www.pwc.com.au

Higher Education – Capital Investment Decisions

Higher Education

April 2018

pwc

Contents

Overview

The Australian education sector continues to experience high levels of growth in both revenue and investment. Australia's international education sector alone is valued at AUD 21.8 billion[1]. Not only does this represent a large contribution to national gross domestic product (GDP), but Australian universities also make significant capital investments into the local economy through expansions and upgrades to campus estates, supporting infrastructure and collaboration with the private sector.

Australia's international education sector alone is valued at AUD 21.8 billion

Historically, Universities have successfully used their existing cash flows and access to debt capital markets to fund the capital expenditure needed to build facilities required to support this growth. However, with the likely introduction of funding reforms by the Federal Government, as well as an increasingly competitive market for international students, Universities will need to think differently about which capital projects are progressed and how they are financed. With limited amounts of available capital, there will be increased pressure on Universities to implement robust methodologies to ensure each capital investment decision provides both a return on capital as well as achieves their teaching, learning and research objectives.

Traditionally, investments in capital items are considered financially suitable when their returns equal or exceed the required cost of the capital. Application of this principle ensures that capital expenditures are value accretive. However, the challenge arises in assessing what is the right required cost of capital for a University, as a not-for-profit entity. Assuming that a University's cost of capital is the same as its cost of debt ignores the associated risk of the investment and the opportunity cost of the capital being deployed. Whilst a framework such as the Capital Asset Pricing Model (CAPM) is typically used for equity valuations, other approaches may also be useful in assisting Universities to determine the appropriate rate.

This paper outlines a best-practice methodology that Universities could implement to present and evaluate the financial merits of capital investment proposals, and identify methodologies that could be used to determine this cost of capital and evaluate capital investment decisions, including:

- how to prepare the financial analysis,
- risk identification and quantification,
- calculation of the appropriate financial metrics,
- determining the hurdle rate of return that is appropriate for the type of capital investment, and
- performing sensitivity analysis.

[1] Cited in Universities Australia Data Snapshot, March 2017, https://www.universitiesaustralia.edu.au/australias-universities/key-facts-and-data

Preparing the financial analysis

Typically, capital investment proposals derive from the outcome of strategic and operational planning and budgeting processes and are focused on the achievement of teaching, learning and research objectives. These planning and budgeting activities suggest:

1 existing capital items which need replacement or upgrades, and

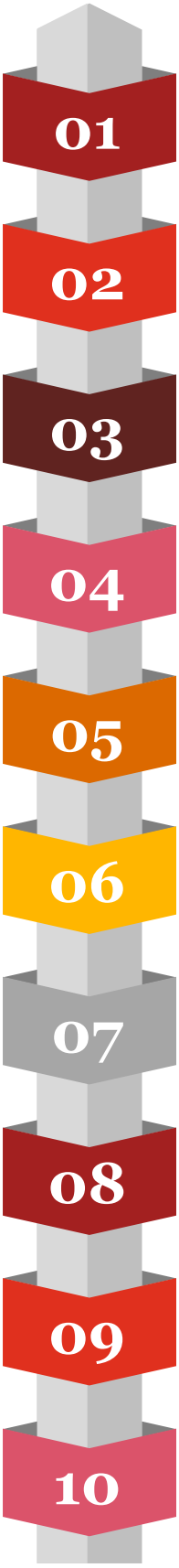
2 new projects and ventures which require investment.

Once the decision has been made to propose an item of capital expenditure, the proposal should be framed using the university's business case format, and the preparation of a discounted cash flow (DCF) statement. The benefits of having a pro forma business case template include:

- Consistent content and presentation.
- Providing comfort for decision makers that the business case includes all required information.
- Ensuring that calculations and analysis for projects are performed on a like-for-like basis over time.

These DCF statements should be created with reference to a clear procedure to ensure all of the cash flows and financial metrics are measured and applied accurately.

DCF Statement Procedure



01 The relevant cash flows need to be determined, timed, and inserted into a spreadsheet so the relevant financial metrics can be calculated.

02 The cash flows used should be incremental and arise as a direct consequence of the decision to invest.

03 The cash flows should be prepared from reasonable assumptions using management's best judgement of the most probable outcome. A sensitivity (or Monte Carlo) analysis table should be included in the business case document and cover the key variables.

04 Cash flows should exclude sunk costs; the investment decision of these has passed and they should not impact future cash flows.

05 Cash flows should include, where necessary, the opportunity cost involved in using existing assets if they could have realised a cash flow themselves in the absence of the project. For example, when using an existing building which was previously rented out, the lost rent (opportunity cost) should be treated as a cost to the project.

06 Financing costs are to be excluded from cash flows; the interest and principal repayments are not relevant in considering the financial merits of the proposal. Whilst financing costs are important for determining how an investment will be funded, the particulars should be included when considering the appropriate 'financing option' and 'affordability' of the project. For example, the strategic project may achieve a rate of return that exceeds the hurdle rate, however alternative financing options may need to be investigated if there is no available capital.

07 The cash flow required to invest in working capital should also be included in the project's cash flows.

08 Inflation should be incorporated into the cash flows at a rate that is able to be substantiated. Typically, CPI forecasts are included in the midpoint of the Reserve Bank of Australia's target inflation band of 2-3 per cent, and Wages Indexation is linked to the relevant rate of the institution's Enterprise Agreement.

09 The period of cash flows should reflect the expected life of the investment. This approach is more accurate than simply using a shorter time period and inserting a terminal value. If a terminal value is used, this then becomes a critical assumption impacting the financial outcome and is often a subjective assumption that can be challenged.

10 All assumptions should be clearly stated and reasoned in an appendix to the DCF statement.

Typically, all key assumptions are collated and referenced to source documentation and subject to a sign off procedure to ensure ownership and accountability.

Risk identification and quantification

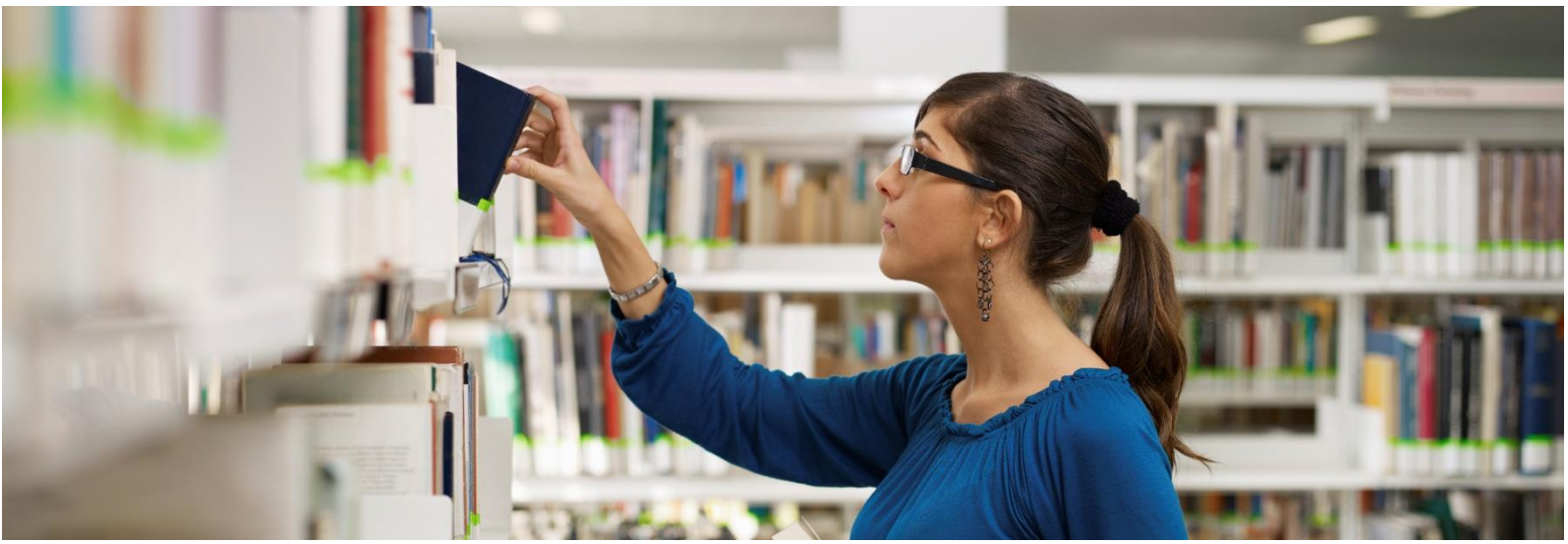
Identifying (and quantifying) project risks can be a complex exercise. Experience suggests that gathering all stakeholders within a workshop that is led by an independent expert provides a forum to 'brainstorm' all potential risks. Once a list of all possible risks has been collected, a project risk register should be prepared and the project team should make an assessment of:

- the likelihood of the risk occurring,
- the consequence, or impact of the risk if it did occur, and
- risk mitigation strategies.

Once all the material risks have been identified, the project team will need to assess and quantify the possible consequences of each risk eventuating, including the effect of any timing issues. Having identified the material risks and assessed the variety of potential consequences, it is then necessary to estimate the probability of each of the consequences occurring. When assessing a particular risk, the project team should consider whether probability is expected to change over time (for example the development, commissioning and operating phases). There are various risk valuation techniques that can be used to provide probability estimates. These range from simple techniques that provide a subjective estimate of probability, to more advanced techniques that produce weighted probabilities for specific risks based on given confidence intervals, and single comprehensive risk estimates for all project risks using multivariable statistical techniques. Where advanced probability valuation techniques and Monte Carlo, or other simulation techniques, are used, it is generally helpful to employ technical experts, or external advisers with particular expertise to determine appropriate probability distributions, provide reliable probability estimates and perform the probability analysis and econometric assessment of the results.

Having identified the material risks and assessed the variety of potential consequences, it is then necessary to estimate the probability of each of the consequences occurring.

Where advanced probability valuation techniques and Monte Carlo, or other simulation techniques, are used, it is generally helpful to employ technical experts, or external advisers with particular expertise.



Financial metrics

The financial outputs that should be calculated from the DCF statement include:

Internal Rate of Return (IRR)	IRR is the preferred metric because it provides clear guidance in terms of profitability of the investment (rather than the somewhat more confusing aspects of the net present value). At a high level, the IRR is the discount rate required for the net present value of the project cash flows to equal to zero. The higher the IRR, the better the project. The simple IRR percentage number can easily be compared to the deposit or borrowing interest rate, the return available on other projects or investment markets, and the University's cost of capital (for further explanation, refer to the '*Determining a cost of capital*' section of this paper).
Net Present Value (NPV)	The NPV should be calculated using the discount rate applicable to the type of investment. Investment categories and respective discount rates are outlined in more detail in the '*Determining a cost of capital*' section of this paper.
Payback	The payback can be used as a '*stress test*'. It is a numerical calculation of the number of years from the time the original investment cash is outlaid until it is returned. This calculation ignores the time value of money (unless this is factored in through a combined NPV calculation) but clearly demonstrates how soon investment cash is recouped. These metrics are all clearly calculable from spreadsheet formulae, and should be familiar to financial analysts across various industries. The largest benefit of calculating these metrics is for comparable investment opportunities and determining the '*best value for money*' option.

Determining a Cost of Capital

Traditionally, investments in capital items are considered financially suitable when their returns equal or exceed the required cost of the capital. Application of this principle ensures that capital expenditures are value accretive in the eyes of the capital holders. A challenge however, arises in assessing the appropriate required cost of capital for a University as a not-for-profit entity. Simply assuming that a University's cost of capital is equivalent to its cost of debt ignores the associated risk of the investment and what happens if the project goes wrong and the University has to step in. The Capital Asset Pricing Model (CAPM) is often used to assess this, although other approaches can also be used.

CAPM utilises inputs sourced from listed equity markets, where the focus is predominately to maximise shareholder value rather than (for a University) as a more socially focused service provider. In theory, CAPM could be used in a University context as the concept of the opportunity cost of capital would still apply. Holders of University capital have the same market return options available to them as 'the market' and the same risk and return framework should apply. That is, what is the appropriate level of return a University should accept for the inherent risk of financing a project?

To apply CAPM to a University, key inputs such as risk-free rate and Equity Market Risk Premium (EMRP) are readily identifiable and consistent with a profit maximising enterprise. The main challenge is to estimate the appropriate beta (β) that matches the risk profile of a University. This may be different to that of a commercial, value-maximising business, given its broader and socially minded focus.

Beta (estimated by observing returns of comparable listed entities relative to the overall market return) could be estimated for a University with reference to publicly listed education businesses or broader comparable enterprises that comprise research, training, property real estate investment trusts (REITs), etc.

An alternate approach for lower risk projects is to estimate the appropriate rate with reference to a bonds plus approach (i.e. adding specific premiums to the cost of debt). A bonds plus approach is typically used in circumstances where the risk profile of the cash flows is more bond-like (i.e. stable, predictable cash flows), and the required returns are lower than would be expected for a typical equity investment. Given the longer tenure, higher counterparty risk and the potential cash flow volatility of a university project is greater than that of a bond, and premiums are added to the bond return reflect this risk.

The need for a premium to the bond yield is supported by the fact that a project would unlikely be 100 per cent debt financed without guarantees of university support in the event of financial distress, i.e. the project risk is not appropriately captured in the return demanded by the bond return.

In determining the appropriate hurdle rate, Universities may also look to other areas of the market for benchmarks. For example, projects that have similar social purpose (i.e. such as infrastructure) may have similar challenges in estimating the required returns for the level of risk that are inherent in the cash flows.

Regardless of the financial criteria, all proposals require the approvers to appraise all aspects of the business case, including exercising their commercial judgement informed by the purpose of the investment. Commercial projects that do not achieve the target return should be considered by the University's investment committee in light of the rationale provided, which could include a strong education strategy component, strategic reasons, a low risk profile, or a pathway to achieve the hurdle rate over time amongst other reasons.

Sensitivity analysis

Sensitivity analysis should be performed on key cash flows and assumptions to determine the robustness of the project to potential changes in assumptions, risk components and the forecast operating environment over the term of the project.

Sensitivities can be performed by varying individual assumptions, or by considering simultaneous changes in a number of variables. This allows both the impact of key factors to be considered, as well as examining a range of realistic scenarios where there is considerable interaction between variables.

Where possible, the financial model should be developed to allow different values for key variables over time. Some variables that are typically analysed using sensitivity analysis include:

- Changes to time periods and delays.
- Changes to periodic inflation rate.
- Construction costs, schedule and completion dates.
- Total service demand.
- Total operating costs.
- Third-party revenue.

The takeaway

Financial analysis and evaluation of investment opportunities is only one piece of the larger investment framework that Australian Universities should adhere to. In saying this, it is pivotal that Universities have a clear and coherent protocol by which investment opportunities are evaluated to ensure long term investment mandates and strategies can be maintained and provide a return on their limited available capital.

PwC Australia has assisted universities across Australia identify capital investment opportunities and ensure projects are structured to achieve their financial and risk objectives.

To learn more about how PwC Australia could assist your university with developing capital investment policy, evaluate alternative financing options, or identify commercial investment opportunities, please reach out to our team.

Contact us

Adam Graham
Managing Director – Infrastructure Lead Advisory
E: adam.graham@pwc.com
T: +61 (2) 8266 7648

Kevin Reeves
Partner
E: kevin.reeves@pwc.com
T: +61 (2) 8266 0617

Matt Wright
Director – Valuations
E: matthew.a.wright@pwc.com
T: +61 (2) 8266 0368

Luke Hogan
Analyst – Infrastructure Lead Advisory
E: luke.hogan@pwc.com
T: +61 (2) 8266 5047

Fiona Holyoake
Managing Director – Infrastructure Lead Advisory
E: fiona.holyoake@pwc.com
T: +61 (2) 8266 5822

Georgina Goonan
Director – Deals
E: georgina.goonan@pwc.com
T: +61 (3) 8603 0162

www.pwc.com.au

WLT 127059515