Lecture 6: Efficient Markets

Economics 252, Spring 2008 Prof. Robert Shiller, Yale University



Price as PDV of Expected Dividends

- If earnings equal dividends and if dividends grow at long-run rate g, then by growing consol model P=E/(r-g), P/E=1/(r-g). (Gordon Model)
- So, efficient markets theory with Gordon model purports to explain why *P/E* varies across stocks: different stocks have different

g.

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Random Walk & AR-1 Models

- Random Walk: $x_t = x_{t-1} + x_t$
- First-order autoregressive (AR-1) Model: $x_t=100+\mathbb{K}(x_{t-1}-100)+$ Mean reverting (to 100), $-1 < \mathbb{K} < 1$.
- Random walk as approximate implication of unpredictability of returns
- Similarity of both random walk and AR-1 to actual stock prices

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Actual US Stock Market and Random Walk with Trend



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Actual US Stock Market & AR-1([x]=.98) with trend



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