

# Financial Statement Analysis and Valuation

Discussion by:

Peter F. Pope

Lancaster University Management School, UK

CARE Conference,

April 2006

## Valuation Models: Why?

### 1. Who?

- Researchers
- Regulators(?)
- Investors
- Issuers

### 2. What?

- Fair value?
- Mispriced?
- Implied cost of capital?
- “Value relevant”?
- Implied accounting method?

### Common interests:

1. Conditional distribution of current price, given current financial statement and other information.
2. Conditional distribution of future price (returns) given current financial statement and other information.
3. Sensitivity of price (current or future) to marginal changes in accounting inputs.

**Claim 1: The following properties are desirable to all model users for all questions.**

1. Unbiased pricing:

- The market “gets it right” on average, i.e.  $E[P - \hat{P}(\text{model})] = 0$ .

2. No-arbitrage [NA]:  $E_t[MV_{t+1} + d_{t+1}] = R.MV_t$ ,

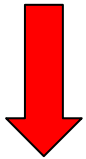
- At least on average - not inconsistent with value investing.
- NB. Implies information dynamics (forecasting model) restrictions!

3. Dividend irrelevance [MM]

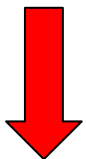
- Dividend price displacement:  
 $\partial P_t / \partial d_t = -C$ , where  $C$  “makes sense”.
- Implies restrictions on BV and DIV coefficients (CSR).

## Theoretical Models: Model Structure

Information set



Assumptions



Valuation  
expressions



Model properties

| Type I<br>e.g. Ohlson (1995)  | Type II<br>e.g. P&W (2005)  |
|---|---|
| <ul style="list-style-type: none"> <li>•DDM</li> <li>•CSR</li> <li>•Information dynamics<br/>e.g. RI, OI</li> </ul>                     | <ul style="list-style-type: none"> <li>•DDM</li> <li>•CSR</li> <li>•Economic properties</li> <li>•General valuation<br/>e.g. <math>P=BV, NI, X, D</math></li> </ul> |
| <ul style="list-style-type: none"> <li>•BV(t), RI, OI</li> <li>•BV(t), NI, D, OI</li> </ul>   | <ul style="list-style-type: none"> <li>•BV(t), BV(t-1), RI, X, OI</li> <li>•BV, NI, X, D, OI</li> </ul>   |
| <ul style="list-style-type: none"> <li>•Economic and accounting properties, e.g. dividend irrelevance, dividend displacement</li> </ul> | <ul style="list-style-type: none"> <li>•Implied information dynamics</li> <li>•Conditions for aggregation, irrelevance</li> </ul>                                   |

---

## Why the modelling approach may matter

- Type I: information dynamics structure sufficient, **but not necessary**, for economic properties to hold.
- Type II: More general (less restrictive) information dynamics to support pricing model and same economic properties.
- “Reverse engineering” of implied information dynamics **structure** and **parameters** from price (or return?) regressions important, e.g. for estimating:
  - Mispricing, conditional on information dynamics assumption.
  - Implied cost of capital, conditional on information dynamics assumption.

---

## Evidence is scarce and incomplete so far, but....

1. Intrinsic value model under-pricing bias suggests misspecification, perhaps due to accounting conservatism (e.g. DHS 1999).
2. Valuation parameter restrictions implied by assumed information dynamics are binding (e.g. BBHL, 1999):
  - Conditional on market efficiency, this suggests misspecification of the information dynamics model.
3. Vast literature shows that accounting components (of NI and BV) attract different valuation weights, contrary to most theoretical models.
  - Accounting components may not aggregate.
  - Suggests complex structure of information dynamics for forecasting and intrinsic value estimation.

- Assume linear valuation:  $P_t = \beta_1 x_{1t} + \beta_2 x_{2t} + \beta_3 b_t + \beta_4 d_t$ . [VAL]

- NA:  $E_t[P_{t+1} + d_{t+1}] = R.P_t$ .

- VAL + NA + CSR + MM

$$\implies E_t[x_{t+1}^a] = \omega_1 x_t^a + \omega_2 (R x_{2t} - E_t[x_{2t+1}]) + \omega_3 (R b_{t-1} - b_t)$$

- More general case of ABED assumed in Ohlson (1995), where:
  - Parameters are a function of valuation parameters in VAL
  - Predictable disaggregated earnings component matter
  - Earnings components have different valuation weights
  - Captures accounting conservatism
- We cannot simply focus on forecasting abnormal earnings alone.

- 
- Theoretical valuation models based on mapping of (implicit) forecasting parameters into valuation parameters, or vice versa.
  - Properties may be assumed directly or indirectly (through information dynamics).
  - A model will be an empirical success if there is consistency between forecasting and valuation parameters.
  - Tests of model misspecification:
    1. If estimated pricing error conditional model is systematically different from zero.
    2. Implied forecasting model (LIM) restrictions are binding on valuation coefficients [unbiased pricing assumption]; or equivalently if
    3. Estimated valuation parameters are different from predicted values from LIM.