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A discussion of equity premium issues for actuaries

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Agenda

- Introduction
- Confusion around precise definition
- Confusion in actuarial type work
- Confusion around models
- Confusion in measurement
- Survey
- Future work and discussion

Introduction

Overall impression of confusion

Fernandez (2009) “*The Equity Premium in 150 Textbooks*” identifies at least four different conceptions of the ERP, and views of the average size that vary from 3% to 10% pa.

Confusion around precise definition

Four different concepts:

1. Historical equity premium
2. Expected equity premium *by investors and companies*
3. Required equity premium *by investors*
4. Implied equity premium using *current market dividend and earnings yields*

Confusion in actuarial type uses

- Portfolio construction
 - The higher the expected return, the higher the proportion invested in the asset (ceteris paribus)
 - Choice of ERP is critical and often unconscious
- Valuation
 - Problems when risky expected values discounted at risk free rate
- Modeling
 - Remember that implied volatility is a notional construct

Confusion around models (1)

Regularity or law?

1. Original CAPM

- Beta is only risk factor

2. Fama/French

- Add capitalisation and value/growth (book:market)

3. Additional factors

- Momentum - and volatility, liquidity ...

4. Mean reversion

- Based on current level of market

Confusion around models (2)

Discounted cash flow models of expected ERP

$$\text{Price}_0 = \text{CF}_0 * \sum (1+g)^t (1+i)^{-t}$$

g will vary and depends on:

- macro factors such as inflation, GDP growth
- entity specific factors such as turnover, profitability, retentions

i will vary and depends on:

- the overall level of interest rates
- entity specific risk related factors as per above

Confusion around measurement (1)

- Estimation error
 - Equity volatility of 20% means standard deviation of estimate over 50 years is $20\% / \sqrt{50} = \sim 3\%$
- Mean reversion and momentum would mean that ERP varies over time
 - Prior beliefs / null hypothesis are important
 - Time horizon also important
- Adjustments need to be made
 - Inflation, tax & franking, Arithmetic/Geometric

Confusion around measurement (2)

- Differences between markets and periods
 - Relative availability of capital, large unexpected events and government borrowing and distortions
- World average over 100 years is 4%, but 6% in Australia – one standard deviation difference if annual returns independent
- Implied equity risk premium with current dividend and earnings yields (noting possibility of IFRS distortions) is 3-4%?



Survey

Obtain a view on the range of ERPs in use so:

- that actuaries are within an acceptable range, or
- have the opportunity to justify any discrepancies.

Reduce the outliers

Create a more informed consensus

- Given the possibility that the ERP varies over time, the combined judgement of participants in the survey may give a better indication of future expectations.



Further work?

- Survey of practitioners?
- Guidance note?
- Input into education course materials
- Your views?