Review of Myers & Read ARIA Paper

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Review of Myers and Read ARIA Paper

- Application
- Technical critique
- Two key semantic issues
- Alternatives to CAPM

Application - CAPM in Rate Making

- CAPM dictates the return expected on risky investments in a perfectly efficient capital market.
  - *Major assumptions are frictionless, continuous trading and a single timeframe*
- The Supreme Court has held that regulated rates must allow the same expected return as an investment of “equivalent risk”.
  - *Usually calibrated via CAPM*
- Double taxation of corporate profits are part of the profit measure.
- Rate regulation that reflects profits under these approaches require an allocation of Surplus by line and state.
- Economic efficiency requires insurers to measure their costs, or else they "push the wrong product".

Technical Critique

- US double taxation of profits is not an issue for off-shore insurers.
- There are much larger cost differences between companies' cost than within a single company because of double taxation of profits on allocated Surplus.
  - *If there is a single rate structure for all insurers, most will "push the wrong product" most of the time.*

Technical Critique (cont'd)

Applying the authors' approach in regulation has other problems.

- Diversification benefits may come from areas outside the regulator's jurisdiction.
- Incentive to take on excessive risk, seeking diversification.
- Circularity: Regulated profit depends on mix. Mix depends on historic profits. Historic profits reflect regulation.

Semantic Issues

- Allocation
- Equivalent Risk

The Joy of Allocated Cooking

Serving Suggestion for Pound Cake

Last digit of Diners' Soc. Sec. #	Suggested Portion
0, 1	Greased pan (please return clean)
2, 3	Sifted flour (2 ½ cups)
4, 5	3 beaten eggs with vanilla extract to taste
6, 7	Sugar, Shortening mixture
8, 9	Use of 325 degree oven for 25 to 30 minutes

Note: Diners who combine portions will be disapproved!

Allocated Pound Cake (Example)

CAS-PJK05.03

Allocation

Another Example

- Would you like a free cellphone?
  - *On a network with one ground station (in Pierre, S.D)*
- The ratio of ground stations-to-users is much better than MCI's, Sprint's or Verizon's.

Allocation

An Insurance Example

- Is Automobile Collision coverage for your car from State Farm Mutual for today

The same things as

- Coverage from me for the rest of the day with a Surplus commitment of $3?
- The allocated Surplus is the same, about $1,000 per year, per coverage, or $3 per day.

Equivalent Risk

- Is an Automobile policy that can lose 10,000 times a day's allocation of Surplus, every day, without limit

"Equivalent with"

- A stock investment that can't lose more than 100%, and that only one time?
- Or are they of such different characters that no objective comparison is possible?

Does "Equivalent Risk" means "Systematic Risk"

- Much of the correlation between insurers' stocks and the overall market can be explained by the movement in the value of the insurers' assets (sometimes, more than all.)
- In financial terms, insurance operations have a very small beta (sometimes, negative.)
- In CAPM regulation, insurance operations deserve a very small profit provision (sometimes, negative.)
- Does this make objective sense?

If there is no trading in insurance assets, there is no objective answer to this question!

CAPM Axioms

- Infinitely divisible assets
- Unlimited borrowing and shortselling
- Continuous trading
- Single time horizon for all economic actors
- All actors measure risk and return in the same ways
- Issues in insurance
  - *Rate change delays and disapprovals*
  - *Non-cancellation laws*
  - *Financial strength ratings*
  - *Investment laws*
  - *Non-transferable, non-assignable policies*

An Objective Answer?

Catastrophe Bonds

- Insurance-based assets that pay a return above risk-free in exchange for taking on the risk of catastrophe losses.
- Despite CAPM conclusions, these bonds pay excess returns of 3-5 points per year (300 to 500 b.p.s, in Wall Street parlance) for a risk of loss in the 1-in-100 to 1-in-250 year range.

  (May, 2003 example: 480 b.p.s for a 1-in-90 chance of attachment.)
- This can only be true in the long-term if one or more of the axiom violations make CAPM inapplicable.

Alternatives to CAPM Regulation.

- Refer to Cat bond portfolios with equal total risk (not just systematic risk)
- Refer to loss ratio experience in other states with effective competition.

"I liked white better," I said.

"White!" he sneered. "It serves as a beginning. White cloth may be dyed. The white page can be overwritten; and the white light can be broken."

"In which case it is no longer white," said I. "And he that breaks a thing to find out what it is has left the path of wisdom."

Gandolf, recounting a conversation with Saruman:
The Fellowship of the Ring, J.R.R. Tolkien, Book Two, Chapter 2.