

Financial Health of Australian Universities as Measured by Composite Financial Index

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Abstract

Recent studies have observed that a significant number of universities have been on an “unsustainable financial path”. In addition, the financial meltdown of 2008 coupled with some unfavorable turn of events predicted a decline in revenue in Australian Universities for the year 2011 from the surplus of 2010. In light of these findings, this study seeks to find out the financial health of Australian universities in 2011 by using the Composite Financial Index (CFI). A single metric such as CFI offers a more holistic approach to understanding the overall financial health especially for higher educational institutions. The findings show that most universities in Australia had strong financial health in 2011 indicating that there has been no adverse financial impact due to unfavorable events. Further, the study also reveals that financial health of Australian universities in 2011 was not influenced by factors such as size of university, rank of university, ratio of international students, ratio of graduate students, number of undergraduate programs offered, number of graduate programs offered, number of employees, ratio of teachers, and ratio of staff.

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1 Introduction

Education has played an important role in the development of humanity, civilization, science and technology. The contribution of universities to national development is well documented (Guthrie & Neumann, 2004), and it is only imperative to note that the financial health and wellbeing of the university is necessary to sustain the national economy. However, in a significant analysis involving 1,700 public and private nonprofit

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colleges, it was found that one-third of the institutions have been on an "unsustainable financial path" in recent years, and an additional 28 percent are "at risk of slipping into an unsustainable condition." (Blumenstyk, 2012). With rising participation in higher education amongst young people, governments around the world have been faced with increasing pressure on their finances, giving rise to the need to operate universities with a higher degree of efficiency (Abbott & Doucouliagos, 2003).

According to official sources, higher education students will make up nearly 50 per cent of Australia's international student program, up from 36 per cent in 2009 (Hare, Killing fatted calf of international study, 2012). In fact, the fees and charges paid by international students account for around 18% of income for Australian universities (Creagh, 2011). This had a profound effect on the revenues emerging from tertiary education thereby adversely affecting the nation's GDP. Universities in Australia have undergone profound changes over the past fifteen years, primarily as a result of changes in Federal Government policies and the growth in overseas student enrolments. The growth in the provision of education for international students in Australia has been so large in recent years that statistics show education as Australia's third largest export earner. All of this means that competition in Australia for international students is fierce (Atkins, 2011). Australia's international education sector has a strong history of growth and development most notably over the twenty years spanning 1990–2010 (ICEF Monitor, 2012). According to *The Australian*, "education as an export industry doubled in value every five years from 1990 to 2010, overtaking tourism as the top service export in 2007 and edging out gold, briefly, in 2009." (Hare, Killing fatted calf of international study, 2012).

Australian universities have moved from being more academic driven to market driven, operating more like large businesses- increasingly generating their own income and focusing on costs and economic status (Guthrie & Neumann, 2004). This change has impacted on publicly funded research and universities, as government statements emphasize 'rate of return', 'time to market' and other terms identifying higher education as a private good (Guthrie, Vagnoni, & Steane, 2004). However, it was also found that universities still tend to operate like public government run institutions which depend a lot on the bureaucracy which in turn increases their overheads. Graves, Barnett, Clarke (2013) report that, "today the bureaucracy is very large in Australian universities and only one third of university spending is allocated to academic salaries." Given dilemmas such as these, it is important to know how university administrators have been able to run their institutions. Debate has ensued regarding the effects of these changes upon the productive efficiency of universities, and upon the quality of their outcomes (Carrington, Coelli, & Rao, 2004). It is argued that the establishment of performance-driven, market oriented university system in Australia has created a context in which fiscal and economic performance indicators have become dominant in understanding the 'performance' of the Australian Higher Education sector (AHES) and of individual university's activities. It is in this context that this study has been done to ascertain the financial health of universities in Australia.

Assessing the institution's financial health and financial risk is a critical step in developing strategies and effectively managing institutional risks. According to Brigham and Houston (2009), financial health of a business is normally evaluated based on a set of criteria that includes liquidity, assets management, debt management, profitability, and market value. The financial health in these areas is analyzed through financial ratios. Brigham and Houston (2009) also mentioned that though all of the ratios are important, some ratios more important for some companies than for the others. In analyzing financial

performance of University of Illinois, Bunsis (2010) used three main ratios: primary reserve, viability and net income. Further he used Moody's ratings to give a score for each of these financial ratios and evaluated financial performance based on these scores. Though the above three ratios provide a measure of financial performance, it was observed that using a single metric instead, would offer a more holistic approach to understanding the total financial health of the institution (Tahey, Salluzzo, Prager, Mezzina, & Cowen, 2010). The use of a single score is superior to individual measurement of each ratio because a single score allows a weakness in a particular ratio to be offset by strength in another ratio. Higher education institutions have a unique financial metric, the Composite Financial Index (CFI) that assists in the financial analysis component of strategy setting and risk management. The CFI has been useful in helping boards and senior management understand the financial position their institutions enjoy in the marketplace and has proved valuable in assessing future prospects, functioning as an "affordability index" of a strategic plan (Abbott & Doucouliagos, 2003).

The financial health of universities also seems to be related to various other factors. Common perceptions to this notion include relationships to size, accreditation and rank of universities, ratio of international students, graduate and undergraduate programs offered, as well as number of employees etc. Accrediting agencies through their rankings of universities provide the license to charge higher fees than otherwise normally possible or in many cases provide the eligibility or ineligibility for receipt of government funds. And in the same respect, relationships could also be established between financial health and employees. Academic job security systems leave colleges and universities with long-term commitments that can easily cost millions of dollars for each tenured faculty member which can lead to more stringent requirements for continued employment (Sowell, 2011). Similar relationships could also be observed between financial health of institutions and other factors like international students and number of programs etc.

In light of these observations, it's important to measure and report the CFI over time along with a narrative discussion of the institution's financial drivers, such as student enrollment, discount rate, faculty and staff headcount, and research awards and base. This will effectively communicate the institution's financial health (Abbott & Doucouliagos, 2003). In the book "Ratio Analysis in Higher Education", KPMG, Prager, Mc Carthy, Sealy LC (2002) suggested that financial analysis of public institutions should measure financial resources, view the institution holistically, measure leverage, measure use of resources to achieve mission and measure importance of programs to mission. CFI has been used to evaluate financial performance by many universities in the world and accordingly the researchers have chosen to apply this method in analyzing financial health of Australian universities.

The global financial crisis in 2008 threatened many educational institutions in different countries. Despite this, Australian universities have shown strong financial growth since coming out of the global financial crisis (Evans, 2011). In 2009 and 2010, Australian universities financial performance had improved and even grew strongly. Operating results show that there was an increase in revenue from \$19.9 billion in 2009 to \$21.5 billion in 2010 (an increase of 8.2 per cent). The results also show that there was an operating surplus in Australia's 39 universities. It increased to \$1.95 billion in 2010, an increase of 8.1 per cent compared to the 2009 result (Evans, 2011). Australian Government funding, including loans to students, increased by 8.9 per cent to \$12.4 billion in 2010. However, this scenario changed for the worse in the following year. The strengthening of the Australian dollar in 2011 coupled with new policies for visa and

migration, along with a number of attacks on Indian students, marked a substantial decrease in the number of international students' enrolments in Australia (Creagh, 2011). In a study commissioned by Australian Universities to introspect the adverse challenges of 2011, the following observations were reported. "If international student enrolments fall away as projected, enrolments will be 11% lower in 2011 and corresponding income from course fees paid by international students is expected to be \$550 million lower than in the counterfactual scenario. This translates to a fall in income from international students that represents around one-third of international student fee income, and comprises around 5% of university income from all sources. A fall of this magnitude is substantial, and some universities' bottom lines will come under pressure." (Deloitte Access Economics, 2011). From the surplus of 2010, the Australian government has announced a \$3 billion decline in revenue from international students for the year 2011 (Hare, \$3bn overseas student revenue fall dismissed, 2012). Australian Bureau of Statistics figures show the growth in GDP slowed to 0.4 per cent in the December quarter from 0.8 per cent in the September quarter in 2011. It also shows that more than a third of this can be attributed to losses in international education revenue (Hare, \$3bn overseas student revenue fall dismissed, 2012).

In the background of these and other developments, the central purpose of this research is to find out the impact of the global financial crisis and the subsequent decline in international student enrollment on the financial health of Australian universities. More precisely the study seeks to know the financial health of Australian universities in 2011. In addition, we investigate if there is any significant relationship between financial health and size of schools, rank of university, ratio of international students, ratio of graduate students, number of undergraduate programs offered, number of graduate programs offered and number of employees. Understanding these relationships may help Australian universities to focus on factors that may improve their financial health.

2 Research Methodology

2.1 Participants

Objects of this study are universities in Australia. Due to the limitation of data availability and time constraints, the researchers have chosen to study the objects by selecting a limited sample size representing the entire population. The size of sample selected was 37 universities which were selected conveniently and according to the availability of the data. The researchers collected secondary data from institutional annual reports in 2011 which are available on the official websites of 37 universities in Australia. These 37 universities included almost all the large universities in Australia, thereby rightly representing the Australian higher education sector in general and universities in particular. Data was collected in two weeks from the 5th to 19th of March, 2013.

2.2 Design & Data Analysis

After the necessary data was collected, quantitative methods using CFI calculations and statistical analysis were used to analyze the data. The necessary inferences of financial health of Australian universities were drawn according to the CFI model. Further, statistical software was used to analyze correlation analysis to help answer the objectives

of the study. Statistical tools used for data analysis include descriptive statistics to describe the financial health of Australian universities and Pearson/Spearman's Correlation technique to examine the relationship between two variables as well as the strength of the relationships.

2.3 Composite Financial Index (CFI)

The Composite Financial Index (CFI) is a single indicator of overall institutional financial health based on performance in four main areas of finance: sufficiency and flexibility of financial resources, management of debt, management and performance of assets, and results from operations (The Austen Group, 2012). The CFI framework is designed to address questions of whether an institution is financially healthy. Specifically, the following questions are answered in the assessment of financial health: Are resources sufficient and flexible enough to support the mission? Are resources, including debt, managed strategically to advance the mission? Does asset performance and management support the strategic direction? Do operating results indicate whether the institution is living within available resources? KPMG and Prager, McCarthy, and Sealy, LLC (2002) developed the four ratios (primary reserve ratio, viability ratio, return on net assets and net operating revenues) to calculate the Composite Financial Index (CFI). A brief description of each ratio is important in understanding their significance in determining CFI.

Primary Reserve Ratio measures the financial strength of the institution by comparing expendable net assets to total expenses. Expendable net assets are the assets that the institution can use to meet its obligations. This ratio indicates how long the institution could operate using its expendable reserves without relying on additional net assets generated by operations. Primary reserve ratio is calculated by taking expendable net assets and dividing it by total expenses. The return on net assets ratio measures asset performance and management. It indicates the ability of the institution to generate overall return from net resources and is calculated by using the change in net assets and dividing it by total net assets. An improving trend for this ratio means that institution has an increase in net assets and it is able to set aside financial resources to strengthen its future financial flexibility. The net operating revenue ratio indicates whether total operating activities resulted in a surplus or deficit. It is calculated by taking the sum of operating income (loss) and net operating revenue and dividing it by the sum of operating revenue and non operating revenue. A positive ratio shows that the institution has operating surplus for the year. The higher surplus the institution has, the stronger is the institution's financial health. The last ratio in CFI is the viability ratio. It measures the availability of expendable net assets to cover the debt the institutions need to settle at any point of time and is calculated by taking expendable net assets and dividing it by long term debt.

These ratios are converted into strength factors along a common scale. According to Tahey, Salluzzo, Prager, Mezzina, & Cowen (2010), the scoring scale for primary reserve ratio is 0.133, net operating revenues ratio (private institutions 0.7%, public institutions 1.3%), return on net assets ratio is 2.0% and viability ratio is 0.417. Strength factors are further multiplied with weighting schema. For institution with long-term debt, the strength factor scores are then weighted as follows: primary reserve and viability ratios at 35 percent; return on net assets ratio at 20 percent; and net operating revenues ratio at 10 percent. For institutions with no long-term debt in a given year, the weighting is altered to reflect the absence of a viability ratio (primary reserve ratio at 55 percent; return on net assets ratio at

30 percent; and net operating revenues ratio at 15 percent). The four results are finally totaled to get the composite score (CFI). The score is then placed in the scale of -4 to 10 for interpretation. A score of less than 3 represents very little financial health and it indicates a need for serious attention to the institution's financial condition. A score of 3 to 7 could represent a strong financial position, and a score of greater than 7.0 indicates a very strong financial health and provides an opportunity for strategic investment to optimize the achievement of institutional mission.

3 Results

3.1 Composite Financial Index (CFI) of Australian Universities in 2011

The findings of the study show that 92% of Australian universities have strong or very strong financial health in 2011. According to the study, 60% of Australian universities were found to have strong financial health, 32% have very strong financial health and only 8% have weak financial health in 2011. The results also indicate the financial decision making factors among administrators of Australian universities.

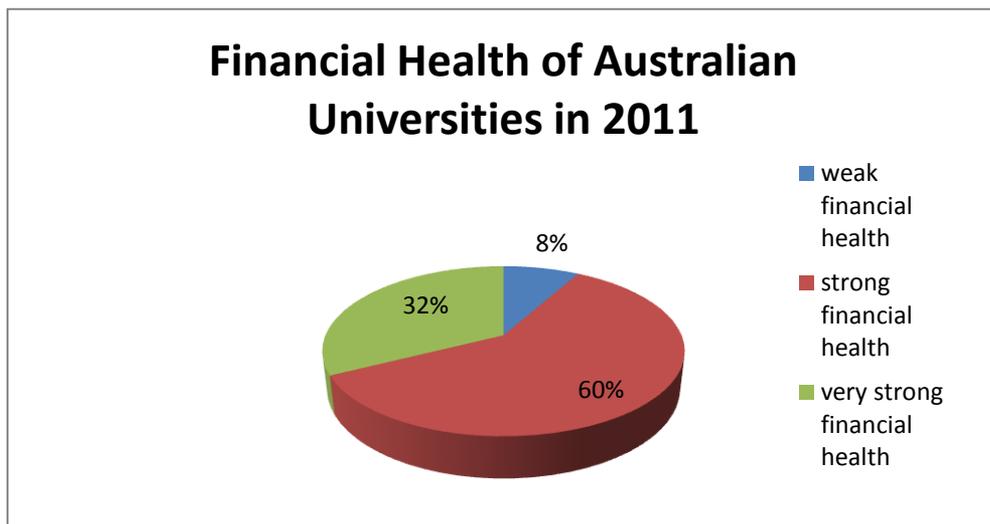


Figure 1: Financial Health of Australian Universities in 2011

The study also shows that almost all the major and the biggest universities in Australia have reported strong financial performance which is a good indicator of the overall higher education environment. The results of CFI of Australian universities for 2011 are shown as follows.

Table 1: Composite Financial Index Calculation of Australian Universities

Financial Health	Primary Reserve Ratio		Return on Net Assets Ratio		Net Operating Revenue Ratio		Viability Ratio		CFI	
	f	%	f	%	f	%	f	%	f	%
Very strong	22	59%	2	5%	9	24%	1	17%	12	32%
Strong	12	32%	11	30%	23	62%	5	83%	22	60%
Weak	3	8%	24	65%	5	14%	0	0%	3	8%
Total	37	100%	37	100%	37	100%	6	100%	37	100%

The calculations of CFI show that most Australian universities have enough reserves to cover their total expenses (Primary reserve ratio >1). This also means that Australian universities had sufficient resources and were flexible enough to support the mission. Since primary reserve ratios were very strong for Australian universities, they had the highest weighting factor (55% for institutions with minimal long term debt), which led to high CFI computation.

Another significant finding suggests that most of the Australian universities were risk averse especially with reference to long term borrowing from outside sources. Comparing to the general reserves the universities held, the long term debts of Australian universities were very minimal. Thus, for most Australian universities, viability ratio had little effect on CFI. Return on Assets ratios were from 2% to 21% for Australian universities in 2011. Return on assets ratios also have high weighting factor (30% for institutions with minimal long term debt while 20% for institutions with long term debt) in computing CFI. It shows that Australian universities had ability to generate income from their net resources. Net assets were managed quite well to earn profit for the institutions. Net operating revenue ratios were spread over 1 to 18 percent among Australian universities in 2011. This indicates that operating activities of Australian universities in 2011 resulted in a surplus. Overall, Australian universities had reported strong financial health as shown by the CFI, despite the negative events which took place in 2011.

3.2 Examining the Relationship between Financial Performance and other Metric Factors

The study also sought to find the relationship of financial health and other factors like size, rank, ratio of international students, graduate students, number of undergraduate and graduate programs offered, number of employees, ratio of teachers and general staff. The findings of the study to these questions are as follows.

Size of university

A Pearson correlation was calculated examining the relationship between size of university and financial performance. A weak correlation that was not significant was found, $r(28) = 0.063, p=0.181 > 0.05$, size of university is not related to financial performance.

Rank of university

A Spearman correlation was calculated examining the relationship between rank of university and financial performance. A weak correlation that was not significant was found, $\rho(20) = 0.039, p=0.373 > 0.05$, rank of university is not related to financial performance.

Ratio of international students

A Spearman correlation was calculated examining the relationship between ratio of international students and financial performance. A weak correlation that was not significant was found, $\rho(25) = 0.001$, $p=0.877>0.05$, ratio of international students is not related to financial performance.

Ratio of graduate students

A Spearman correlation was calculated examining the relationship between ratio of graduate students and financial performance. A weak correlation that was not significant was found, $\rho(27) = 0.002$, $p=0.807>0.05$, ratio of graduate students is not related to financial performance.

Number of undergraduate programs offered

A Pearson correlation was calculated examining the relationship between number of undergraduate programs offered and financial performance. A weak correlation that was not significant was found, $r(34) = 0.003$, $p=0.760>0.05$, number of undergraduate programs offered is not related to financial performance.

Number of graduate programs offered

A Pearson correlation was calculated examining the relationship between number of graduate programs and financial performance. A weak correlation that was not significant was found, $r(34) = 0.017$, $p=0.444>0.05$, number of graduate programs offered is not related to financial performance.

Number of employees

A Pearson correlation was calculated examining the relationship between number of employees and financial performance. A weak correlation that was not significant was found, $r(28) = 0.002$, $p=0.812>0.05$, number of employees is not related to financial performance.

Ratio of teachers

A Spearman correlation was calculated examining the relationship between ratio of teachers and financial performance. A weak correlation that was not significant was found, $\rho(27) = 0.066$, $p=0.179>0.05$, ratio of teachers is not related to financial performance.

Ratio of general staff

A Spearman correlation was calculated examining the relationship between ratio of general staff and financial performance. A weak correlation that was not significant was found, $\rho(27) = 0.066$, $p=0.179>0.05$, ratio of general staff is not related to financial performance.

In summary, the results indicate that the financial health of Australian universities in 2011 was not influenced by factors such as size of university, rank of university, ratio of international students, ratio of graduate students, number of undergraduate programs offered, number of graduate programs offered, number of employees, ratio of teachers, and ratio of staff.

4 Discussions

Most universities in Australia had strong financial health in 2011 although there was a decrease in international students and changes in visa policies for immigrations. This is a very significant finding in light of predictions made suggesting 'declining numbers of international students studying in Australia will have financial implications for universities' (Deloitte Access Economics, 2011). The findings also support the status of higher education as the third top export earner in the Australian economy (Atkins, 2011).

The results also corroborate with the postulates that Australian universities have moved from being more academic driven to market driven, operating more like large businesses - increasingly generating their own income and focusing on costs and economic status (Guthrie & Neumann, 2004). The study also validates the use of single holistic index (CFI) to communicate overall financial health instead of using numerous financial metrics (Tahey, Salluzzo, Prager, Mezzina, & Cowen, 2010).

The limited influence of viability ratio in the overall composite financial index is a significant finding especially for Australian universities. This could imply that strong financial health could be achieved despite a low debt to equity ratio. However, the limited influence of viability ratio also leads to greater weight given to the primary reserve ratio in the computation of CFI. This also explains the high primary reserve component of CFI among Australian universities. A high primary reserve ratio provides a snapshot of financial strength and flexibility by indicating how long the institution could function using its expendable reserve without relying on additional net assets generated by operations (KPMG LLP, Prager, Mc Carthy, Sealy LLC., 2002).

The research also indicates that financial health is not influenced by metric factors such as size and rank of university, ratio of international students, ratio of graduate students, number of undergraduate programs offered, number of graduate programs offered, number of employees, ratio of teachers, and ratio of staff. This is a significant finding given the fact that it runs contrary to popular perception. The reasons for this situation could be because of a possible disconnect between how each of these factors have been determined and how they influence financial health. The facts could be far from fallacies, possibly due to the wrong methodology used in determining those factors. For example, citations and publications in top journals (a key factor of rankings) reflect the work done some 10 or 20 years earlier instead of only in the current/recent year(s). Another criticism on institutional rankings is that they are based more on input factors (number of staff, books in library etc.) rather than output factors (student achievements after graduation, students own rating of the institution) (Sowell, 2011). The way rankings are determined may be disputed and because of this inaccuracy, they may not necessarily determine the financial health of universities. Another common fallacy is the positive relationship between enrollment and tuition income. However, according to Sowell (2011) "only a fraction of the income that sustains academic institutions comes from tuition that they charge students. Less than one-third of the revenues received by private, non-profit four-year degree-granting American institutions came from student tuitions in 2003-04." Similar observations could be construed for other factors like academic programs offered, faculty-staff ratio, national-international student ratios etc. and their relationships to financial health of universities.

These results also show that though costs and incomes have their own intricacies, the issues influencing them can go beyond a particular set of quantitative factors and may go into the realm of management and other qualitative traits. For example we can argue that financial health could be more influenced by innovative leadership, motivating employees and by strategic thinking. Stated in the words of Drucker (1990) "Performance and results are far more important- and far more difficult to measure and control - in the non-profit institution than the business; because in business there is a bottom line whereas in non-profit organizations the bottom lines many times are nonexistent or undefined." This observation only goes to signify the distinctive nature of assessment of higher educational institutions.

The results also invite attention to further explore this subject especially for Australian

universities in particular and higher educational institutions in general. Instead of focusing on metric factors (such as increasing number of students or number of undergraduate or graduate programs offered), the study suggests that it will be important for Australian universities to explore if non metric factors (such as quality of teaching and researching, ambience, reputation, management styles, organization cultures) have an influence on their financial health. Further studies could be done to establish the co-relational patterns between these non-metric factors and financial health. Besides, the results also suggest further investigation could be done to study the impact of emerging trends among Australian universities to open off campus sites in many countries (especially Southeast Asia) and if they have an impact on the university's finances.

The following limitations need to be acknowledged. This study includes only full universities as listed by the Australian government. It does not include many higher educational institutions like colleges, institutes and research centers though they too cater to the higher education needs in Australia. The data used were taken from official university websites available on the internet. The composite financial index (CFI) was calculated only for 2011 instead of a trend analysis which could possibly reflect a better and holistic picture.

References

- [1] Abbott, M., & Doucouliagos, C. (2003, February). The efficiency of Australian Universities: A data envelopment analysis. *Economics of Education Review*, **22**(1), 89-97.
- [2] Atkins, G. (2011, January 10). *Australian University Guide 2011*. Retrieved May 13, 2013, from Asian Correspondent : <http://asiancorrespondent.com/45243/australian-university-guide-2011/>
- [3] Blumenstyk, G. (2012, July 23). One-Third of Colleges Are on Financially 'Unsustainable' Path, Bain Study Finds. Retrieved August 2, 2013, from *The Chronicle of Higher Education*: <http://chronicle.com/article/One-Third-of-Colleges-Are-on/133095/>
- [4] Brigham, E. F., & Houston, J. F. (2009). *Fundamentals of Financial Management (12th ed.)*. USA: South Western Cengage Learning.
- [5] Bunsis, H. (2010). *Analysis of the Financial Condition of the University of Illinois System*. USA: Eastern Michigan University.
- [6] Carrington, R., Coelli, T., & Rao, P. (2004). Measuring the Performance of Australian Universities: Conceptual Issues and Initial Results. *The Asia-Pacific Productivity Conference*. University of Queensland.
- [7] Creagh, S. (2011, July 6). Lost international student enrolments may cost Australia billions. Retrieved March 20, 2013, from *The Conversation*: <http://theconversation.edu.au/lost-international-student-enrolments-may-cost-australia-billions-2199>
- [8] Deloitte Access Economics. (2011, June 30). Broader implications from a downturn in international students. Retrieved May 20, 2013, from *Universities Australia*: <http://www.universitiesaustralia.edu.au/page/submissions---reports/commissioned-studies/downturn-in-international-students/>
- [9] Drucker, P. F. (1990). *Managing the Non-Profit Organization, Principles and Practices*. New York: Harper Business, Harper Collins Publishers.

- [10] Evans, C. (2011, November 13). Record operating surplus for Australian universities. Retrieved March 20, 2013, from *Ministers' Media Centre*: <http://ministers.deewr.gov.au/evans/record-operating-surplus-australian-universities>
- [11] Graves, N., Barnett, A., & Clarke, P. (2013, March 19). Reform Australian universities by cutting their bureaucracies. Retrieved May 17, 2013, from *Federal Politics*: <http://www.smh.com.au/federal-politics/reform-australian-universities-by-cutting-their-bureaucracies-20130319-2gc0a.html?skin=text-only>
- [12] Guthrie, J., & Neumann, R. (2004). *Economic and Non-financial performance indicators in Universities: The case of the Australian university system and the establishment of a performance driven university system*. New South Wales, Australia: Macquarie University.
- [13] Guthrie, J., Vagnoni, E., & Steane, P. (2004). Recent Developments in Intellectual Capital and Intellectual Property in Universities. In M. A. Tommaso, *High-Tech Industrial Policy: Can Health Lead the Way?* Cheltenham, UK, Cheltenham, UK: Edward Elgar.
- [14] Hare, J. (2012). \$3bn overseas student revenue fall dismissed. Retrieved March 20, 2013, from *The Australian*: <http://www.theaustralian.com.au/higher-education/bn-overseas-student-revenue-fall-dismissed/story-e6frgcjx-1226292709357>
- [15] Hare, J. (2012, September 26). Killing fatted calf of international study. Retrieved May 20, 2013, from *The Australian*: <http://www.theaustralian.com.au/higher-education/killing-fatted-calf-of-international-study/story-e6frgcjx-1226481336724>
- [16] ICEF Monitor. (2012, October 17). Australian international education sector braces for a long, hard recovery. Retrieved May 20, 2013, from *ICEF Monitor*: <http://monitor.icef.com/2012/10/australian-international-education-sector-braces-for-a-long-hard-recovery/>
- [17] KPMG LLP, Prager, Mc Carthy, Sealy LLC. (2002). *Ratio Analysis in Higher Education: New Insights for Leader of Public Higher Education (5th ed.)*. KPMG LLP, Prager, Mc Carthy, Sealy LLC.
- [18] Sowell, T. (2011). *Economic Facts and Fallacies, 2nd edition*. New York: Basic Books.
- [19] Tahey, P., Salluzzo, R., Prager, F., Mezzina, L., & Cowen, C. (2010). *Strategic Financial Analysis for Higher Education – Identifying, Measuring and Reporting Financial Risks (7th ed.)*. Prager, Sealy & Co., LLC; KPMG LLP; and Attain LLC.
- [20] The Austen Group. (2012, July). Financial Indicator Tool. Retrieved May 2013, from *The Council of Independence Colleges*: http://www.cic.edu/Research-and-Data/Benchmarking-Tools-and-Services/Documents/Sample_College_FIT.pdf

Appendix

Table 2: Relationship between financial performance and size of university
p-values:

Variables	No. of students	CFI
No. of students	0	0.181
CFI	0.181	0

Values in bold are different from 0 with a significance level $\alpha=0.05$

Coefficients of determination (R^2):

Variables	No. of students	CFI
No. of students	1	0.063
CFI	0.063	1

Table 3: Relationship between financial performance and rank of university
p-values:

Variables	Rank of universities	CFI
Rank of universities	0	0.373
CFI	0.373	0

Values in bold are different from 0 with a significance level $\alpha=0.05$

Coefficients of determination (Spearman):

Variables	Rank of universities	CFI
Rank of universities	1	0.039
CFI	0.039	1

Table 4: Relationship between financial performance and ratio of international students
p-values:

Variables	International students ratio	CFI
International students ratio	0	0.877
CFI	0.877	0

Values in bold are different from 0 with a significance level $\alpha=0.05$

Coefficients of determination (Spearman):

Variables	International students ratio	CFI
International students ratio	1	0.001
CFI	0.001	1

Table 5: Relationship between financial performance and ratio of graduate students
p-values:

Variables	Graduate students ratio	CFI
Graduate students ratio	0	0.807
CFI	0.807	0

Values in bold are different from 0 with a significance level $\alpha=0.05$

Coefficients of determination (Spearman):

Variables	Graduate students ratio	CFI
Graduate students ratio	1	0.002
CFI	0.002	1

Table 6: Relationship between financial performance and number of undergraduate programs offered

p-values:

Variables	Undergrad. Programs	CFI
Undergrad. Programs	0	0.760
CFI	0.760	0

Values in bold are different from 0 with a significance level $\alpha=0.05$

Coefficients of determination (R^2):

Variables	Undergrad. Programs	CFI
Undergrad. Programs	1	0.003
CFI	0.003	1

Table 7: Relationship between financial performance and number of graduate programs offered

p-values:

Variables	No. of graduate programs	CFI
No. of graduate programs	0	0.444
CFI	0.444	0

Values in bold are different from 0 with a significance level $\alpha=0.05$

Coefficients of determination (R^2):

Variables	No. of graduate programs	CFI
No. of graduate programs	1	0.017
CFI	0.017	1

Table 8: Relationship between financial performance and number of employees
p-values:

Variables	Total no. of employees	CFI
Total no. of employees	0	0.812
CFI	0.812	0

Values in bold are different from 0 with a significance level $\alpha=0.05$

Coefficients of determination (R^2):

Variables	Total no. of employees	CFI
Total no. of employees	1	0.002
CFI	0.002	1

Table 9: Relationship between financial performance and ratio of teachers
p-values:

Variables	Teacher ratio	CFI
Teacher ratio	0	0.179
CFI	0.179	0

Values in bold are different from 0 with a significance level $\alpha=0.05$

Coefficients of determination (R^2):

Variables	Teacher ratio	CFI
Teacher ratio	1	0.066
CFI	0.066	1

Table 10: Relationship between financial performance and ratio of general staff
p-values:

Variables	Staff Ratio	CFI
Staff Ratio	0	0.179
CFI	0.179	0

Values in bold are different from 0 with a significance level $\alpha=0.05$

Coefficients of determination (R^2):

Variables	Staff Ratio	CFI
Staff Ratio	1	0.066
CFI	0.066	1