

THE VALUATION OF SELF-FUNDED RETIREMENT VILLAGES IN AUSTRALIA: ANALYSIS, RELIABILITY AND INVESTMENT VALUATION METHODOLOGY

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Changing demographics will see an increasing demand for self-funded sector retirement villages in Australia. As such, valuers can expect to be more involved in providing valuation advice in this sector, although the central issue remains that retirement villages are complex businesses. They have been described as management intensive operating businesses with a substantial real estate element. As a result the valuation process in this sector requires a different type of analysis, in comparison to the traditional real estate based investment.

This paper provides an analysis of recent trends in the demand for retirement villages and examines current practise with respect to valuation thereof. It emphasises the need for a greater awareness of the 'business enterprise value' component and provides a framework within which the components of value can be better understood. The purpose of the paper is to provide a foundation for a greater reliability with respect to valuation advice.

1.0 INTRODUCTION

Valuers in Australia are involved in the valuation of hotels, motels, health and care facilities (including self-funded retirement villages), restaurants and hospitality property in general. Although normally involved in assessing value as a 'going concern', obvious occasions occur when only the real estate value is required. However, if valuation advice is to be reliable there should be a thorough understanding of the components of value belonging to such operations.

Simply explained the components of value of these operating properties can briefly be defined as (a) tangible (ie. real estate, fixtures and fittings and personal property) and (b) intangible (ie. intangible personal property such as management skill). In the United States of America this intangible component has been labeled "Business Enterprise Value" and has been defined in "The Appraisal of Real Estate", 11th Edition: *"A value enhancement that results from items of intangible personal property, such as marketing and management skill, an assembled work force, working capital, trade names, franchises, patents, trademarks, non-realty-related contracts/leases, and some operating agreemenst."* (Benson, 1999)

Depending on the nature of the business operation and the real estate, such components will contribute in varying degrees to the 'bottom line', also generally referred to as Net Opening Income. In some cases the contribution of the tangible elements of the business enterprise operation will perhaps be more important than the intangible or Business Enterprise Value component. In other cases this relationship is reversed.

Thus retirement villages then are just one of many types of operations in which "Business Enterprise Value" exists. They have been described as management intensive operating businesses which happen to have a real estate component (Lennhoffs, 1999). Clearly then, to understand the valuation process of retirement villages requires a full analysis of the business enterprise value as well as the nature of the real estate component. In this context therefore it can be argued that the initial step of analysis of the valuation problem in the overall valuation process should involve a full investigation of factors affecting all the components of value described above. It is also proposed that the uncertain and highly variable nature of the income stream requires a rigorous valuation approach. This will determine the assumptions upon which future cash flows are based.

1.1 PURPOSE OF PAPER

The purpose of this paper is to outline a framework within which the valuation process for operations such as Self-Funded Retirement Villages (SFRV) can be better understood. In particular it proposes a model that can test the economic viability of new and existing Self Funded Retirement Villages, providing the essential basis for a valuation tool. In addition the framework provides a guide to a comprehensive literature review and points to further research implications.

2.0 SELF-FUNDED RETIREMENT VILLAGES DEFINED

For the purpose of this article, self-funded retirement villages are planned residential communities where the elderly retain an independent lifestyle. At the same time they enjoy a wide range of recreational and social activities provided by a village community. It has been observed that *"in Australia there is no single definition of a retirement village although all current legislation requires that an initial charge or premium be imposed in consideration for admission to a village and, in some cases, "services" must be provided as well as accommodation."* (Lister, 1994, p.29)

In general there are two types of retirement villages:

- "Donor-funded villages are funded by way of charitable and/or government contributions: the residents also make a donation on entering the village, such donation being non-refundable; and
- Resident-funded villages, as the name suggests are villages whose total capital expenditure is obtained from residents by way of ingoing payments for the "purchase" of self-care units or assisted apartments occupied, with such ingoing payments being refundable in full or in part in accordance with the resident's contract at the commencement of occupation." (Lister, 1994, p.3).

For both categories of retirement village and in addition to any donation or ingoing payment made by a resident, ongoing weekly (in some cases monthly) service fees are paid by the residents. Such fees are for for the 'daily' running expenses of the village. Notably these fees vary from village to village and is depend on the extent and quality of services provided, including the type of housing occupied. In addition the service fee covers expenses such as: maintenance of grounds, external property maintenance, property insurance, rates and taxes, administration costs, wages of staff, etc.

In general retirement villages can provide a range of accommodation services for the elderly, which are generally categorized as:

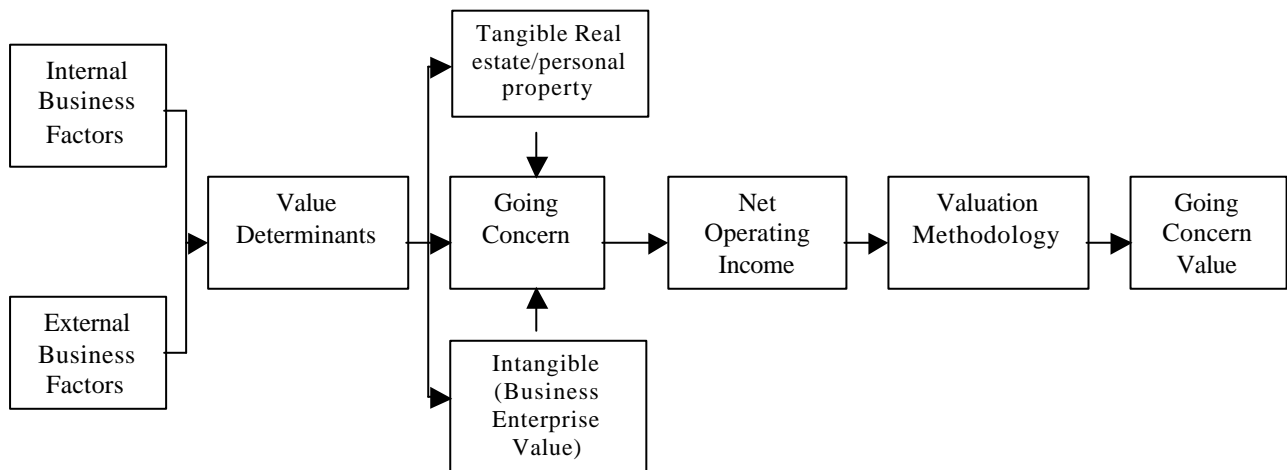
- independent living units
- serviced apartments
- nursing home

3.0 ANALYTICAL FRAMEWORK

The analytical framework as presented in Figure 1 below is proposed as a foundation for valuers wishing to undertake a valuation of a retirement village. Importantly this framework differentiates between the *tangible* and *intangible* assets of the operation, as well as identifying general value determinants of the business operation. In particular, the importance of the *intangible* (Business Enterprise Value) component is emphasised.

Figure 1 - Framework for Valuation of Self-Funded Retirement Villages

[Section 4.0] [Section 5.0] [Section 6.0] [Section 7.0]



It will be noted that Figure 1 is divided into Sections 4.0, 5.0, 6.0 and 7.0 and are presented below in this order.

4.0 THE SELF-FUNDED RETIREMENT VILLAGE'S BUSINESS ENVIRONMENT

4.1 Internal Business Factors

There are number factors considered external to a retirement village operator's business. These include quality and reputation of management, nature or structure of management, nature of ownership and quality of tangible assets. Good management requires specialised skills in physical management processes (facility management), staff management, sales and marketing, as well as a good knowledge of relevant legislation and financial systems (Moran, 1999). Nevertheless not all owners want day to day involvement in management and may seek "in house" managers to undertake day to day operational management. This is opposed to the more strategic type of level management. In general the nature of ownership of retirement villages has been classified into two streams, namely (a) developers and investors and (b) care providers.

Furthermore it has been argued that the retirement village industry is evolving in terms of ownership structure, often as a result of responding to changing demand determinants and taxation structures (Moran, 1999). It was suggested that "owners may wish in the future to take advantage of this knowledge and trends in the market place for accommodation and products, by seeking to further differentiate and expand" (Moran, 1999, p.470). or that new purchasers are enticed into purchasing such assets as a result of taxation incentives such as the taxation ruling TR94/24 in relation to non-freehold tenure retirement villages in 1994 (although this has now been replaced by the draft taxation ruling 2000/DS issued in April 2000).

It was stated that *"new ownership structures have been primarily individual or company ownership and partnerships - syndication structures are also being put into place for proposed new villages"* and that this trend *"creates a need for independent service providers to facilitate transactions of ownership and to carry on day to day management and sales functions in the villages that individualised ownership provided in the past"*. (Moran, 1999, p.471)

Clearly, changing ownership and management structures affects quality of management and hence net operating income. This also impacts upon risk. In this sense the risk premium used in assessing capitalisation rate may need to reflect the nature of the business operator in terms of structure, size and nature. An example of this proposal is provided in Figure 2 where five categories are proposed. Using this approach a number of different risk premiums should be added to the prevailing risk free interest rate to devise a risk adjusted capitalisation rate.

Figure 2 -Risk Premiums (Schilt, 1982)

Category	Description	Risk Premium
1	Established businesses with a strong trade position, well financed, depth in management, stable past earnings, with a highly predictable future.	6%–10%
2	Established businesses in a more competitive industry with good finance, have depth in management, have stable past earnings with a predictable future.	11%–15%
3	Business in a highly competitive industry that requires little capital to enter, no management depth, element of risk is high although past record may be good.	16%–20%
4	Small businesses that depend on the special skills of one or two people. Larger established businesses that are highly cyclical in nature. In both cases, future earnings may be expected to deviate widely from projections.	21%–24%
5	Small one-person businesses of a personal services nature in which the transferability of the income stream is in question.	more than 25%

Apart from the quality of management, the quality of accommodation is a major factor in determining value and can be narrowed down to three fundamental requirements. Firstly, accommodation should provide self-care units which enable residents to maintain a comfortable lifestyle within a homogeneous community in premises that have architectural appeal, coupled with a practical floor plan. Secondly, hostel or assisted care apartments must be able to provide ongoing accommodation within the same environment once occupiers of the self-care units are unable to look after themselves. Finally, there must be facilities within the retirement village, such as a community centre, which contributes to the desirability and functional success of any village (Lister, 1994).

4.2 External Business Factors

Factors external to SFRVs can be described as 'demand drivers' for retirement villages, incorporating demographic and social factors, the legal and taxation environment and location linkages. These factors are considered in more detail below.

4.2.1 Demand Drivers

(The following information was derived from research undertaken in 2001 as part of a ARC SPIRT grant (C79937006) in conjunction with the Retirement Village Association of Australia and the University of Queensland).

Demand drivers for retirement villages involve an aggregation of factors associated with demographics, social composition, economic constraints/ability and physical satisfaction characteristics.

The findings from a study of these demand drivers undertaken by The University of Queensland (UQ) in conjunction with the Retirement Village Association Australia (RVAA) between 1999 and 2001 are summarised below:

- There will be 3.5 million more people over the age of 55 within the next 25 years;
- In total there will be approximately 4million households containing residents over the age of 55;
- Approximately 58% will be two person households, while the remaining 42% will be single households;
- Two thirds of those households over 55 years of age will come from a professional/administration background;
- 90% will have been home owners in the past;
- Over 80% will pay in year 2001 dollars under \$150,000 in entry contributions;
- They will have approximately a 10% shortfall in available capital from the sale of their last home (which could be converted to a fortnightly cost of \$40 @ 7% opportunity cost);
- In excess of 80% will move into a village where the facilities exceed their demand (under utilization of capital investment);
- Approximately 80% will pay in the order of \$200 to \$300 per fortnight in ongoing fees;
- If the ongoing fees and the capital shortfall were expressed as a percentage of current pension rates, they would represent? % of a single person household pension and ?% of a two person household pension.

4.2.2 Location Linkages

In a similar manner to all real estate, location linkages with other complimentary land uses have a crucial influence on value. Such linkages include proximity to family, relative location in respect to transport services and facilities, public and private conveniences.

4.2.3 Legal and Taxation Environment

In recent years the retirement village industry in Australia has been beset by a number of taxation and legal issues. This had a detrimental effect on the industry. Major issues included taxation rulings by the Commissioner of Taxation, introduction of the Goods and Services Tax, Stamp Duty and Practice Directory and Retirement Villages Act, 1999 (Qld).

5.0 COMPONENTS OF VALUE

As noted from Figure 1, internal and external factors combine to form a number of value determinants which influence the 'Going Concern' value of SFRVs. However, as with all businesses, SFRVs can be segmented into two value components – *tangible* and *intangible*. The tangible component consists of tangible personal and real property. As already noted the intangible component is also known as 'Business Enterprise Value'.

Elements of Business Enterprise Value may include:

1. furniture, fixtures and equipment;
2. assembled and trained workforce;
3. name and reputation of management;
4. licences and permits specific to the operator;
5. profit centres i.e. excess of residents' service fees over village operating costs.

6.0 NET OPERATING INCOME

Resident funded retirement villages potentially involve four sources of funds:

- a profit from the initial leasing or selling (receipt of the ingoing contribution) of each resident unit;
- the value of any undeveloped land;
- the ongoing village-operating profit being the excess of weekly resident service fees over village-operating costs; and
- the long-term financial entitlements received by the village promoter/manager pursuant to the executed resident documentation, often referred to as Deferred Management Fees (Hatcher & O'Leary, 1994).

7.0 VALUATION METHODOLOGY

In the process of valuing retirement villages it has been proposed that there are two common approaches for assessing an appropriate discount rate, namely the 'Partitioned Approach' and the 'Comparison to Super Profit Capitalisation Rate' as listed below (Hatcher et.al., 1994).

7.1 Partitioned Approach

Part (a) - Risk Free Rate

Normally represented by the 10 year bond rate, this percentage implicitly considers inflationary expectations;

Part (b) - Risk Premium Rate

Arbitrarily determined and reflects the following categories of risk:

- specialist and entrepreneurial skill of the owner/operator;
- poor marketability and liquidity of the interest;
- security of tenure;
- unfavourable legislative changes;
- possible variation from the assumptions adopted;
- comparison to other forms of investment;
- long-term perceptions of the economy.

7.2 Comparison to "Super Profit" Capitalisation Rate

A relatively common method adopted for the valuation of a business whereby the perceived net maintainable profit (over and above the standard profit) is capitalised.

Even considering these two approaches, each retirement village would have a different degree of risk or exposure, requiring a unique capitalisation rate to be applied to each village.

7.3 Asset Management Investment Model (AMM)

Problems associated with the valuation methodology of retirement villages can be summarised as follows:

- Lack of comparable sale evidence as each SFRV is so different;
- Recognising the role that good business management plays in deriving net income;
- Accounting for the variability of projected cashflows based on varied assumptions and demographic trends.

As a result an argument can be made for the more explicit DCF approach to valuation. However it can be argued that if such an approach is to be applied, then a rigorous method is needed with respect to determining the assumptions upon which cashflows are based. One possible approach was adopted in the recently completed UQ/RVAA study, where data was collected on present demand drives for self-funded retirement villages (as discussed earlier in Section 4). This data was then analysed to develop the Asset Management Investment model presented below. This model was used to test the risk/return profiles of retirement villages and to measure the investment returns, both before and after tax. The steps involved in the AMM are outlined below.

Existing Retirement Villages

The first phase of the model identifies existing villages and their asset management characteristics, such as size, value and vacancies (GIS management).

Population in Catchments

Data is then abstracted on population growth, and potential catchment by social mix and age (ABS and RVAA) (see Figure 3 and 4)

Proposed Village Assumptions

The base investment information section allows for the input of critical assumptions such as (See Figures 5 and 6)

- Staging of the village development by number of units and timing (assumption entered),
- Development costs (these can be either entered as an assumption or built up via the development costs worksheet (see Figure 5),
- Entry and exit contributions (assumptions entered),
- On-going management fees (assumptions entered),
- Demand criteria (assumptions fixed based on UQ/RVAA study),
- Taxation rates (assumption entered based on legal structure, example individual, company or superannuation).

Potential for Retirement Village Development

The model calculates the asset management potential of a village or forecast occupancy rates of a village over an initial 10 year period using information from the “*existing Village*” analysis, “*population in Catchments*” data and input from the “*proposed village assumptions*” section (see Figure 7).

Estimated Pre Taxation Rate of Return (IRR and NPV) (First Iteration)

The model places the information from all of the above sections into an estimated pre-taxation rate of return cash flow over a 10-year period indicating an initial Internal rate of Return (IRR)

Portfolio Risk/Return Model

The then requires the development of a portfolio risk return analysis. To undertake this task, the model requires information on the current investment portfolio of the investment entity, indicating annual rates of return and weighting on an investment as a percentage of the total portfolio. From this data the model uses 'portfolio theory' to calculate the portfolio risk and weighted return (see Figure 8 to 16). The model uses this information to calculate the investment *Beta* of the proposed village in relationship to the current investment entities portfolio. This analysis produces a discount rate that the retirement village cash flow is required to outperform to enable the investment entities portfolio to continue at the same risk/return criteria.

Estimated Pre Taxation Rate of Return (IRR and NPV) (Second Iteration)

Following the establishment of discount rate (identified above), the model undertakes a Net Present Value (NPV) analysis to indicate either a positive or negative result

- Negative result indicating either the entry/exist contribution is require to be higher or the ongoing management fees require to be increased,
- Positive result is the reverse of the above, e.g. lower entry/exit contribution or lower ongoing fees.

Solver Option

Once the estimated pre taxation rate of return (IRR and NPV) (Second Iteration) is executed the solver option provides the optimum combination for:

- Entry/exit contributions;
- On-going fees. (See Figure 11)

Post Taxation Analysis

The model undertakes a post taxation analysis based on the investment entity nominated in the “*Proposed Village Assumptions*” section of the model inclusive of the optimum combination calculation discussed above (solver option) (See Figure 12)

Sensitivity Option

Finally the model runs an investment sensitivity reviewing occupant and return variations (see Figure 13).

Note: the example presented below was based on the following assumptions:

- 200 unit village staged over 4 years;
- Land cost per unit of \$25,000;
- Initial occupation rate of 85% (based on the demographic model);
- 100% occupataion reached in year 10 (based on the demographic model);
- Competing investment portfolio consisting of:
 - 15% cash (short, medium and long term)
 - 45% in direct property spread throughout Australia, across commercial and residential sectors (balanced)
 - 20% in Australian Institutional Equities
 - 15% overseas equities (Euro SX and FTSE)
- The competing portfolio produced a risk of 28.8% and a weighted return of 9.78%;
- The resulting discount rate needed by the retirement village to provide the same risk/return profile was 6.12%;
- The impact on the entity contribution was a reduction of 38% (pretaxation) and on the basis of a company entity 34% (post-taxation).

Figure 3: Population Growth in Primary Catchment

Population growth index for 3 km radius (PRIMARY CATCHMENT)

YEAR	TOTAL	<55	55-64	% growth	65-74	% growth	75+
2000	1.02	1.01	1.05	1.05	1	1	1.04
2001	1.03	1.01	1.1	1.05	1	1	1.07
2002	1.04	1.02	1.15	1.05	1.02	1.02	1.1
2003	1.05	1.02	1.2	1.05	1.04	1.02	1.14
2004	1.06	1.02	1.23	1.03	1.06	1.02	1.17
2005	1.08	1.03	1.26	1.03	1.08	1.02	1.2
2006	1.09	1.03	1.28	1.02	1.11	1.03	1.23
2007	1.1	1.04	1.3	1.02	1.15	1.04	1.25
2008	1.11	1.04	1.33	1.03	1.19	1.04	1.26
2009	1.12	1.04	1.35	1.02	1.23	1.04	1.28
2010	1.13	1.05	1.36	1.01	1.28	1.05	1.3
2011	1.14	1.05	1.38	1.02	1.32	1.04	1.32
2012	1.15	1.06	1.38	1	1.37	1.05	1.34
2013	1.16	1.06	1.39	1.01	1.42	1.05	1.37
2014	1.17	1.06	1.4	1.01	1.46	1.04	1.41
2015	1.18	1.07	1.41	1.01	1.49	1.03	1.44
2016	1.19	1.07	1.42	1.01	1.52	1.03	1.48
2017	1.2	1.07	1.43	1.01	1.55	1.03	1.52

Figure 4: Potential Market Capture

YEAR	PRIMARY CATCHMENT				SECONDARY CATCHMENT				POSTERIOR CATCHMENT				Total Potential Market	
	55-64	65-74	75+	Total Market	55-64	65-74	75+	Total Market	Potential Market	55-64	65-74	75+		Total Potential
BASE	3	28	64	95	13	10	255	368	231	16	1239	3154	4669	1936
2000	3	28	66	98	13	10	255	360	239	16	1239	3249	4664	1632
2001	3	28	68	100	14	12	276	392	246	15	1251	3379	4815	1685
2002	3	29	70	103	15	14	297	406	254	20	1264	3480	4944	1730
2003	4	29	73	106	16	16	299	421	263	24	1276	3605	5075	1776
2004	4	30	75	109	17	19	310	437	273	29	1302	3692	5223	1828
2005	4	31	77	112	18	19	320	460	281	25	1341	3803	5389	1886
2006	4	32	80	116	19	17	333	488	292	20	1381	3979	5520	1932
2007	4	33	81	118	20	12	339	480	299	25	1437	3957	5668	1984
2008	4	34	82	121	20	13	346	494	307	29	1494	4035	5821	2037
2009	4	35	84	124	21	15	356	513	318	35	1584	4116	6006	2102
2010	4	37	86	127	22	16	363	530	329	32	1694	4199	6215	2175

Figure 5: Base Investment Assumptions

A Development/Construction Costs			
A.1	Development/Construction Cost per unit	172,792	
	Unit Profit (= portfolio return)	9.78%	
B Staging			
B.1	Staging of units	Year	No.
		1	0
		2	100
		3	0
		4	100
		5	0
		6	0
		7	0
		8	0
		9	0
		10	0
C Units			
C.1	Yearly service fee/rental	4000	
C.2	Profit from service fee (%)	70%	
C.3	Likely resident turnover (year)	8	
C.4	Retail price of unit	189,687	
C.5	% deferred management fees	25%	
D Demand for Retirement Villages (%)			
D.1	55-64 years	0.18%	
D.2	65-74 years	1.41%	
D.3	75 years +	4.49%	
D.4	% of residents within 10km of site	50%	
D.5	% of residents within 100km of site	35%	
D.6	% of residents outside 100km of site	15%	
D.7	Vacancy rate within primary and secondary catchment	3%	
D.8	Units within primary and secondary catchment	2669	
E Other			
E.1	Discount rate	6.12%	
E.2	Tax Rate	15.00%	

Figure 6: Development Costs

PRELIMINARY DEVELOPMENT COSTS				
No. Units	30			
1 Bed	2			
2 bed	23			
3 bed	3			
4 bed	2			
No. Bed	65			
Avg Beds/unit	2.1666667	30		
land Purchase				
land Purchase			2,000,000	
Stamp Duty			80,000	
Valuation Fees			30,000	2,110,000
			70,333	32,461.54
Construction				
	No.	Area (m2)	Rate \$/m2	Cost
1 Bed	2	35	650	45,500
2 bed	23	60	650	897,000
3 bed	3	90	600	162,000
4 bed	2	110	550	121,000
Central facilities	1	400	900	360,000
Bowling Green	1	1,800	50	90,000
Tennis Court	2	900	40	72,000
Other				-
car parking	50	25	50	62,500
Total area of land use		7,190		
Total land area		12,000		
Landscape	1	4,810	50	240,500
TOTAL BUILDING COST				2,050,500
Design & PM			8.00%	164,040
TOTAL D&C				2,214,540
			73,818	34,070
Marketing & Approval Costs				
DA				2,215
BA				17,975
Headworks	65	1	5,000	325,000
Marketing	1		4.00%	227,624
				572,814
				19,094
				8,812.52
Development Finance			6.12%	
Construction period (Mths)		4		
Pre Construction period (Mths)		12		
Development Period		16		
Land				172,299
Construction				81,376
Marketing & Approvals				32,742
				286,417
				9,547
				4,406
TOTAL DEVELOPMENT COSTS				5,183,771
				172,792
				79,750
Development Profit			9.78%	506,839
				16,895
				7,798
TOTAL DEVELOPMENT INCOME				5,690,609
				189,687
				87,548

Note: Blue figures are automatically calculated
You are only required to fill in the black figures

Figure 7: Potential for Retirement Village Development

Estimated Occupancy and Rate of Return

Assumptions
1. All factors are pre-calculated based on numbers from "Input Sheet"

Go to main menu

What it Means...
Based on all costs entered by you, the development should yield an IRR of 15.38% If there was full occupancy (all other things equal), the IRR would be 15.84%

INVESTMENT PERIOD												
TARGET RESULT												
FACTOR	YEAR	0	1	2	3	4	5	6	7	8	9	10
Development Cost		172,792	-	-								
ESTIMATED Occupancy (%)			85	84	87	86	89	91	94	96	99	103
Unit			1	1	1	1	1	1	1	1	1	1
Income Per Unit (Lump sum)		-	189,687	-	-	-	-	-	-	-	-	-
Income Per Unit (Gross service fee)		-	4,240	4,360	4,480	4,600	4,720	4,840	4,960	5,080	5,200	
Service outgoings		-	1,272	1,308	1,344	1,380	1,416	1,452	1,488	1,524	1,560	
Income Per Unit/Profit (Net service fee)		-	2,968	3,052	3,136	3,220	3,304	3,388	3,472	3,556	3,640	
Income Per Unit (upon resident turnover)		-	-	-	-	-	-	-	47,422	-	-	-
Escalated Income Per Unit (upon resident turnover)		-	-	-	-	-	-	-	60,072	-	-	-
Inflation		3%										
Net Cash Flow		-172,792	-	192,190	2,645	2,702	2,862	3,013	3,172	61,101	3,530	3,737
Net Cash Flow if Occupancy = 100%		-172,792	-	192,655	3,052	3,136	3,220	3,304	3,388	63,544	3,556	3,640
Annual IRR		-100%	0%	5%	6%	7%	7%	8%	9%	15%	15%	15%
IRR - ESTIMATED		15.38%										
IRR - OCCUPANCY = 100%		15.84%										
NPV Discount Rate		6.12%										
NPV - ESTIMATED		\$50,632.71										
NPV - OCCUPANCY = 100%		\$53,821.86										

Figure 8: Existing Investment Portfolio (Example)

	ANNUAL RETURNS					1999	1998	1997	1996	1995	1994	1993
	YEAR	Average	Std. Dev.	Max	Min	1	2	3	4	5	6	7
30 Bill	ASSET 1	5.8%	0.0106141	7.6%	5.0%	5.12%	5.02%	5.45%	7.17%	7.800%	5.41%	5.18%
180 Day Bill	2	9.0%	0.014667	11.4%	7.7%	7.74%	7.77%	10.21%	11.38%	9.75%	7.98%	7.98%
10 Year Bond	3	11.9%	0.0207331	14.3%	8.7%	8.69%	9.14%	11.49%	13.57%	14.28%	11.67%	11.74%
Brisbane CBD	4	5.9%	0.0533999	11.0%	-5.6%	7.19%	8.11%	7.64%	5.77%	7.44%	11.01%	-5.63%
Sydney CBD	5	6.1%	0.0699936	11.9%	-8.6%	7.17%	9.29%	11.51%	6.78%	4.42%	11.88%	-8.60%
Melbourne CBD	6	7.2%	0.0722057	13.9%	-8.1%	10.00%	11.11%	9.76%	5.67%	7.78%	13.92%	-8.14%
Adelaide CBD	7	-0.3%	0.0659408	10.4%	-8.6%	10.40%	2.98%	3.07%	-4.68%	-6.04%	1.11%	-8.63%
Perth CBD	8	8.3%	0.084698	16.0%	-9.8%	9.12%	11.38%	16.04%	13.98%	8.14%	9.59%	-9.77%
Major Retail	9	10.1%	0.029815	12.8%	5.3%	9.99%	5.34%	12.71%	6.99%	9.90%	12.76%	12.76%
Brisbane Residential	10	5.4%	0.1059422	29.0%	-1.8%	1.49%	1.22%	2.900%	-1.83%	0.93%	2.23%	4.89%
Sydney Residential	11	9.1%	0.1288917	38.0%	1.8%	6.62%	7.47%	2.61%	1.81%	4.31%	3.22%	38.00%
Melbourne Residential	12	4.0%	0.0491329	11.3%	-1.8%	9.88%	11.29%	3.75%	-0.31%	2.73%	2.21%	-1.83%
MLC - Australian Share Fund	13	11.3%	0.0284128	15.3%	7.1%	14.40%	15.30%	7.10%	9.30%	11.50%	10.9000%	10.30%
AMP Conservative Fund	14	8.3%	0.006264	8.9%	7.3%	8.80%	7.80%	8.90%	8.20%	8.30%	8.80%	7.30%
NAB	15	17.1%	0.0070576	17.9%	15.9%	17.90%	15.90%	17.70%	16.80%	17.00%	16.80%	17.70%
Telstra	16	21.9%	0.0545143	29.9%	17.0%	29.90%	28.70%	20.10%	22.80%	17.90%	17.00%	17.00%
BHP	17	9.4%	0.0340329	15.4%	4.5%	15.40%	4.50%	7.20%	9.10%	8.40%	11.00%	10.40%
Euro SX Index	18	1.68%	0.1203107	31.2%	-1.3%	31.15%	2.268%	1.676%	2.122%	1.68%	2.382%	-1.33%
All Ordinaries	19	11.6%	0.1553584	40.3%	-12.0%	13.25%	11.23%	3.22%	10.08%	15.1600%	-12.01%	40.26%
FTSE	20	14.1%	0.1124992	21.8%	-10.3%	17.80%	17.24%	21.83%	11.68%	20.32%	-10.300%	20.69%

Figure 9: Portfolio Weighting (Example)

	ASSET 1	Weighting
30 Bill	1	5.00%
180 Day Bill	2	5.00%
10 Year Bond	3	5.00%
Brisbane CBD	4	5.00%
Sydney CBD	5	5.00%
Melbourne CBD	6	5.00%
Adelaide CBD	7	5.00%
Perth CBD	8	5.00%
Major Retail	9	5.00%
Brisbane Residential	10	5.00%
Sydney Residential	11	5.00%
Melbourne Residential	12	5.00%
MLC - Australian Share Fund	13	5.00%
AMP Conservative Fund	14	5.00%
NAB	15	5.00%
Telstra	16	5.00%
BHP	17	5.00%
Euro SX Index	18	5.00%
All Ordinaries	19	5.00%
FTSE	20	5.00%
TOTAL		100.00%

Figure 10: Portfolio Analysis (Example)

COVARIANCE MATRIX (ASSET*WEIGHTING)																
ASSET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	0.002500	0.001883	0.002149	0.000381	-0.000015	-0.000001	-0.001349	0.000581	-0.000582	-0.000692	-0.000881	-0.001068	-0.000739	0.000184	-0.000371	-0.000796
2	0.001883	0.002500	0.001791	0.000289	0.000433	0.000008	-0.000912	0.001177	-0.000370	0.000587	-0.001036	-0.001159	-0.001709	0.000550	0.000043	-0.000588
3	0.002149	0.001791	0.002500	-0.000256	-0.000470	-0.000594	-0.001986	-0.000059	0.000379	-0.000138	-0.000179	-0.001952	-0.001555	-0.000045	-0.000074	-0.001847
4	0.000381	0.000289	-0.000256	0.002500	0.002391	0.002475	0.001445	0.002166	-0.000605	0.000078	-0.002348	0.001270	0.000428	0.001775	-0.001012	0.000578
5	-0.000015	0.000433	-0.000470	0.002391	0.002500	0.002406	0.001605	0.002319	-0.000530	0.000576	-0.002306	0.001242	0.000081	0.001817	-0.000867	0.000780
6	-0.000001	0.000008	-0.000594	0.002475	0.002406	0.002500	0.001683	0.002119	-0.000591	0.000154	-0.002258	0.001498	0.000597	0.001754	-0.000859	0.000378
7	-0.001349	-0.000912	-0.001986	0.001445	0.001605	0.001683	0.002500	0.001235	-0.000247	0.000485	-0.001195	0.000283	0.001059	0.001471	0.000279	0.001797
8	0.000581	0.001177	-0.000059	0.002166	0.002319	0.002119	0.001235	0.002500	-0.000399	0.000811	-0.002365	0.001043	-0.000198	0.001652	-0.000788	0.000918
9	-0.000582	-0.000370	0.000379	-0.000605	0.000530	-0.000591	-0.000247	-0.000399	0.002500	0.001262	0.000824	-0.001212	-0.001372	0.000852	0.001771	-0.001692
10	-0.000692	0.000587	-0.000138	0.000078	0.000576	0.000154	0.000485	0.000611	0.001262	0.002500	-0.000179	-0.000112	-0.000150	0.000880	0.001077	-0.000526
11	-0.000881	-0.001036	-0.000179	-0.002348	-0.002306	-0.002258	-0.001195	-0.002395	0.000824	-0.000179	0.002500	-0.000957	0.000002	-0.001811	0.000817	-0.000708
12	-0.001068	-0.001159	-0.001952	0.001270	0.001242	0.001498	0.002033	0.001043	-0.001212	-0.000112	-0.000957	0.002500	0.001889	0.000411	-0.000891	0.002105
13	-0.000739	-0.000550	-0.000045	0.000428	0.000081	0.000597	0.001059	-0.000198	0.000002	0.001889	0.000002	0.001889	0.002500	-0.000650	-0.000884	0.001717
14	0.000184	0.000550	-0.000045	0.001775	0.001817	0.001754	0.001471	0.001652	0.000852	0.000880	-0.001811	0.000411	-0.000650	0.002500	0.000832	0.000064
15	-0.000371	0.000043	-0.000074	-0.001012	-0.000867	-0.000859	0.000279	-0.000788	0.001771	0.001077	0.000817	-0.000891	-0.000884	0.000832	0.002500	-0.000453
16	-0.000796	-0.000588	-0.001847	0.000578	0.000780	0.000578	0.001797	0.000918	-0.001692	-0.000526	-0.000708	0.002105	0.001717	0.000064	-0.000453	0.002500
17	-0.000588	-0.000692	-0.000486	-0.000270	-0.000436	-0.000215	0.000775	-0.000648	0.001026	-0.000622	0.000321	-0.000154	0.000802	0.000867	0.001677	0.000216
18	-0.000373	-0.000360	-0.001524	0.001641	0.001832	0.001791	0.002113	0.001611	-0.000823	-0.000195	-0.001532	0.001558	0.000881	0.001331	-0.000422	0.001747
19	-0.000055	-0.000816	0.000075	-0.002230	-0.002324	-0.002239	-0.001205	-0.001955	-0.000025	-0.000372	0.002092	-0.000616	0.000219	-0.001883	0.000797	-0.000071
20	0.000205	0.000479	-0.000152	-0.001089	-0.000981	-0.001055	-0.000186	-0.000382	-0.000471	0.000765	0.000688	0.000410	0.000019	-0.000806	0.000079	0.000682
Variances	0.002500	0.002500	0.002500	0.002500	0.002500	0.002500	0.002500	0.002500	0.002500	0.002500	0.002500	0.002500	0.002500	0.002500	0.002500	0.002500
Co-Variances	-0.002428	0.000070	-0.008862	0.007069	0.007553	0.007432	0.008859	0.008157	-0.003347	0.002126	-0.013042	0.005528	-0.001535	0.003933	0.001462	0.004894

Figure 11: Solver Option (Example)

Summary Worksheet, Occupancy, Vacancies and IRR's

Go to main menu

Go to Sensativity Results

Existing Portfolio Return	9.78 %
Risk In the Portfolio	28.80 %
Discount Rate Required for village to = Portfolio (Rate & Risk)	6.12 %

PRE TAXATION RESULTS

NPV Result		50,632.71
Break Even Factors	Original New	
Sale Price	189,687 132,662	Go to solver
Median price of house sales in Catchment	-	
Gross Service Fee	4,240 4,240	
Break Even NPV (Check)		-0.00

POST TAXATION RESULTS

Tax Rate	15.00%	
NPV Result		47,810.67
Break Even Factors	Original New	
Sale Price	189,687 135,841	Go to solver
Median price of house sales in Catchment	-	
Gross Service Fee	4,240 4,240	
Break Even NPV (Check)		-0.00

Figure 12: Beta Analysis and Discount Rate (Example)

YEAR	VILLAGE RETURN (%)	WEIGHTED RETURN (%)
1	5.46%	11.01%
2	6.15%	10.05%
3	6.79%	12.72%
4	7.40%	7.77%
5	7.97%	7.09%
6	8.51%	8.60%
7	14.93%	2.61%
8	15.17%	6.10%
9	15.38%	5.77%
AVERAGE	9.75%	7.97%

SUMMARY OUTPUT

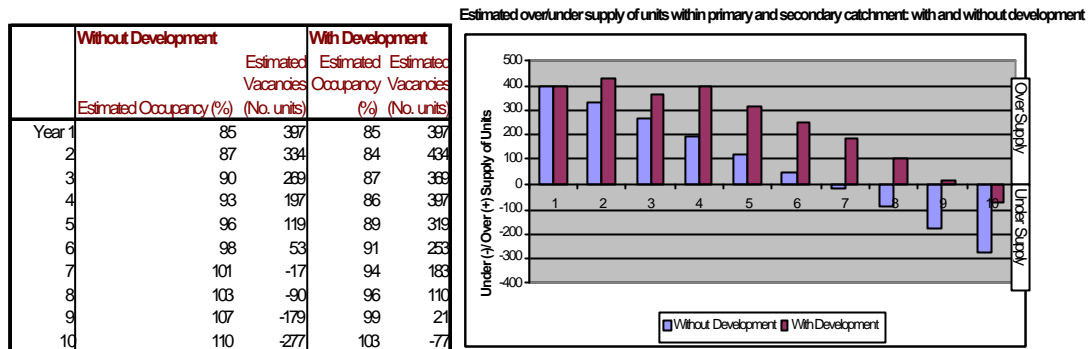
Regression Statistics	
Multiple R	0.674425761
R Square	0.454850107
Adjusted R	0.376971551
Standard Er	0.055207853
Observation	9

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	0.01780132	0.0178013	5.840505132	0.0463151
Residual	7	0.02133535	0.0030479		
Total	8	0.03913667			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.263330519	0.02607281	10.099814	2.00375E-05	0.2016782	0.3249829	0.2016782	0.324982869
X Variable 1	-0.08335935	0.36552089	-2.416714	0.046315108	-1.747678	-0.01904	-1.747678	-0.019040402

Assume Risk Free Rate (year Bond)	11.51%
Market Rate (Portfolio)	7.97%
Beta	0.88
Discount rate	Risk Free Rate+Beta(Market Rate)
	Discount Rate 6.12%

Figure 13: Village Sensitivity Analysis (Example)



Scenarios	Results	Interpretation
1. Estimated IRR	15.38%	Based on available data, the development can expect an IRR of 15.38%
2. IRR if Occupancy = 100%	15.84%	All other things being equal, if occupancy = 100%, the return would equal 15.84%
3. Required Occupancy if IRR = 5%	72%	If occupancy averaged at 72% then the IRR would equal 5%
4. Required Occupancy if IRR = 20%	107%	If occupancy averaged at 107% then the IRR would equal 20%
5. Required Occupancy if IRR = 30%	131%	If occupancy averaged at 131% then the IRR would equal 30%
6. Dev cost if IRR = 5%	\$ 192,080	If the development cost for one unit equalled \$192,080 then the IRR would equal 5%
7. Dev cost if IRR = 20%	\$ 128,433	If the development cost for one unit equalled \$128,433 then the IRR would equal 20%
8. Dev cost if IRR = 30%	\$ 104,368	If the development cost for one unit equalled \$104,368 then the IRR would equal 30%

Do NOT use these results until you have used the solver on each of the worksheets relating to the scenarios. If you modify any variables on the 'Input Sheet' you will need to resolve these worksheets again.

8.0 CONCLUSION

Although the AMM outlined above is based on the viability of a new development it can be adapted to provide a typical 'if what' spreadsheet analysis of an existing SFRV. In particular, with increasing interest from institutional investors in this sector it makes sense for valuation analysis to incorporate the effects of including retirement village assets in portfolio return and risk.

The AMM has the capacity to factor in both internal and external business factors of a retirement village operation. As stated by Hatcher et.al. (1994) the most difficult portion of the valuation of SFRVs is the valuation of long-term entitlements from deferred management fees and rollover contracts. There is no one general accepted approach with respect to determining the variables upon which this portion of cashflow is based. It is proposed the AMM could provide the standard.

REFERENCE LIST
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