

Please note that this copy of the presentation slides have been expanded where there were overlaying charts and notes to remove these from the first slide they appears and to put them in a following copy of the respective slides.



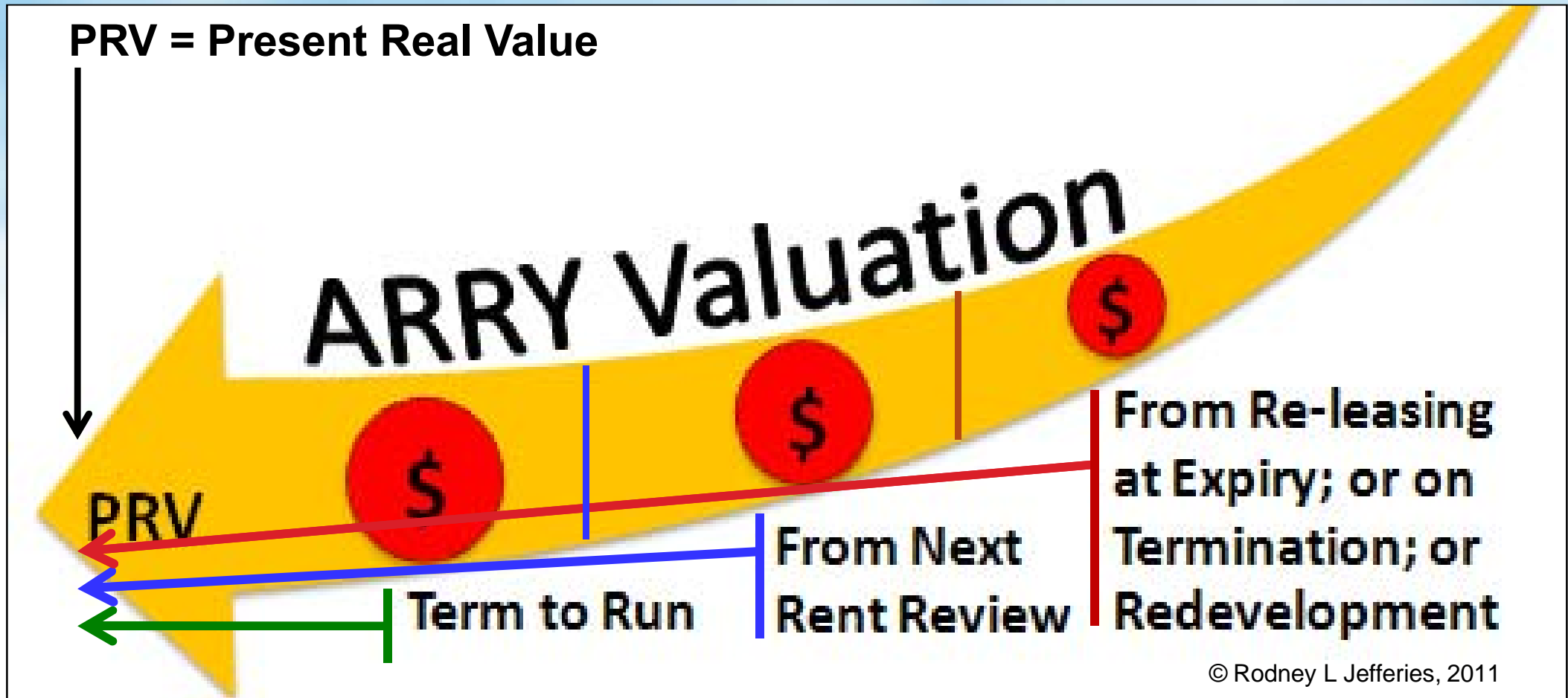
PINZ Conference Presentation, Wellington 27 May 2011

Real value valuation for real estate investment and analysis – A new paradigm?

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rodney.jefferies@lincolnuni.ac.nz

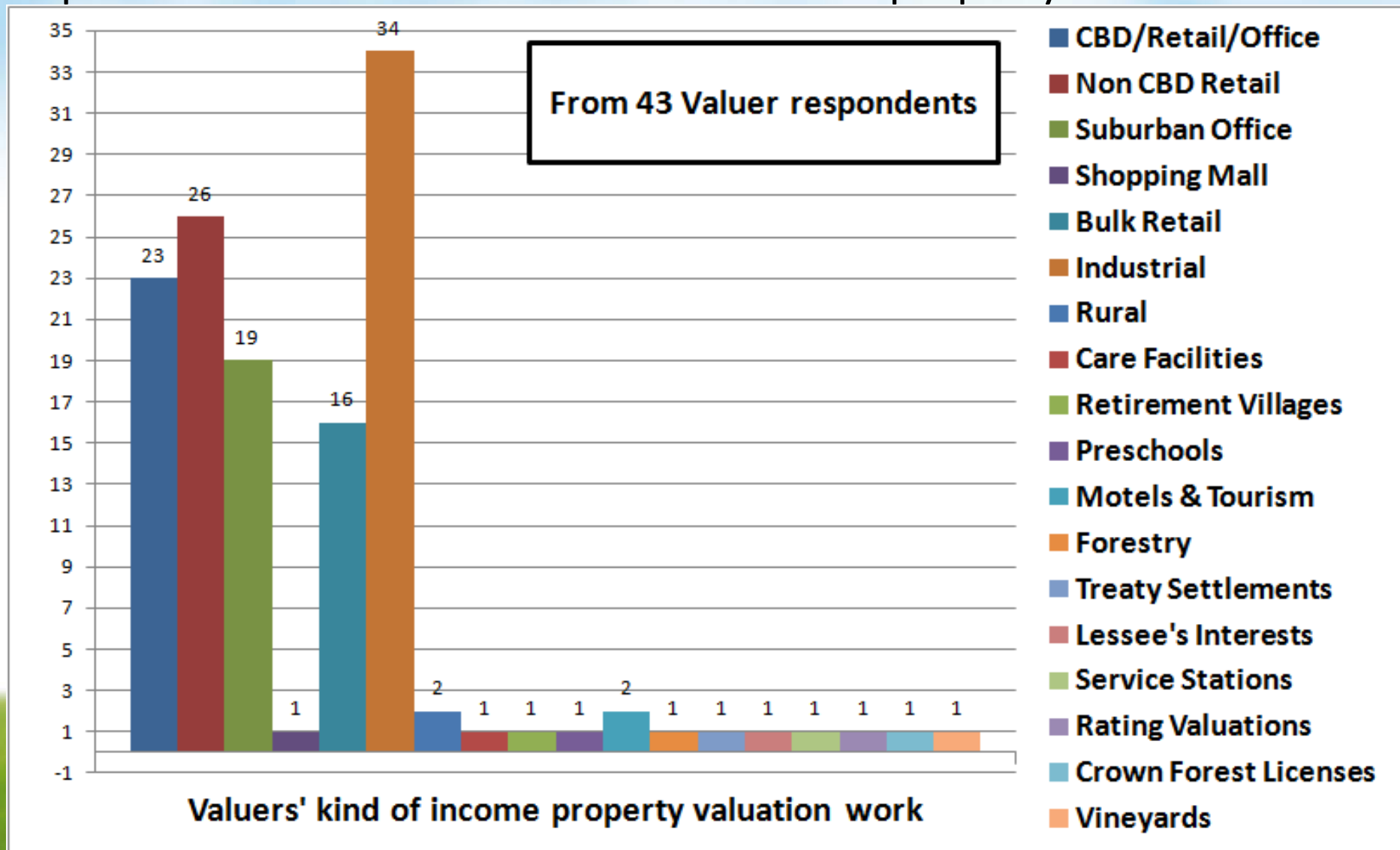
Real value valuation for real estate investment and analysis – A new paradigm?



← Each tranche of real cash flow is capitalised and discounted at the ARR Y_A to Present Real Value (PRV) @ valuation or sale date

Methods currently used in practice in New Zealand

- At Seminar presentations of the ARRY Valuation Model to PINZ Branches in Nelson/Marlborough, Canterbury and Wellington, out of approx 90 attendees, 62 questionnaires were collected. The 43 Valuer respondents described their kinds of income property valuations as:

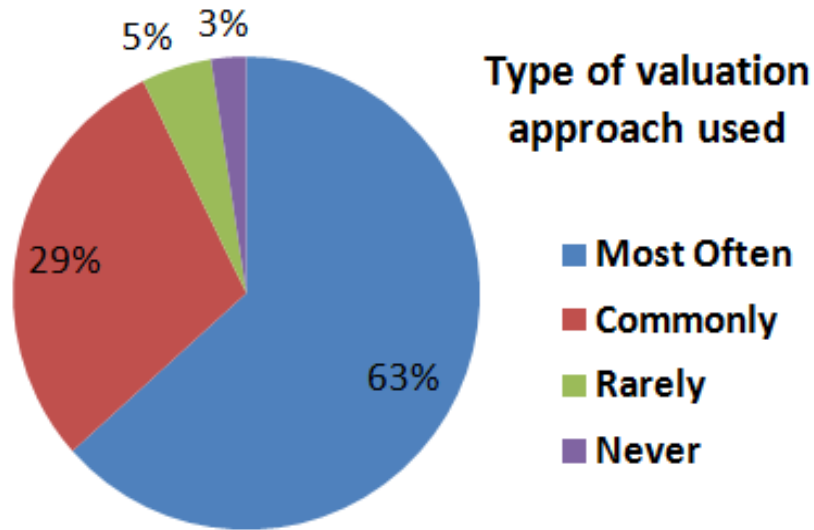


Real value valuation for real estate investment and analysis

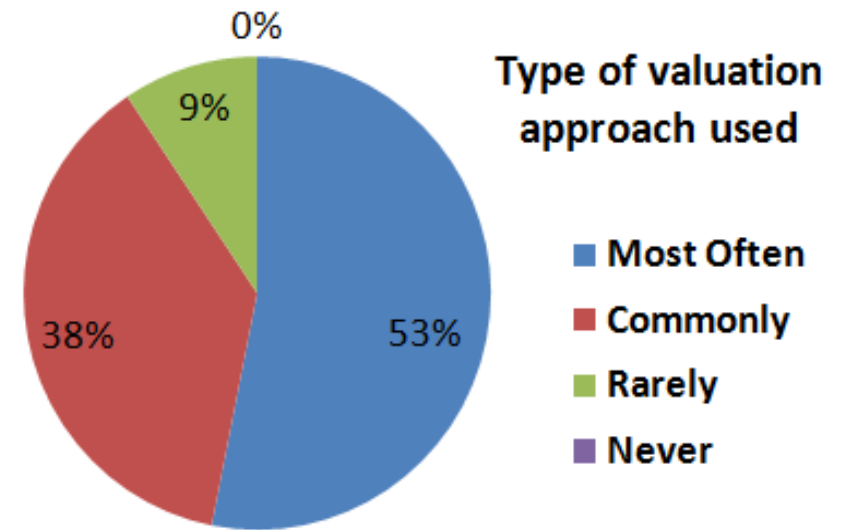
– Current income property valuation NZ methodologies

- **Direct Capitalisation** of actual or ‘normalised’ net rental was the traditional method used for all NZ valuations of income property until the mid 1990’s, and still common.
- **Adjusted Market Capitalisation (Shortfall / Premium)** (Ex Australia) is a popular “top slicing” or “layer” method.
- **Discounted Cash Flow (DCF)** promoted in the mid 1990’s with an explicit 10 year period-by-period cash flow holding to termination is limited to “investment” grade property.
- **Term & Reversion Capitalisation** (similar to *Equated Yield* method used by UK valuer expats) is rarely used in N.Z.

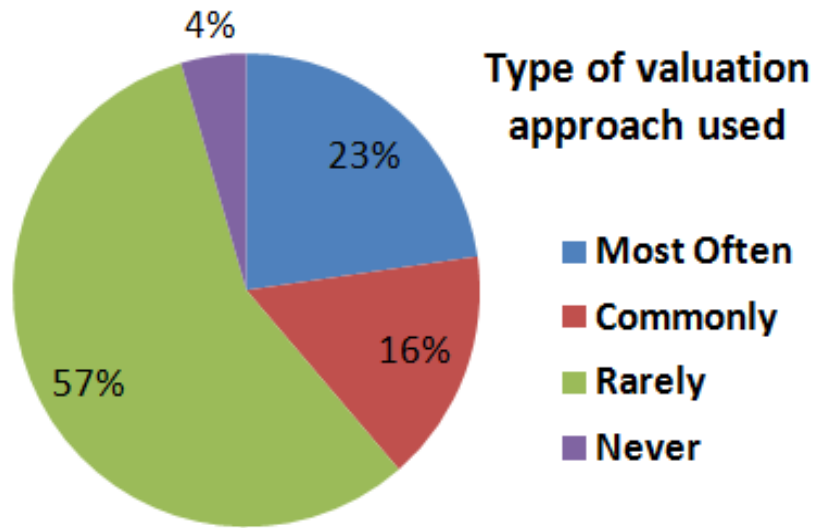
Typical NZ Valuers income valuation approaches used: based on 43 Valuer respondents



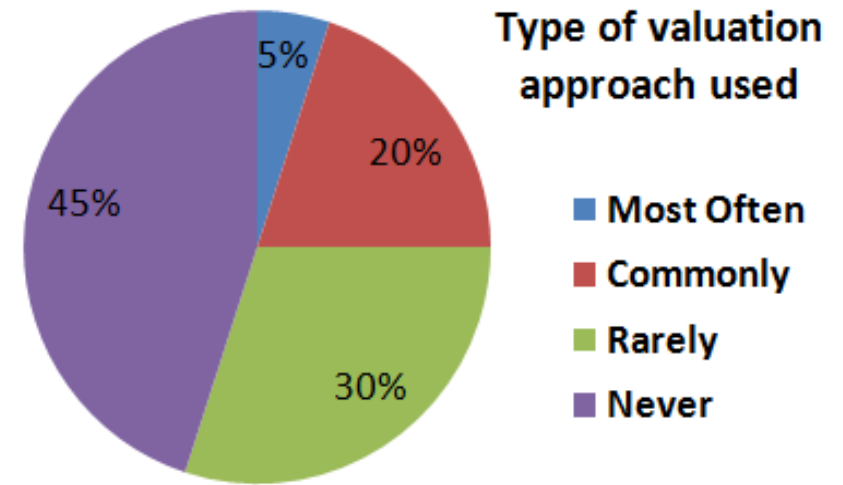
Direct Capitalisation (NOI ÷ Cap Rate)



Adjusted Market Capitalisation (Shortfall/Premium)



Explicit DCF (i.e. Excel Spreadsheet, 5 to 10 years)



Term & Reversion (Short-Cut DCFs)

Real value valuation for real estate investment and analysis

– What's wrong with DCFs?

- The **Discounted Cash Flow** method, whilst well established in NZ, Australia, parts of Europe & throughout North America, is not used in the UK for market valuations, but for assessments of “worth”.
- Other than for prime, multi-tenant “investment grade” property, DCFs are still not widely used in NZ (outside the main centres).
- The **major limitations** of explicit period-by-period DCFs are:
 - Calculations are in **nominal currency** – requiring:
 - **Forecasting** of future rents, expenses and terminal values;
 - An assumed **holding period & sale date** (usually in exactly 10 years);
 - Adopting a **terminal cap rate** applied to **then** future net rentals;
 - A **nominal discount rate** (pre-tax 100% equity required yield);
 - Many valuers use **customary software** with limited knowledge of the calculations actually done, whilst being held liable for their accuracy.
 - There is a reluctance by valuers to make **future explicit forecasts**.

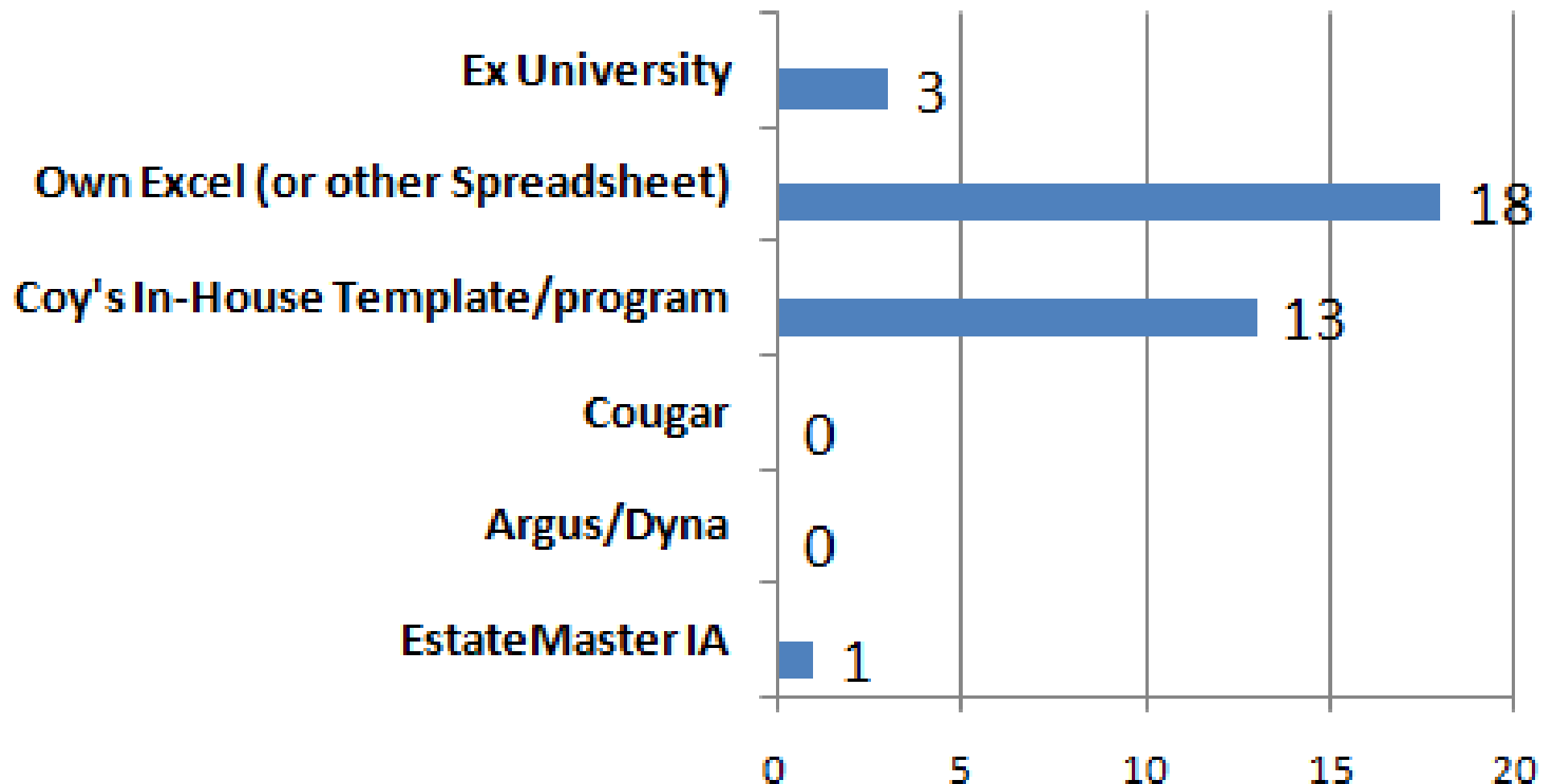
Real value valuation for real estate investment and analysis

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These are particularly
intrepid assumptions!!

DCF Template/Software used

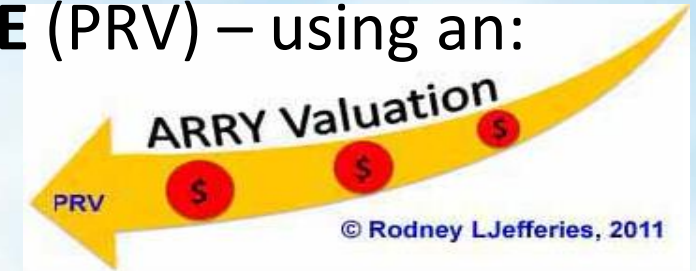


DCF Template/Software used: 35 respondents

Real value valuation for real estate investment and analysis

– A new paradigm?

- **What is offered** as an alternative to overcome these limitations?
- A method of calculating **PRESENT REAL VALUE (PRV)** – using an: **ALL RISKS REAL YIELD (ARRY)** model.
- **Its advantages are:**
 - **Universal application** to **not only**, prime or “investment grade” property, but also to simple and single or few tenancy properties.
 - The major advantage of **no future explicit forecasting**
 - **No** time consuming explicit **period-by-period** forecasting
 - **No assumptions** as to a reselling date (at termination)
 - **All inputs based on current market expectations** and **real** values
 - **Quicker** than DCF with **minimal inputs** required
 - A new form of **Term & Reversion Short-Cut DCF** method based on the terms & conditions of tenancies and **current market** conditions.



???

Me thinks this makes sense, eh?



What is the essence of the All Risks Real Yield (or ARRY) Valuation Model?

- It is a “short-cut” DCF valuation model that uses only **real** (current) values and discounts them at an ***all risks real yield*** (ARRY). No explicit forecasting required.
- **Term & Reversion** algorithms, in a series of current and deferred real rental capitalisations, calculate the **PRVs** of real rental terms to run and deferred real reversions, discounting values @ the All Risks Real Yield (ARRY).
- The **key** (and new) feature is the **ARRY** (Y_A) which is defined with an example of its derivation.

ARRY - DEFINITION

- The **ARRY** (Y_A) is defined, where Y = yield, subscript $_A$ = a notation indicating “all risks real”, as:
The real value annually in arrears yield: i.e. the real internal rate of return that discounts the real values of the term to run plus the real reversionary value(s) to equal the present real value (PRV) or sale price/current market value.
- The Y_A is derived from market sales analysis.
- The Y_A is also the initial yield of a property with a Market Rent C_M with annual rent reviews¹ in arrears (EOP), where **sold** at the commencement or at a rent review date:
- $C_M^1 \div \text{Price } (P), C_M^1 \div P \Rightarrow Y_A$

N.B. The use of the non-reversible symbol:

\Rightarrow indicating “resulting from”

Assembling the ARRY Algorithm

- The Y_A represents the required yield net of expected inflation I_e and net of real growth G_r , i.e. each year the investor expects to get increased rental inflation hedging & real growth as well.
- The expected overall nominal growth G_O is a combination of expected inflation and real growth that can be estimated, i.e. on an annually in arrears basis: $G_O - I_e = G_r$
- $\therefore Y_A + (I_e + G_r) = Y_A + G_O = Y_O$, the nominal overall annual yield
- The actual annual **Contract** Rental is defined as: C_O
- The **Current** annual Contract Rental (if reviewed as at the sale or valuation date) is defined as: C_C
- The **Current Market** annual Rental, if re leased on new market terms & conditions @ sale or valuation date, is defined as: C_M

A Market Expectations Model based on Economic Drivers

- The key economic drivers are the market's expectations of inflation I_e and real growth G_r
- **Expected inflation I_e** is exogenously derived from independent reliable econometric forecasts or surveys, e.g.

SURVEY OF EXPECTATIONS OF INFLATION						
Year	Month	Median Current Inflation	Mean Current Inflation	Net % Expecting Higher Inflation	Median Expected Inflation in 12 mths	Mean Expected Inflation in 12mths
2010	Feb	3	3.2	40.5	3.5	4
	May	3	3.4	40.7	3.5	4
	Aug	3	3.4	50.3	3.5	4
	Nov	3	3.1	47.1	3.4	3.8
2011	Feb	4	3.9	48.8	4	4.5

Source RBNZ: Survey of households - The questions asked are:

1. Current inflation perceptions:

Based on your own opinions and what you've seen and heard, what do you think the inflation figure is now?

2. Expected change:

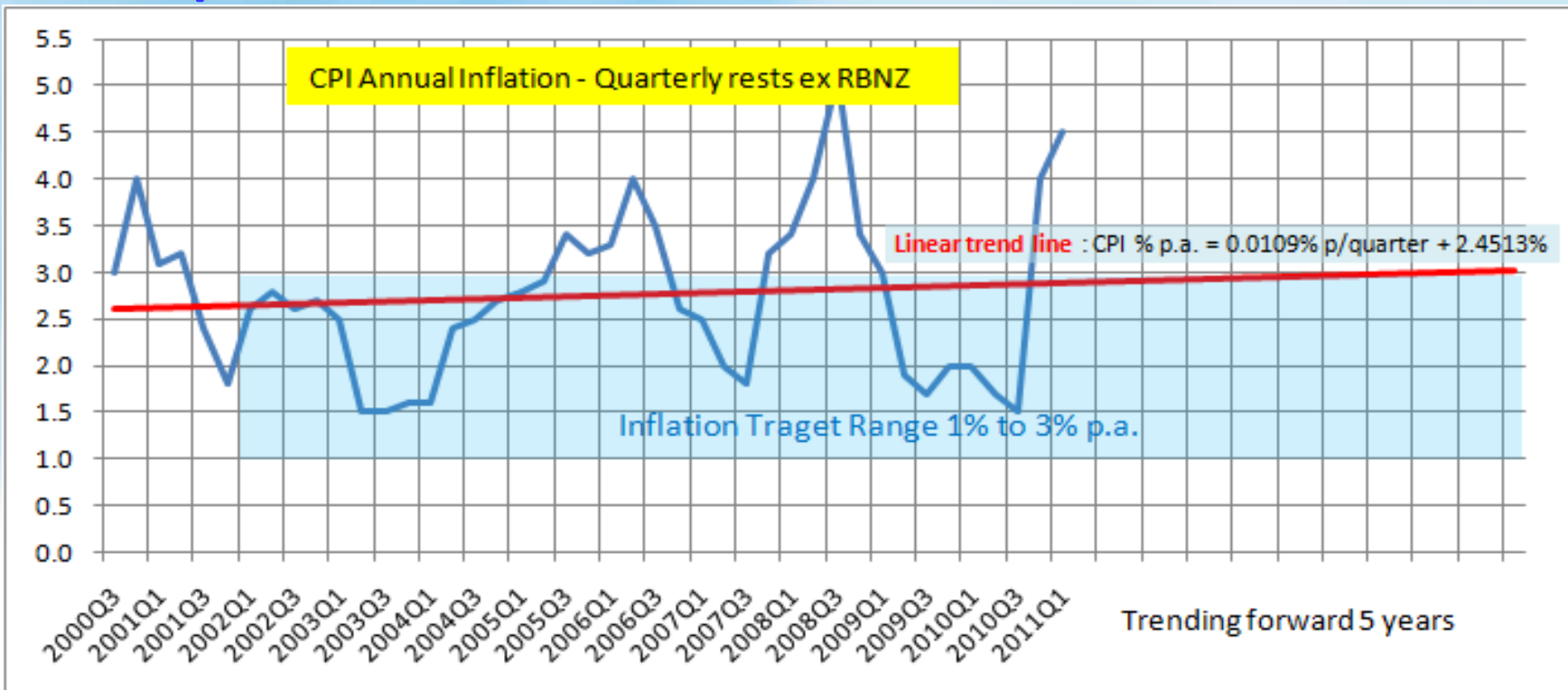
In 12 months time, do you expect the inflation figure to be higher, lower or the same?

3. Expected inflation:

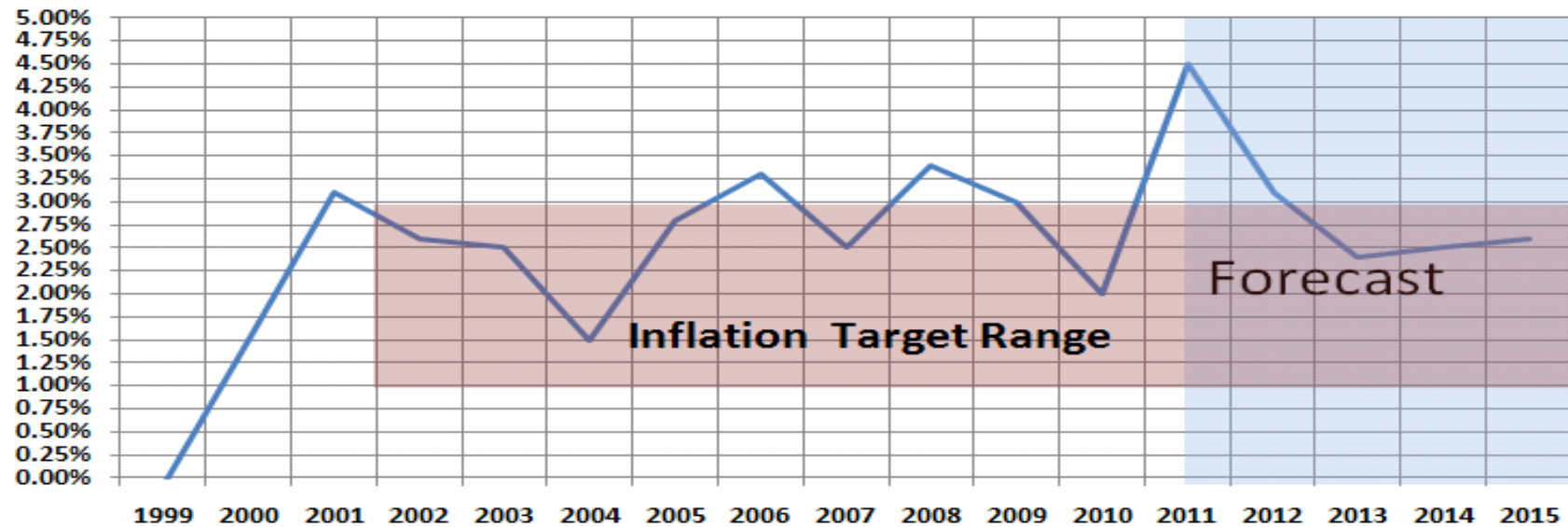
What do you think the actual figure will be in 12 months time?

Other sources: NZIER, BERL; Treasury, Banks: National, ANZ Bank, Westpac, ASB; www.economywatch.com/ (1980 to 2015); & Others

A Market Expectations Model based on Economic Drivers Charts cont'd



**NZ Treasury Forecast accompanying the May 2011 Budget
CPI inflation (annual % change)**



A Market Expectations Model based on Economic Drivers

- **Expected real growth G_r** is derived from:
 - ❑ Implied growth rates from analysis of comparable sales;
 - ❑ Analysis of property performance indexes (i.e. IPD) forecasting for long-term growth; or can be **approximated*** from current annual total returns Y_o^1 less annual income yield R_o^1 less expected inflation $Y_o^1 - R_o^1 - I_e = G_r$
 - ❑ The valuers applied judgment based on experience, local knowledge of both macro and micro property characteristics and market analysis;
 - ❑ Possibly property investor expectation surveys;
 - ❑ Interviews with recent investment property purchasers.
 - ❑ Checked by deducting I_e from overall expected nominal growth G_o
- **Expected real growth G_r** is the only critical expectations assessment required of the valuer as the other valuation inputs relate to the routine assessment of the:
 - ❑ Current contractual terms review rental C_C ; and
 - ❑ Market rent if a new market based lease C_M .

* Due to the ex-post yield Y_o^1 being a weighted average implied yield, based on ex-ante valuers' expectations cap rates, a mixture of tenancy terms to run and calculated mid-year – the result is likely to be a conservative estimate, i.e. $Y_o^1 \Rightarrow \leq Y_A$

The ARRY Algorithm, (i.e. the steps to systematically solving a problem)

- Each **tranche** (time series) of static real incomes' PRV is calculated by capitalisation using the ARRY Cap Rate formula:

$$R_A^F = (Y_A + I_e + G_r) - (Y_A + I_e + G_r) \left[\frac{(1 + I_e + G_r)^F - 1}{(1 + Y_A + I_e + G_r)^F - 1} \right]$$

- Where the *contract review frequency* = F ;
 - For the *term to run* replacing that with T = Term to Run;
 - On expiry and a new market re-letting with Q = the *current market review frequency*.

⇐ For the **Term to Run** contract rental C_0 is capitalised @ the ARRY cap rate for the real growth G_r & term to run review frequency T , i.e. @ R_A^T :

$$C_0 \div R_A^T$$

⇐ For the **Next Review** (if any) to **Expiry** current review rental C_C is capitalised @ the ARRY cap rate for the real growth G_r & contract review frequency F , i.e. @ R_A^F :

$$C_C \div R_A^F$$

⇐ On **Expiry** current market rental C_M is capitalised @ the ARRY cap rate for the real growth G_r & market review frequency Q , i.e. @ R_A^Q : 16

$$C_M \div R_A^Q$$

- Each **tranche** (series) of real incomes' PRV is valued separately :
 - ↳ **Term to Run** by capitalising the contract rental @ R_A^T and **deducting** that PRV deferred (discounted) to next review date T @ the ARRY, Y_A i.e.

$$C_O \div R_A^T \times [1 - (1 + Y_A)^{-T}] \Rightarrow \text{PRV of Term to Run}$$
 - ↳ **Next Review** (if any) to **Expiry** E by capitalising the current review rental, @ R_A^F deferred to next review date T @ Y_A ; and **deducting** that deferred PRV @ expiry date E , @ Y_A i.e.

$$C_C \div R_A^F \times [(1 + Y_A)^{-T} - (1 + Y_A)^{-E}] \Rightarrow \text{PRV of Review Terms}$$
 - ↳ At **Expiry**, E by capitalising the current market rental @ R_A^Q deferred to the PRV @ expiry date E , or reversionary date @ Y_A ;

$$C_M \div R_A^Q \times (1 + Y_A)^{-E} \Rightarrow \text{PRV of Rental Reversion}$$
 - ↳ **Or** At **Expiry**, E by adding the **Capital Reversion (Cap)** escalated at @ *its* Gr_{cap} (which may be nil if at expected inflation = I_e , or different from the expected rental growth) deferred to the expiry date E , @ Y_A ,

$$[\text{Cap} \times (1 + Gr_{cap})^E] \times (1 + Y_A)^{-E} \Rightarrow \text{PRV of Capital Reversion}$$

In practice, as in the ARRY Template versions of the model, all calculations are based on the per period payment timings and effective discount rates.

The ARRY Algorithm Cont'd & Total RPV Valuation compiled

- Each **annual expense** is valued separately by **deducting** the:
 - ↳ Capitalised current annually inflating costs (i.e. OPEX) @ Y_A :
 - $OPEX \div Y_A \Rightarrow$ **PRV Annual Inflationary Expenses***
 - Capitalised current annually escalating costs @ R_{Esc}^1 increasing @ Gr_{Esc}
 - $OPEX \div R_{Esc}^1 \Rightarrow$ **PRV Annual Escalating Expenses***
- Each capital **Expenditure (Exp)**, at date D by deducting the current real capital costs, escalated at @ its Gr_{Exp} (*which may be nil if at expected inflation = I_e*), i.e. expected to grow at a real growth of Gr_{Exp} deferred to the expiry date @ Y_A :
 - $[Exp \times (1 + Gr_{Exp})^D] \times (1 + Y_A)^{-D} \Rightarrow$ **PRV of Capital Expenditure**
- The PRV of each tranche of cash flow are summed to the **total PRV**:
 - PRV of Term to Run + PRV of Review Terms**
 - + PRV of (Rental) Reversion + PRV of Capital Reversion**
 - PRV Annual or Escalating Expenses – PRV Capital Expenditure:**
 - $\Sigma =$ Total Present Real Value \Rightarrow CMV**

* If expenses are assumed stop in the future, i.e. on expiry in E periods, and reverting to a net lease at expiry, then these need to be adjusted by $\times [1 - (1 + Y_A)^{-E}]$

The Complete ARRY Algorithm & Total RPV Valuation

Present Real Value of:	PRV
Term to Run:	$C_O \div R_A^T \times [1 - (1 + Y_A)^{-T}]$
Review Terms:	$+ C_C \div R_A^F \times [(1 + Y_A)^{-T} - (1 + Y_A)^{-E}]$
Rental Reversion:	$+ C_M \div R_A^Q \times (1 + Y_A)^{-E}$
Capital Reversion:	$+ [\text{Cap} \times (1 + Gr_{Cap})^E] \times (1 + Y_A)^{-E}$
Annual Expenses:	$- \text{OPEX} \div Y_A$
Escalating Expenses:	$- \text{OPEX} \div R_{Esc}^1$
Capital Expenditure:	$- [\text{Exp} \times (1 + Gr_{Exp})^D] \times (1 + Y_A)^{-D}$
Total Present Real Value:	Σ of PRVs \Rightarrow CMV

All calculations are based on the per period payment timings, effective discount rates & per period cap rates are converted to annual cap rates.

Sales Analysis – Pre- Earthquake Christchurch Suburban Office block

ARRY Multi-Tenant Property Investment Valuation Model - (Up to 10) - Single tenants - © Copyright R L Jefferies, Feb 2011

Valuation Date:	Date format dd/mm/yyyy	21/02/2011	Suburban office park building			
SUMMARY - All Properties in Portfolio		TOTAL:				
Tenant:		Ad Coy- 500m2	Vac 600m2	Tenant 3	Tenant 4	
Rental, lease and data assumptions:						
Lease Commencement date:		1/09/2010	21/02/2011	21/02/2011	21/02/2011	
Current Lease Expiry date:		1/09/2016	21/04/2011	21/06/2011	21/08/2011	
Lease term (in Years): Term		6.00 years	0.16 years	0.33 years	0.50 years	
Last rent review date:		1/09/2010	1/09/2010	1/09/2010	1/09/2010	
Number of renewals assumed (i.e. will be exercised)		2 Renewals	0 Renewals	0 Renewals	0 Renewals	
Final Lease Expiry date At Termination:(if applicable):		1/09/2028	Not Applicable	Not Applicable	Not Applicable	
Contract Review Term Frequency in yrs: F		2.00 years	0.17 years	0.33 years	0.50 years	
Next Rent Review date (If applicable):		1/09/2012	21/04/2011	21/06/2011	21/08/2011	
Contract Rent to run until next rent review:	\$ 226,000 p.a.	\$ 226,000 p.a.	\$ - p.a.	\$ - p.a.	\$ - p.a.	
Current Contract Rent - if reviewed at valuation date:	\$ 889,000 p.a.	\$ 226,000 p.a.	\$ 221,000 p.a.	\$ 221,000 p.a.	\$ 221,000 p.a.	
IF Precribed Rental - Nominal Annual escalation rate for rental :		Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Current Market Rent (on normal terms and conditions):		\$ 231,650 p.a.	\$ 221,000 p.a.	\$ 221,000 p.a.	\$ 221,000 p.a.	
Rental payments basis (EOP = In Arrears; BOP = In Advance)		Monthly BOP	Monthly BOP	Monthly BOP	Monthly BOP	
Review Term Frequency in yrs:		2.00 years	0.17 years	0.33 years	0.50 years	
Current Rental Term to Run in yrs:		1.53 years	0.16 years	0.33 years	0.50 years	
Contract Lease Expiring in yrs:		5.53 years	0.16 years	0.33 years	0.50 years	
Contract Lease with assumed renewals - terminating in yrs:		17.53 years	0.16 years	0.33 years	0.50 years	
Re-letting on contract lease expiry: RL Y = Yes, N = No		Y	Y	Y	Y	
Expected (Nominal) Inflation rate:	Key Common Input:	2.5000% p.a.	2.5000% p.a.	2.5000% p.a.	2.5000% p.a.	2.5000% p.a.
Real Growth rate:	Key Common Input:	1.0000% p.a.	1.0000% p.a.	1.0000% p.a.	1.0000% p.a.	1.0000% p.a.
Nominal Value Growth rate:		3.5000% p.a.	3.5000% p.a.	3.5000% p.a.	3.5000% p.a.	3.5000% p.a.
All-Risks Real Yield rate:	Key Common Input:	9.6197% p.a.	9.6197% p.a.	9.6197% p.a.	9.6197% p.a.	9.6197% p.a.
Over-all Required Nominal Yield:		13.1197% p.a.	13.1197% p.a.	13.1197% p.a.	13.1197% p.a.	13.1197% p.a.
Present Real Value (PRV) of Current Contract Rental Term to Run:	\$ 316,042	\$ 316,042	\$ -	\$ -	\$ -	
PRV of Contract Rental from next Review to until Termination or Expiry:	\$ 1,600,608	\$ 1,600,608	\$ -	\$ -	\$ -	
PRV of Reversion - Market Rental from Expiry to Termination (if applicable):	\$ 7,185,649	\$ 482,482	\$ 2,269,366	\$ 2,234,207	\$ 2,199,594	
PRV for OPEX : If applicable - See individual tenants for details	\$ -	\$ -	\$ -	\$ -	\$ -	
PRV of Real Redevelopment Value at Lease Termination (If Applicable):	\$ -	\$ -	\$ -	\$ -	\$ -	
PRV of Vacancies, CAPEX, added-value (e.g. Vacant land) or adjustments	-\$ 102,300	\$ -	-\$ 28,100	-\$ 34,100	-\$ 40,100	
Total PRV: Term + Reversions ± Other Adjustments	\$ 9,000,000	\$ 2,399,133	\$ 2,241,266	\$ 2,200,107	\$ 2,159,494	
Current Real Market Value - CMV: (Rounded)	\$ 9,000,000	\$ 2,399,000	\$ 2,241,000	\$ 2,200,000	\$ 2,159,000	
Initial Yield (over-all capitalisation rate): Current Contract Rental ÷ CMV:	2.5111% p.a.	9.4206% p.a.	0.0000% p.a.	0.0000% p.a.	0.0000% p.a.	

Comments: This 4 level office 4 Green Star building was occupied only to the ground floor at the valuation date and had been seeking tenants over the last 6 months since completion @ \$325/m² +OPEX @ \$60/m². The assumption they would all lease up over the next months (allowing one floor every 2 months, with commissions @13% rentals). Upper level floor plates are all 600m² NLA including exclusive use of toilets off the space and up to lift doors. Parking allocated 20 spaces per level askng @\$25 p.w. incl in leases

20

Enter Sale Price Input **ONLY** where analysing a sale (otherwise leave blank): **\$9,000,000** -\$0 difference C/- Sale Price - **NB** This line is not included in the print area

Click on **SOLVE** Button to change ARRY to make CMV = Sale Price

SOLVE

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SUMMARY - All Properties in Portfolio		TOTAL:	Ad Coy- 500m2	Vac 600m2	Tenant 3	Tenant 4
Tenant:	Each tenancy and let-up after vacancy has a separate sheet and is linked to this summary sheet. If there is no commencement date entered no details are shown.					
Rental, lease and data assumptions:	The lease details entered on each tenancy sheet are linked to this sheet					
Lease Commencement date:			1/09/2010	21/02/2011	21/02/2011	21/08/2011
Current Lease Expiry date:			1/09/2016	21/04/2011	21/06/2011	21/08/2011
Lease term (in Years): Term			6.00 years	0.16 years	0.33 years	0.50 years
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Contract Review Term Frequency in yrs: F			2.00 years	0.17 years	0.33 years	0.50 years
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PRV of Real Redevelopment Value at Lease Termination (If Applicable):		\$ -	\$ -	\$ -	\$ -	\$ -
PRV of Vacancies, CAPEX, added-value (e.g. Vacant land) or adjustments		-\$ 102,300	\$ 310,000	\$ -	\$ 40,100	\$ -
Total PRV: Term + Reversions ± Other Adjustments		\$ 9,000,000	\$ 2,399,133	\$ 2,241,366	\$ 2,200,107	\$ 2,159,494
Current Real Market Value - CMV: (Rounded)		\$ 9,000,000	\$ 2,399,000	\$ 2,241,000	\$ 2,200,000	\$ 2,159,000
Initial Yield (over-all capitalisation rate): Current Contract Rental ÷ CMV:		2.5111% p.a.	9.9906% p.a.	0.0000% p.a.	0.0000% p.a.	0.0000% p.a.

Comments: This 4 level office 4 Green Star building was occupied only to the ground floor at the valuation date and had been seeking tenants over the last 6 months since completion @ \$325/m² +OPEX @ \$60/m². The assumption they would all lease up over the next months (allowing one floor every 2 months, with commissions @13% rentals). Upper level floor plates are all 600m² NLA including exclusive use of toilets off the space and up to lift doors. Parking allocated 20 spaces per level askng @\$25 p.w. incl in leases

Enter Sale Price Input **ONLY** where analysing a sale (otherwise leave blank): **\$9,000,000**

Click on **SOLVE** Button to change ARRY to make CMV = Sale Price **SOLVE**

-\$0 difference C/- Sale Price ; NB This line is not included in the print area

Each tenancy and let-up after vacancy has a separate sheet and is linked to this summary sheet. If there is no commencement date entered no details are shown.

The lease details entered on each tenancy sheet are linked to this sheet

The common assumptions entered on his summary sheet are linked to each tenancy sheet

The results of the calculations from each tenancy sheet is linked to here

Clicking this button changes the ARRY to make the Valuation = the Sale price

Sales Analysis – Pre- Earthquake Christchurch Suburban Office block

Copy of the “Ad Coy” tenant sheet showing inputs and calculations

ARRY Multi-Tenant Property Investment Valuation Model - (Up to 10) - Single tenants -©Copyright R L Jefferies, Feb 2011			
Ad Coy- 500m2			Instructions
Valuation date:	21/02/2011		Linked to input in Summary sheet
Lease Commencement date:	1/09/2010		Insert in date format: dd/mm/yyyy
Current Lease Expiry date:	1/09/2016		In dd/mm/yyyy date format: (or next renewal date, if any, auto adjusts for expiry the day before)
Lease term (in Years): Term	6.00 years		Will calculate automatically - (check this is correct if not check dates inserted above)
Last rent review date:	1/09/2010		Insert in date format: dd/mm/yyyy (or link to commencement date if none)
Number of renewals assumed (i.e. will be exercised)	2		Insert number, or P for perpetually renewable, i.e. 2, P, or 0 for none (or leave blank)
Final Lease Expiry date At Termination:(if applicable):	1/09/2028		Will calculate automatically - (check this is correct if not check inputs above)
Contract Review Term Frequency in yrs: F	2.00 years		Insert number, i.e. 2.5 for 2½ years, or 3.0 for 3 years, or 0 (i.e. fixed term or leave blank)
Next Rent Review date (if applicable):	1/09/2012		Will calculate automatically - (check this is correct if not check inputs above)
Expected (Nominal) Inflation rate: Ie	2.5000%		Linked to input in Summary sheet
Real Growth rate: Gr	1.0000%		Linked to input in Summary sheet
Nominal Value Growth rate: Go = Ie + Gr	3.5000%		Linked to input in Summary sheet
All-risks Real Yield rate: YA	9.6197%		Linked to input in Summary sheet
Over-all Required Nominal Yield (Disc. Rate): Yo = (YA + Ie + Gr)	13.1197%		Linked to input in Summary sheet
Current Market Term Frequency in yrs: Q	3.00 years		Leave blank if Perpetually Renewable - If not Insert a number, i.e. 5 for 5 years, or 2.5 for 2½ years
Current Rental Term to Run in yrs: T	1.53 years		Will calculate automatically
Number of rental payments to be received until Next Review	18		Will calculate automatically, - truncated whole period payments (i.e. in advance or in arrears)
Current Contract Lease Expires in yrs: EX	5.53 years		Will calculate automatically
Contract Lease with assumed renewals - terminating in yrs: To_Exp	17.53 years		Will calculate automatically
Re-letting on contract lease termination: RL Y = Yes, N = No	Y		Leave blank if Perpetually Renewable - Enter Y for Yes or N for No (i.e. terminating or redeveloping)
All-risks Contract Real Yield Capitalisation rate = RAF	9.4464%		Will calculate automatically
All-risks Current Market Real Yield Capitalisation rate = RA3	9.59634%		Will calculate automatically
Contract Rent Co:	\$ 226,000		Insert rental, i.e. 40,000 for \$40,000
Contract Market Rent Cc:	\$ 226,000		Insert estimate, i.e. 41,500 for \$41,500
Current Market Rent (on normal terms and conditions) Cm:	\$ 231,650		Insert current market rental valuation, i.e. 40,250 for \$40,250
Rental payments in arrears (EOP) =1; In advance (BOP) =0	0		Enter number "1" for EOP; or zero "0" for BOP
Number of rental payments per annum P:	12		Number of payments p.a., i.e. 12 for monthly, 6 for two-monthly; 4 for quarterly, 2 for half-yearly.
IF Gross lease - Current OPEX -Sp.a.			If Gross lease Enter Estimated current OPEX budget, i.e. -3,000 for -\$3,000
IF Gross lease: Nominal escalation rate for OPEX (Default = Ie)			If Gross lease - Leave as default or Insert a number, i.e. 2.00 for 2.00%
IF Prescribed Rental - Nominal Annual escalation rate Esc (Default = Ie):			If Prescribed Rental -Link to Ie as default or Insert a number, i.e. 3.00 for 3.00% or leave blank
IF Prescribed Rental - Current escalated rental if reviewed Sp.a. Cesc	Not Applicable		If Prescribed Rental - Will calculate automatically, based on Co and Esc rate
IF Redeveloping at Termination - current real redevelopment value:			If Redeveloping at Termination - Insert current alternative use value, (i.e. land value)
If above - Insert forecast real redevelopment value growth rate:			Insert a number, i.e. 2.00 for 3.00% p.a.
Term & Reversion: i.e. Valuation not at Review or Commencement			
Present Real Value (PRV) of Term to Run to next Rent Review:			Note ALL cells are locked except input cells
All-Risks Real Yield Term Capitalisation rate = RA1.53	9.3748%		Cells will calculate automatically
Contract Rental \$226000 Capitalised @ RA1.53: 9.3748% p.a.	\$ 2,410,727		
Deferred Real Reversion for 1.53 yrs @ YA: 9.6197 % p.a.	\$ 2,094,685		
PRV of 1.53 years term to run (by deduction):	\$ 316,042		
PRV of Contract Rental(s) ex next Rent Review to Expiry; Final Termination or in Perpetuity:			Note this part of spreadsheet will not print as excluded from print area
Current Contract Rental \$226000 capitalised @ RA2: 9.4464% p.a.	\$ 2,392,437		
PRV of Deferred Real Reversion for 1.53 yrs @ YA: 9.6197 % p.a.	\$ 2,078,793		
LESS - Deferred PRV at Expiry or Termination in 17.53 years @ YA: 9.6197 % p.a.:	-\$ 478,184		
PRV of reversionary renewals until Termination in 17.53 years:	\$ 1,600,608		
PRV of Reversion - To Current Market Real Value on Expiry or Termination (if applicable):			
Reversionary Market Value = Market Rental \$231650 capitalised @ RA3: 9.5963% p.a.	\$ 2,413,941		
PRV of Market Value at Lease Expiry in 17.53 years @ YA: 9.6197 % p.a.:	\$ 482,482		
For Redevelopment on Termination only - Not Applicable	\$ -		
Other Adjustments:			
For Gross lease only - Not Applicable			
For Gross lease only - Not Applicable	\$ -		
PRV of Vacancies, CAPEX, added-value (e.g. Vacant land) or adjustments			Will require separate calculation and insertion as appropriate and explanation added to summary
Total PRV: Term + Reversions ± Other Adjustments	\$ 2,399,133		
Current Market Value (Rounded)	\$ 2,399,000		
Initial Yield or over-all capitalisation rate Ro:	9.42059% p.a.		

Cell Definitions

Vdate
Comm
ExpDate
Term
RentComm
Renewals
FinalExp
F
Review Date
Ie
Gr
Go
YA
Yo
Q
T
PaymentsDue
EX
To_Exp
RL
RAF
RAQ
Co
Cc
CMV
pay
P
OPEX
OP
E_sc
Cesc
VAItUse
AltUseGr
RAT
REscT
REscF
RAO_p
RAOp
CMV
Ro

Sales Analysis – Pre- Earthquake Christchurch Suburban Office block

Copy of the “Ad Coy” tenant sheet showing outputs for reporting

Ad Coy- 500m2	
<i>All Risks Real Yield - Real Value - Investment approach valuation:</i>	
Rental, lease and data assumptions:	
Contract Rent to run until next rent review:	\$ 226,000 p.a.
Current Contract Rent - <i>if reviewed at valuation date</i> :	\$ 226,000 p.a.
IF Precrised Rental - Nominal Annual escalation rate for rental :	Not Applicable
Current Market Rent (on normal terms and conditions):	\$ 231,650 p.a.
Rental payments basis (EOP = In Arrears; BOP = In Advance)	Monthly BOP
Review Term Frequency in yrs:	2.00 years
Current Rental Term to Run to next review in yrs:	1.53 years
Expected (Nominal) Inflation rate:	2.5000% p.a.
Forecast Real Growth rate:	1.0000% p.a.
Nominal Value Growth rate:	3.5000% p.a.
Required All-Risks Real Yield (ARRY) rate:	9.6197% p.a.
Required Nominal Over-all Yield:	13.1197% p.a.
Present Real Value (PRV) of Term to Run to next Rent Review:	
All-Risks Real Yield Capitalisation rate for 1.53 year rent reviews:	9.3748% p.a.
Contract Rental \$226000 p.a. Capitalised @: 9.3748% p.a.	\$ 2,410,727
Deferred Real Reversion for 1.53 years @ All-Risks Real Yield: 9.6197 % p.a.	\$ 2,094,685
Present Real Value of 1.53 years term to run (i.e. by deduction):	\$ 316,042
PRV of Contract Rental(s) ex next Rent Review to Expiry; Final Termination or in Perpetuity:	
All-risks Real Yield Capitalisation rate for 2 year rent reviews:	9.4464% p.a.
Current Contract Rental \$226000 capitalised @ : 9.4464% p.a.	\$ 2,392,437
Deferred Real Reversion for 1.53 years @ All-Risks Real Yield: 9.6197 % p.a.	\$ 2,078,793
LESS - Deferred PRV at Expiry or Termination in 17.53 years @ All-risks real yield: 9.6197 % p.a.	-\$ 478,184
PRV of reversionary renewals until Termination in 17.53 years: (by deduction)	\$ 1,600,608
PRV of Reversion - To Current Market Real Value on Expiry or Termination (if applicable):	
All-risks Real Yield Capitalisation rate for 3 year rent reviews:	9.59634% p.a.
Reversionary Market Value = Market Rental \$231650 capitalised @ 9.5963% p.a.	\$ 2,413,941
PRV of Market Value at Lease Expiry in 17.53 years @ All-risks real yield: 9.6197 % p.a.:	\$ 482,482
For Redevelopment on Termination only - Not Applicable	\$ -
Other Adjustments:	
For Gross lease only - Not Applicable	
For Gross lease only - Not Applicable	\$ -
PRV of Vacancies, CAPEX, added-value (e.g. Vacant land) or adjustments	\$ -
Total PRV: Term + Reversions ± Other Adjustments	\$ 2,399,133
Current Real Market Value - CMV: (Rounded)	\$ 2,399,000
Initial Yield (over-all capitalisation rate): Current Contract Rental ÷ CMV:	9.4206% p.a.

Notes:

Post-Earthquake Christchurch Suburban Office block Re-valuation

ARRY Multi-Tenant Property Investment Valuation Model - (Up to 10) - Single tenants - © Copyright R L Jefferies, Feb 2011

Valuation Date:	Date format dd/mm/yyyy	9/04/2011	Suburban office park building			
SUMMARY - All Properties in Portfolio		TOTAL:				
Tenant:		<i>Ad Coy- 500m2</i>	<i>Lawyers 600m2</i>	<i>Accountants 600m2</i>	<i>Insurance Co 600m2</i>	
Rental, lease and data assumptions:						
Lease Commencement date:		1/09/2010	9/03/2011	1/04/2011	9/04/2011	
Current Lease Expiry date:		1/09/2016	9/03/2014	1/04/2014	9/04/2014	
Lease term (in Years): Term		6.00 years	3.00 years	3.00 years	3.00 years	
Last rent review date:		1/09/2010	1/09/2010	1/09/2010	1/09/2010	
Number of renewals assumed (i.e. will be exercised)		2 Renewals	3 Renewals	2 Renewals	0 Renewals	
Final Lease Expiry date At Termination:(if applicable):		1/09/2028	9/03/2023	1/04/2020	Not Applicable	
Contract Review Term Frequency in yrs: F		2.00 years	3.00 years	3.00 years	3.00 years	
Next Rent Review date (If applicable):		1/09/2012	9/03/2014	1/04/2014	9/04/2014	
Contract Rent to run until next rent review:	\$ 961,000 p.a.	\$ 226,000 p.a.	\$ 245,000 p.a.	\$ 245,000 p.a.	\$ 245,000 p.a.	
Current Contract Rent - if reviewed at valuation date:	\$ 981,000 p.a.	\$ 246,000 p.a.	\$ 245,000 p.a.	\$ 245,000 p.a.	\$ 245,000 p.a.	
IF Precribed Rental - Nominal Annual escalation rate for rental :		Not Applicable	Not Applicable	Not Applicable	Not Applicable	
Current Market Rent (on normal terms and conditions):		\$ 252,150 p.a.	\$ 245,000 p.a.	\$ 245,000 p.a.	\$ 245,000 p.a.	
Rental payments basis (EOP = In Arrears; BOP = In Advance)		Monthly BOP	Monthly BOP	Monthly BOP	Monthly BOP	
Review Term Frequency in yrs:		2.00 years	3.00 years	3.00 years	3.00 years	
Current Rental Term to Run in yrs:		1.40 years	2.92 years	2.98 years	3.00 years	
Contract Lease Expiring in yrs:		5.40 years	2.92 years	2.98 years	3.00 years	
Contract Lease with assumed renewals - terminating in yrs:		17.40 years	11.92 years	8.98 years	3.00 years	
Re-letting on contract lease expiry: RL Y = Yes, N = No		Y	Y	Y	Y	
Expected (Nominal) Inflation rate:	Key Common Input:	3.5000% p.a.	3.5000% p.a.	3.5000% p.a.	3.5000% p.a.	3.5000% p.a.
Real Growth rate:	Key Common Input:	1.0000% p.a.	1.0000% p.a.	1.0000% p.a.	1.0000% p.a.	1.0000% p.a.
Nominal Value Growth rate:		4.5000% p.a.	4.5000% p.a.	4.5000% p.a.	4.5000% p.a.	4.5000% p.a.
All-Risks Real Yield rate:	Key Common Input:	11.0000% p.a.	11.0000% p.a.	11.0000% p.a.	11.0000% p.a.	11.0000% p.a.
Over-all Required Nominal Yield:		15.5000% p.a.	15.5000% p.a.	15.5000% p.a.	15.5000% p.a.	15.5000% p.a.
Present Real Value (PRV) of Current Contract Rental Term to Run:	\$ 2,061,444	\$ 287,413	\$ 583,931	\$ 593,470	\$ 596,630	
PRV of Contract Rental from next Review to until Termination or Expiry:	\$ 3,347,964	\$ 1,594,393	\$ 996,759	\$ 756,812	\$ -	
PRV of Reversion - Market Rental from Expiry to Termination (if applicable):	\$ 3,503,794	\$ 371,651	\$ 639,753	\$ 869,485	\$ 1,622,906	
PRV for OPEX : If applicable - See individual tenants for details	\$ -	\$ -	\$ -	\$ -	\$ -	
PRV of Real Redevelopment Value at Lease Termination (If Applicable):	\$ -	\$ -	\$ -	\$ -	\$ -	
PRV of Vacancies, CAPEX, added-value (e.g. Vacant land) or adjustments	\$ -	\$ -	\$ -	\$ -	\$ -	
Total PRV: Term + Reversions ± Other Adjustments	\$ 8,913,202	\$ 2,253,457	\$ 2,220,443	\$ 2,219,766	\$ 2,219,536	
Current Real Market Value - CMV: (Rounded)	\$ 8,913,000	\$ 2,253,000	\$ 2,220,000	\$ 2,220,000	\$ 2,220,000	
Initial Yield (over-all capitalisation rate): Current Contract Rental ÷ CMV:		10.7820% p.a.	10.0311% p.a.	11.0360% p.a.	11.0360% p.a.	11.0360% p.a.

Comments: This 4 level office 4 Green Star building was occupied only to the ground floor at 22nd Feb quake but was undamaged and "green" stickered - and rapidly leased to firms relocating from the CBD \$40/m² above the pre-quake asking rentals @ \$365/m² +OPEX @ \$60/m². Upper level floor plates are all 600m² NLA including exclusive use of toilets off the space and up to lift doors.

Parking allocated 20 spaces per level remain @\$25 p.w. incl in leases.

Attendees at the Lincoln Special Seminar on the revaluation date 9/4/11 agreed collectively that the regional expected inflation would be higher @ 3.5% p.a. the future real growth rate at 1% p.a. OK in the short-run, but the risk attached to increased rents may prove in the long-run result in over-rented space, and reversion to negative real growth. Investment in Canterbury/Christchurch is perceived to be more risky and hence an increase in the ARRY (Y_A) to 11% p.a.

The effect on the RPV or CMV is interesting under this scenario as despite now being fully tenanted, the value has fallen marginally, due to the increased perceived investment risk! All cap rates have increased and overall increased market rentals offset.

Post-Earthquake Christchurch Suburban Office block Re-valuation

ARRY Multi-Tenant Property Investment Valuation Model - (Up to 10) - Single tenants - © Copyright R L Jefferies, Feb 2011

Valuation Date:	Date format dd/mm/yyyy	9/04/2011	Suburban office park building			
SUMMARY - All Properties in Portfolio		TOTAL:				
Tenant:			<i>Ad Coy- 500m2</i>	<i>Lawyers 600m2</i>	<i>Accountants 600m2</i>	<i>Insurance Co 600m2</i>
Rental, lease and data assumptions:						
Lease Commencement date:			1/09/2010	9/03/2011	1/04/2011	9/04/2011
Current Lease Expiry date:			1/09/2016	9/03/2014	1/04/2014	9/04/2014
Lease term (in Years): Term			6.00 years	3.00 years	3.00 years	3.00 years
Last rent review date:			1/09/2010	1/09/2010	1/09/2010	1/09/2010
Number of renewals assumed (i.e. will be exercised)			2 Renewals	3 Renewals	2 Renewals	0 Renewals
Final Lease Expiry date At Termination:(if applicable):			1/09/2028	9/03/2023	1/04/2020	Not Applicable
Contract Review Term Frequency in yrs: F			2.00 years	3.00 years	3.00 years	3.00 years
Next Rent Review date (If applicable):			1/09/2012	9/03/2014	1/04/2014	9/04/2014
Contract Rent to run until next rent review:		\$ 961,000 p.a.	\$ 226,000 p.a.	\$ 245,000 p.a.	\$ 245,000 p.a.	\$ 245,000 p.a.
Current Contract Rent - if reviewed at valuation date:		\$ 981,000 p.a.	\$ 246,000 p.a.	\$ 245,000 p.a.	\$ 245,000 p.a.	\$ 245,000 p.a.
IF Precribed Rental - Nominal Annual escalation rate for rental :			Not Applicable	Not Applicable	Not Applicable	Not Applicable
Current Market Rent (on normal terms and conditions):			\$ 252,150 p.a.	\$ 245,000 p.a.	\$ 245,000 p.a.	\$ 245,000 p.a.
Rental payments basis (EOP = In Arrears; BOP = In Advance)			Monthly BOP	Monthly BOP	Monthly BOP	Monthly BOP
Review Term Frequency in yrs:			2.00 years	3.00 years	3.00 years	3.00 years
Current Rental Term to Run in yrs:			1.40 years	2.92 years	2.98 years	3.00 years
Contract Lease Expiring in yrs:			5.40 years	2.92 years	2.98 years	3.00 years
Contract Lease with assumed renewals - terminating in yrs:			17.40 years	11.92 years	8.98 years	3.00 years
Re-letting on contract lease expiry: RL Y = Yes, N = No			Y	Y	Y	Y
Expected (Nominal) Inflation rate:	Key Common Input:	3.5000% p.a.	3.5000% p.a.	3.5000% p.a.	3.5000% p.a.	3.5000% p.a.
Real Growth rate:	Key Common Input:	1.0000% p.a.	1.0000% p.a.	1.0000% p.a.	1.0000% p.a.	1.0000% p.a.
Nominal Value Growth rate:		4.5000% p.a.	4.5000% p.a.	4.5000% p.a.	4.5000% p.a.	4.5000% p.a.
All-Risks Real Yield rate:	Key Common Input:	11.0000% p.a.	11.0000% p.a.	11.0000% p.a.	11.0000% p.a.	11.0000% p.a.
Over-all Required Nominal Yield:		15.5000% p.a.	15.5000% p.a.	15.5000% p.a.	15.5000% p.a.	15.5000% p.a.
Present Real Value (PRV) of Current Contract Rental Term to Run:		\$ 2,061,444	\$ 287,413	\$ 583,931	\$ 593,470	\$ 596,630
PRV of Contract Rental from next Review to until Termination or Expiry:		\$ 3,347,964	\$ 1,594,393	\$ 996,759	\$ 756,812	\$ -
PRV of Reversion - Market Rental from Expiry to Termination (if applicable):		\$ 3,503,794	\$ 371,651	\$ 639,753	\$ 869,485	\$ 1,622,906
PRV for OPEX : If applicable - See individual tenants for details		\$ -	\$ -	\$ -	\$ -	\$ -
PRV of Real Redevelopment Value at Lease Termination (If Applicable):		\$ -	\$ -	\$ -	\$ -	\$ -
PRV of Vacancies, CAPEX, added-value (e.g. Vacant land) or adjustments		\$ -	\$ -	\$ -	\$ -	\$ -
Total PRV: Term + Reversions ± Other Adjustments		\$ 8,913,202	\$ 4,253,457	\$ 2,220,443	\$ 2,159,767	\$ 2,219,536
Current Real Market Value - CMV: (Rounded)		\$ 8,300,000	\$ 2,250,000	\$ 2,250,000	\$ 2,250,000	\$ 2,250,000
Initial Yield (over-all capitalisation rate): Current Contract Rental ÷ CMV:		10.7820% p.a.	10.0311% p.a.	11.0360% p.a.	11.0360% p.a.	11.0360% p.a.

New tenancies are added and data updated to reflect the ex CBD tenant take up after the 22nd Feb earthquake, but value is reduced due to increase in inflation expectation and increased risk reflected in the ARRY

Portfolios of different properties, use an ARRY Multi-Property Portfolio Valuation Template the summary sheet of which only the expected inflation rate I_e is a common input. G_r and Y_A are entered on individual property sheets.

Comments: This 4 level office 4 Green Star building was occupied only to the ground floor at 22nd Feb quake but was undamaged and "green" stickered - and rapidly leased to firms relocating from the CBD \$40/m² above the pre-quake asking rentals @ \$365/m² +OPEX @ \$60/m². Upper level floor plates are all 600m² NLA including exclusive use of toilets off the space and up to lift doors.

Parking allocated 20 spaces per level remain @\$25 p.w. incl in leases, Attendees at the Lincoln Special Seminar on the revaluation date 9/4/11 agreed collectively that the regional expected inflation would be higher @ 3.5% p.a. the future real growth rate at 1% p.a. OK in the short-run, but the risk attached to increased rents may prove in the long-run result in over-rented space, and reversion to negative real growth. Investment in Canterbury/Christchurch is perceived to be more risky and hence an increase in the ARRY (Y_A) to 11% p.a. The effect on the RPV or CMV is interesting under this scenario as despite now being fully tenanted, the value has fallen marginally, due to the increased perceived investment risk! All cap rates have increased and overall increased market rentals offset.

Interim Research Progress, Bench Testing & Results

1. So far three 1.5 to 2 hour presentations of the ARRY model & Excel template demonstrations given to 90 PINZ members in Nelson, Christchurch & Wellington. Intend visiting more PINZ branches.
2. 15 valuers (in total) attended 3 x 4 hour Workshops where Excel™ Template versions of the model demonstrated; and to introduce ***benchtesting*** the model in their practices against normal methods.
3. This has so far identified that:
 - I. The Excel templates need further modification for local lease characteristics and market conditions.
 - II. The user-friendliness of the templates need more work (i.e. simple to use).
 - III. A better way of simplifying inputting lease and market data is required.
 - IV. Support for the ARRY valuation concept and theory by workshop attendees.
 - V. ARRY valuation seen as potentially easier and better than DCFs.
 - VI. Considered if adopted by profession will narrow valuation variance between valuers and sales evidence.
 - VII. Need to present reporting to clients in an understandable way.
4. Both qualitative & quantitative empirical testing will be by questionnaire , interview and statistical testing valuers' ARRY valuations against current methods and subsequent sales.

I am confident that you are on course to produce a really important valuation tool, and hope to participate in further sessions with you. (GK, Wellington)

I am keen to try to see if your Model will work on some of my forestry valuations, rental and licensor's interest assessments, etc. ... by trying to adopt that which is basically a commercial property focused application to forestry/ rural properties. (DA, Canterbury)

Feedback from Seminar & Workshop Participants

I want investigate further the opportunities we may have for incorporating it into our work process. I can see there may be some advantages in ARRY over our current processes.
(ML, Nelson)

I consider your approach to make far more sense than DCF methodology; it removes a lot of forecasting assumptions that are required of current methodology. Informative and logical, it made so much sense. (Anon, rural lender, Canterbury)

Overall a good theory, the spreadsheets look user-friendly and logical. (JC, Canterbury)

Potentially a lot more realistic, especially given unpredictable short-term market movements. (Anon, Christchurch)

I agree with the limitations of the DCF approach, but some banks insist on a DCF analysis. They will need to be re-directed in the usefulness of the ARRY approach. (SB, Timaru)

Feedback from Seminar & Workshop Participants Continued

Like all models, needs enough sales to benchmark conclusions to reflect different tenancy characteristics. (CB, Christchurch).

I think you are mad as a snake! – It's just jazzing up the old Equivalent Yield model.
(JP, Christchurch.)





A Work in Progress

Thank you for your attendance and interest.
If you would like to enquire further with any questions, feedback or comments;

OR Like to help organise a Seminar and Workshop in your branch of the PINZ or API;

Please see me afterwards or contact me:

rodney.jefferies@lincolnuni.ac.nz

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