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# "In search of the Elusive Discount Rate for Australian Property Investment"

## PRRES Conference 2006

Anthony De Francesco
Head of Research,
Global Investment Solutions Group, Global Asset Management
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# Outline

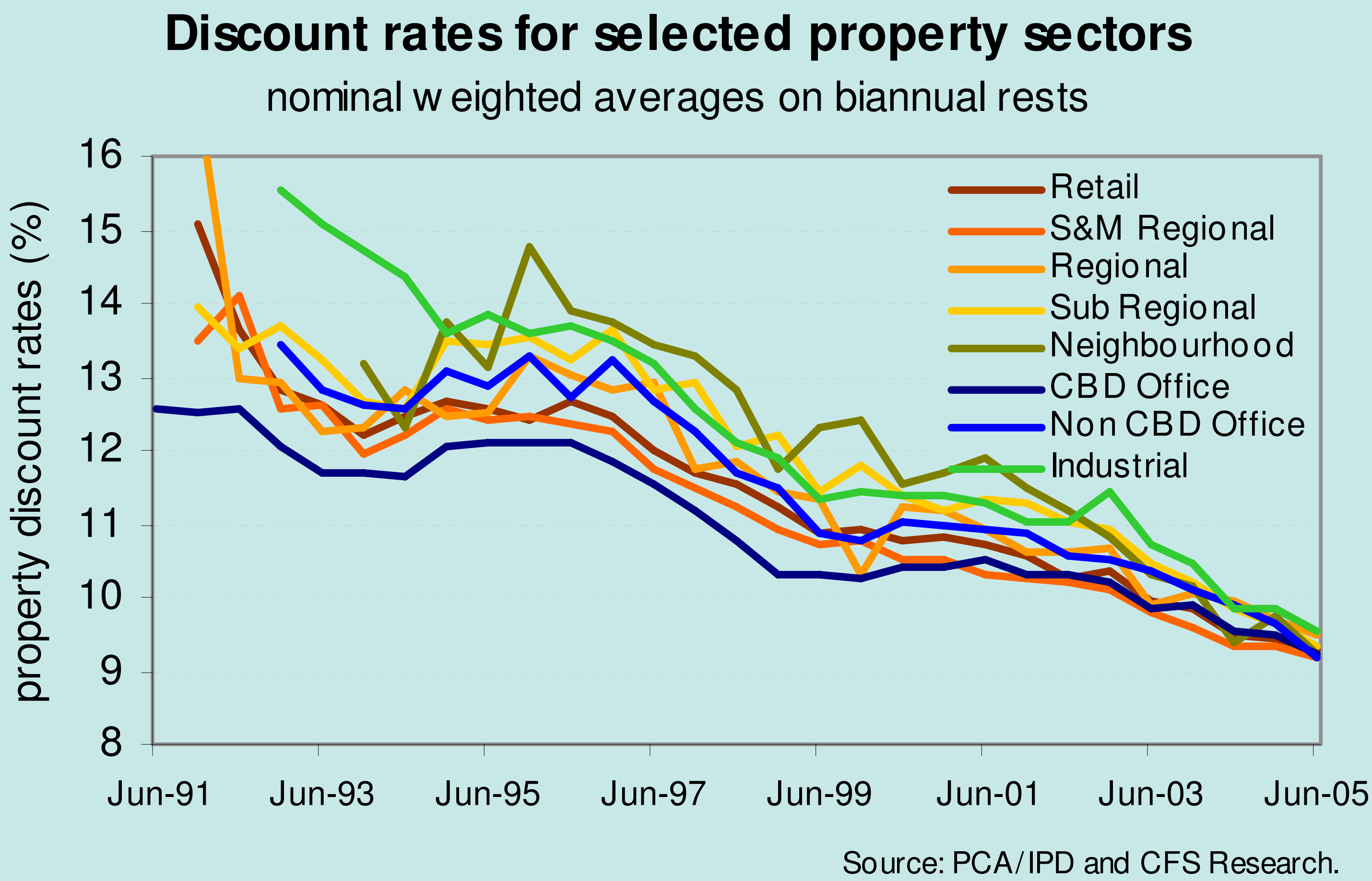
- Review of discount rates
- Determination of discount rates
  - Valuers framework
  - Capital Asset Pricing Model (CAPM)
- Outlook
- Implications

# Review of discount rates

# Review of discount rates: what is the discount rate?

- A discount rate is the cost of capital which SHOULD be risk adjusted.
- The marginal investor's required rate of return on a given investment.
- The rate at which future income / value is discounted to achieve a present worth.

# Review of discount rates: trending down for over a decade




- **Real discount rates relatively stable since 2000.**



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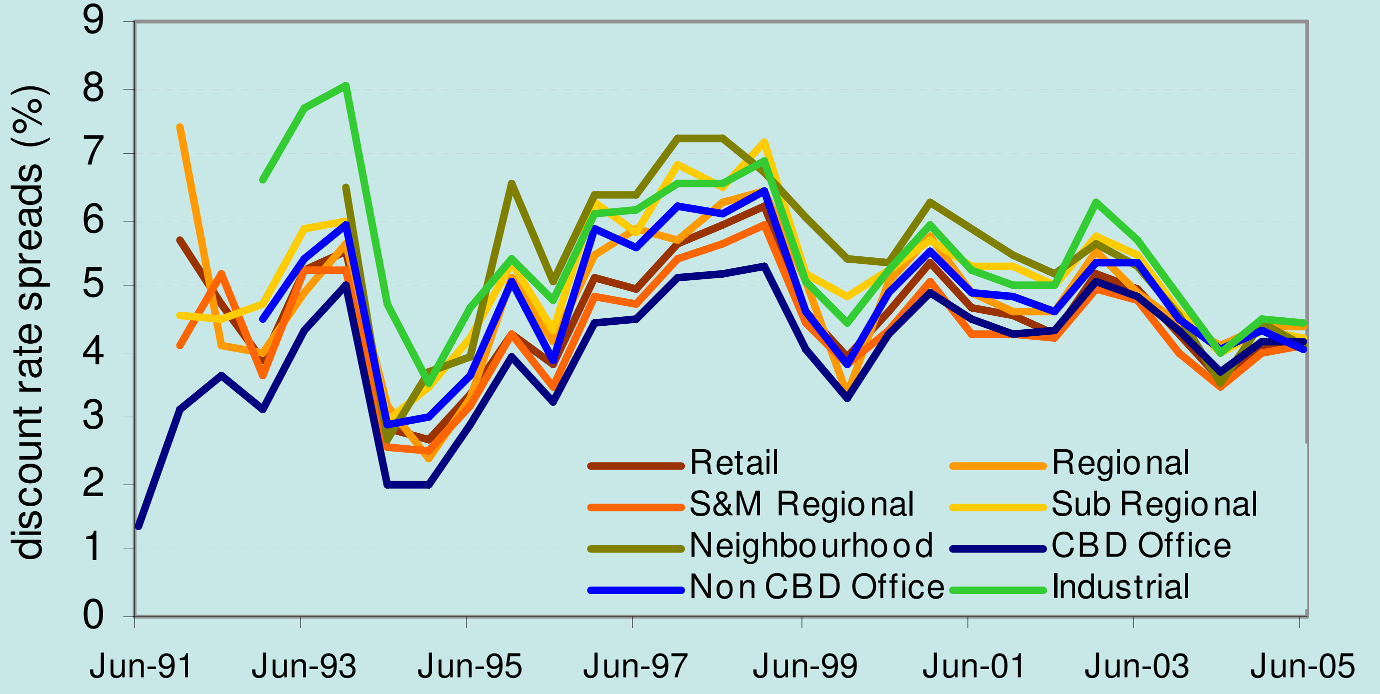
# Review of discount rates: real rates and spreads

**Discount rate spreads* for selected sectors**

weighted averages on biannual rests




Source: RBA, PCA/IPD and CFS Research.

- **Since 2000 discount rate spreads hover between 3.5% and 6.25%.**



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# Determination of discount rates



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# Determination of discount rates: two separate approaches

- Valuers framework
- Capital Asset Pricing Model



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# Determination of discount rates: valuation approach

# Determination of discount rates: valuation approach - the Gordon model

Next period's anticipated dividend.

Anticipated growth rate of dividends which is assumed constant.

$$P_0 = \frac{D_1}{(1+r_c)} + \frac{D_1(1+g)}{(1+r_c)^2} + \frac{D_1(1+g)^2}{(1+r_c)^3} + \ldots = \sum_{t=1}^{\infty} \frac{D_1(1+g)^{t-1}}{(1+r_c)^t} = \frac{D_1}{(r_c - g)}$$

Note that the net present value at period zero ($P_0$) is derived as the sum of all discounted future cash flows or current stock price.

Cost of capital - risk-adjusted discount rate (RADR).

This equality holds only if the absolute growth rate (g) is less than the discount rate ($r_e$).

# Valuation approach: Gordon's equality

$$r_c = \frac{D_1}{P_0} + g = \underbrace{\frac{D_0(1+g)}{P_0}}_{\text{income component}} + g$$

**Cost of capital**

**income component**

Current yield

**capital component**

Expected growth rate



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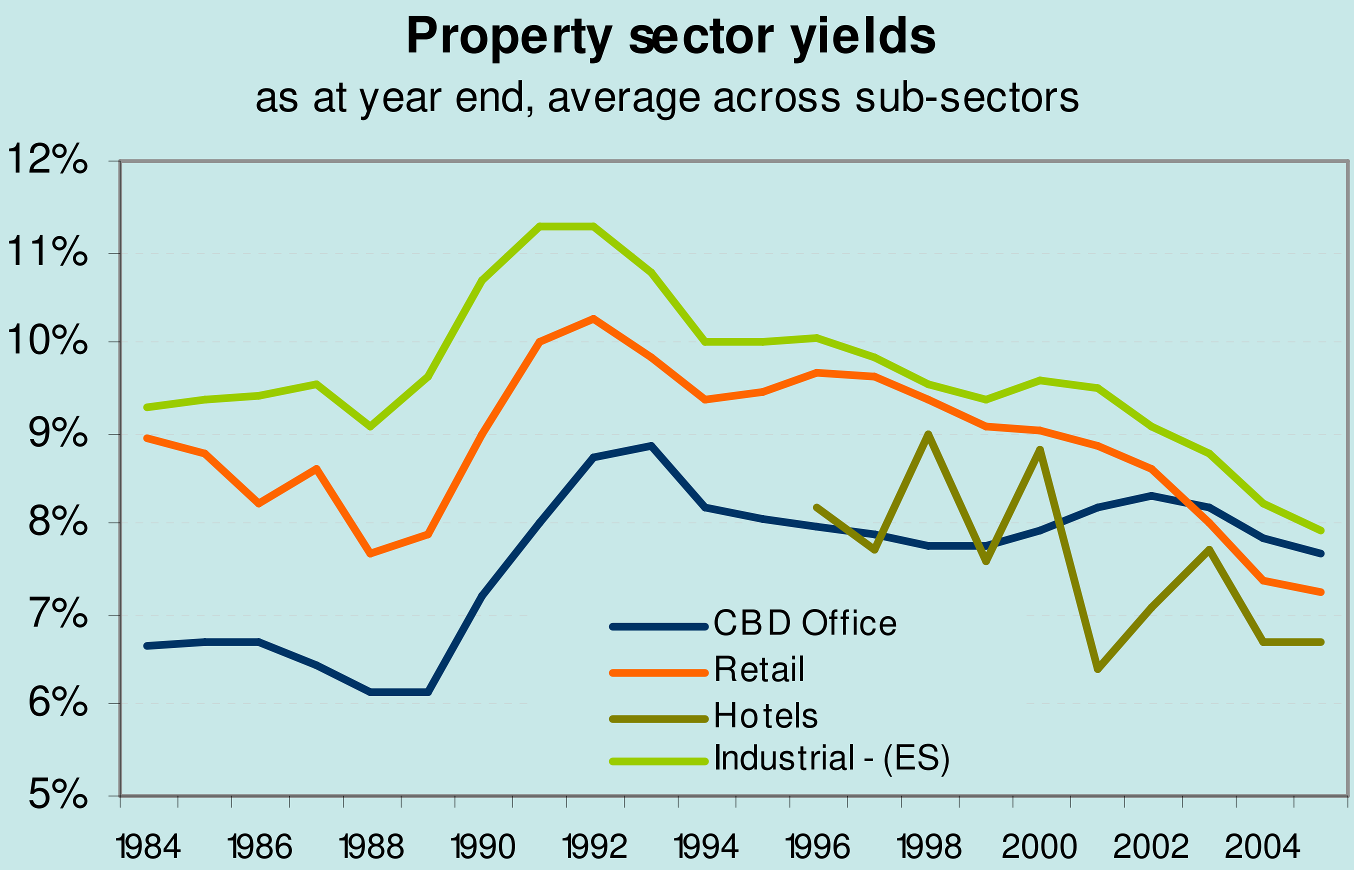
# Valuation approach: movements in yields over time




Source: PCA/IPD and CFS Research.

# Valuation approach: drivers of yield and growth rates

## Yields

- Capital market variables
  - Real bond rates
  - Flow of capital funds
- Space market variables
  - Vacancy rates
  - Real rents

## Rental growth rates

Highly variable across time and across sectors

- Space market variables
  - Supply
  - Demand



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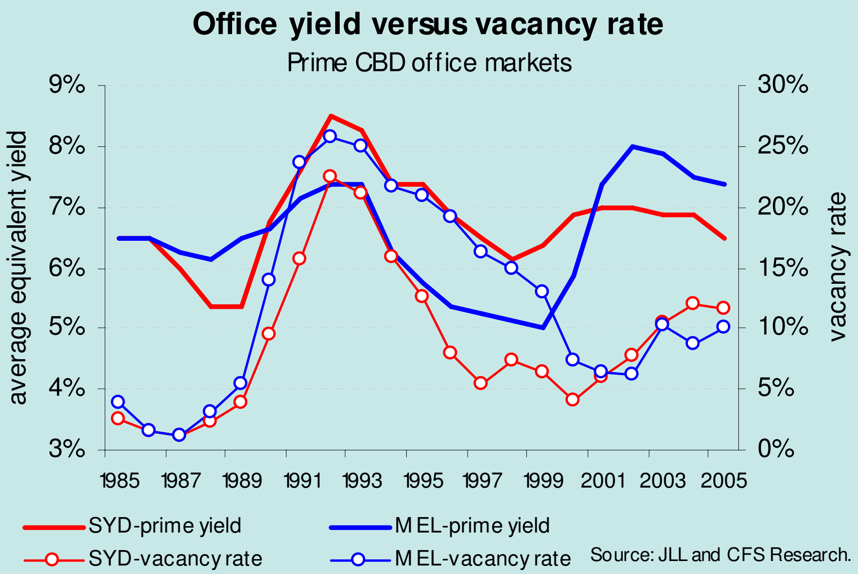
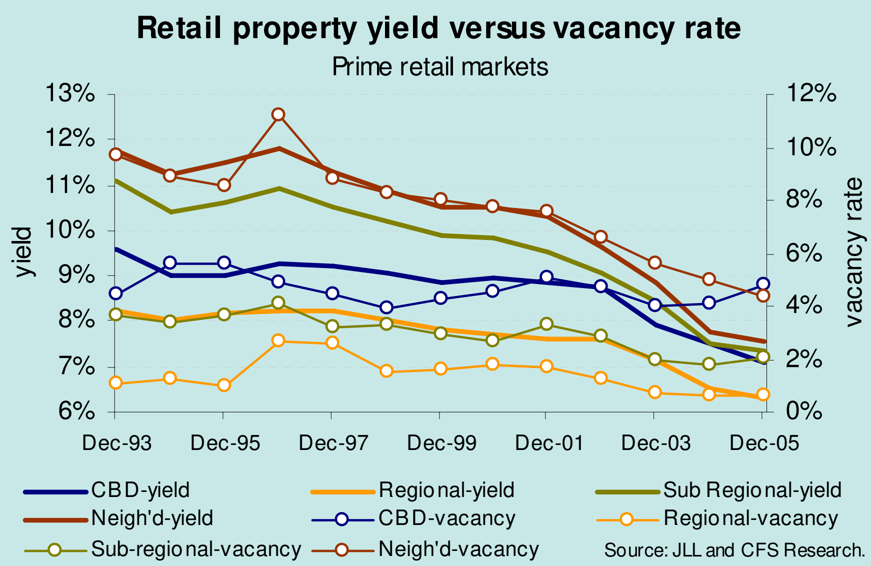
# Valuation approach: yield determination- yields & vacancies




- **Yields generally move positively with vacancy rates; i.e., rising vacancy rates is reflected in softening yields.**



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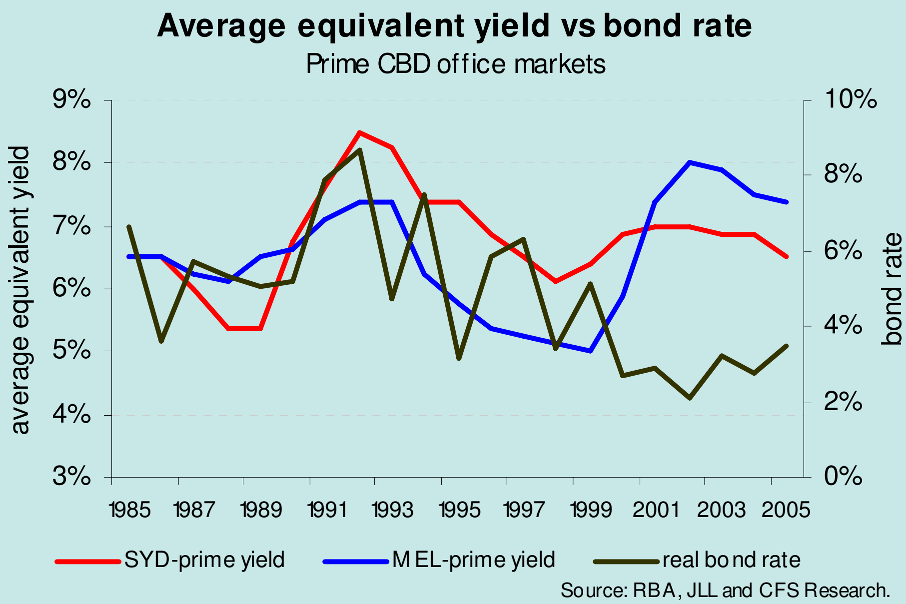
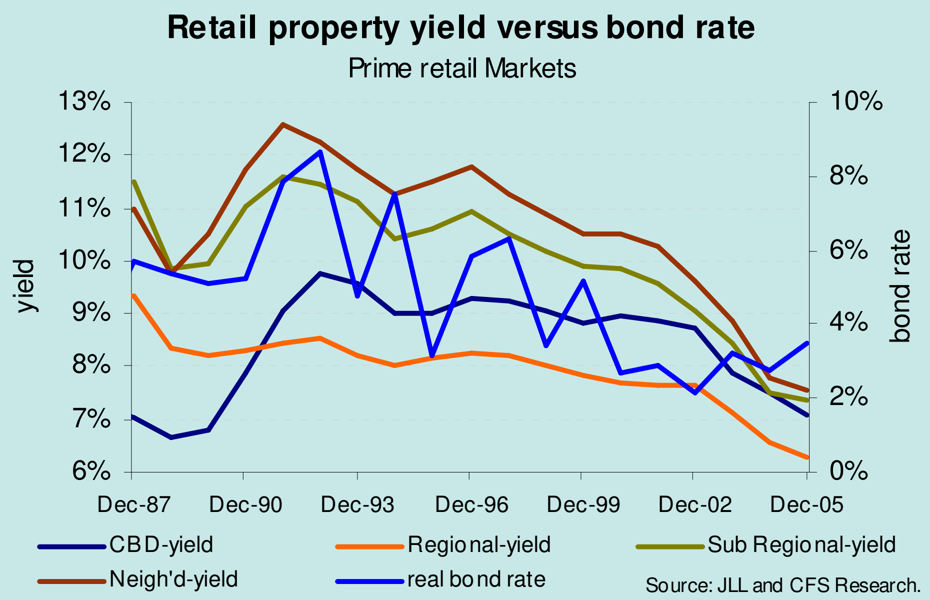
# Valuation approach: yield determination- yields & bonds




- **Yields generally move positively with the real bond rate; i.e., falling bond rate is reflected in yields firming.**

# Determination of discount rates: CAPM

# CAPM approach: its basic elements

$$r_c = r_f + \beta[\underbrace{E(r_m) - r_f}]$$

**Risk free rate (RFR)**

It is the risk-free rate in the economy, commonly estimated as the yield on long-term Treasury bonds.

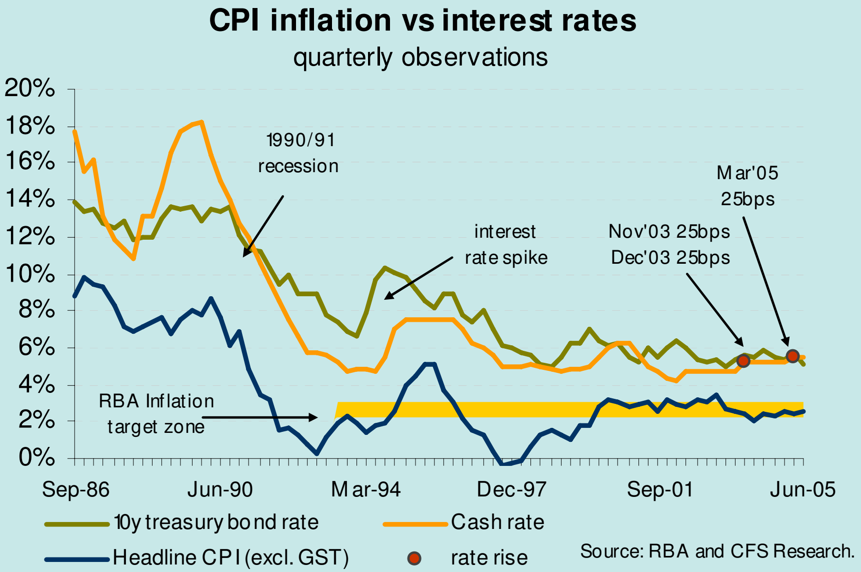
**Beta**

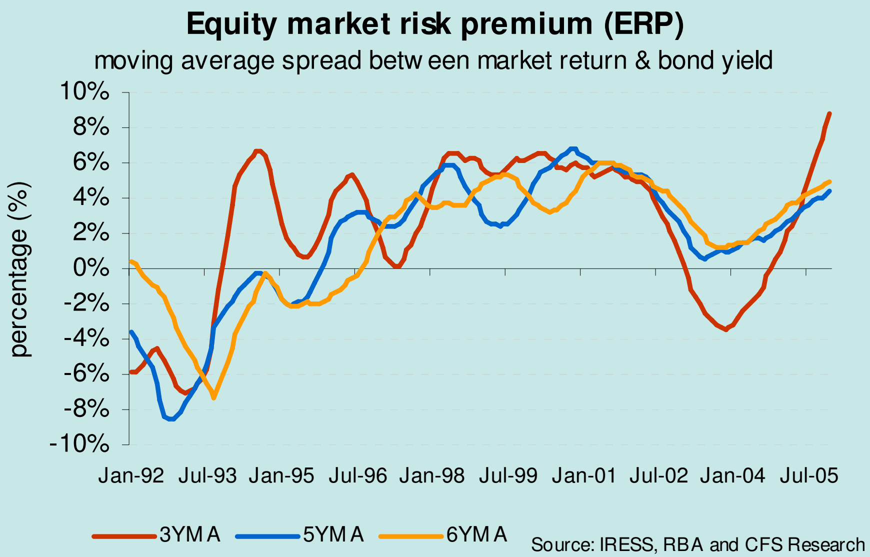
Measures systematic market risk. Estimated via regression analysis.

**Equity market risk premium (ERP)**

Estimated as the historic average of the average return of a broad-based market portfolio less RFR.

# CAPM approach: trends in RFR and ERP

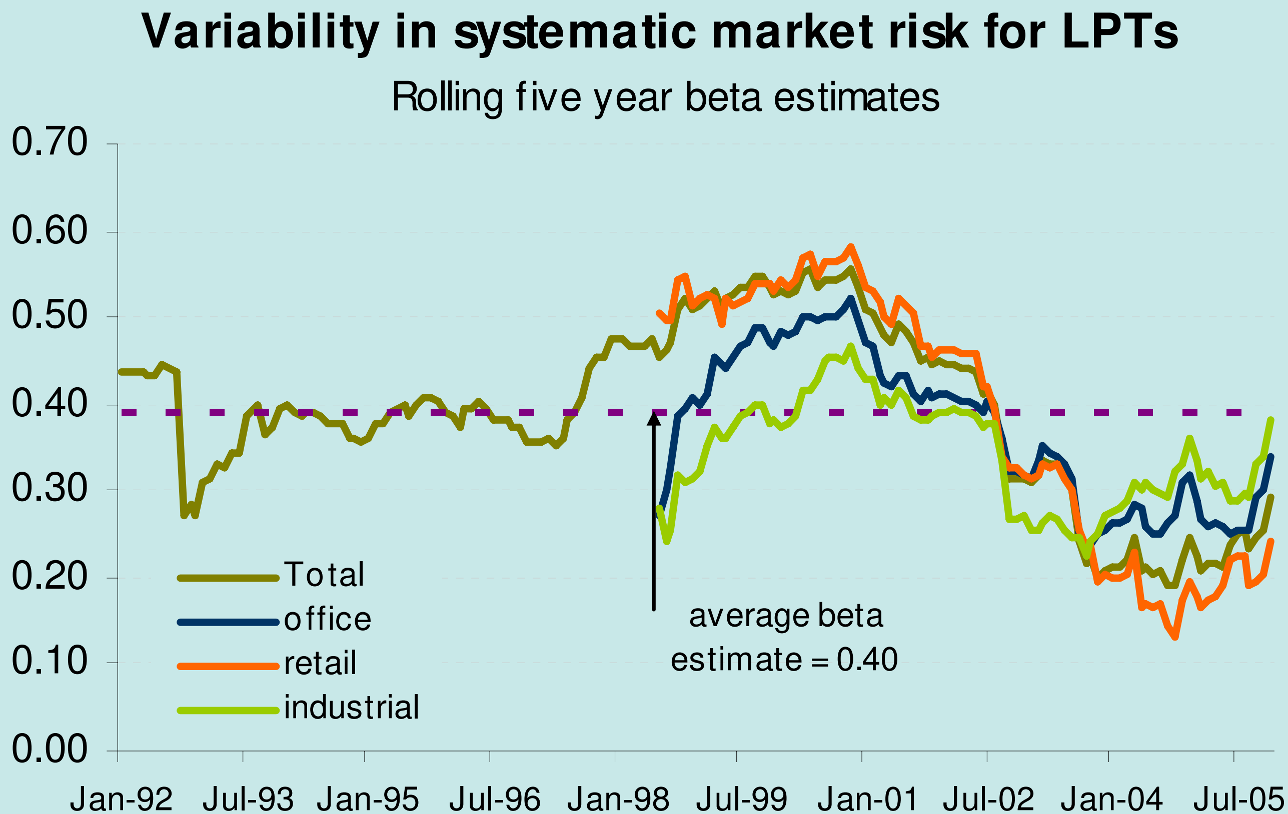



Risk-free rate has been trending down, in line with the inflation rate.

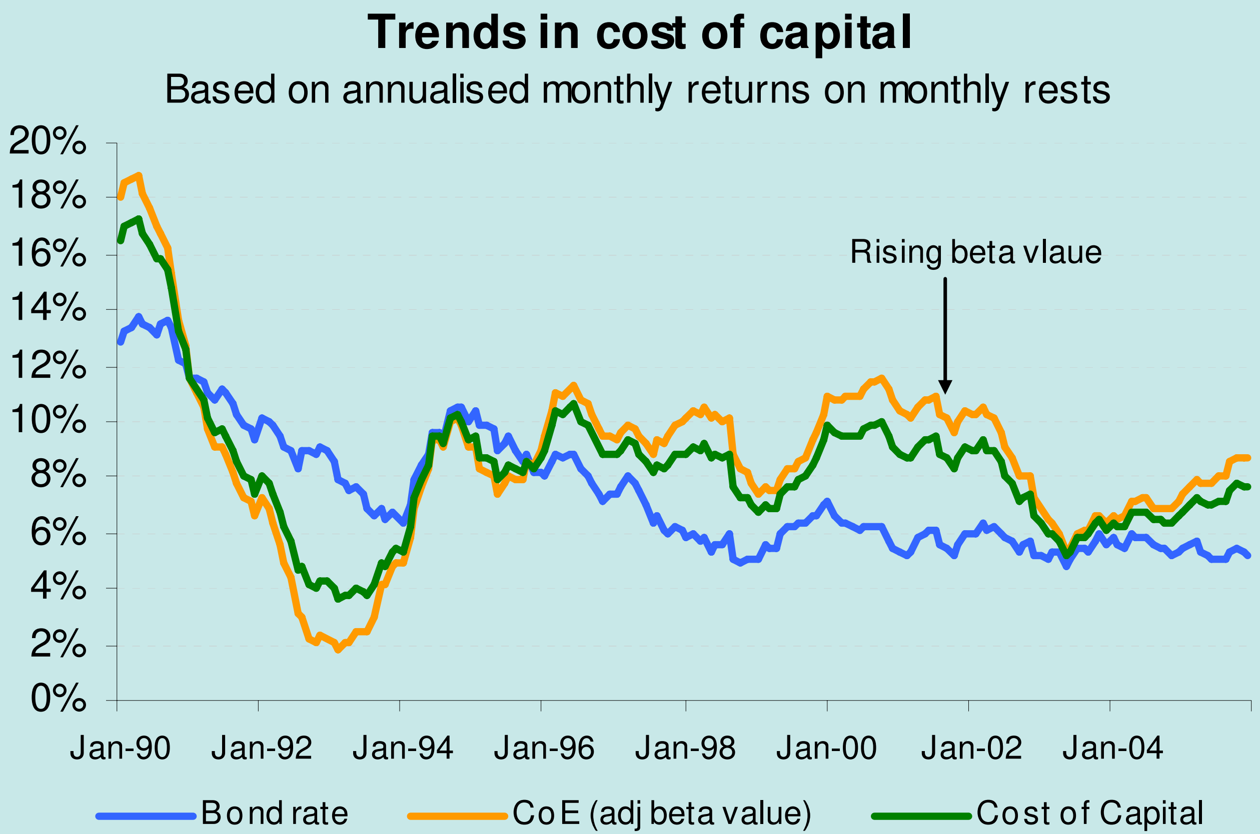
ERP is highly variable over time and sensitive to the sample period.

# CAPM approach: movements in portfolio betas




Source: IRESS, RBA and CFSP Research

# Outlook for discount rates: cost of capital estimated to be sub 8%




Note: COK assumes 30% debt & 70% equity.

Source: IRESS, RBA and CFSP Research



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# Outlook for discount rates

# Outlook for discount rates

- Discount rates are variable, being influenced by a combination of:
  - Space market fundamentals
  - Capital market forces
- Discount rates trending down and likely to continue this move in the short-term, although far more mildly. Relative stability due to benign interest rate and inflation outlook.
- Arbitrage opportunities limited due to limited downside movement



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# Implications

# Pricing and business implication

- Pricing
  - Returns for the property sector are in the process of moderating towards a new equilibrium

- Business
  - Impact on acquisitions / divestments
  - Performance strategies
  - Benchmarking strategies – target or hurdle rates
  - Incorporation into the house-view process



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