Biennial Convention 2007
Adventures in Risk
23-26 September 2007 • Christchurch, New Zealand
Institute of Actuaries of Australia

A review of the methodology of forecasting long-term equity returns

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Main methods in use

- Historical IID; ERP plus …
- Constant real dividends or earnings
- GDP (or economic) parity of earnings

- Almost forgotten – internal return on equity

- What are the underlying assumptions?

When is this type of model valid?

- When feedback evaluation is acceptable?
- When models are consistent with theories accepted elsewhere?

- When causes of key features are verified independently of econometric-type data?
- Laws will repeat themselves in out-of-sample periods; regularities may not

The equity premium

- Law or regularity
- The equity premium puzzle:

  Mehra and Prescott (1985 and 2003)

  "..perhaps it is not risk premium but rather due to other factors"
- Why do *"ex-ante"* estimates vary from minus 1% to plus 9% pa?
- Widely assumed as a law even though the causation "puzzle" is unresolved

Estimating dividend growth rates

- L/T TSR = (approx) div yield + div growth
- GDP parity and “stock issuance” dilution
- Earnings and dividends are “real” income
- Widespread acceptance of “company profits/dividends are real” eg MGWP
- Earnings/dividend follows profit retention
- Data is capable of many interpretations
  - Growth is less than GDP parity
  - Inflation and profit retention are not both 100% factors

The nature of company profits

- determined by HCC accounting system
- most real assets are treated as monetary
- benefit of inflation (if any) emerges in P&L
- main exception – permanent real assets
- case studies:
  - DJIA 1920-1989
  - Berkshire Hathaway 1964-2005
- ASX LPTs 1979 - 2006

Shareholders' equity framework

- Three key equations

$$ShEq_t = ShEq_{t-1} + NPAT_t - D_t$$

$$NPAT_t = RoSe_t \times 0.5 \times \left(ShEq_{t-1} + ShEq_t \right)$$

$$D_t = PoR \times NPAT_t$$

- also require: PB_n $ShEq_0$ and PB_0

  note $PB_t \approx PE_t \times RoSe_t$

- use RVs; point estimates or "scenarios"

"initial conditions" 30/6/07

- Price/earnings ratio 18.01
- Price/Book ratio 2.68
- Dividend yield 3.4%
- Initial RoSe 14.9% = 2.68/18.01
- Pay-out ratio 61% = 3.4% x 18.01

- Assuming these remain the same:
  TSR (20 years) = TSR (10 years) = 9.6%

Scenario B for ASX All Ords

- RoSe reverts to 9% pa by 2012
- PB reverts to 1.5 $\Rightarrow$ P/E falls to 16.7

TSR 2007-2017 = 1.6% pa

TSR 2007-2027 = 4.1% pa

Calculations in Appendix

P/E vs P/B; "brand value"

$$PB_t \approx PE_t \times RoSe_t$$

P/B approach allows for both P/E and RoSe

Projections focuses P/E ignore RoSe [state of economic buoyancy]

Over the long term, brand value should grow in parity with shareholders' equity

It is diluted by new share issues; its growth is therefore also constrained by retained profits

Discussion

- RoSe is a key determinant of TSR
  - why is it more or less ignored?
- Market index is the product of

  P/B ratio x RoSe x Av Shareholders Equity

  - two volatile stationary processes and one stable non-stationary process

  Stock returns are not serially independent

  - why is this implicit assumption so common?

Discussion (2)

- ERP and inflation link are regularities
  - why are they used as laws of nature?
- Some big research questions
  - what determines RoSe?
  - how do investors react to RoSe?
  - how should we allow for new issues/buybacks?
  - how do we allow for changing profit definitions?
- Why continue to accept regularities as laws?