Term Structure of Risk

in

Expected Returns: A Discussion

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Shock Identification

Campbell-Shiller approach - identifies two channels by which shocks impact asset values but not the shocks themselves

- discounted expected returns
- discounted expected cash flow growth

Observations

- Two “sources” can be correlated: what does the accounting mean?
- What happens to “temporary cash flow shocks?”
- Why do discounted expected return shocks isolate “discount rate news?”

Recognized in part by the statement “discount rate news and cash flow news are spanned by ‘different sources of risk?’”
Shocks and Dynamic Value Decompositions

Steps of construction of incremental expected returns (IER’s):

i) compound (positive) returns over different horizons

ii) form log of the conditional expectations of cumulative returns rather than conditional expectations of the logarithm of expected returns

iii) measure logarithm of proportional risk compensations, expected cumulative returns relative to their risk-free counterparts

iv) explore how shocks today alter these horizon-dependent compensations

Push beyond the common log linear and log normal methods. Both state dependence and horizon dependence.
Underlying Framework

▷ Cash flow growth:

\[
\log G_{t+1} - \log G_t = \mu_g(X_t) + \sigma_g(X_t) \cdot \epsilon_{t+1}
\]

▷ Cumulative stochastic discount factor “decay”

\[
\log S_{t+1} - \log S_t = \mu_s(X_t) + \sigma_s(X_t) \cdot \epsilon_{t+1}
\]

▷ Markov evolution for \( X = \{X_t\} \)

▷ Compute price-dividend ratios

\[
\frac{P_t}{G_t} = E \left( \frac{S_{t+\tau} G_{t+\tau}}{S_t G_t} \mid X_t \right)
\]

This specification has a **triangular structure** that may not be reflected in the notation or the data.
Valuation Decomposition Reconsidered

Two channels:

i) **Stochastic discount factors** respond to shocks - discount rate news - shock exposures are the prices - price channel

ii) **Stochastic cash flow growth factors** respond to shocks - exposure channel

Price channel is embedded in the cumulative return IER’s and measured indirectly. Exposure channel is measured directly in the paper by the cash flow IER’s. Models allow us to measure the price channel.
New Empirical Targets

Compute IER’s

▷ for cumulative returns
▷ cash flows and consumption
▷ other inputs into the cumulative stochastic discount factors
What Do New Targets Add?

Observations:

▷ all information should be encoded in one-period transition probabilities
▷ IER’s help how compounding works for nonlinear/nonnormal valuation
▷ including implied pricing term structure helps us understand better nonlinear valuation (not a focal point here)

Interesting questions:

▷ What do we get by compounding over time for estimation and testing?
▷ How do we assess misspecified models?
Conclusion

Very interesting paper

▷ important to ask what are the interesting empirical targets and to explore new ones
▷ IERs add a valuable new dimension
▷ When does it stop being productive to keep adding new shocks to explain additional phenomenon?