of holdings as at May 2004 is reported.
 2. Alice Springs Centralian College merged with Northern Territory University in 2004 to become known as Charles Darwin University.
 3. The listing for The University of New South Wales lists this as the Annual Report for the Council.
 4. University of South Australia has a separate listing for Financial Statements available for the years 1993-1995.
 5. Victoria University records are listed under the author Victoria University of Technology.

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 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.

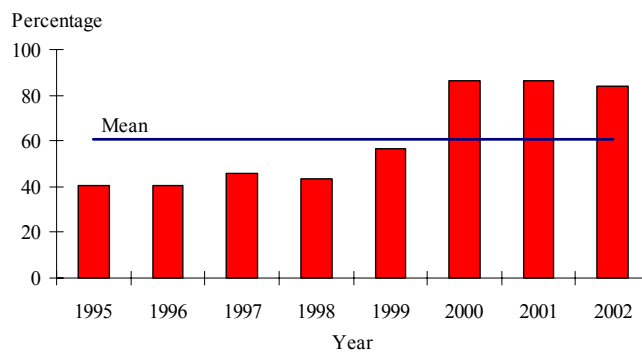
There is substantial variation in the quality and quantity of disclosure across institutions relating to Vice-Chancellor remuneration. Institutions in Western Australia report relatively early while those in New South Wales and Queensland report relatively late. Overall, in terms of data, the set covers 37 institutions² 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 1.2 shows the proportion of institution 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

² The institutions where no data has been collected are Notre Dame University and Flinders University.

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 2000³ 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. Charles Darwin University⁴ 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 1.2

VICE-CHANCELLOR REMUNERATION DATA COLLECTED



³ 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.

⁴ Formerly Northern Territory University (until 2004).

1.3 Vice-Chancellor Remuneration and Biographical Information

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. 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 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 1.2 lists Vice-Chancellor remuneration in 2002. Monash University is a clear outlier due to the resignation of the Vice-Chancellor, Professor David Robinson, in 2002.

Biographical data on current and past Vice-Chancellors was obtained from *Who's Who in Australia* (de Micheli and Herd, 2003) and also from direct requests at each individual university's Vice-Chancellery. The AVCC provided a list of current and past Vice-Chancellors with their terms of office, however this proved to have severe data integrity issues with the majority of the terms of office listed being incorrect. In fact, some listed dates were before the individual in question was even born! Checks were made against *Who's Who in Australia* and details provided by University Vice-Chancelleries to verify the date of birth and details of the Vice-Chancellor's educational background and term of office.

Table 1.2

RANKING OF VICE-CHANCELLOR REMUNERATION IN 2002

Institution	Remuneration (\$)
1. University of Tasmania	225,000
2. University of Ballarat	235,000
3. Central Queensland University	265,000
4. University of the Sunshine Coast	265,000
5. University of Adelaide	285,000
6. James Cook University	295,000
7. University of New South Wales	295,000
8. University of Southern Queensland	295,000
9. University of New England	305,000
10. Charles Sturt University	310,000
11. University of Newcastle	315,000
12. Murdoch University	335,000
13. Swinburne University	335,000
14. Curtin University of Technology	365,000
15. University of Canberra	385,000
16. Edith Cowan University	395,000
17. University of Technology Sydney	395,000
18. La Trobe University	405,000
19. RMIT	405,000
20. QUT	415,000
21. University of Wollongong	435,000
22. Victoria University	455,000
23. Australian National University	465,000
24. Southern Cross University	465,000
25. Deakin University	475,000
26. Macquarie University	495,000
27. University of Sydney	495,000
28. University of Melbourne	505,000
29. University of Western Australia	555,000
30. University of Queensland	705,000
31. Monash University	1,155,000

Source: University Annual Reports.

1.4 Interviews with Vice-Chancellors

University of Western Australia Human Research Ethics Committee approval has been granted to interview Vice-Chancellors. Questions asked relate to their role as a Vice-Chancellor as well as questions about their vision for the university and whom they admire.⁵ For those sceptical about the value of this information, the inspiration behind these interviews is to obtain similar information to that of Siegfried (1997) who looks at the value of economist Presidents. As such, some questions asked are phrased so as to elicit responses that will give comparable data. In addition, starting in February 2004, the *Australian Financial Review* publishes an Education section weekly.

⁵ This is available in Appendix A1.

Occasionally, this includes a “Question and Answer” section with the Vice-Chancellor of an Australian university. These interviews were also used to glean some insight into the role of a Vice-Chancellor. Four Vice-Chancellors were interviewed. These individuals may not be identified for confidentiality reasons, however the Vice-Chancellors are not exclusively from Western Australia. From this, some (relatively crude, due to the small sample size) comparisons will be made between the attitudes of Australian Vice-Chancellors and United States Presidents.

1.5 Other Financial Variables

The financial variables used in regression analyses are remuneration, earnings, total assets and revenue. Table 1.3 shows summary statistics of these variables. Note that the summary statistics are for the variables independent of each other. When they are used in regression analysis some observations have been dropped due to missing values in other variables used in the same model. Looking at the standard errors, we can see that there is more dispersion in size as measured by total assets than revenue. However, when looking at the relative dispersion⁶ of the two variables, revenue is comparatively flat compared to earnings.⁷ Over the period 1995-2002, the relative dispersion of revenue is 4 percent, while earnings is more than double that at 9 percent. For each year in the sample, revenue has lower relative dispersion than earnings and the dispersion is more or less flat over time, while the relative dispersion of earnings is more volatile over the years. Panels B to I show the summary statistics for these variables by year. The relatively high dispersion of total assets may reflect differences in the recognition and valuation of assets on the balance sheet across institutions. Further, for each year, there are always fewer disclosures for remuneration relative to the other variables. This reflects that remuneration is disclosed in the notes to the financial statements while the other variables are disclosed in the main statements themselves. Institutions may not include the notes to the statements in the reports filed at the National Library but the summary statements are typically included.

House price data from Commonwealth Bank of Australia (CBA) was kindly provided by the Housing Industry Association,⁸ who produce the publication entitled “Review of Housing Affordability” together with CBA. The data collected by CBA is

⁶ Calculated as the standard error divided by the mean.

⁷ This is further explored in Chapter 4: Dimensions of Earnings Quality.

⁸ Thanks to Harley Dale from the Housing Industry Association for providing the data.

on lending to owner-occupiers once they have agreed to provide funds for a purchase. The Reserve Bank of Australia (2004) comments that a major advantage of this data is that it refers to transactions at some point between contract and settlement and hence are more timely than settlement-dated figures (such as that collected by the Real Estate Institute of Australia). Further, the data is not subject to revision and has a finer degree of detail as prices are split between state/territory capitals (excluding Darwin) and the rest of the state (excluding Northern Territory). When attributing this to universities, the location of the university was taken to be the location of the Vice-Chancellery. A disadvantage of this data is that although CBA is a large national lender, the sample may not be representative of all transactions and may have changed over time. Also, the data does not capture sales where the purchaser does not borrow for purchase.

To control for the effects of inflation, monetary amounts are typically expressed in constant 1996 dollars. Consumer Price Index data was obtained from the Australian Bureau of Statistics.⁹ The deflator used was the index for Australia.¹⁰

CEO remuneration data was obtained 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.

⁹ The data is taken from time series spreadsheet 6401.0 Consumer Price Index, Australia, Table 1A: All Groups, Index Numbers (Financial Year). The base used for the index numbers is 1989-90 = 100.0 (Australian Bureau of Statistics, 2004c).

¹⁰ As opposed to a state specific deflator.

Table 1.3

SUMMARY STATISTICS OF FINANCIAL VARIABLES

	Assets (\$'000)	Revenue (\$'000)	Earnings (\$'000)	Remuneration (\$)	Assets (\$'000)	Revenue (\$'000)	Earnings (\$'000)	Remuneration (\$)
	A. <u>1995-2002</u>				C. <u>1996</u>			
Mean	698,721	276,947	13,357	335,112	605,216	239,010	12,026	244,667
Median	507,366	228,807	8,472	305,000	418,556	202,115	8,912	230,000
Standard Error	38,275	12,055	1,138	11,239	98,080	27,553	2,237	20,922
Minimum	61,604	32,520	-25,335	165,000	89,737	50,887	-2,307	165,000
Maximum	3,075,610	954,452	96,812	1,605,000	2,725,987	603,721	46,451	505,000
Observations	264	256	256	179	34	34	34	15
Skewness	1.90	1.38	2.01	4.52	2.11	1.16	1.33	2.58
Kurtosis	3.60	1.49	5.13	32.36	5.15	.41	1.11	8.17
	B. <u>1995</u>				D. <u>1997</u>			
Mean	572,766	225,709	18,993	249,333	634,988	249,198	12,341	287,941
Median	391,293	196,560	12,178	215,000	456,040	207,514	10,637	295,000
Standard Error	100,086	33,526	4,877	22,205	98,857	28,758	2,194	18,546
Minimum	85,910	59,307	-10,261	165,000	97,230	52,622	-8,573	185,000
Maximum	2,618,896	583,864	80,541	455,000	2,662,911	627,217	42,561	495,000
Observations	31	23	23	15	33	33	33	17
Skewness	2.21	1.23	1.16	1.51	2.01	1.12	.80	1.04
Kurtosis	5.59	.48	.76	1.66	4.52	.20	.24	2.28

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Table 1.3

SUMMARY STATISTICS OF FINANCIAL VARIABLES (continued)

	Assets (\$'000)	Revenue (\$'000)	Earnings (\$'000)	Remuneration (\$)	Assets (\$'000)	Revenue (\$'000)	Earnings (\$'000)	Remuneration (\$)
	E. <u>1998</u>				G. <u>2000</u>			
Mean	682,946	260,336	12,090	282,813	754,149	284,417	11,022	349,844
Median	501,215	225,319	9,545	275,000	579,767	237,001	7,332	330,000
Standard Error	107,542	30,377	1,843	15,076	110,835	31,874	2,957	16,764
Minimum	147,145	74,552	-1,149	175,000	150,738	84,489	-25,335	245,000
Maximum	2,818,189	648,219	33,771	385,000	2,744,818	749,392	65,477	645,000
Observations	32	32	32	16	34	34	34	32
Skewness	2.00	1.20	.51	.04	1.79	1.21	1.22	1.39
Kurtosis	4.29	.42	-.81	-.56	3.06	.55	2.78	1.87
	F. <u>1999</u>				H. <u>2001</u>			
Mean	709,313	265,749	10,985	303,810	797,914	326,007	17,079	401,563
Median	572,570	235,065	4,849	285,000	669,158	278,101	10,310	340,000
Standard Error	105,642	29,374	3,168	11,982	117,764	38,446	4,154	42,304
Minimum	146,409	75,323	-3,743	205,000	61,604	33,697	-7,536	205,000
Maximum	2,787,229	683,745	96,812	405,000	2,940,558	847,430	96,198	1,605,000
Observations	33	33	33	21	34	34	34	32
Skewness	1.92	1.18	3.49	.52	1.79	1.20	1.96	4.34
Kurtosis	3.90	.55	15.59	-.39	3.24	.65	3.40	21.83

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Table 1.3

SUMMARY STATISTICS OF FINANCIAL VARIABLES (continued)

	Assets (\$'000)	Revenue (\$'000)	Earnings (\$'000)	Remuneration (\$)	Assets (\$'000)	Revenue (\$'000)	Earnings (\$'000)	Remuneration (\$)
	I. <u>2002</u>							
Mean	822,516	348,561	13,990	410,645				
Median	681,704	285,889	7,853	395,000				
Standard Error	126,161	45,310	4,000	31,214				
Minimum	65,036	32,520	-11,717	225,000				
Maximum	3,075,610	954,452	85,303	1,155,000				
Observations	33	33	33	31				
Skewness	1.89	1.29	1.81	2.82				
Kurtosis	3.81	.75	2.80	10.93				

Source: University Annual Reports.

Australian Research Council (ARC) grant funding data was obtained from “Selected Statistics” publications for Discovery Projects for 2001-2003 from the ARC website.¹¹ The data lists the amount requested and allocated for each year of research and the total by institution. Large grant funding data for the period 1998-2000 was obtained from the Commonwealth Department of Education, Science and Training (DEST).¹² DEST publishes a *Higher Education Funding Report* for a period of three years (*Triennium*)¹³ in which they disclose the amount allocated under the Large Research Grants Scheme for new and ongoing projects by institution.¹⁴

1.6 Non-Financial Data

Data for the number of award course completions was obtained from DEST “Selected Higher Education Statistics Series: Students 2003”.¹⁵ The relevant data is disclosed under Appendix 2.3¹⁶ for the years 1993 to 2002. This was aggregated over all years and the proportion of award completions for all students, both domestic and overseas, has been used. Details of the broad field of education classification were obtained from the publication “Students 2002: Selected Higher Education Statistics”¹⁷ under Appendix 4. The broad field is a two digit code that represents a grouping of a major field of education. This is then extended to a narrow field (four digit code, including the two digit code of the broad field) and a detailed field (six digit code, including the narrow field and broad field codes) (DEST, 2002d). Table 1.4 lists the twelve broad fields, breaking this down further into the narrow fields they encompass.

Data on staff and student equity group participation is also sourced from DEST “Selected Higher Education Statistics Series: Students 2003”¹⁵ and “Staff 2003”.¹⁸ The student data is taken from Appendix 3.3¹⁹ for the 2003 year. The staff data is taken

¹¹ The data is available from http://www.arc.gov.au/funded_grants/selection_discovery_projects.htm. Details of funding by university are available from the reports under the heading Budget Statistics by Institution. The total allocated to each institution has been used.

¹² Formerly the Commonwealth Department of Employment, Education, Training and Youth Affairs (DEETYA, until 1999), then the Commonwealth Department of Education, Training and Youth Affairs (DETYA, until 2002).

¹³ For example, the *1998-2000 Triennium*.

¹⁴ The amount allocated for total projects, both new and ongoing has been used. The publications are available from http://www.dest.gov.au/highered/previous_otherpub.htm.

¹⁵ This is available from <http://www.dest.gov.au/highered/statpubs.htm#studpubs>.

¹⁶ Award Course Completions for All Students by Citizenship and Broad Field of Education, 1993 to 2002.

¹⁷ Available from http://www.dest.gov.au/highered/statistics/students/02/student_table/students2002.pdf.

¹⁸ This is available from <http://www.dest.gov.au/highered/statpubs.htm#staffpubs>.

¹⁹ All Domestic Students by State, Institution and Equity Group, 2003.

from Tables 6, 21 and 23.²⁰ Data for the number and classification of staff is from Table 7.²¹ Data for student equivalent full time student units (EFTSU) is also taken from these series for the years 1998 to 2002.²²

Data on student/staff ratios was obtained from the Australian Vice-Chancellors' Committee²³ who publish this data by dividing student load expressed in EFTSU by staff expressed in teaching staff full-time equivalent (FTE). The AVCC note that staff FTE includes full-time and fractional full-time staff with work functions "teaching" and "teaching and research" only while EFTSU includes overseas and non-overseas students.

Data on the size of Australian university councils was obtained from the Australian Vice-Chancellors' Committee²⁴ who published details on Council membership for the 38 member universities²⁵ as at May 2003.

²⁰ Table 6 shows FTE (full-time equivalent) for Full-time, Fractional Full-time and Estimated Casual Staff by State, Institution, Work Contract and Gender, 2003. Table 21 shows FTE for Full-time and Fractional Full-time Indigenous Staff by State, Institution, Function and Gender, 2003 and Table 23 shows FTE for Full-time and Fractional Full-time Academic Staff by State, Institution, Highest Qualification and Gender, 2003. The results using the number of staff is comparable.

²¹ FTE for Full-time and Fractional Full-time Staff by State, Institution, Current Duties Classification and Gender, 2003.

²² The data for 1998 is from *Selected Higher Education Student Statistics, 1998* (DETYA, 1998); Table 42: Student load (EFTSU) for All Students by State, Institution and Broad Level of Course, 1998. The data for 1999 is from *Students 1999: Selected Higher Education Statistics* (DETYA, 1999); Table 55: Actual Student Load (EFTSU) for All Students by State, Institution and Broad Level of Course, 1999. Data for 2000-2002 is from the "Students: Selected Higher Education Statistics" series for the relevant year (available from <http://www.dest.gov.au/highered/statpubs.htm#studpubs>). For the 2000 year, Table 43 shows Actual Student Load (EFTSU) for All Students by State, Institution and Broad Level of Course, 2000. For 2001, the data is taken from Table 49: Actual Student Load (EFTSU) for All Students by State, Institution and Broad Level of Course, 2001. For 2002, the data is from Table 37: Actual Student Load (EFTSU) for All Students by State, Institution and Broad Level of Course, 2002. Data for onshore students for 2001 is from Table 53: Actual Student Load (EFTSU) for All Onshore Students by State, Institution and Academic Organisational Unit Group, 2001 while that for 2002 is sourced from Table 44: Actual Student Load (EFTSU) for All Onshore Students by State, Institution and Academic Organisational Unit Group, 2002.

²³ Available at http://www.avcc.edu.au/policies_activities/resource_analysis/key_stats/student_staff_ratios.htm.

²⁴ Available at http://www.avcc.edu.au/australias_unis/summaries_key_uni_practices/organisational_structure/const_governing_bodies/index.htm.

²⁵ Notre Dame University is excluded from the sample as they are not a member of the AVCC.

Table 1.4

BROAD AND NARROW FIELDS OF EDUCATION

Broad Field	Narrow Field	Broad Field	Narrow Field
1. Natural and Physical Sciences	Mathematical Sciences	4. Architecture and Building	Architecture and Urban Environment
	Physics and Astronomy		Building
	Chemical Sciences	5. Agriculture, Environmental and Related Studies	Agriculture
	Earth Sciences		Horticulture and Viticulture
	Biological Sciences		Forestry Studies
	Other Natural and Physical Sciences		Fisheries Studies
2. Information Technology	Computer Science	6. Health	Environmental Studies
	Information Systems		Other Agriculture, Environmental and Related Studies
3. Engineering and Related Technologies	Other Information Technology		Medical Studies
	Manufacturing Engineering and Technology		Nursing
	Process and Resources Engineering	Pharmacy	
	Automotive Engineering and Technology	Dental Studies	
	Mechanical and Industrial Engineering and Technology	Optical Science	
	Civil Engineering	Veterinary Studies	
	Geomatic Engineering	Public Health	
	Electrical and Electronic Engineering and Technology	Radiography	
	Aerospace Engineering and Technology	Rehabilitation Therapies	
	Maritime Engineering and Technology	Complementary Therapies	
	Other Engineering and Related Technologies	Other Health	

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Table 1.4

BROAD AND NARROW FIELDS OF EDUCATION (continued)

Broad Field	Narrow Field	Broad Field	Narrow Field
7. Education	Teacher Education Curriculum and Education Studies Other Education	9. Society and Culture (continued)	Economics and Econometrics Sport and Recreation Other Society and Culture
8. Management and Commerce	Accounting Business and Management Sales and Marketing Tourism Office Studies Banking, Finance and Related Fields Other Management and Commerce	10. Creative Arts	Performing Arts Visual Arts and Crafts Graphic and Design Studies Communication and Media Studies Other Creative Arts
9. Society and Culture	Political Science and Policy Studies Studies in Human Society Human Welfare Studies and Services Behavioural Science Law Language and Literature Philosophy and Religious Studies	11. Food, Hospitality and Personal Services	Food and Hospitality Personal Services
		12. Mixed Field Programmes	General Education Programmes Social Skills Programmes Employment Skills Programmes Other Mixed Field Programmes

Source: Department of Education, Science and Training (2002d).

Remuneration data for United Kingdom Vice-Chancellors is from the *Times Higher Education Supplement* for the 2001/2002 year.²⁶ 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.²⁷ 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.

Data on the rankings of Australian Universities in the top 500 worldwide was obtained from the rankings provided by Shanghai Jiao Tong University for 2004. The system does not produce a specific ranking after the top 100, instead providing a grouping of universities with the same rank range. There are 14 Australian universities listed in the top 500 worldwide.

1.7 Summary

This dissertation investigates issues in Australian universities and the market for Vice-Chancellors in Australia using a unique dataset comprised predominantly from the annual reports of universities. In theory, this data should be easily obtained, in practice, the data is surprisingly difficult to get hold of. Additionally, other data has been used to extend the analysis and the variables of interest, including data on Vice-Chancellors and university Presidents overseas and another novel dataset, made up of interviews with Vice-Chancellors themselves.

²⁶ This was published in the *Times Higher Education Supplement* on 7 February 2003. The *Times Higher Education Supplement* is available online at <http://www.thes.co.uk>.

²⁷ Available at <http://chronicle.com/stats/990/>.

CHAPTER 4

DIMENSIONS OF EARNINGS QUALITY

2.1 Introduction

What does the term “earnings quality” mean? To some, it means whether the underlying accounting procedures satisfy the relevant accounting standards. To others, the term relates to the persistence of earnings and its impact upon the market and relates to the accrual and cash flow components of earnings.

Why should we be interested in earnings quality? There may be benefits to high earnings quality for universities in reputation effects (or the flipside, the negative effects on reputation from bad earnings quality), the allocation of funding or the decisions made by students in choosing where to study.

To address the first interpretation of earnings quality, we look at the occurrence of audit qualifications to university financial statements. The intuition behind this is that where the underlying accounting procedures do not satisfy the relevant accounting standards and other legislative requirements, this will result in an audit qualification.

In terms of the second interpretation, we look at this from two angles: firstly, the distribution of earnings. What is the distribution of earnings for universities? If the corporate model is transposable to universities, then the expectation is that the distribution will be kinked at zero (which is taken to suggest some form of earnings management occurring in corporations). To round off the analysis of earnings quality, we also use accruals as a measure of earnings quality. In addition, we investigate earnings persistence for universities. The evidence from firms shows that earnings backed by accruals are less persistent than those backed by cash flows (Sloan, 1996). Given the argument that Vice-Chancellors may not be able to exercise the same sort of discretion over accruals as their private sector counterparts, does this also hold for universities?

2.2 Audit Qualifications

Universities are governed by state legislation but for reporting purposes are also required to adhere to Commonwealth Guidelines issued by the Department of Education, Science and Training (DEST). All the universities in the sample were audited by the relevant state Auditor-General, with the exception of Australian Catholic University (being a company limited by guarantee) who were audited by KPMG. Note, however, that this is but a small influence on the entire sample due to only one university-year being included due to data availability issues. Table 2.1 shows the incidence of audit qualifications for these institutions.

What is interesting from Table 2.1 is that the incidence of audit qualifications increases in 1998, implying that earnings quality decreases in 1998. The t-statistic for equality between 1997 and 1998 audit qualifications is -2.96 (p-value .00). Analysis of the audit reports shows that in this year, the dominant grounds for the (“except for”, panel D) qualification were that the Auditor-General was unable to confirm as an asset the receivable recognised by the university from the Commonwealth government to cover the costs associated with the university’s unfunded superannuation liability.²⁸ Other institutions had an unqualified report with an “inherent uncertainty” (panel F) concerning the amount owing for the university’s contribution to the unfunded superannuation liability for state superannuation schemes.²⁹ It appears that the difference between a qualified and unqualified report was the recognition of the receivable as an asset on the balance sheet. In later years, another main cause for qualification related to the treatment of Commonwealth government grants received in advance. The Guidelines issued by DEST required that these grants be treated as income in advance, while the Auditor-General (working to Australian Accounting Standards) believed that these should be recognised in the year of receipt and hence

²⁸ An “except for” opinion indicates that certain circumstances exist, that in the auditor’s opinion are material or are likely to be material, however they are not of such magnitude or so pervasive or fundamental as to effect the subject matter as a whole. The following circumstances may result in an “except for” opinion: (i) disagreement with management; (ii) scope limitation; and (iii) a conflict between the identified framework. An “inability to form” an opinion indicates that the auditor is unable to express an opinion on the subject matter as a whole. This may occur if a scope limitation exists, where sufficient appropriate audit evidence cannot be reasonably obtained and the possible effects of any adjustments might be of such magnitude or so pervasive or fundamental to the subject matter (Australian Accounting Research Foundation, 2002).

²⁹ Comments to unqualified reports include an “inherent uncertainty”, where there is potential for a matter to affect the financial report that is not so remote as to make its disclosure irrelevant, however, at the date of signing the audit report the outcome is contingent upon future events and is not capable of reasonable measurement. An “emphasis of matter” is a section of the auditor’s report that draws attention to or highlights a matter that is relevant to the users of the audit report but it is not of such a nature that it affects the audit opinion (Australian Accounting Research Foundation, 2002).

qualified the reports. The drop off in qualified audits in 2002 is due in part to an alignment of the Guidelines with Australian Accounting Standards concerning the treatment of the superannuation liability (DEST, 2002b). DEST did note in previous years' Guidelines that "the accounting treatment adopted by an institution is a matter of professional judgement for each institution" (Department of Education, Training and Youth Affairs, 2000), hence it is likely that those that received a qualified report did so after consideration of the costs of doing so against the benefits of more representative accounts. Hence, it is uncertain that an audit qualification is evidence of low audit quality. In addition, it is expected that the incidence of audit qualifications will fall further in the future as UIG Abstract 51 concerning the unfunded superannuation liability of universities was issued and came into effect in late 2002 (Australian Accounting Standards Board, 2002), resolving the other main cause for university audit qualifications. The flip side to this is that future qualifications are likely to reflect more serious violations of the relevant accounting standards.

An analysis of the Reports provided by the New South Wales,³⁰ Queensland, Victoria and Western Australia Auditor-Generals on audits completed for the year ended 31 December 2003 (Audit Office of New South Wales, 2004; Queensland Audit Office, 2004; Auditor General Victoria, 2004; Auditor General for Western Australia, 2004) shows that overall, five of the twenty-eight audits completed resulted in an audit qualification (18 percent). Of the five qualified audit opinions, three are for non-compliance with the AAS 15: Revenue requirement for the recognition of grant revenues (Swinburne, Ballarat and Melbourne). Of the remainder, RMIT received an "inability to form an opinion" due to inadequate or inaccurate accounting records produced by the Academic Management System and Curtin University received a qualification as an effective reconciliation of student fee debtors to the general ledger was not achieved. Additionally, an opinion could not be formed on whether student fee debtors, allowance for doubtful debts and general account cash assets were fairly presented. If the qualifications concerning grant revenues are excluded, then the proportion of qualified reports drops to 8 percent for 2003.

³⁰ The audit of UNSW is incomplete due to significant unreconciled items in the bank reconciliation and deficiencies in systems and controls in the bank reconciliation process.

Table 2.1

ANNUAL REPORT QUALIFICATIONS

Year/ Region	Total Audited	Total Qualified	Proportion Qualified
<u>A. Qualifications by Year</u>			
1995	11	0	.00
1996	31	2	.06
1997	32	1	.03
1998	30	9	.30
1999	31	11	.35
2000	32	10	.31
2001	31	11	.35
2002	31	4	.13
<u>B. Qualifications by Region</u>			
ACT	14	5	.36
NSW	72	4	.06
NT	8	1	.13
QLD	35	0	.00
SA	9	1	.11
TAS	7	0	.00
VIC	55	34	.62
WA	29	3	.10
<u>C. Group of Eight versus Non-Group of Eight</u>			
Go8	56	16	.29
Non-Go8	173	32	.18
<u>D. Qualification Types by Year</u>			
		Inability to Form	Other
	Except for		
1995	-	-	-
1996	2	-	-
1997 ¹	1	1	-
1998	8	1	-
1999	10	1	-
2000	9	1	-
2001 ²	10	-	1
2002	4	-	-

Continued on next page...

Table 2.1

ANNUAL REPORT QUALIFICATIONS (continued)

Year/ Region	Total Audited	Total Qualified	Proportion Qualified
<u>E. Qualifications Types by Region</u>			
		Unable	
	Except for	to Form	Other
ACT ¹	2	4	-
NSW	3	-	1
NT	1	-	-
QLD	-	-	-
SA	1	-	-
TAS	-	-	-
VIC	34	-	-
WA	3	-	-
<u>F. Incidence of Comments to Unqualified Reports</u>			
	Inherent Uncertainty	Emphasis of Matter	
1995	1	-	
1996	10	-	
1997	10	-	
1998	10	1	
1999	9	-	
2000	1	-	
2001	-	-	
2002	-	1	

¹ The university had two different (“except for” and “unable to form”) qualifications made to its 1997 financials.

² The Auditor-General was of the opinion that the University had the capacity to dominate decision making and hence should have included the assets and liabilities of some entities in the consolidated results.

Panel B of Table 2.1 shows that the majority of these qualifications occurred in Victoria, which suggests that on average, Victorian universities have lower earnings quality than those in other regions. Despite all Auditor-Generals working to the same set of Australian Accounting Standards, it is possible that this variation is capturing audit quality rather than earnings quality. Panel E shows the types of audit qualifications by state. It appears that where a Victorian university received a qualification, this was an “except for” opinion. Looking at the incidence of comments to unqualified reports, all instances where an “inherent uncertainty” was expressed were made by the New South Wales Auditor-General.³¹ Panel C shows that, counter to expectations, the Group of Eight universities have a higher proportion of qualified

³¹ The “emphasis of matter” was made by the South Australian Auditor-General and the Auditor-General for Western Australia made a “matter of significance” (equivalent to an “emphasis of matter”) in 2002.

reports, indicating lower earnings quality, relative to non-Group of Eight universities. The t-statistic for equality between Group of Eight and non-Group of Eight is -1.49 (p-value .07). This is further explored using the other connotation of earnings quality.

2.3 The Distribution of Earnings

An empirical regularity found in the corporate sector is that there is a “kink” in the earnings distribution around zero, with more firms reporting small positive earnings relative to those reporting small negative earnings than would be expected in a “smooth” distribution (Hayn, 1995, Burgstahler and Dichev, 1997). Is this the case for universities? An alternative hypothesis is that universities have incentives to report flat or even small losses rather than high earnings of either sign. The intuition behind this is that there is a disincentive to report large positive earnings, as this leaves universities with less opportunity to raise fees (which we have seen universities making decisions on in relation to HECS in 2004) or seek donations. However, large negative earnings reflect badly on the performance of the Vice-Chancellor.

To analyse the distribution of earnings, we use both a raw and scaled earnings measure. The scaled measure is computed as:

$$E_{it} / TA_{it}$$

where for university i at time t , E is earnings and TA is average total assets.

From Figure 2.1, Panel A, the distribution of raw earnings is highly skewed to the right, with more positive earnings results than negative. There is also a strong kink at zero. In panel B, once we control for size, there is still some evidence of skewness in the distribution, but it is not as extreme. An arrow has been placed in both panels to highlight the kink in the distribution. Interestingly, we see some evidence of a kink at zero, although the kink appears weaker. Figure 2.1 lends support to the proposition that although universities do not have a profit motive, they still face incentives to avoid reporting losses just like their corporate counterparts, as there are few cases of negative earnings. Rather, the distribution appears asymmetric with a long positively skewed tail. What are the restrictions on the earnings capabilities of universities? Perhaps universities do not set out to maximise earnings, but to maximise revenues, subject to a

profit constraint (Baumol, 1958, 1959).³² Balkrishna (2004) finds that loss incidence for Australian firms over the period 1991-2004 stands at 37 percent, with an average reported loss of 32 cents. This contrasts strongly with the situation for universities where loss incidence stands at 16 percent with an average loss of 1 cent.³³ Although there does not seem to be any major pattern for Australian firms, it is interesting to compare the university experience where these institutions seldom report losses, with that of private sector companies, where losses do not appear to be a rare occurrence.³⁴

Healy (1985) proposes a “big bath” theory, where there is a negative relationship between earnings and turnover as incoming managers take big write-offs to increase the probability of reporting positive earnings in the future. Leone and van Horn (1999) also find evidence of a relationship between earnings and turnover for nonprofits. Applied to the university context, this implies higher turnover for universities with positive earnings as the Vice-Chancellor manipulates earnings to look good in the year of departure for reputation considerations and the prospect of higher retirement payments. We investigate the relationship between earnings and turnover by looking at the earnings in the period $[-1,+1]$ relative to the year ($t = 0$) of turnover. We split the sample into three groups: those reporting losses, those reporting flat earnings and those reporting turnover. The results are shown in Table 2.2.

From Table 2.2, the null hypothesis that there is no relationship between earnings and Vice-Chancellor turnover cannot be rejected. There appears to be little evidence of performance related turnover for poor performance in the market for Vice-Chancellors, which differs from the corporate experience. The finding also suggests that there is no evidence of a link between positive earnings and turnover, inconsistent with Leone and van Horn (1999). However, this could also arise if performance is not evaluated on earnings, which is plausible, given that these institutions are classified as nonprofits.

³² This is further explored in Chapter 6: Other Performance Dimensions of Universities.

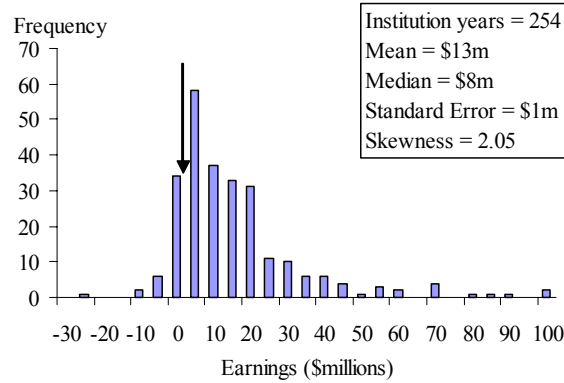
³³ Deflated by average total assets.

³⁴ Balkrishna (2004) looks at 6,230 observations from the Aspect database over the period 1991-2004. Observations missing one or more variables have been eliminated. The one percent extremes of observations for operating profit after tax, market value of equity and book value of equity all on a per-share basis) are excluded. Figures are based on operating loss after tax deflated by opening total assets.

Figure 2.1

EARNINGS DISTRIBUTION FOR UNIVERSITIES

A. Raw Earnings



B. Scaled Earnings

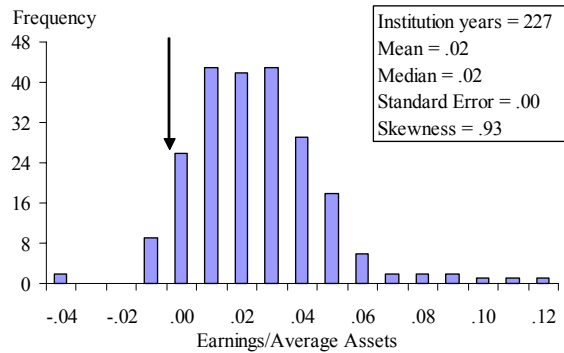


Table 2.2

NUMBER OF VICE-CHANCELLOR TURNOVERS
CONTINGENT ON EARNINGS

Earnings Relative to Year of Turnover (t = 0 is year of VC turnover)	Earnings/Average Total Assets, x_{it}			Total
	$x_{it} < -.01$	$-.01 \leq x_{it} < +.01$	$x_{it} \geq +.01$	
-1	3	13	13	28
0	2	11	20	33
1	1	6	23	31
Total	6	30	56	92

The χ^2 statistic for independence between row and column frequencies is .167 (p-value .997).

2.4 Earnings Quality: The Case of Accruals

The modern literature on earnings quality from the viewpoint of firms looks at the case of accruals and the distribution of earnings. Sloan (1996) investigates whether stock prices reflect information about future earnings contained in the cash flow and

accrual components of current earnings. To analyse the persistence of earnings (E), Sloan relates earnings in year t to those in $t + 1$ by estimating the model $E_{t+1} = \alpha_0 + \alpha_1 E_t + v_{t+1}$, where α_1 is the persistence coefficient which takes higher values the more persistent are earnings. He finds earnings persistence of .84 for US firms. However, when broken down into the accrual and cash flow components, he finds that the cash flow component of earnings is consistently more persistent than the accrual component. He also finds evidence of mean reversion in earnings, with faster mean reversion when accruals are high. Reid (2004) looks at this for Australian firms and finds a similar result.³⁵ He finds that earnings persistence for Australian firms is lower than that for US firms, at .76. Consistent with Sloan, he finds the cash flow component of earnings is more persistent than the accrual component.

Leone and van Horn (1999) find evidence that management in nonprofits manipulate earnings to avoid losses. They argue that because of the limited use of performance based earnings incentives, earnings are managed for reputational reasons as compensation grows by moving from smaller to larger organisations. In the Australian market, Vice-Chancellors have moved from their position at one university to take up the position of Vice-Chancellor at another.³⁶

Accruals are commonly regarded as the mechanism through which management manage earnings. In this sense they lower earnings quality as they provide incentives for managerial opportunism. However, accruals are not in themselves sinister, as they can also improve earnings quality by mitigating volatility in cash flows to better reflect performance (Dechow and Schrand, 2004).

We analyse accruals using two measures based on Dechow (1994) as seen in

³⁵ Reid (2004) looks at listed Australian companies from 1989-2003. His sample covers 6,130 firm years.

³⁶ For example, Professor Davis at Griffith leaves to take up the role of Vice-Chancellor at the University of Melbourne in 2005. The current Vice-Chancellor of the University of Tasmania, Professor Le Grew, was formerly the Vice-Chancellor of the University of Canterbury (New Zealand). Professor McNicol (Tasmania) was formerly at the University of Sydney, prior to this he was the Vice-Chancellor at the University of New England. The current Vice-Chancellor at the University of Sydney, Professor Brown, was formerly the Vice-Chancellor at the University of Adelaide. Professor Hay at the University of Queensland was formerly at Deakin University, Professor Chubb at ANU was a former Vice-Chancellor at Flinders, Professor McWha at the University of Adelaide the former Vice-Chancellor at Massey University (New Zealand); former Vice-Chancellor Professor Blake at the institution was also previously Vice-Chancellor at Charles Sturt, Professor Mortley at Bond University from the University of Newcastle and Professor Holmes at Newcastle the former Vice-Chancellor at Northern Territory University. Former Vice-Chancellor at the University of Melbourne, Professor Gilbert, also held the position at the University of Tasmania. Former Vice-Chancellor at the University of Western Australia, Professor Schreuder, came to the role from his position as Vice-Chancellor at the University of Western Sydney.

equation (4.1):

$$\begin{aligned} AA_{it}^1 &= (E_{it} - CFO_{it}) / TA_{it}, \\ AA_{it}^2 &= (E_{it} - CFO_{it} - CFI_{it}) / TA_{it}, \end{aligned} \quad (2.1)$$

where for university i at time t , AA is aggregate accruals; E is earnings; CFO is cash flow from operations and CFI cash flows from investing, with scaling by average total assets to standardise. The first measure only considers depreciation but not the effect of capital expenditure. The second measure adjusts for this.

For each year, we rank the institutions on each accrual measure, where more negative accruals indicate higher earnings quality. We then average the rankings for each university to compute an average rank for each university. This is shown in Table 2.3. Note that more negative accruals indicates higher quality earnings and hence a higher rank.

In Table 2.3, columns (1) and (2) show each university's average rank on the first measure of accruals in equation (2.1) while columns (3) and (4) show the average rank on the second measure of accruals. While there appears to be a rearrangement of relative rankings between the two measures, the institutions that rank best and worst on both measures of accruals remain the same. Australian Catholic University (ACU) has the highest quality earnings when judged on accruals, while Central Queensland University has the lowest quality earnings. Caution should be taken when interpreting the findings for ACU, however, as there is only one institution year in the sample. It is, however, interesting that ACU is also the only institution that is not audited by the Auditor-General. Rather, ACU, being a private company, was audited by KPMG. Unfortunately there is insufficient data to speculate on whether private sector auditors have more stringent procedures and hence result in higher earnings quality or whether this is a result of the heavier handed regulation afforded to companies by the Corporations Act.

When moving to the second, more extensive accruals measure, the University of Western Australia moves up a large amount relative to the first accruals measure, while Griffith University moves down. This highlights the importance of looking at both measures of accruals. In the private sector, major corporate accounting scandals have

occurred due to companies moving items from operations to investing activities.³⁷ This would, all else equal, lead to a drop in relative ranking as seen with Griffith.

To see if there is any evidence of mean reversion in accruals, we plot the accruals for the top and bottom four ranking institutions over time where observations are available over seven years (the maximum time period) in Figure 2.2. As can be seen, there is some support for mean reversion of accruals. For the top ranking institutions, Murdoch University goes against this trend, having consistently negative accruals for the period looked at. The remaining institutions, however, follow much the same process of a rapid reversal of high accruals in 1998. For the bottom ranking institutions, the plot looks similar. The University of Southern Queensland ranks poorly due to a sustained period of positive accruals, although it too, eventually mean reverts. The other institutions also undergo a reversal in 1998. The plot indicates that their high relative rankings are due to high accruals in 1996 and 1997, rather than sustained high positive accruals.

Panel B of Figure 2.2 gives the results for the second measure of accruals. Mean reversion is also seen, although this differs from Panel A in that accruals tend to drift around zero. For the top ranking universities, Panel A shows that the process of mean reversion is incomplete, however Panel B shows that they tend to revert more strongly to zero. Again, institutions' ranks seem to be a result of early period accruals. It is also of interest to observe that for the bottom ranking institutions, there is more variation in the year of initial reversion toward the mean.

The pattern of accruals is inconsistent with the findings from audit qualifications. In 1998, earnings quality as measured by accruals improves. However, if we look at earnings quality from an audit report point of view, in 1998, earnings quality decreases. The statement by the Victorian Minister for Finance may provide some insight; in 1998 he provides explanatory notes to the statements, believing that the receivable from the Commonwealth relating to the unfunded superannuation liability is

³⁷ For example, WorldCom's \$3.8 billion accounting fraud. The telecommunications company improperly manipulated earnings. One of the major methods used to do this was through "line cost" expenses. These represent the fees WorldCom paid to third party telecommunication network providers for the right to access their networks. Under Generally Accepted Accounting Principles, these must be expensed and not capitalised. However, WorldCom initially reduced the accrued line cost expense and then began to capitalise this expense, effectively moving the charge from profits to the balance sheet (and from cash flows from operations to investing) (U.S Securities and Exchange Commission, 2002).

an asset and that the Auditor-General's approach is misleading as it misrepresents the financial position of the university (Auditor-General of Victoria, 1999). This would not be inconsistent with the findings presented here: the incidence of audit qualifications is an artefact of the accounting system, while earnings quality improves as a result of universities recognising the receivable from the Commonwealth to better reflect the operations and underlying position of the university. This indicates that universities may have had to trade off the costs associated with an audit qualification against the benefits of more representative results.

Looking specifically at the first measure of accruals, Figure 2.3 shows the relationship between accruals and cash flow from operations, scaling by average total assets, for these institutions over time. There is a strong negative relationship between the two, consistent with the findings from the corporate literature. The correlation coefficient between accruals and cash flows is $-.98$ and the regression equation indicates that for each additional dollar of accruals, cash flow falls by 95 cents on average.³⁸ Further analysis shows that accruals tend to be larger when cash flows are negative than when they are positive, which lends support to the theory that universities, even though they do not have a profit motive, face strong incentives to avoid reporting negative earnings. The cluster of observations in the upper left quadrant is consistent with the finding that the distribution of earnings has a centre of gravity around small positive values close to zero, as shown in panel B of Figure 2.1. There is one outlier, corresponding to Curtin University's 2001 results. In this year, the university received an audit qualification regarding the unfunded superannuation liability. The University recognised the expected future Commonwealth government funding associated with the liability as a receivable on the balance sheet. The Auditor-General qualified the report on the basis that the University did not exercise control over future Commonwealth government funding and hence the funds should not have been recognised as an asset. The effect on the financial statements was to overstate net assets and revenue by \$77 million. If revenue had been correctly reported, the University would have reported a net loss of \$8 million instead of the \$69 million net profit reported (Auditor General for Western Australia, 2002). The overall result from this analysis is that universities report flat or small positive earnings results, consistent with the intuition discussed in Section 4.3 on the distribution of earnings.

³⁸ The correlation coefficient is significant at 1 percent (one-tailed test).

Table 2.3

UNIVERSITY ACCRUAL RANKINGS

$AA_{it}^1 = (E_{it} - CFO_{it}) / TA_{it}$		$AA_{it}^2 = (E_{it} - CFO_{it} - CFI_{it}) / TA_{it}$	
University (1)	Score (2)	University (3)	Score (4)
1. Australian Catholic University	1.0	1. Australian Catholic University	4.0
2. University of the Sunshine Coast	4.0	2. University of New England	7.7
3. University of Wollongong	6.1	3. Australian National University	8.9
4. RMIT	8.8	4. Murdoch University	9.0
5. Murdoch University	8.9	5. RMIT	9.0
6. Griffith University	11.3	6. University of Sydney	10.4
7. Charles Sturt University	12.0	7. University of South Australia	10.5
8. University of Queensland	12.0	8. University of Canberra	11.6
9. University of South Australia	12.0	9. Victoria University	11.9
10. Queensland University of Technology	12.5	10. University of Queensland	13.0
11. University of Newcastle	12.6	11. University of Western Australia	13.1
12. Swinburne University of Technology	13.1	12. University of Western Sydney	13.3
13. University of Western Sydney	13.2	13. University of Wollongong	13.4
14. La Trobe University	13.3	14. University of Newcastle	13.9
15. Australian National University	13.6	15. University of New South Wales	14.6
16. University of Ballarat	14.4	16. Charles Sturt University	14.7
17. Victoria University	15.0	17. Edith Cowan University	15.3
18. University of New England	15.4	18. Curtin University of Technology	15.6
19. Deakin University	16.0	19. University of Adelaide	16.0
20. University of New South Wales	16.0	20. University of Melbourne	16.4
21. Edith Cowan University	16.1	21. James Cook University	16.7
22. University of Canberra	17.3	22. La Trobe University	16.7
23. University of Melbourne	17.3	23. University of the Sunshine Coast	17.0

Continued on next page...

Table 2.3

UNIVERSITY ACCRUAL RANKINGS (continued)

$AA_{it}^1 = (E_{it} - CFO_{it}) / TA_{it}$		$AA_{it}^2 = (E_{it} - CFO_{it} - CFI_{it}) / TA_{it}$	
University (1)	Score (2)	University (3)	Score (4)
24. University of Tasmania	17.4	24. Northern Territory University	17.4
25. University of Sydney	17.7	25. Macquarie University	17.9
26. University of Technology Sydney	17.7	26. Deakin University	19.0
27. Macquarie University	17.9	27. Queensland University of Technology	19.0
28. Curtin University of Technology	18.0	28. Southern Cross University	19.4
29. Northern Territory University	19.1	29. University of Ballarat	19.7
30. University of Adelaide	19.1	30. Monash University	19.9
31. University of Western Australia	19.1	31. Swinburne University of Technology	20.1
32. James Cook University	19.9	32. University of Tasmania	20.1
33. Monash University	20.7	33. University of Technology Sydney	20.9
34. Southern Cross University	22.0	34. Griffith University	27.0
35. University of Southern Queensland	26.6	35. University of Southern Queensland	27.0
36. Central Queensland University	28.5	36. Central Queensland University	29.5

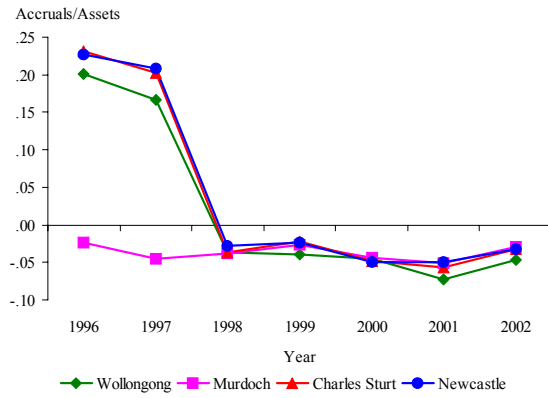
The Spearman's rank correlation coefficient between the relative rankings of the institutions on both accruals measures is .44 (significant at the .01 level on a two-tailed test).

Figure 2.2

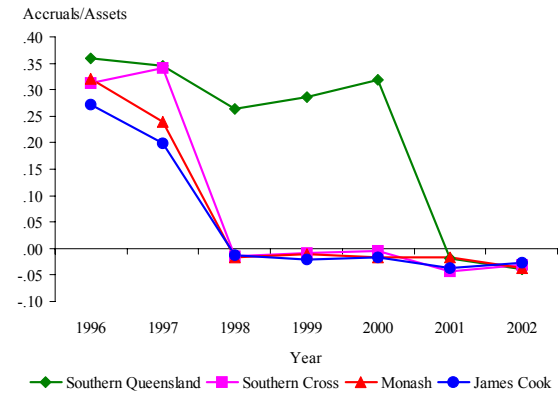
UNIVERSITY ACCRUAL MEASURES THROUGH TIME

A.
$$\text{Accruals}_{it} = (E_{it} - \text{CFO}_{it}) / \text{TA}_{it}$$

Top Ranking Institutions



Bottom Ranking Institutions



B.
$$\text{Accruals}_{it} = (E_{it} - \text{CFO}_{it} - \text{CFI}_{it}) / \text{TA}_{it}$$

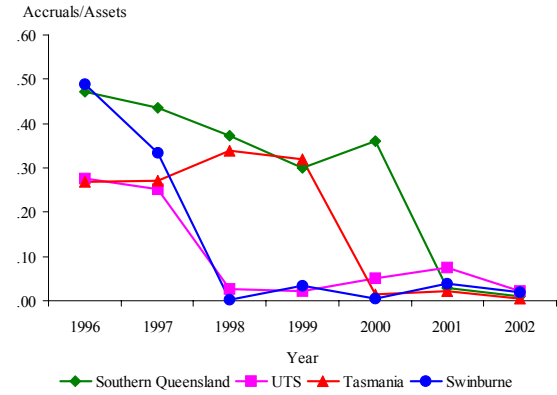
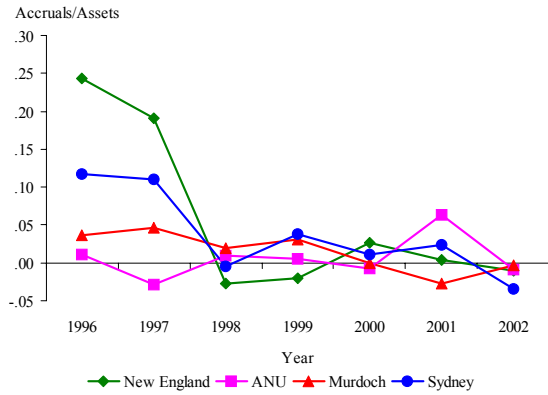


Figure 2.3

RELATIONSHIP BETWEEN CASH FLOW AND ACCRUALS

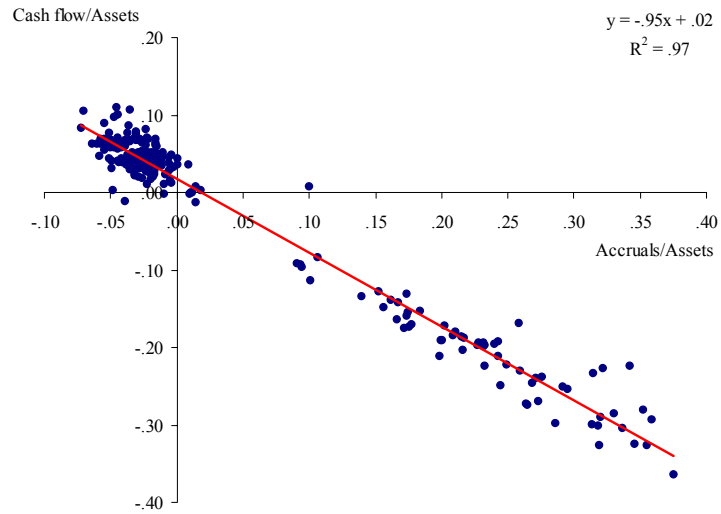
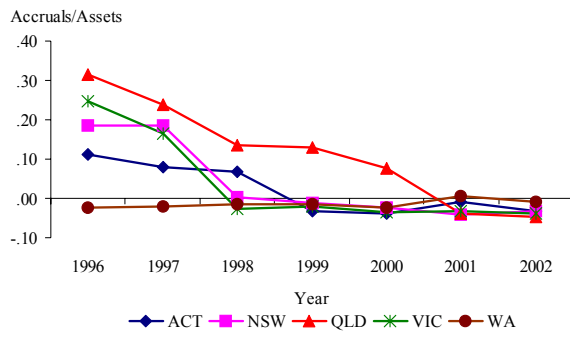


Figure 2.4, panel A looks at whether there is any evidence of a state effect in accruals by calculating average accruals for each state in year t and comparing this across states. Due to data considerations, South Australia, Tasmania and the Northern Territory are not included in this analysis. If we use the common wisdom in the finance literature that negative accruals indicates high quality earnings, then it appears from panel A of Figure 2.4 that in the mid to late 1990s, universities in Western Australia had higher quality earnings on average than those of other states, while those in Queensland had lower quality earnings, although this effect disappears over time as earnings quality appears to be converging between states. Overall, accruals decrease (i.e. earnings quality increases), consistent with the idea that universities are facing increased corporatisation pressures over time. As universities fall under state legislation but are also required to comply with Commonwealth issued directions (such as the Guidelines issued by DEST), the variation in earnings quality on a state level indicates that local rather than general effects were dominant factors influencing earnings quality, although the importance of these has disappeared over time.

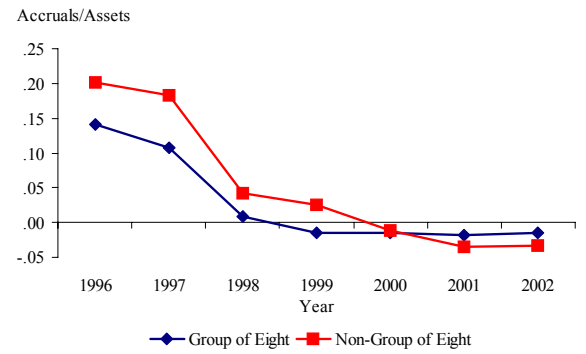
Figure 2.4

FURTHER ANALYSIS OF ACCRUALS

A. Accruals by State



B. Group of Eight versus Non-Group of Eight



Panel B of Figure 2.4 looks at whether there is any evidence of a Group of Eight effect in earnings quality. Their website notes that these universities “represent Australia’s leading universities”. Given the importance of reputational effects in research output and success in grant funding,³⁹ we would expect their earnings to be of higher quality than non-Group of Eight universities. We analyse this by comparing the Group of Eight against non-Group of Eight institutions on the first accruals measure scaled by average total assets.⁴⁰

The evidence shows that over time, earnings quality has improved for both Group of Eight and non-Group of Eight universities, consistent with what would be expected from increased corporatisation pressure. However, while in the mid to late 1990s, the Group of Eight universities had, on average, higher earnings quality than their counterparts, this has slowly changed over time. In 2000, earnings quality was similar. However, in later years non-Group of Eight institutions have higher earnings quality than Group of Eight institutions. This may indicate that these institutions are responding more actively on average to corporatisation pressures by improving the quality of their earnings relative to the Group of Eight universities. Alternatively, it may mean that the greater prestige associated with the Group of Eight insulates them somewhat from corporatisation pressures. Further, the larger improvement in earnings quality of non-Group of Eight universities relative to Group of Eight universities is consistent with the findings from the analysis of audit qualifications; that non-Group of Eight institutions have had larger improvements in earnings quality and hence have a lower incidence of audit qualifications.

³⁹ The Group of Eight universities receive over 70 percent of national competitive research grants and conduct over 60 percent of all Australian university research. They are partners in more than 80 percent of the Australian government’s Co-operative Research Centres (CRCs) and attract over 50 percent of CRC funding provided to universities. They host more than half of Australia’s major research facilities, produce over 60 percent of Australian university research publications and two-thirds of patents, hold over 90 percent of US patents for inventions generated by Australian universities, generate over 80 percent of the most highly cited Australian university publications, dominate university links with industry, undertaking over 50 percent of applied research and 60 percent of experimental development and attract nearly 60 percent of competitive International Postgraduate Research Scholarships (Group of Eight Limited, 2004).

⁴⁰ Comparable results are obtained when using the second accruals measure.

One possible qualification to this analysis is that the accruals measure may be capturing a “cry poor” effect – the larger the cash flows relative to earnings, the higher the quality. However, overall, the analysis of earnings quality over time is not inconsistent with the theory that universities are responding to corporatisation pressures by improving earnings quality. In addition, there appear to be greater accruals when cash flow from operations are negative, consistent with the theory that Vice-Chancellors face incentives to avoid reporting losses. There is also evidence that the influences on earnings quality have changed over time with quality now being determined by general rather than local effects. Finally, the analysis shows that non-Group of Eight institutions have, over time, improved the quality of their earnings relative to the Group of Eight universities.

2.5 Earnings Persistence

According to Dechow and Schrand (2004), earnings are of high quality if they are predictable, persistent and reflect the underlying intrinsic value of the firm. Earnings persistence is meaningful for earnings quality only if earnings truly reflect performance during the period and current period performance will persist to future periods. For universities, it is debatable whether a single measure such as earnings reflects performance (such as their ability to attract future funding revenue), given that universities lack the single onus of corporates and do not have a profit-making objective. However, if universities are indeed becoming more like firms, then what are the implications for this measure?

To analyse earnings persistence, we use the framework used by Sloan (1996), shown in equations (4.2) and (4.3):

$$E_{i,t+1} = \alpha_0 + \alpha_1 E_{it} + \varepsilon_{i,t+1}, \quad (2.2)$$

$$E_{i,t+1} = \beta_0 + \beta_1 CFO_{it} + \beta_2 AA_{it}^n + \varepsilon_{i,t+1}, \quad (2.3)$$

where for university i at time t , E is earnings; CFO is cash flows from operations;

AAⁿ is a measure of accruals where n = 1,2 to differentiate between the two accrual measures and ε is a random error term. All variables are standardised by deflating by average total assets to control for differences in size. Equation (2.3) splits earnings into the two components and allows the coefficients to differ. Summary statistics are shown in Table 2.4 and the regression results are shown in Table 2.5. The regression data is available in Appendix A3.

Table 2.4
SUMMARY STATISTICS

Variable	Mean	Maximum	Minimum	Standard deviation
Earnings	.02	.12	-.05	.02
Cash flow from Operations	-.00	.11	-.40	.11
AA ¹	.02	.42	-.07	.11
AA ²	.07	.51	-.03	.12
Number of observations	188	-	-	-

Table 2.5
EARNINGS PERSISTENCE
(standard errors in parentheses)

Variable/Coefficient	Coefficient	\bar{R}^2	df
A. $E_{i,t+1} = \alpha_0 + \alpha_1 E_{it} + \varepsilon_{i,t+1}$			
Intercept	α_0	.01 (.00)	
E	α_1	.24 (.07)	.05
			186
B. $E_{i,t+1} = \beta_0 + \beta_1 CFO_{it} + \beta_2 AA_{it}^1 + \varepsilon_{i,t+1}$			
Intercept	β_0	.01 (.00)	
CFO	β_1	.21 (.07)	
AA ¹	β_2	.23 (.07)	.06
			185
C. $E_{i,t+1} = \beta_0 + \beta_1 CFO_{it} + \beta_2 AA_{it}^2 + \varepsilon_{i,t+1}$			
Intercept	γ_0	.01 (.00)	
CFO	γ_1	.08 (.04)	
AA ²	γ_2	.10 (.04)	.05
			185

F statistic for $\beta_1 = \beta_2$ is 3.01 (p-value .08).

The interpretation of Table 2.5, Panel A, is that for every dollar of earnings this year, on average, 24 cents persists to the following year. This appears to be a rather low level of earnings persistence compared to firms.⁴¹ When we remove the constraint that the accrual and cash backed components of earnings have the same level of persistence in Panel B, we find that the accrual backed component of earnings appears to have higher persistence than that backed by cash - the complete opposite to that found in the private sector. However, the hypothesis that the two components have the same level of persistence is only weakly rejected.

A possible explanation for this result is that while firms have the single onus of maximising shareholder wealth, the onus for universities is multi-dimensional. It is possible that the differences in the way these two types of institutions operate leads to the findings above. Although for universities as a whole, earnings persistence is low, given that the hypothesis that the cash and accruals component of earnings have equal persistence cannot be rejected, it may be that for universities, the use of accruals is not motivated by managerial opportunism or earnings management, but is used to smooth irrelevant cash flows and hence provide a better quality earnings number. This would be consistent with the previous finding that earnings quality for universities is improving over time. Perhaps the finding that there is little evidence of opportunistic accruals is not surprising, given that corporate earnings are typically framed within a valuation/forecasting setting, which is not entirely relevant for universities. An important point to note is that lack of consistency in the behaviour of universities and corporations does not necessarily indicate that Vice-Chancellors do not engage in earnings management, but rather suggests that earnings management, if it exists for universities, is not conducted in the same manner as in the private sector. Alternatively, this could be the result of omitted variables, as the concept of earnings does not hold the same weight for universities as for firms. However, this does not explain why the earnings distribution (in Figure 2.1) displays a kink. Dechow et al. (2003) offer alternative explanations for

⁴¹ Sloan (1996) finds persistence of .84 for US firms while Reid (2004) finds persistence of .76 for Australian firms.

this kink, including that it may be a result of management taking real actions to improve performance, such that the kink may reflect efficient contracting, or that the kink may be accentuated by the holding of financial assets that earn non-negative returns.

2.6 Summary

Why do universities care about the quality of earnings? Perhaps as universities face increased revenue and cost pressures over time they have had to become more accountable for their operations. A high quality earnings figure may be associated with prestige, or conversely, universities avoid having low quality earnings to avoid the costs associated with a qualified audit opinion on the grounds of earnings management. However, it is highly likely that earnings only play part of the story. Given the role of universities, it is probable that non-financial factors⁴² are equally (or possibly more) important. Alternatively, high quality earnings may enable an institution to attract higher quality Vice-Chancellors, Chancellors or other senior staff. Given that Chancellors tend to be external appointments and many of these individuals are held in high regard by the community, having a high quality earnings number may enable the institution to attract better candidates, as these individuals also have reputation effects to consider when deciding whether or not to accept the role.

The results from the analysis of earnings quality are not inconsistent with the theory that universities are facing increased corporatisation pressures over time. They have responded to this by improving earnings quality. There is also evidence that like firms, universities face incentives to avoid reporting losses, even though there appears to be no relationship between earnings and turnover. Earnings quality also appears to be driven by local, rather than national forces, although over time the local effect appears to have diminished in importance to the point where earnings quality is roughly equivalent across states, suggesting that national forces dominate. Earnings persistence for universities is also low and unlike the corporate model, there is no support for differential persistence of the cash flow relative to the accrual component. It appears that accruals are not used for earnings management purposes by Vice-Chancellors, but rather are used

⁴² Discussed in Chapter 6: Other Performance Dimensions of Universities.

to improve earnings quality, consistent with the finding that audit qualifications are not necessarily evidence of low earnings quality.