

Discussion of
Natural Expectations, Macroeconomic Dynamics,
and Asset Pricing

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March 2012

Natural Expectations

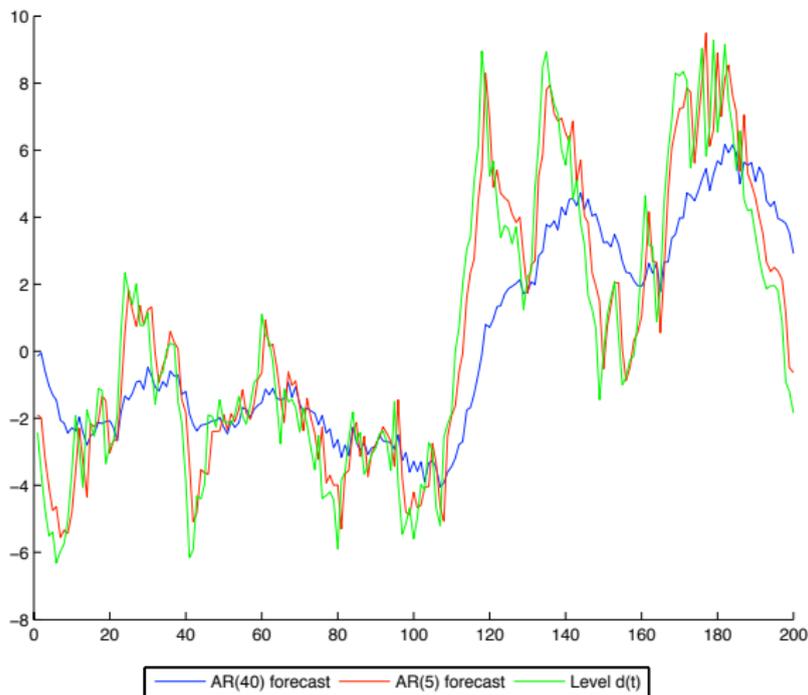
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- Assumptions
 - Fundamentals process hump-shaped, with short-run persistence in growth rates, long-run mean reversion
 - Agents overestimate long-run persistence of fundamentals by using fewer AR lags than in true DGP
- Model has “flavor” of bounded rationality
 - Statistical motivation: Even in relatively large samples, typical model selection criteria tend to prefer low-order models
 - Psychological motivation: Preference for simple models

Example: Simulated AR(40) sample path

40-period-ahead forecasts of dividend level



Subjective vs. objective expected returns

- Campbell-Shiller present value identity

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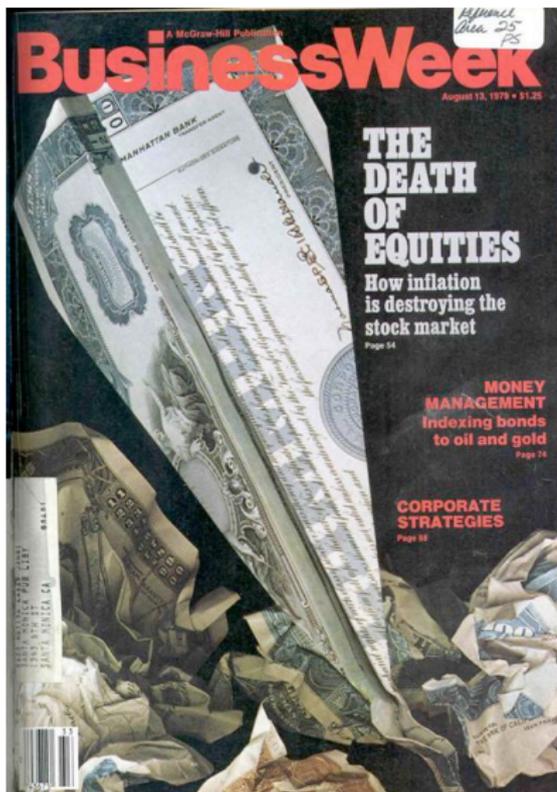
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- In canonical rational expectations asset-pricing models (difference habits, long run risks, ...) subjective (= objective) expected returns are *counter-cyclical*

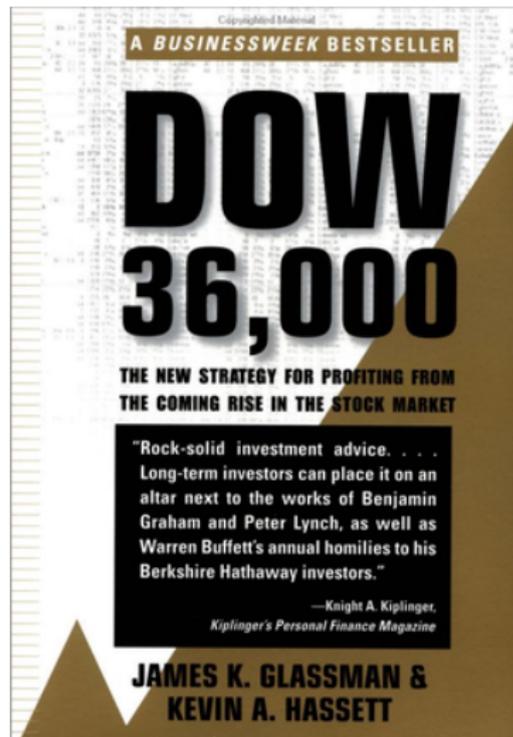
- 1 Cyclicalities of subjective expected returns
- 2 Learning

Counter-cyclical subjective expected returns – really?

1979



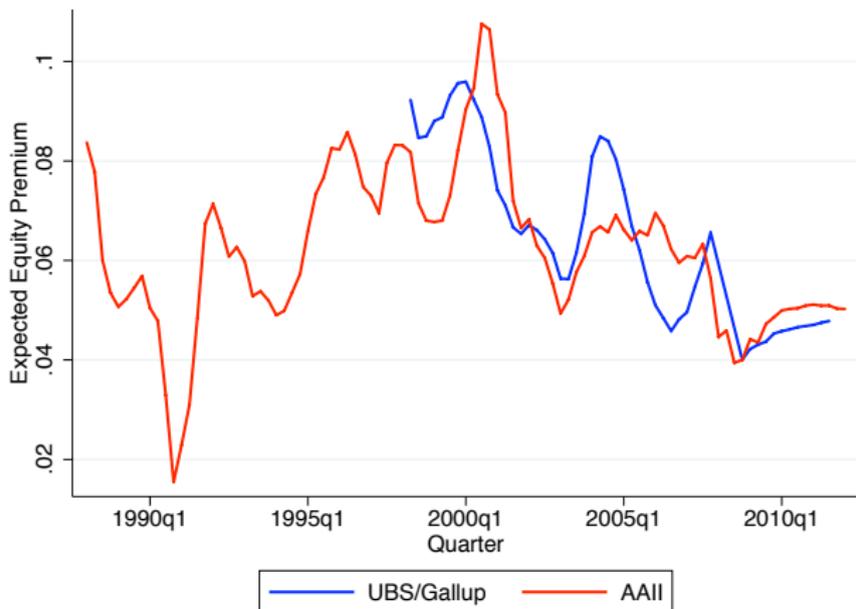
1999



Pro-cyclical variation in subjective expected returns

Individual investor one-year expected equity premium

- UBS/Gallup survey (1998-2007) extended with data from Hurd and Rohwedder (2011), Dominitz and Manski (2011).
- American Association of Individual Investors survey



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- Following a string of good fundamental news, with (substantially) greater than zero measure of rational investors,
...
 - $E_t^N[\Delta d_{t+i}] > E_t[\Delta d_{t+i}]$ as before
 - But now overpricing dampened: P_t/D_t not as high
 - $E_t^N[r_{t+i}]$ is high (pro-cyclical), not constant
 - $E_t[r_{t+i}]$ is low (counter-cyclical), but less low than with zero rational investors

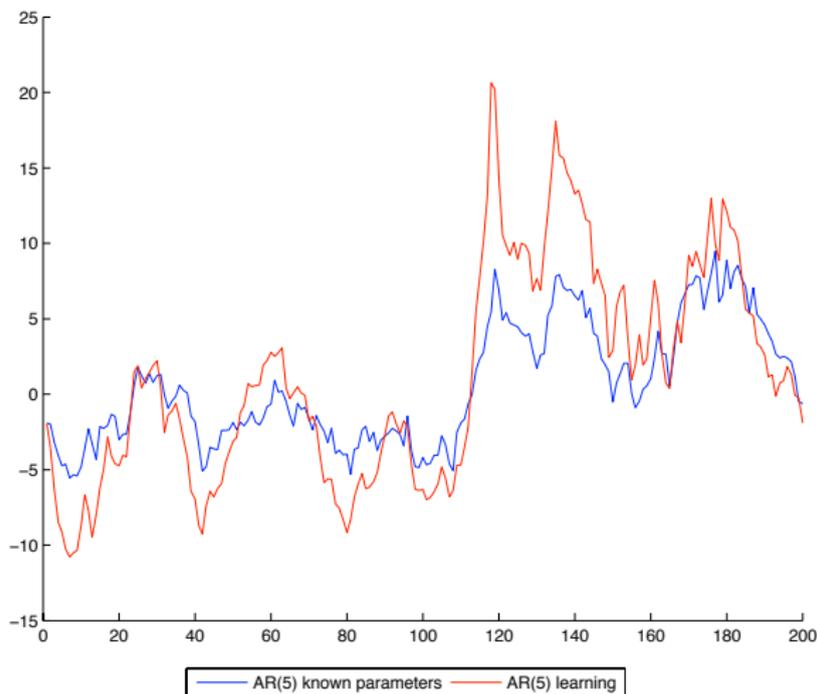
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- More realistic view
 - Agents have to construct forecasts based on real-time parameter estimates
 - Tendency to use limited amount of historical data in parameter estimation
 - Learning from experience (Malmendier and Nagel 2011)
 - Constant-gain learning (e.g. Orphanides and Williams 2005)

Example: Learning with fixed window size $N = 50$

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- Learning might also help to endogenize the number of AR lags in construction of forecast
 - Right now, agents' AR order viewed as free parameter that is (informally) picked to fit asset price data
 - Viewed as a model selection problem: AR order chosen in real time based on model selection criteria like BIC