

# Cumpston Sarjeant

— CONSULTING ACTUARIES —

*Life Interests: An Actuarial Perspective*

*Presenter: Corey Plover*

# Overview

- Definitions & terminology
- Examples
- Valuation approach
- Key parameters
- More complicated examples

# Definition & terminology

A **life interest** is a form of right whereby an individual (the **life tenant**) owns or benefits from an asset for the duration of their life.

Upon death of the life tenant, ownership of the asset passes to another person (the **remainderman**).

# Examples

- Real property
  - The right for a spouse to *reside in* or *occupy* a family home for the remainder of their life.
  - The right for an individual to *occupy* an investment property

*Question 1: What is the difference between “right to reside” and “occupy”?*

- Investment portfolio – The receipt of dividend income from an investment portfolio until death.

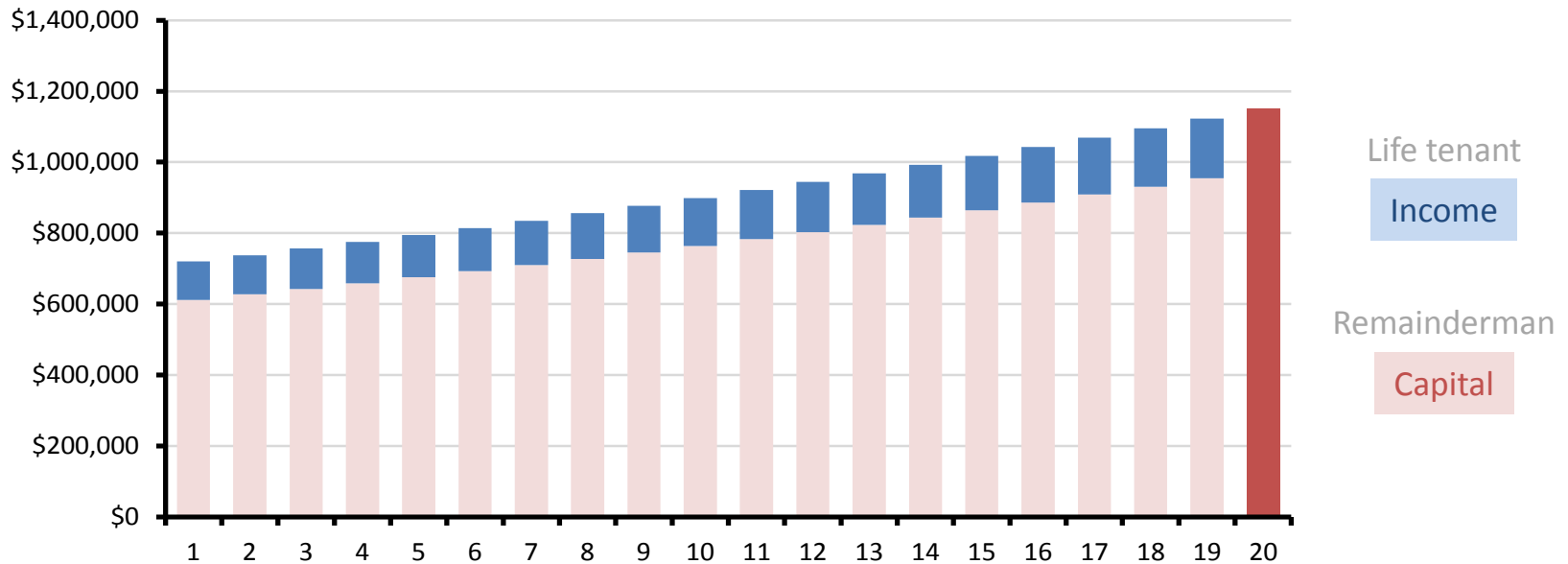
*Question 2: Who manages the objectives of the investment portfolio?*

- Other – The right to the enjoyment of artwork before reversion to a gallery upon death.

*Question 3: What is the yield on items with no monetary value?*

# Valuation approach

## ~~Incorrect~~ Discounted cash flow model:



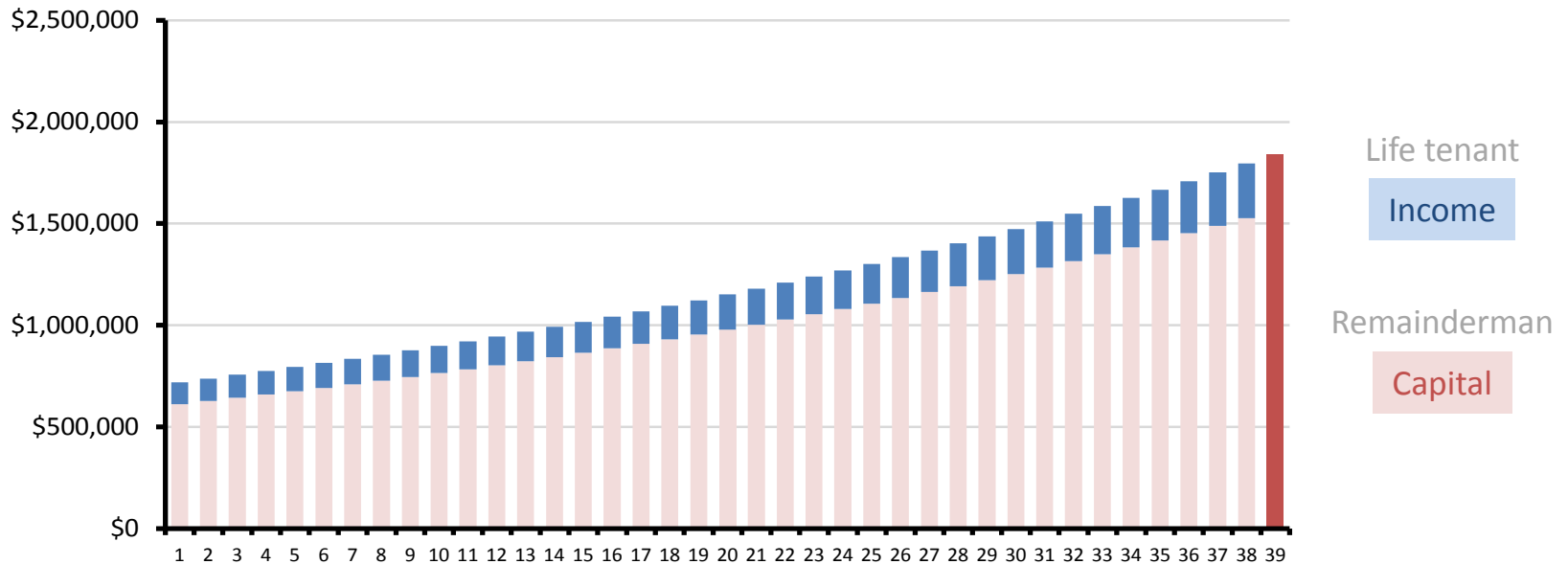
Present value of life interest:

- \$440 pw net rental
- 19 years life expectancy
- 2.5% growth rate
- 3% government bond rate

= **\$415,800** (or 58% of property value) — This is incorrect. Why?

# Valuation approach

## ~~Incorrect~~ Discounted cash flow model:

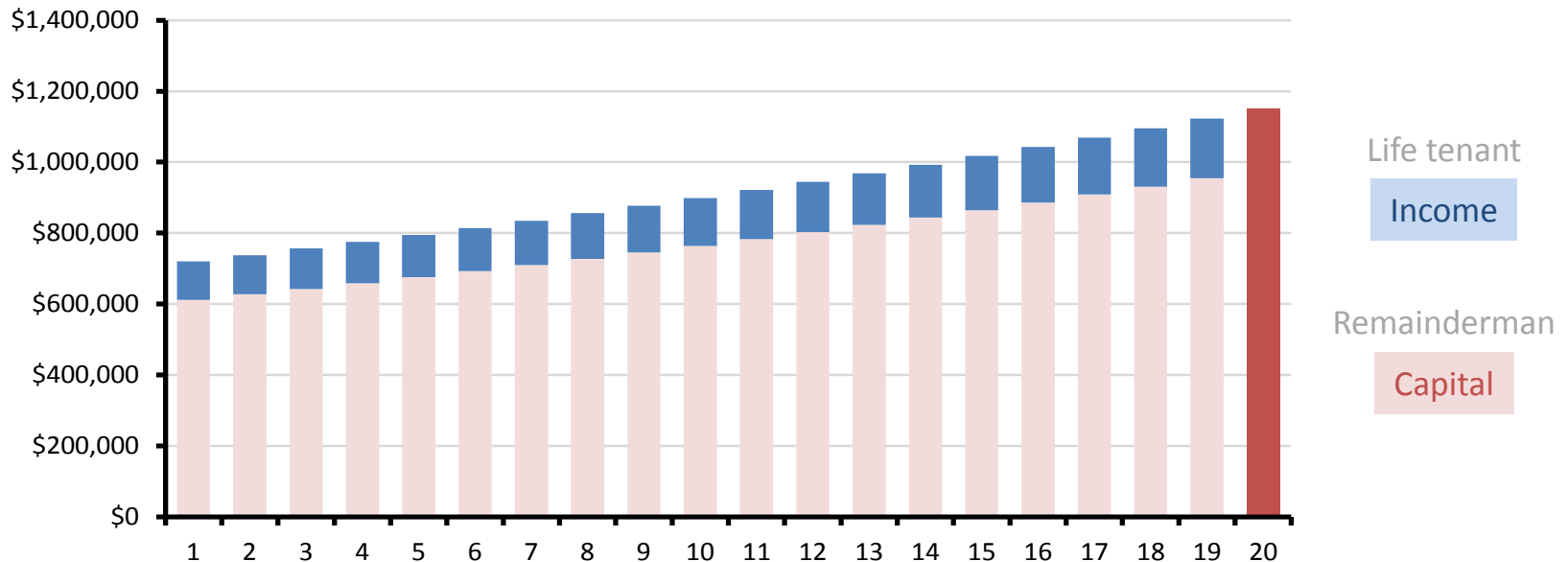


Present value of life interest:

- \$440 pw net rental ————— Implies net yield of 3.2% pa
  - **38** years life expectancy
  - 2.5% growth rate
  - 3% government bond rate
- ≠
- Implies net yield of 0.5% pa
- = **\$795,300** (or 110% of property value) — This is more obviously incorrect

# Valuation approach

## (Corrected) Discounted cash flow model:



Present value of life interest:

- \$440 pw net rental
- 19 years life expectancy
- **3.2%** net yield

= **\$323,400** (or 45% of property value)

Present value of remainderman:

- \$720,000 capital value
- 19 years deferral
- **3.2%** net yield

= **\$396,600** (or 55% of property value)

# Valuation approach

Fundamental rule of life interest valuation:

Always ensure the discount rate equals the income yield

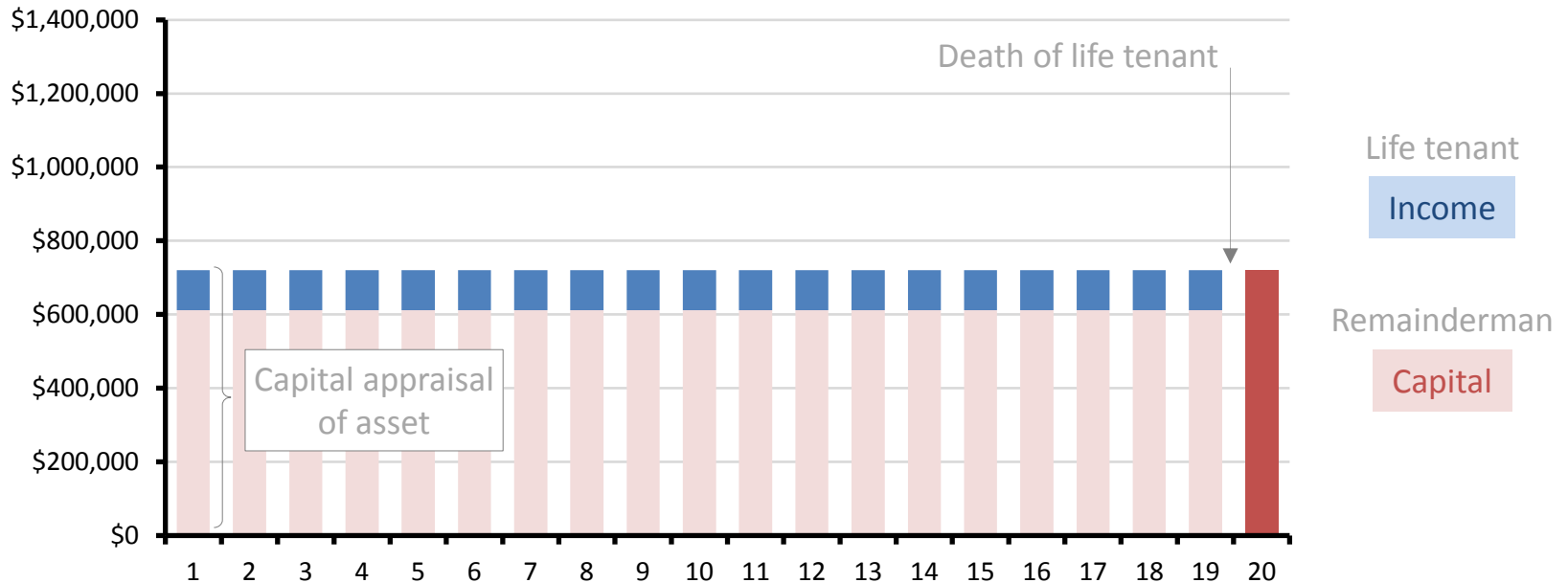
This is the only way to ensure:

- The valuation principle is fair to all parties
- The sum of the life and remainderman interests add up to present market value of the asset
- A life interest in perpetuity is correctly valued at 100% of market value of the asset.



# Key parameters

## Simplified discounted cash flow model (real):



Present value of life interest:

- Life expectancy (more specifically survival probabilities)
- Net yield (% pa)

# Key parameters

Life and remainderman interests depend on only two parameters:

- Yield – Net income (after costs incurred in maintaining or managing the asset) divided by capital value
- Duration – the life beneficiary's survival probability

# Return to examples / complications

*Question 1: What is the difference between “right to reside” and “occupy”?*

*Question 2: Who manages the objectives of the investment portfolio?*

*Question 3: What is the yield on items with no monetary value?*

*Question 4: What is the life interest on a dilapidated property?*

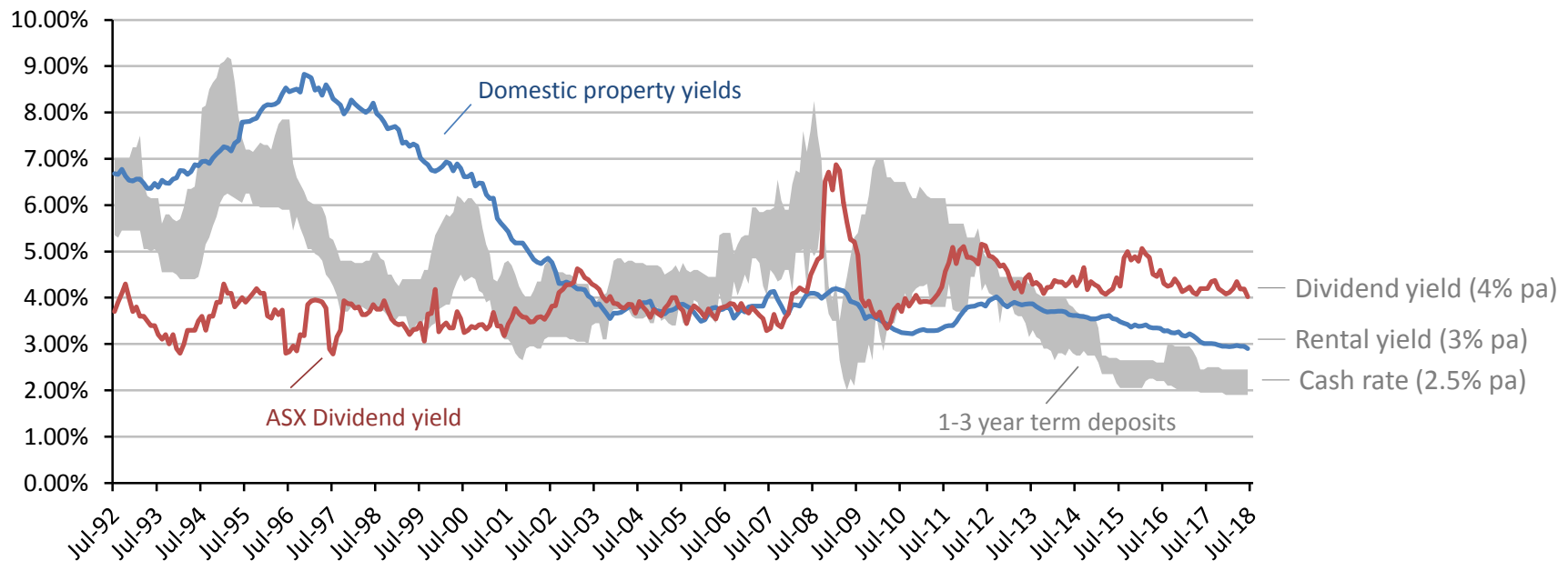
*Question 5: What if there are multiple remaindermen?*

# Selection of net yield

- Real property – Net rental (after rates, insurance and maintenance) divided by capital value
- Investment portfolio – Dividend yield implied by asset allocation
- Other – Dependent on market appraisal or ability to sell the life interest and invest proceeds.

# Selection of net yield

- High Court ruling in *Todorovic v Waller* [1981] HCA 72 – 3% pa
- Legislation (*Civil Liability Act 2002, Wrongs Act 1958*) – 5% pa
- *Family Law (Superannuation) Regulations 2001* – 4% pa
- KPMG Valuation Practices Survey 2017 – 4.2% pa



# Legal precedents with life interest-like features

- “Right to reside” vs “occupy”
  - *McElligott v Public Trustee of Queensland* [2013] QSC 314
- Capital recovery for purpose built housing
  - *Grimsey v Southern Regional Health Board* [1997] TASSC 103
  - *Rosecrance v Rosecrance* [1995] 105 NTR 1
- ‘Adequate provision’ for ‘proper maintenance and support’
  - *Administration and Probate Act 1958* (Vic) et al

# Questions