

Past, Present & Future in Investment Management

The Market-Clearing Price of Investment Management Services

John Bowers

Sydney, 11 August 2005

1

johnbowers@optusnet.com.au

© C. John Bowers, August 2005

The Market Price of Alpha

Observation

The price of beta in well-developed markets is zero
(for most practical purposes)

Questions

1. What is the market-clearing price for alpha?
2. What forces determine this price?
3. How is the equilibrium price structured?

2

Lessons from Microeconomics 101

Assume

- Managers exhibit diminishing returns in production (capacity issues)
- No uncertainty about manager performance

Outcome

- Each manager expands business until $MR=MC$
 - This occurs when $\alpha = \text{fee rate}$
 - So manager captures all the economic rent
- ▶ Not a surprise, given that manager skill is the scarce resource, not AUM

3

Berk & Green, October 2002 (NBER 9275)

Now assume

- Same industry structure as before
- But each alpha process is stochastic, with parameters known to the manager, but not to investors

Outcome

- Pretty much as before: the **average** investor return is zero, after paying manager fees
 - However heterogeneity of managers implies that **some** managers outperform, even though active managers as a group do not
- ▶ It's all about search costs

4

Pricing Investment Performance

Assume

- There are some managers that can actually deliver positive expected alpha
- They measure price as capture ratio (CR), relative to their expected alpha (or actual alpha, if a performance fee)

Definition $CR = \$Fees / \$Alpha$

Observation

- Most empirical values of CR lie in the range 0.2 to 0.4
- Why so low?

5

Rational Pricing by Managers

Observation

An investment manager has a choice of business model:

- An Agency business (the traditional approach)
- A Principal business (proprietary trading)

Insight

- In equilibrium, returns to the intellectual capital comprising the manager should be the same for both business models
- This equality applies on a risk-adjusted basis

6

Modelling the Investment Process

Model

Use the information ratio framework from Grinold & Kahn:

$$\alpha = \omega \cdot IR(A, \omega)$$

$$IR(A, \omega) = IR(0) \cdot e^{-\omega \cdot A / d}$$

where

- A is \$AUM accepted by a manager
- ω is the level of active risk chosen by the manager
- d is the speed at which the manager's active process degrades IR, as AUM and active risk are increased
- Note that choice of A and ω will **not** be independent of the business model selected by the manager

7

A 2 Parameter Business Model

Assume

- Manager maximises risk-adjusted profits
- People and technology costs are independent of A, ω

Objective Function

Choose A, ω for each business model to maximise:

$$A \cdot \{CR \cdot \omega \cdot IR - \lambda \cdot CR \cdot \omega^2 - \text{spread}\}$$

where

- λ is the risk aversion parameter (zero for Agency?)
- spread is the cost of risk capital used (zero for Agency?)

8

Equilibrium Capture Ratio

Market-clearing

- Long term equilibrium of intellectual capital is required for manager survival.
- Hence, for a given investment process, the profitability of an Agency business model must equate to the risk-adjusted profitability of a Principal business model.
- Solve for the capture ratio in the Agency model that equates profitability across business models.

Note

- Capture ratio for a Principal business model is 100%
- The same investment process is used for both cases
- But the choice of A and ω will typically differ across cases

9

Illustrative Example

Assume

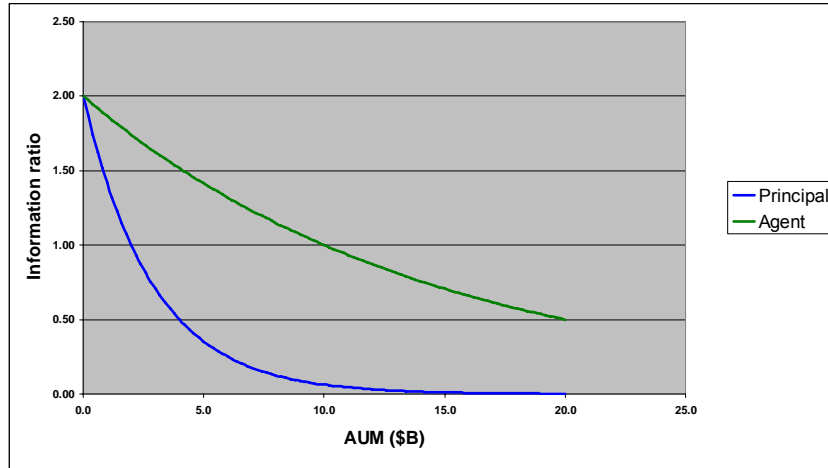
- $IR(0) = 2.0$
- IR halves for each additional \$10B of AUM
- Spread is 1.5% above LIBOR

Outcomes

- Optimal A, ω for Agency business when $CR=40\%$ is \$14.4B and 2.0%pa
- Optimal A, ω for Principal business is \$1.4B and 10.0%pa
- $CR = 40\%$ equates risk-adjusted revenue for the two business models

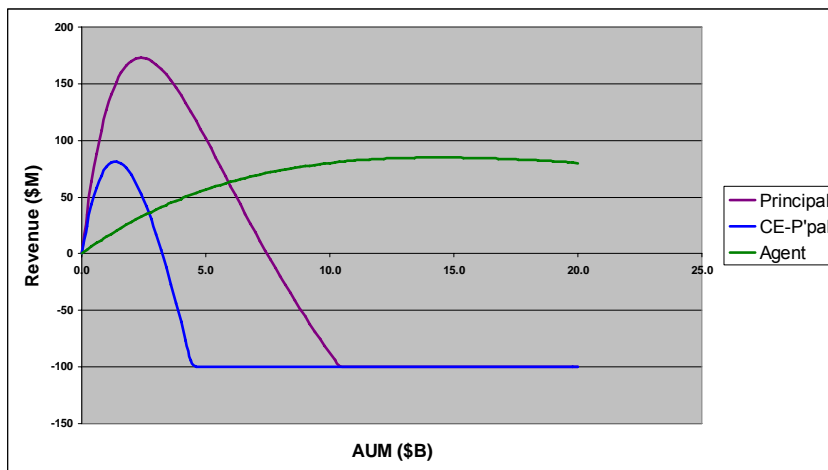
10

Example: Investment Process



11

Example: Equilibrium



12

Conclusions

- Mean-variance models are just as relevant for analysis of industry organisation issues (ie corporate strategy) as they are for financial economics
- Despite the simplicity of the model used here, the outcomes are qualitatively and quantitatively sensible
- The minimum capture ratio acceptable to intellectual capital is circa 40%. If an investment manager does not achieve this from its clients, the intellectual capital will disperse.

13

Corollary

- CR can be improved by increasing fees, **or** by expanding AUM at the existing fee level until alpha falls sufficiently!
- Optimal AUM is where the elasticity of expected alpha to change in AUM is -1. This can be thought of as the **business** definition of capacity.
- For long-only portfolios, this level of AUM will possibly be much greater than the **usual** definition of capacity, based on promised alpha. This is because the typical empirical value of elasticity, at AUM consistent with promised alpha, is much lower than you might think.

14

