Aged care industry council

Estimation of capital needs for the high care residential aged care sector

November 2007

PricewaterhouseCoopers

Contents

List of tables

List of figures

Table 1 Acronyms

ABS	Australian Bureau of Statistics
ACAA	Aged Care Association Australia
ACIC	Aged Care Industry Council
ACSA	Aged and Community Services Australia
AIHW	Australian Institute of Health and Welfare
CPI	Consumer Price Index
DoHA	Australian Government Department of Health and Ageing

Table 2 Glossary

Term	Definition
Accommodation bond	Residents entering 'low care' places or extra service high care places may pay a bond to the aged care provider in lieu of an accommodation payment. Residents may elect to transfer that bond when they transfer to a high care place
Aged Care Industry Council	This is the Peak Council of Australia's Aged Care Providers represented by the Aged and Community Care Services Australia and the Aged Care Association Australia
Interim Accommodation Supplement	This supplement will be paid for each high care resident between 1 July 2007 and 20 March 2008 at $3.50 per day; a total of $96.0 million to the industry
Period of analysis	For the purposes of this report this term refers to the period commencing 1 July 2007 and ending 30 June 2020
Year 2010	Years referred to are financial years. The year '2010' refers to the financial year commencing 1 July 2009 and ending 30 June 2010

1 Executive Summary

Introduction

This report estimates the value of payments intended to cover the cost of accommodation from residents and the Australian Government to the high care residential aged care sector. It compares this income with the estimated cost of capital expenditure for high care facilities in the period 2008 to 2020.

This is a high level assessment based on publicly available data. The estimates are made based on a number of assumptions about the nature of the residents in high care in the future, the behaviour of aged care providers and the cost of capital investment. While a set of key assumptions have been adopted for the purpose of modelling, other and different assumptions could be made about the future and may be equally valid to an exercise of this nature.

This report is not an estimate of the financial viability of the high care residential aged care sector.

Content of the paper

The paper:

- estimates the future capital needs based on consideration of four different cost estimates of building a high care place – the estimate outlined by Professor Hogan in his 2004 report on Pricing Arrangements in Residential Aged Care ('The Hogan Report' - indexed at building cost inflation rates to 2008 and adjusted to compare with other estimates based on a different size of aged care unit), the building cost estimates published by Rawlinsons, an estimated average cost derived from the most recent Report to Parliament on the Operations of the Aged Care Act 1997, and an estimate as at November 2007 provided by Rider Levett Bucknall
- estimates income streams that the industry is expected to receive from both resident payments and government subsidies for accommodation payments that are intended to be used towards the cost of accommodation
- assumes that the income from these sources will be used by aged care providers to meet capital costs
- includes the value of the interim accommodation subsidy available from 1 July 2007 to 30 March 2008
- takes into consideration the different payments for existing residents and new residents and makes some assessment about the rate with which existing residents will be replaced with new residents

- regards the income from all new residents after 1 July 2008 (including bond payers and extra service residents) as generating in total, the same basic accommodation payment to the service provider each day
- estimates a percentage of high care residents who have paid an accommodation bond and uses this estimate to calculate potential income from interest income for certain sensitivity analysis only
- assumes that residential aged care providers borrow 100% of their capital expenditure either from an external lender or from their own savings and that a single rate (averaged between the opportunity cost of their savings and a suitable borrowing rate) can be applied to the entire cost incurred
- assumes a period over which this loan will be repaid
- is prepared on a basis that is gross of tax, such that tax is disregarded
- does not estimate the potential value of other sources of income that may be used to meet building costs such as surpluses from operations
- includes an estimate of the cost to the industry of the removal of the additional basic daily care fee (currently $7.50) and the removal of the Pensioner supplement (currently $6.45). However these estimates are provided separately from the main results, as they are conceptually related to operating costs rather than capital costs, and are thus not technically within the scope of our modelling.

Results

This is a high level indicative study using publicly available data and a number of reasonable assumptions. Using these assumptions both the sensitivity analysis and scenario analysis yield a wide range of possible outcomes.

The results of the sensitivity analysis indicate that under certain assumptions (Sections 5 and 6) over the period 2008 to 2020 there are a number of plausible outcomes. Using a medium estimate of the cost of building a high care place,[1] the income from the sources modelled could be between 20% and 32% ($3.8 billion and $7.1 billion respectively) below the cost of building work depending on the values selected for other variables. Table 12 on page 33 displays the complete sensitivity analysis with a shortfall of 27% ($5.7 billion) representing the most reasonable central estimate.

The reforms to come into effect in 2008 include the removal of two existing supplements (additional basic daily care fee and the pensioner supplement). The financial impact of the removal of these

[1] The medium cost estimate is $166,301 which is the mid point between the Hogan and Rawlinsons high estimates. This is a key assumption.

subsides will potentially add $3.4 billion to these figures. This amount is not included in the modelling, sensitivity analysis or scenario testing.

In considering these results it should be noted that the model does not include all potential sources of income to this sector that could be used towards building costs and this paper addresses accommodation income only. The paper is not an estimate of the viability of the aged care sector. The results are highly uncertain and a range of outcomes is possible (Sections 6.2 and 6.3).

The assumption in Table 12 on page 33 that changes the result from a shortfall of approximately 27% to a shortfall of 20% was lengthening the obsolescence period (that is, the numbers of years at which beds need to be replaced) from 30 years to 40 years – replacing beds more rapidly is more costly.

Table 13 on page 33 illustrates three scenarios based upon three sets of assumptions. The ‘Best Case’ or lowest cost scenario indicates that the cash flow from the income streams tested would be 3% or $469 million less than anticipated costs of over the period 2008 to 2020 and only 0.6% or $85 million less than anticipated costs over the period 2012 to 2020. This scenario is plausible but unlikely in our view as it would require all the tested variables to all be the most favourable over the whole period of the modelling.

To test the suitability of the income streams specifically targeted for accommodation costs in high care the modelling does not include the value of income from accommodation bonds. As residents entering high care can not be asked to pay an accommodation bond this income is not treated as part of the planned accommodation income stream. However the estimated income from the assessed accommodation bonds paid by residents who have transferred to high care from low care is included in the sensitivity analysis. This sensitivity analysis indicates that even at the relatively low level of 5% in 2008 and increasing to 10% by 2020, income interest generated by bond balances has the potential to reduce the difference between income and cost by approximately 1.5% or over $300 million over the period of this study.

Finally, we note that this study has been prepared on a basis that is gross of taxation.

2 Introduction and background

Introduction

This report is high level, based only on publicly available data and based on a particular set of assumptions. Other assumptions may in result in different findings

This report has been commissioned for the Aged Care Industry Council (ACIC) which comprises Aged and Community Services Australia and the Aged Care Association Australia.

This report estimates the value of payments intended to cover the cost of accommodation from residents and the Australian Government to the high care residential aged care sector. It compares this income with the estimated cost of capital expenditure for high care facilities in the period 2008 to 2020.

This is a high level assessment based on publicly available data. The estimates are made based on a number of assumptions about the nature of the residents in high care in the future, the behaviour of aged care providers and the cost of capital investment. While a set of key assumptions have been adopted for the purpose of modelling other and different assumptions could be made about the future and may equally be valid to an exercise of this nature.

Background

In releasing its initiative 'Securing the Future' the Australian Government acknowledged that 'current accommodation payments are not enough to support the continued investment that is necessary in order to provide high care at the right levels into the future.'[2]

The Department of Health and Ageing in Securing the Future Fact Sheet 3 states that these changes will ensure that, 'in the future, as the number of older people increases, high care remains accessible and aged care homes providing high care will meet the highest building standards for privacy, amenities and safety.'

From 20 March 2008 changes will be introduced to both the arrangements governing the maximum contribution paid by residents in high care (excluding residents in extra service places) and accommodation supplements the Australian Government pays for residents who cannot meet their own accommodation costs.

The new arrangements will remove the existing 'additional Basic Daily Care Fee' and the 'Pensioner supplement' and create a single asset-tested Accommodation Supplement.

[2] Department of Health and Ageing, Fact sheet 3: Increasing investment in high care, downloaded 12 October 2007 from http://www.healthconnect.gov.au/internet/wcms/publishing.nsf/Content/ageing-securing-the-future-factsheet-3

Permanent residents in an aged care home on 19 March 2008 (including residents who are on pre-entry leave) will not be affected by these changes.

Residents in receipt of the Concessional Resident Supplement will continue to receive this supplement until they leave residential care.

From 20 March 2008, the maximum accommodation fee paid by new residents and the accommodation supplement paid by the government will be increased to an estimated $26.88 per day.

The maximum supplement will be paid to all new residents, including self funded retirees, with assets worth less than 2.5 times the maximum annual single basic age pension (‘the Supported Resident Threshold’). It is estimated that this threshold will be $34,500 on 20 March 2008.

The maximum supplement will increase in stages from 20 March 2008 to 20 September 2011, when it is estimated that it will be $32.38 per day.

Beginning in 2012, the maximum supplement will be increased on 20 March and 20 September each year in line with movements in the Consumer Price Index.

From 1 July 2007, pending the introduction of the new arrangements from 20 March 2008, the Government will provide an Interim Accommodation Supplement worth $3.50 per day for every high care resident not occupying an extra service place.

The revenue modelled is based on these arrangements.

3 Scope of this paper

The paper is restricted to the income generated by high care places and the cost of building high care places in the future

The scope of the paper is to test the adequacy of the changed accommodation payments against the estimated future cost of building new high care places, refurbishing existing places and rebuilding high care places when they become obsolete.

The assignment required an examination of only existing publicly available data and no new data was collected.

This report has been prepared on a basis that is gross of tax, and tax is disregarded.

The paper is restricted to high care places. Although many high care residents occupy a low care place and will attract the accommodation payments because they are classified as high care, for the purpose of this paper, that income is generated by a low care place and out of scope for this paper.

The intention of the paper is to estimate the income generated by payments for the capital cost of accommodation for high care places and it is not intended to identify the income for accommodation for the residential aged care industry as a whole.

The paper estimates only the cost of building and upgrading high care places and assumes that the income from accommodation payments and income streams will be used by aged care providers to meet these capital costs.

The paper does not estimate the financial viability of the residential aged care industry or make any comment on the adequacy of income to aged care providers, including providers of high care places, to cover the cost of providing care.

There is no attempt in the paper to estimate the extent to which income generated from residential low care places and community care places subsidise the capital cost of high care places. There is also no attempt to assess the extent that aged care providers may have other sources of income and assets with which to build high care places, for example, donations to not for profit providers or from other businesses that owners may operate.

Reliance's and limitation

This report is compiled from publicly available data and from expert opinion provided by the ACAA and ACIC

The nature of the report is to provide only indicative calculations on the extent to which revenue for capital expenditure is likely to meet actual expenditure. The report is intended to be high level and is not intended that the recipients will regard the findings as providing rigorous or concrete estimates.

This paper has been prepared solely for the benefit and use of the Aged Care Industry Council.

PricewaterhouseCoopers accept no liability for loss or damage howsoever arising in the use of this report by the Aged Care Industry Council for any use of this report without full understanding of the reliance's and limitations noted herein, or for errors or omissions arising from the provision of inaccurate or incomplete information to us.

No part of this report can be made available to any third party without the written consent of PricewaterhouseCoopers. We do not accept any liability or responsibility in relation to any third party recipients of this report.

The report relies on the completeness and accuracy of publicly available sources and from the expert opinion provided by the ACIC. We have not conducted any independent review of the data.

The component of this project performed by actuaries is a Professional Service under the Institute of Actuaries of Australia Code of Conduct, but does not constitute Actuarial Advice.

The report is based on assumptions and these are by nature uncertain. A range of outcomes is possible based on these assumptions and these are considered. While the report does indicate a 'most reasonable' estimate undue emphasise should not be placed on this one outcome.

Naturally as the future is unknown these assumptions may not be correct and PricewaterhouseCoopers accepts no liability arising from any assumptions that may, in the future, be determined to be inaccurate.

Other assumptions relating to the nature of capital expenditure costs and the behaviours of providers of high care services in the future may also be valid and may indicate a different result.

Assumptions relating to the past (that is, number of beds built in previous years and the inflation rate used to deflate the per bed cost) were used in the modelling and were set to be the same as the future. A broad approach to these assumptions was required as information was not available on the actual number and cost of beds built each year in the past.

This report must be read in its entirety. Individual Sections of this report could be misleading if considered in isolation from each other.

4 Methodology

This section describes the methodology for the estimation of revenue and costs with reference to the assumptions described in the next section

Revenue

The revenue to aged care providers from high care places is estimated by examining those streams of income that are recognised as specifically targeted to meet the cost of accommodation. There are three streams of income in the model; accommodation payments by residents, accommodation subsidies paid by government and income from bonds held by service providers[3].

Other forms of income to aged care providers, particularly income that is intended to pay for the cost of care is not included in the model.

High care residents in high care places

To calculate annual revenue the model estimates the number of residents that will generate the income described above. Using the current population in high care places as a base, the model estimates the past and future population in high care places.

The modelling procedure uses the ABS population projections [4] (assumption 1) for the future Australian population over age 70. The model then adds to these population projections the number of new high care places that will need to be added annually to meet the Australian Government's current target ratio of 44 high care places per 1000 population over the aged of 70.

The model splits the total population of high care residents between those that attract and pay revenue under the current revenue arrangements (the 'old scheme') and those that will attract and pay revenue under the 'new scheme'. The assumptions that underlie this model are outlined in assumption 5 in Table 4.

The model considers the cohort of residents as at 30 June 2008[5] (based on the most recent resident profiles) and projects the rate at which they will leave aged care after 1 July 2008 (when the new rates commence – see Table 5 for the rate of decrement). As residents leave, they are replaced by new entrants to high care who will earn revenue for the industry at the new accommodation charge rates (see assumption 7).

---

[3] For the purposes of this paper the only income from bond payers used in the estimates is that equivalent to the daily accommodation payments. No estimate is made for any higher payments that may be made by residents in 'extra service places'. The income from interest earned on bond balances is included in the sensitivity analysis as an additional variable that may or may not be considered.

[4] 3222.0 Population Projections, Australia Table B9. Population projections, By age and sex, Australia - Series B

[5] The rate increases in the financial model have been smoothed and matched to financial years for ease of modelling.

Resident days

Annual resident days have been calculated as the number of high care places for a particular year multiplied by 365 and assuming 95% occupancy (see assumption 4).

Old scheme

Revenue from residents who enter high care prior to 1 July 2008 has been modelled through a combination of the following methods:

Accommodation charge revenue

Under the old scheme accommodation charges varied depending on the resident's assets at entry and the model assumes that the level of assets on entry to high care is uniformly distributed (see assumption 8). The maximum accommodation charges permissible were amended in 2004.

To determine the actual accommodation charge paid by residents the model incorporates a resident decrement model (assumption 5) to split the population between those who entered a high care place before and after 1 July 2004.

Concessional supplement revenue

Assumption 9 outlines the payments paid by low income residents (concessional residents). It assumes that of all the residents classified as concessional, 50% will receive a supplement of $17.23 and 50% receive a supplement of $11.27 (as at 1 July 2007).

The average of these two supplement amounts is then multiplied by the number of resident days applicable to concessional residents for a particular year in order to estimate the revenue earned for that particular year.

Bond retention income

Assumption 6 estimates the number of bond paying residents in high care for each year of the analysis. The model assumes that the maximum retention income is earned by the service provider from all bond paying residents who have been in high care for less than 5 years (assumption 10).

The resident decrement distribution model (assumption 5) is used to derive the number of residents out of this cohort who have been in high care for either 1, 2, 3, 4 years or longer at the time of analysis.

Revenue from interest earned on high care bond holdings

The process by which we have modelled interest income on high care bond holdings is based upon the following components:

1 the number of high care residents who are classified as 'bond paying' (assumption 6)

2 the average bond size for all residents in high care who have paid an accommodation bond (assumption 11)

3 the proportion of the total bond pool (for high care residents) that earns interest on investment assets (assumption 12)

4 an assumed rate of return on investment (assumption 13).

Interest on bond balances earned by service providers is included only in the sensitivity analysis and not in the overall financial model.

New scheme

The new package assures service providers a set level of accommodation income for this particular cohort of residents

Although revenue from the new package will come from one of the three sources mentioned above, the new scheme assures service providers a set level of accommodation income.

To calculate revenue to the aged care industry under the Government's 'new scheme' the model:

- estimates the proportion of residents who are new to high care after 1 July 2008 (assumption 5)
- multiplies the number of residents eligible under the new scheme by the new daily accommodation rate (increased periodically)
- multiplies this figure by 365 in order to estimate the total revenue over the entire year and applies an occupancy rate of 95%. (assumption 4).

Interim accommodation supplement

The Interim Accommodation Supplement has been treated as a 'once off' $96 million infusion of revenue for the industry applied to the 2007/08 financial year.

Costs

The model treats all actual cash outflows as loan repayments on pre-existing debt

Capital expenditure has been modelled on the basis of actual expected cash outflows. The core results of the model are based upon a 100% financing basis. That is, the model assumes that 100% of costs incurred in any one year are, in effect, financed via borrowings (assumption 18).

The model assumes an average loan repayment period of 10 years. Repayments in any particular year will be based upon a mixture of borrowings arising over the previous 10 years.

Modelling of financing costs

The model assumes that 100% of constructions costs arising in each year are either met via debt or the use of assets held by the aged care provider. The use of assets results in an opportunity cost to the aged care service. The model assumes that the cost of financing includes this opportunity cost (see assumption 19).

The modelling of loan repayments is based on the assumption that on average, borrowings are repaid via a 10 year loan, made up of constant yearly repayments. The repayments made each year do not change and the rate of interest applied to the loan (8%) also remains constant (assumption 19).

Elements of cost

The three modelled elements of cost are:

- building new high care places
- rebuilding existing (but obsolete) high care places
- upgrading.

The method of calculation for each stage has been to first derive the capital expenditure cost arising within each year under each element (this is the cost arising under a 0% financing scenario), and then model loan repayments on these yearly costs incurred.

New building costs

Construction costs arising for new building works in any particular year has been calculated by multiplying the estimated average construction cost per high care place for the year by the number of new high care places assumed to be built in that year (see assumptions 2, 3 and 16).

Four building cost sources were used to determine a range of future costs (see page 25 for a full discussion of these estimates).

All new building costs each year from 1998 have been modelled. This allows the model to derive the value of loan repayments made in the year 2008 (assuming loan repayments are made over a period of 10 years there will still be debt repayments in 2008 from 1998 borrowings).

Re-building costs

The model assumes a useful life of a high care place of 30 years and that all places will have to be replaced through rebuilding works after this time. For example, the model assumes that all new beds built in 1978 will be completely re-built in 2008 (assumption 15).

The model begins by deriving the number of new beds built from 1968 onwards. This then implies the rate at which re-building works will arise from 1998 through to 2020. Costs arising from 1998 onwards are required in order to estimate repayments on debt financing undertaken under a 10 year loan repayment schedule.

Upgrading costs

The cash costs arising each year for this activity have been modelled by multiplying together the following components:

- number of operational high care places for the year (assumption 2)
- rate of upgrade activity (assumption 18)
- cost per upgrade as a percentage of new building cost (assumption 18)
- new building cost for the year under consideration (assumption 16).

Once the cash cost arising in each year (which constitutes the 0% financing cost basis) has been ascertained we then model the costs arising under a 100% financed basis in the same manner as is described above for new and rebuilding works.

5 Assumptions

Financial and Economic Assumptions

The methodology used in the modelling is highly assumption driven. These assumptions are outlined in the tables below. Where possible these assumptions are based on past or current trends and/or rates.

Table 3: Economic assumptions

Assumption	Details
Cost of capital	The cost of capital is based on the assumption that 70% of funds used will be borrowed at 8.5% interest and 30% of the funds will be from savings at an opportunity cost of 6.5% – resulting in a rate of 8%
CPI Inflation	Assume that future CPI Inflation will be 2.5% pa

Key General Assumptions

Table 4: Summary of key assumptions

Assumption	Description	Discussion
1 Population data used as the basis of projection of high care places	The mid range ABS population projections have been used for this model	
2 The annual growth in high care places from 1 July 2007 onwards will be designed to achieve and maintain 44 high care places every 1000 citizens over the age of 70	We have used data from the Department of Health and Ageing (DoHA) National Summary – 2007 Regional Distribution of Aged Care Places to indicate a minimum starting point from which to estimate the actual rate of new building for the years 2008 to 2011. From 2012 onwards, we have assumed that new building will map exactly to the rate of increase in the Australian population aged over 70	The growth in high care places between 2008 and 2011 has been smoothed in the model. The model also assumes that the rate of growth in high care places remains at this level. This assumes that the future population over 70 in Australia will need high care places at the same rate that they do at present
3 New building undertaken each year between 1968 and 2007	The model assumes that the number of high care places issued each year historically has remained constant at 4% of the total population over 70	It also assumes that new building commenced on all of these new places within the year of issue, and that these buildings will need to be replaced after 30 years.
4 Utilisation Rate	We have assumed that a 95% occupancy rate is appropriate for our model period	This has been sourced from the latest AIHW report[6] (as at June 2006)

[6] AIHW, (2007), Residential aged care in Australia 2005–06 A statistical overview, Canberra AIHW

Assumption	Description	Discussion
5 Increase in the number of high care residents and decrement pattern of high care residents leaving care	• The rate of new entrant growth is 4% initially, and then increasing in line with population growth • The number of existing residents leaving in any one year will depend upon their length of stay • The model assumes a decrement pattern as illustrated in Table 5**Error! Reference source not found.** below • The start point of this model is 1998 and in this year 16,500 people have been assumed to have entered high care	These four assumptions represent the key parameters of the resident decrement model. These assumptions have been adjusted within the realms of reasonableness in order to arrive at a realistic projection of resident decrement over time
6 Breakdown of resident status within high care	The breakdown of high care residents between the following classifications in the model is as follows: • Assisted residents – 3.6% • Bond Paying – 5% (initially, increasing to 10% at 2020) • Concessional – 34.9% • Non-concessional – 56.5%	This breakdown is necessary to estimate the income from the residents in high care under the 'old scheme'. These assumptions have been estimated based upon data as at June 2006 from the AIHW report and discussions with the aged care working group
7 New Government accommodation payments under the 'Securing the future of aged care for Australians' package	• The model estimates total revenue per eligible resident at $26.88 from 1 July 2008 onwards which is the estimated maximum supplement paid to homes with less than 40% of supported residents • The model applies CPI inflation of 2.5% to the guaranteed total accommodation payments from 2012 onwards	The timing of rate increases has been adjusted slightly (by between 3 and 6 months) in order to simplify the modelling process. This rate is based on the assumption that the total daily contribution from both residents fees and the accommodation supplement will be at the maximum level of $26.88 per resident irrespective of the percentage of supported residents in the home

Assumption	Description	Discussion
8 Uniform level of assets at entry to high care	The model assumes that the distribution of pre-entry assets is uniform across all entrants between the asset cut-off level for concessional residents and the maximum threshold	The asset level influences the accommodation charge payable under the old scheme. It is assumed that an equal number of residents who pay accommodation charges will fall above and below the maximum threshold. Of all residents below this threshold at entry the assumption states that the average asset level will fall half way between the threshold and the asset cut-off limit
9 Split of high care services that have more / less than 40% of their residents classified as either concessional or assisted	The model applies an even 50 / 50 split to this particular situation. It is assumed that if 50% of aged care services contain more than 40% assisted or concessional residents and as such receive the higher of the two possible concessional supplement amounts per resident, then approximately 50% of all concessional residents will provide income to their provider at this higher rate	The model is assuming that this split is both appropriate for use on the number of aged care services and also for use on the entire concessional classified population of residents in high care This assumption was quantified during discussions with the aged care working group
10 Bond deposit maximum retention rate to be applied to high care residents into the future	The model assumes that the maximum monthly retention rates are indexed in line with CPI inflation and that all residents will be subject to the maximum retention rate at any particular point in time	This rate is applied to the estimated cohort of bond holders in high care under the old scheme only
11 Average bond size for high care residents in high care places	The average bond size for residents in the 2007/08 financial year is based on the median bond size as at 30 June 2006 ($122,500 – sourced from the AIHW report). It is assumed that over the 13 years of the analysis the average bond size will double, increasing each year by a constant amount ($10,208)	In this situation the median has been assumed to be a reasonable estimator of the mean
12 Proportion of high care bond pool that earns interest	The model assumes that 100% of the bond capital pool earns a rate of return commensurate with that described below	

Assumption	Description	Discussion
13 Rate of return on investment of bond holdings	The model assumes a rate of return of 6.5% on invested bond balances gross of tax	This assumption was quantified during discussions with the aged care working group
14 Assumption underlying the modelling of all components of cost	The model: • assumes that any building work undertaken is completed within the year of commencement	
15 Rate at which rebuilding of high care places occurs	The model assumes that rebuilding work in any one year will be derived entirely from new building that occurred 30 years ago. For example, if 300 new beds were built in 1978 then it has been assumed that 300 beds will be rebuilt during 2008	This has been set based upon anecdotal evidence sourced from the aged care industry working group
16 Average construction cost to build a new high care place (see the following section . for a fuller description of the estimation of building costs)	This analysis has looked at four different average costs of building a new high care place as at 1 January 2008. these are: • The estimate reported in the Review of Pricing Arrangements in Residential Aged Care prepared by Professor Hogan indexed to 2008 and adjusted to compare with the other estimates on the same size of unit • The estimate for aged care facilities made in Rawlinsons Construction Cost Guide (published as at February 2007) • An estimate based on the data presented in the June 2006 – Report to Parliament on the Operations of the Aged Care Act • An estimate as at November 2007 provided by Rider Levett Bucknall requested for this analysis	To estimate the average construction cost for both future and past years, the model has inflated or deflated these estimates by an assumed percentage (see assumption 17) as appropriate. Table 10 and Table 12 each provide for a detailed analysis of the various costing alternatives that we have considered. Note that the central estimate used in the model is equal to the midpoint between the high estimates sourced from both Professor Hogan's and Rawlinsons data sources. The cost of land, using the indexed amount from Professor Hogan's report is added to all four and is included in the assumed cost of building a new high care place whether or not the building involves acquiring land

Assumption	Description	Discussion
17 Assumed rate of building cost inflation both historically and for the analysis period	The following data sources were considered when assuming a vector of building cost inflation rates: • ABS data pertaining to the Residential building construction n.e.c. index • A Building Cost Index sourced from the Rawlinsons 2007 Cost Guide • Implied yearly percentage increase in construction costs (per sq metre) between Rawlinsons 2003 and 2007 cost estimates • Implied yearly percentage increase in construction costs (per sq metre) between Davis Langdon's 2002 and 2006 cost estimates	The raw data considered and final selected rates of building cost inflation used in our analysis are shown between Table 8 and Table 9
18 Assumptions underlying the modelling of upgrading costs	• The model assumes that 10% of all places are upgraded each year • It is assumed that the cost of upgrading as a proportion of the cost to build a new high care place in any particular year is equal to 15%	These two assumptions have been set based upon an analysis of industry wide (across both high and low care) data sourced from the June 2006 – Report to Parliament on the Operations of the Aged Care Act. In addition, modifications to these assumptions have been made based upon discussions with the aged care working group surrounding environmental influences on the parameters

Assumption	Description	Discussion
19 Assumptions underlying the loan repayment calculation	• Assume that the loan repayment period is 10 years • Assume that construction costs will be financed by 70% debt financing and 30% cash assets • As such, assuming a debt financing rate of 8.5% and an opportunity cost of 6.5%, we have applied a singular rate of 8% to the total incurred cost in each year	The length of a loan will vary considerably across the industry. In keeping with the scope of this model one loan period and one financing rate have been used. The loan repayment period and debt financing rate have been set based on advice of common practice and bank lending policies. It is assumed that the industry will be able to secure all the finance it needs for each building. The opportunity cost of income forgone has been set equal to the rate of return assumed on bond investment (assumption13)

Table 5: Assumed High Care Resident Decrement Pattern

Year of Exit	Proportion
Exits within year 1	35%
Exits within year 2	15%
Exits within year 3	10%
Exits within year 4	8%
Exits within year 5	8%
Exits within year 6	6%
Exits within year 7	6%
Exits within year 8	5%
Exits within year 9	5%
Exits within year 10	2%

Inflation on building costs

An indexation rate for building costs is necessary to both estimate the current debt of the industry from past building works and the future cost of buildings. Three indices have been estimated covering the following time periods:

- prior to 2003
- from 2003 to 2007
- post 2007.

The index for 2003 to 2007 is necessary in order to inflate the cost of construction reported by Hogan to 1 January 2008 dollars.

Table 8 below shows a summary of the raw data that we have considered for our analysis and what these data imply regarding yearly inflation rates.

These data consist of the following:

- ABS index of non-housing Residential Construction Cost from 1996 to 2007
- Rawlinsons Building Cost index from 1988 to 2007
- Rawlinsons cost per square metre for 2003 and 2007
- Davis Langdon cost estimates for 2002 and 2006.

Average Australian costs were not available for each index. We have used Sydney data as it represents a mid range cost compared with other states and territories.

Table 6: Summary of data analysed for building cost inflation assumption

	ABS Yearly Rate (1996 to 31 December):	Rawlinsons Yearly Rate (to 30 June):	Rawlinsons Implied Yearly Rate (over 4 years)	Davis Langdon Implied Yearly Rate (over 4 years)
Arithmetic Average (Overall):	4.53%	6.43%	n/a	n/a
Arithmetic Average (2003 – 2007):	6.76%	5.27%	6.47%	5.56%
Arithmetic Average (1988 – 2003):	2.67%	3.74%	n/a	n/a

The key observations driving our selections of index rates were that:

- The arithmetic average of the Rawlinsons Building Cost Index between 1988 and 2002 is slightly less than 4% pa. 4% pa has thus been assumed this period

- The increases in construction cost estimates of both Rawlinsons and Davis Langdon over the four year period (2003 to 2007) imply a yearly increase in construction costs of between 5.5% and 6.5% pa using cost increases based on cost per square metre. The arithmetic average of the last 5 years of ABS construction costs data is 6.76% pa. An annual inflation rate of 6.50% over this period has been selected
- The arithmetic average over the entire period in which data exists (1996 to 2007) for the ABS index is approximately 4.5% pa. We have assumed that this figure is our best estimate of the future yearly building costs inflation rate.

Our final selections are as follows:

Table 7: Selected building cost inflation rates

Time period	Yearly building cost inflation rate
1 January 1988 to 31 December 2002	4.00%
1 January 2003 to 31 December 2007	6.50%
1 January 2008 to 30 June 2020	4.50%

Estimated building costs

The average building costs per place has been calculated by analysing four separate bases.

Estimate based on the Review of Pricing Arrangements in Residential Aged Care (W. P. Hogan) 2004.

On pages 139 to 140 of Professor Hogan's report there are estimates as to the likely range of costs for the various components of constructing a residential aged care place. We have extracted this data in column 1 of Table 8.

We note that the original estimate of building cost from this report was calculated on the basis of a 45 sq metre size. In order to maintain a consistent basis of comparison we have adjusted all of the Hogan components of cost, except land, to a 62 sq metre size. This ensures consistency with the other estimates presented in this report.

Finally, to provide an estimate of building cost per place this data has then been indexed to 1 January 2008 (using assumption 17 regarding building cost inflation and the indexation rate from Table 7) to maintain internal consistency within the model.

Estimate based on Rawlinsons Australian Construction Handbook – (25th Edition 2007).

This guide contains an estimate in February 2007 dollars of the cost per unit (or square metre) of residential nursing homes for high care. The total estimate is split by a number of components as described in column 2 of the table below. The data has then been indexed to 1 January 2008 (using assumption 17) to provide an estimate of building cost per place. These data are based on Australian wide survey of actual cost data on constructions.

Estimate based on data extracted from the Report on the Operation of the Aged Care Act 1997 – 1 July 2005 to 30 June 2006.

From page 49 (table 22 – Estimated building work in residential aged care, 2003-04 to 2005-06) of the above report we have extracted data relating to the proportion and magnitude of new and rebuilding work undertaken in the three years to 2005-06. We have combined this data with the number of residents in aged care as extracted from Residential aged care in Australia 2005-06 – A statistical overview (AIHW), using the following formula:

Total Cost / [Proportion of homes with building work x Total number of residential aged care places].

This formula then derives the average cost per place of:

- completed new building work in the year
- new building work in progress at the end of the year
- completed re-building work in the year
- re-building work in progress at the end of the year.

We have then calculated the weighted average of these four elements of average cost (assuming that new building and re-building cost relate to the same form of construction and should thus be considered together) for the 2005-06 year. This gives a figure of $144,044 as at January 2006. Land is then added to the data (note that land is not considered in any of the reports other than Hogan and thus the Hogan estimate of land cost has been included in both the Rawlinsons estimate of cost and in the RLB estimate as well as in this estimate) and indexed to 1 January 2008 as shown in column 6 below. [7]

Note that the estimate based upon the Parliamentary report spans both high and low care and we have thus assumed that there is no material difference in cost between the two.

[7] Given that land represents only about 5% of the cost of a new high care place it has been included for all new places regardless of whether land needs to be acquired or not.

RLB Construction Cost Estimate – specially requested at November 2007

Rider Levett Bucknall have provided to PwC an estimate of the average building cost of a residential aged care bed based on specifications comparable to the other estimates shown. This data is shown in Table 8 and Table 9.

These data have been estimated for the purpose of this study.

Original data from both the Hogan and Rawlinsons data sources presented in Table 8 and Table 9 depict both a high and low estimate of the range of estimated cost. For the purposes of our analysis we have used the midpoint of the indexed high and low estimates in our modelling.

Data in Table 9 has been calculated by inflating the data in Table 8 using building cost inflation rates as discussed in assumption 17.

Table 8: Original average building cost data

	Hogan Report - June 2003 dollars based on 45 m^2 $		Hogan Report - Grossed up from 45 sq metres to 62 m^2 $		Rawlinson's Cost Guide – February 2007 dollars based on 62 m^2 $		June 2006 Parliamentary Report – January 2006 dollars (size not known) $	RLB Construction Cost Estimation – November 2007 Dollars based on 62 m^2 $
	Low	High	Low	High	Low	High		
Building	60,000	65,000	82,667	89,556	106,777	115,112	144,044	154,000
Fittings	5,000	7,500	6,889	10,333	12,000	12,000		16,250
Working Capital	3,815	6,910	5,256	9,520				
External Works					8,542	9,209		15,000
Professional / Construction Fees	4,800	5,200	6,613	7,164	10,678	11,511		22,250
Land	8,300	8,300	8,300	8,300	8,300	8,300	8,300	8,300
TOTAL	**81,915**	**92,910**	**109,725**	**124,874**	**146,297**	**156,132**	**152,344**	**215,800**

Table 9: Indexed average building costs to 1 January 2008

	Hogan Report - Grossed up from 45 sq metres to 62 sq metres – Indexed to January 2008 $		Rawlinson's Cost Guide – Indexed to January 2008 $		June 2006 Parliamentary Report – January 2008 $	RLB Construction Cost Estimation – January 2008 $
	Low	High	Low	High		
Building	109,750	118,896	112,530	121,314	163,378	154,810
Fittings	9,146	13,719	12,647	12,647		16,336
Working Capital	6,978	12,640				
External Works			9,002	9,705		15,079
Professional / Construction Fees	8,780	9,512	11,253	12,131		22,367
Land	11,019	11,019	11,019	11,019	11,019	11,019
TOTAL	**145,673**	**165,785**	**156,451**	**166,817**	**174,397**	**219,611**

6 Results

The results of the modelling are presented using the following three key components:

1 Three building cost estimates

Using the data in Table 9 we have selected a high, medium and low cost of building a high care place for analysis. The medium cost estimate has been used to test key variables and these results and in Table 10.

- The high cost estimate is that estimated from the Parliamentary Report – $174,397
- The low cost estimate is the lowest of the adjusted Hogan estimates – $145,673
- The medium cost estimate chosen is the mid point between the Hogan and Rawlinsons high estimates – $166,301.

The RLB estimated cost, $219,611, has been excluded from the analysis. Although the most recently calculated cost it is based on estimates and not historical costs and at over $40,000 higher than the highest of the other cost estimates it has been regarded by us as an outlier.

2 Sensitivity Analysis

The sensitivity analysis tests the five variables that are the most important to the underlying result. These variables are modelled using alternative values for each in order to demonstrate the impact of changes to these assumptions on the final result. These results are in Table 12.

3 Various Scenario Analysis

Table 13 illustrates various ‘best’ and ‘worst’ case scenarios by selecting certain combinations of key assumptions.

Results of the analysis using the medium cost estimate

The medium cost estimate results presented in this section are an indication of what we believe to be the a reasonable representation of outcomes under our high care capital expenditure model.

Table 10 briefly describes the six assumptions underlying the model that are considered to be the most important drivers of the result. Our estimate of the value for each assumption is also shown in the table. The full table of figures for the best estimate model is included in Appendix 1 – Table 15.

Table 10: Key assumptions underlying the medium cost estimate for the construction of one high care place

Key Assumption	Suitable estimate value	Information
Medium construction cost	$166,301	Average cost per bed as at 1 January 2008
Average Length of Stay in High Care	3 Years	Key output of the resident decrement model (Assumption 5)
Loan Repayment Period	10 Years	Loan repayment period on borrowings is 10 years
Obsolescence Period	30 Years	Re-building work in any one year will be derived entirely from new building that occurred 30 years ago. For example, if 300 new beds were built in 1978 then it has been assumed that 300 beds will be **rebuilt** during 2008
Surplus Bond Revenue earned from Bond Holders New to High Care post 1 July 2008	Not included	Revenue from bond holders in excess of the Government's guaranteed daily care rate has not been included in the suitable estimate model
Applied Financing Rate	8.00%	Has been selected as a combination of the assumed cost of debt financing (8.50%) and the opportunity cost of income forgone (6.50%) combined in the ratio 70 / 30

We have conducted our results over both the period 2008 to 2020 and the later part of that period between 2012 and 2020 for the following reasons:

- The planning target used to allocate new high care places was increased in 2007. The new target, one place for 4.4% of the Australian population over 70, is to be achieved 2012. To achieve this target a higher annual level of building activity is expected during 2008 to 2011 than in the years after 2012.
- The new revenue structure will take a few years to become the dominant source of revenue as existing residents in high care leave care and by 2012 most residents will be generating income under the new scheme.

Appendix 1 – Table 15 illustrates the year by year cash flows of the suitable estimate model into separate revenue and cost components. Revenue is split between that which arises under the existing scheme and that which arises from the new proposed scheme. Construction costs are split between the three facets modelled:

- new building works
- rebuilding works
- upgrading.

Table 11 illustrates the key results modelled on the medium cost estimate. Over the period 2008 to 2020 the model shows an overall 27% shortfall in revenue compared with estimated capital expenditure. For the period 2012 to 2020 there is a 26% shortfall over the building costs.

Table 11: Summary of Key Results based on the medium cost estimate

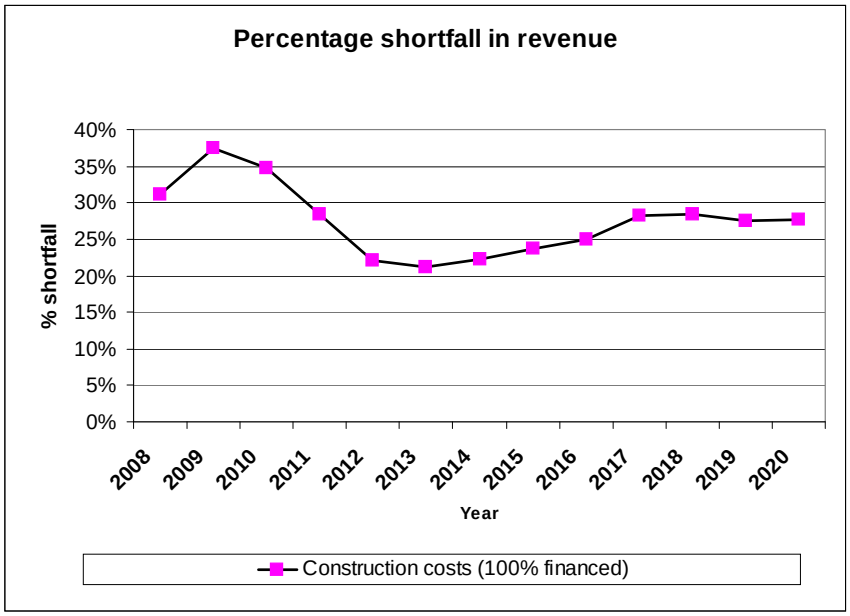
Total Net Cash flow (2008-2020)	-$5,667 billion
Percentage Shortfall in revenue over building costs (2008-2020)	27%
Percentage Shortfall in revenue over building costs (2012-2020)	26%
Total Net Cash flow (2012-2020)	**-$4,402 billion**

Figure 1 below shows that the percentage cash shortfall by year is initially very high and whilst being variable over the entire period does generally improve over time. From 2012 onwards the annual revenue short-fall is approximately 26%. The shape of the graph is influenced by two factors:

- The building rate between 2008 and 2011 is higher than the long term average of 26% [8]as the industry expands to meet the new target of 44 places per 1000 population over the aged of 70 by 2011
- The increase in the percentage shortfall in 2017 reflects the population born in 1947.

[8] This causes the revenue shortfall over the period 2008 to 2020 to rise to 27% of estimated capital expenditure.

Figure 1: Percentage Shortfall in Revenue – Most Reasonable Estimate Model: 2008-2020



Sensitivity analysis

The aim of the sensitivities modelling process is to highlight and quantify the impact of reasonable changes to those assumptions considered to be the most important to the model as a whole. The results of the sensitivity analysis are detailed in Table 12. The key assumptions analysed were:

- selected minimum, medium and maximum construction costs (estimated average cost per place at 1 January 2008)
- average length of stay in High Care
- loan repayment period
- obsolescence period
- inclusion and exclusion of surplus accommodation bond revenue from bond holders new to high care post 1 July 2008
- financing rate applied to incurred costs.

Table 12: Sensitivity Analysis Results[9]

Key assumptions	Changes to assumptions	Value	Revenue shortfall / surplus of capital expenditure – % (2008-2020)	Total net cash flow (2008 – 2020) $	Revenue shortfall / surplus of capital expenditure – % (2012-2020)	Total net cash flow (2012 – 2020) $
Construction Cost Basis (est. av. cost per place at 1 January 2008)	Selected Minimum	$145,673	-16.66%	-3,063,516,986	-15.16%	-2,275,866,988
	Selected Central	$166,301	-27.00%	-5,667,459,422	-25.68%	-4,401,525,623
	Selected Maximum	$174,397	-30.39%	-6,689,444,974	-29.13%	-5,235,796,144
Average Length of Stay in High Care	Approx. 3 years	3 years	-27.00%	-5,667,459,422	-25.68%	-4,401,525,623
	Approx. 1.5 years	1.7 years	-23.53%	-4,939,325,800	-23.58%	-4,041,401,309
Loan Repayment Period	Medium	10 years	-27.00%	-5,667,459,422	-25.68%	-4,401,525,623
	Long	20 years	-21.99%	-4,319,947,799	-19.53%	-3,090,166,104
Obsolescence Period	Short	20 years	-31.78%	-7,140,308,831	-29.94%	-5,441,413,670
	Medium	30 years	-27.00%	-5,667,459,422	-25.68%	-4,401,525,623
	Long	40 years	-19.84%	-3,792,073,824	-18.15%	-2,824,521,272
Accommodation Bond Revenue from Bond Holders from 1 July 2008	Included		-25.43%	-5,339,201,587	-23.87%	-4,090,031,864
	Not Included		-27.00%	-5,667,459,422	-25.68%	-4,401,525,623
Applied Rate of Financing (refer assumption 18)	Low	7.00%	-23.59%	-4,730,440,782	-22.21%	-3,636,615,563
	Medium	8.00%	-27.00%	-5,667,459,422	-25.68%	-4,401,525,623
	High	9.00%	-30.18%	-6,624,003,820	-28.92%	-5,182,375,011

The following observations arise from the results of the sensitivity analysis:

Apart from building cost, the most sensitive assumption tested is the obsolescence period relating to rebuilding works

- None of the sensitivities tested above result in a net positive cash flow to the industry over the 13 year period of analysis.
- The obsolescence period assumption is the most material sensitivity tested. This assumption relates to re-building works and assumes that after this number of years all original building will have to be rebuilt.
- Varying the applied rate of financing from the medium estimate of 8% to 7% and 9% varies the percentage shortfall to approximately 24% and 30% respectively.

[9] *** Note: Rows in bold indicate best estimate model assumptions.*

- Reducing the average length of stay of high care residents as calculated by our resident decrement model impacts the rate at which new entrants to high care are modelled and reduces the difference between income and costs over the period analysed.
- Extending the loan repayment period from 10 to 20 years serves to reduce the net cash flow difference between income and cost since loan repayments made in any given year are then more strongly based upon older purchases, which are likely to have occurred for lesser dollar amounts and because principal is repaid more slowly.

Scenario analysis

The following scenario analyses have been modelled for illustrative purposes:

- A medium cost Model – based upon the estimates that are considered to be the most appropriate value of each key assumption.
- A 'Lowest Cost' Model – based upon the set of assumption values that models the lowest cost of capital expenditure to the industry.
- A 'Highest Cost' Model – based upon the set of assumptions that models the greatest cost of capital expenditure to the industry.

Table 13: Scenario Analysis Results based on the estimated medium construction cost

Scenarios	Assumptions	Values	Shortfall (2008 – 2020) %	Total net cash flow (2008 – 2020) $	Shortfall (2012 – 2020) %	Total net cash flow (2012 – 2020) $
Medium Cost Model	Average Length of Stay in High Care	3 years	-27.00%	-5,667,459,422	-25.68%	-4,401,525,623
	Loan Repayment Period	10 years				
	Obsolescence Period	30 years				
	Include Surplus Bond Revenue post 1 July 2008	Not included				
	Financing Rate on Debt	8.00%				
Best Case Basis (lowest cost)	Average Length of Stay in High Care	1.7 years	-2.77%	-468,858,908	-0.63%	-85,520,698
	Loan Repayment Period	20 years				
	Obsolescence Period	40 years				
	Include Surplus Bond Revenue post 1 July 2008	Included				
	Financing Rate on Debt	7.00%				
Worst Case Basis (highest cost)	Average Length of Stay in High Care	3 years	-34.76%	-8,163,964,330	-32.99%	-6,269,646,063
	Loan Repayment Period	10 years				
	Obsolescence Period	20 years				
	Include Surplus Bond Revenue post 1 July 2008	Not included				
	Financing Rate on Debt	9.00%				

Some key observations from the results displayed above are:

- None of the scenarios tested results in a positive net cash flow to the industry over the period 2008 to 2020.
- A 'Lowest Cost' scenario using the lowest overall cost combination of assumptions indicates a total net cash flow of $469 million by 2020. For the period between 2012 to 2020 (following the building of the additional places to match the new planning targets) the negative cash flow is $85 million.
- The 'Highest Cost' scenario depicts a total net cash flow that is less than estimated cost by of approximately $8 billion over the full period.

Cost of the removal of existing operating care supplements

We note that the Australian Government's 'Securing the future of aged care for Australians' revenue package will remove two current operating payments from existence. These payments are:

- The additional basic daily care fee (currently $7.40 per day – for all non-pensioner's and those pensioners on a large accommodation bond)
- The pensioner supplement (currently $6.45 per day – for all other residents).

It is our understanding that revenue from these sources is treated by the industry as being to provide operating and not capital funds. For this reason the removal of these subsidies has not been factored into the financial model. However, the removal of these revenue streams has the potential to significantly reduce the funds available to the industry to meet overall costs.

We have conducted a simple analysis to estimate the potential effect of the removal of these subsidies from the overall cash flow to the industry. The analysis has used our model outputs to estimate the number of high care residents over the period 2008 to 2020 who would have been eligible under the two supplements, had they not been abolished.

Table 14: Overall Revenue Attributable to Operating Payments Foregone – 2008 to 2020

Additional Basic Daily Care Fee (all non-pensioners)	$2. 34 billion
Pensioner Supplement	$1.093 billion
Total revenue lost from abolished operating revenue elements	$3.434 billion

Note: the modelling process does not isolate those pensioners who pay a large accommodation bond and would not be eligible for the additional daily basic care fee. The figure above relating to the additional basic daily care fee only relates to the estimated future number of non-pensioners and may be an overestimate.

The analysis estimates that the impact of abolishing these two subsidies will be approximately $3.4 billion in lost operating revenue to the Aged Care Industry over the period 2008 to 2020.

7 Summary and conclusion

Summary

This is a high level indicative study using publicly available data and a number of reasonable assumptions. Using these assumptions both the sensitivity analysis and scenario analysis yield a wide range of possible outcomes.

The results of the sensitivity analysis indicate that under certain assumptions (Sections 5 and 6) over the period 2008 to 2020 there are a number of plausible outcomes. Using a medium estimate of the cost of building a high care place,[10] the income from the sources modelled could be between 20% and 32% ($3.8 billion and $7.1 billion respectively) below the cost of building work depending on the value selected for other variables. Table 12 on page 33 displays the complete sensitivity analysis with a shortfall of 27% ($5.7 billion) representing the most reasonable central estimate.

The reforms to come into effect in 2008 include the removal of two existing supplements (additional basic daily care fee and the pensioner supplement). The financial impact of the removal of these subsides will potentially add $3.4 billion to these figures. This amount is not included in the modelling, sensitivity analysis or scenario testing.

In considering these results it should be noted that the model does not include all potential sources of income to this sector that could be used towards building costs and this paper addresses accommodation income only. The paper is not an estimate of the viability of the aged care sector. The results are highly uncertain and a range of outcomes is possible (Sections 6.2 and 6.3).

The assumption in Table 12 on page 33 that changes the result from a shortfall of approximately 27% to a shortfall of 20% was lengthening the obsolescence period (that is, the numbers of years at which beds need to be replaced) from 30 years to 40 years - replacing beds more rapidly is more costly.

Table 13 on page 35 illustrates three scenarios based upon three sets of assumptions. The ‘Best Case’ or lowest cost scenario indicates that the cash flow from the income streams tested would be 3% or $469 million less than anticipated costs of over the period 2008 to 2020 and only 0.6% or $85 million less than anticipated costs over the period 2012 to 2020. This scenario is plausible but unlikely in our view as it would require all the tested variables to all be the most favourable over the whole period of the modelling.

To test the suitability of the income streams specifically targeted for accommodation costs in high care the modelling does not include

[10] The medium cost estimate is $166,301 which is the mid point between the Hogan and Rawlinsons high estimates. This is a key assumption.

the value of income from accommodation bonds. As residents entering high care can not be asked to pay an accommodation bond this income is not treated as part of the planned accommodation income stream. However the estimated income from the assessed accommodation bonds paid by residents who have transferred to high care from low care is included in the sensitivity analysis. This sensitivity analysis indicates that even at the relatively low level of 5% in 2008 and increasing to 10% by 2020, income interest generated by bond balances has the potential to reduce the difference between income and cost by approximately 1.5% or over $300 million over the period of this study.

Finally, we note that this study has been prepared on a basis that is gross of taxation.

Conclusion

The estimation of the future cost of building activity by the high care sector within the residential aged care industry is complex and influenced by a wide range of factors. To model these factors a number of assumptions need to be made. The choice of assumptions significantly influences the result of the model.

Using the assumptions and scenarios presented, this study does not suggest that the current arrangements will result in a positive cash flow in relation to the income generated by accommodation payments and anticipated cost of building activity. However the study is limited by its narrow focus and it does not take into consideration the potential for income generation from other operations that may contribute to capital investment in the future.

This should be regarded as a high level confined analysis of narrow scope and a more detailed and granular study will be needed to produce a more definitive result. Future study could take into consideration a wider range of factors than was possible in this one. Some of these factors are:

- the capacity of the high care sector in the future to generate financial surpluses (or deficits) from other operations that could be used for (or reduce) capital expenditure
- the future trends in the movement of residents in low care with high value bonds into high care (with their bonds) and the income that generates for capital investment in high care
- the effect on the residential aged care industry of income generated by high care residents in low care places
- the capital needs for future residential low care places and the income generated by low care towards them
- the degree of cross subsidy within the aged care industry, where integrated models of care may create the opportunity for low care and community care to subsidise investment in high care

- the impact of predicted relative good health and lower levels of disability in future populations over the age of 70 that may result in a lower need for high care places than that used in the model in this study
- the income generated from extra service places and any predictions on the increase in the number of high care extra service places.

Appendix A Year by Year Cash Flows – Most Reasonable Estimate Model

Table 15: Year by Year Cash Flows – Most Reasonable Estimate Model

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Revenue												
Existing												
Accommodation charge	214,535,698	154,304,441	115,267,575	84,866,355	60,171,257	40,137,282	24,989,373	13,524,830	5,833,653	1,300,876	0	
Concessional supplement	165,110,473	121,044,410	92,491,287	69,829,031	50,881,335	34,939,820	22,428,778	12,523,813	5,573,575	1,282,484	0	
Bond Retention Income	11,007,105	8,745,139	7,217,396	5,852,009	4,564,607	3,319,585	2,251,621	1,324,700	621,563	149,911	0	
Bond - Interest Earnings	31,348,319	26,342,517	22,799,240	19,297,848	15,624,464	11,828,541	8,313,028	5,050,548	2,432,008	602,461	0	
Total Revenue - Existing Scheme	*422,001,595*	*310,436,507*	*237,775,498*	*179,845,242*	*131,241,664*	*90,225,228*	*57,982,801*	*32,423,890*	*14,460,798*	*3,335,731*	*0*	
Revenue Streams Going Forward												
Daily Resident Cost (per person)	0.00	26.88	26.88	29.63	32.38	33.19	34.02	34.87	35.74	36.63	37.55	38
Daily resident cost	0	258,540,015	438,600,492	646,745,968	859,505,834	1,010,243,891	1,149,257,435	1,278,985,424	1,401,861,749	1,513,494,731	1,620,403,110	1,726,874,
Interim Accomodation Supplement	96,000,000	0	0	0	0	0	0	0	0	0	0	
Total Revenue - New Scheme	*96,000,000*	*258,540,015*	*438,600,492*	*646,745,968*	*859,505,834*	*1,010,243,891*	*1,149,257,435*	*1,278,985,424*	*1,401,861,749*	*1,513,494,731*	*1,620,403,110*	*1,726,874,*
TOTAL REVENUE	518,001,595	568,976,522	676,375,990	826,591,210	990,747,497	1,100,469,120	1,207,240,236	1,311,409,314	1,416,322,547	1,516,830,462	1,620,403,110	1,726,874,
Revenue from Bond Holders under the New Scheme												
Retention and interest on bond holdings (for new residents only)	0	16,400,096	31,893,463	48,481,421	66,287,351	85,332,641	105,365,318	126,603,880	148,720,251	172,341,918	196,765,049	222,799,
Surplus Bond Income per person per day (over the daily resident cost)	n/a	4.60	6.63	5.91	5.08	6.39	7.57	8.73	9.76	11.04	12.19	13
*Total **Surplus** Bond Income from residents under the **new** scheme over the daily resident cost*	n/a	2,395,845	6,308,434	8,059,798	8,986,962	13,773,699	19,171,010	25,350,867	31,898,439	39,911,129	48,228,097	57,306,
% of revenue under the existing scheme	81.5%	54.6%	35.2%	21.8%	13.2%	8.2%	4.8%	2.5%	1.0%	0.2%	0.0%	0
% of revenue under the new scheme	18.5%	45.4%	64.8%	78.2%	86.8%	91.8%	95.2%	97.5%	99.0%	99.8%	100.0%	100
Costs												
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Construction costs (100% financed)												
New Building Works	389,651,513	503,920,525	586,226,485	660,155,212	717,907,700	780,969,781	867,914,993	964,293,395	1,065,303,932	1,222,631,883	1,318,398,314	1,373,791,
Re-building Works	146,365,338	169,323,740	193,594,549	213,534,722	247,013,755	280,608,649	320,908,915	358,913,700	388,316,033	417,950,831	432,585,997	449,978,
Upgrading Works	217,083,129	236,427,970	257,954,717	281,641,218	307,347,855	335,250,676	365,317,156	397,752,653	432,696,049	471,062,662	512,036,457	555,684,
TOTAL COST on Loan Repayments	753,099,979	909,672,235	1,037,775,751	1,155,331,152	1,272,269,310	1,396,829,106	1,554,141,064	1,720,959,748	1,886,316,014	2,111,645,377	2,263,020,768	2,379,454,
Revenue less Construction Costs (100% financed)	-235,098,384	-340,695,712	-361,399,761	-328,739,942	-281,521,813	-296,359,987	-346,900,828	-409,550,434	-469,993,468	-594,814,915	-642,617,657	-652,579,
Percentage shortfalls												
Construction costs (0% financed)	51%	59%	44%	34%	14%	9%	18%	17%	17%	29%	22%	2
Construction costs (100% financed)	31%	37%	35%	28%	22%	21%	22%	24%	25%	28%	28%	2

Appendix B Data Considered for Building Cost Inflation Assumption[11]

Figure 2: Data Considered for Building Cost Inflation Assumption

	Original Data:					Data Restated to a Common Basis:			
	Raw Data Values:	ABS	Rawlinsons Building Cost Index	Rawlinsons (midpoint)	Davis Langdon (midpoint)	ABS	Rawlinsons Building Cost Index	Rawlinsons	Davis Langdon
Date	Data Type:	Index	Index (Sydney)	Cost per sq metre (Sydney)	Cost per sq metre (Sydney)	Yearly Rate (to 31 December):	Yearly Rate (to 30 June):	Implied Yearly Rate (over 4 years)	Implied Yearly Rate (over 4 years)
Comparison of Building Cost Estimates over time:									
3rd Quarter 2002					1,530				
Feb-03				1,350					
3rd Quarter 2006					1,900				5.56%
Feb-07				1,735				6.47%	
Comparison of Building Cost Indices over time:									
Jun-88			88.78				8.35%		
Jun-89			96.75				8.98%		
Jun-90			102.84				6.29%		
Jun-91			98.90				-3.83%		
Jun-92			93.95				-5.01%		
Jun-93			94.56				0.65%		
Jun-94			97.27				2.87%		
Jun-95			100.19				3.00%		
Jun-96			105.71				5.51%		
Dec-96		93.00							
Jun-97			113.95				7.79%		
Dec-97		96.20				3.44%			
Jun-98			121.50				6.63%		
Dec-98		99.30				3.22%			
Jun-99			130.13				7.10%		
Dec-99		104.50				5.24%			
Jun-00			136.00				4.51%		
Dec-00		104.80				0.29%			
Jun-01			134.90				-0.81%		
Dec-01		104.30				-0.48%			
Jun-02			138.36				2.56%		
Dec-02		108.80				4.31%			
Jun-03			145.68				5.29%		
Dec-03		118.40				8.82%			
Jun-04			152.60				4.75%		
Dec-04		131.30				10.90%			
Jun-05			159.45				4.49%		
Dec-05		137.90				5.03%			
Jun-06			169.87				6.53%		
Dec-06		144.00				4.42%			
Sep-07		149.00				4.63% * Estimate			
					Arithmetic Average (Overall):	4.53%	6.43%		
					Arithmetic Average (2003 - 2007):	6.76%	5.27%	6.47%	5.56%
					Arithmetic Average (1988 - 2003):	2.67%	3.74%		

[11] ABS in the above table refers to the ABS index of non housing residential Construction Cost.

Data under "Rawlinsons" and "Davis Langdon" is sourced from published cost estimates from both these sources.

It should be noted that data presented in this table was not always available for the whole of Australia. As such, where necessary we have used Sydney data as a reasonable representation of the Australian figure.