Present Value of Corporate Earnings: A Forecasters' Survey Perspective

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Present Value of Earnings – WHY?

Questions Asked:

- What is the VALUE of future U.S. corporate earnings?
- What are the properties of earnings forecasts?
- What is the implied equity risk premium?

Expect 2 formulas and 11 pictures. . .

Approach Taken

Methodology:

1. Use long-range survey forecast for earnings and rates
2. Apply simple 'dividend-discount model'
3. Assess valuation every period for each forecast vintage (1983–2018)

Note:

- Valuation and earnings in nominal US dolars (billions)

The Valuation Formula

Methodology:

$$V_{t|t} = D_t + \frac{D_{t+1|t}}{R_{t+1|t}} + \frac{D_{t+2|t}}{R_{t+2|t} \times R_{t+1|t}} + \ldots = \sum_{s=0}^{\infty} D_{t+s|t} \frac{1}{\prod_p^s R_{t+p|t}},$$

Two-Step Present Value Model:

$$V_{t|t} = \underbrace{\sum_{s=0}^{N} D_{t+s|t} \frac{1}{\prod_p^s R_{t+p|t}}}_{\text{survey horizon}} + \underbrace{\frac{1}{\prod_p^{N+1} R_{t+p|t}} \frac{(1+gn) \times D_{N+1|t}}{ir - gn}}_{\text{long-run capitalized}},$$

D_t – dividend, $R_{t+i|t} = (1 + ir_{t+i|t})$ – (gross) required return
gn – long-run nominal dividend growth,
ir – long-run required return

DATA

BlueChip Economic Indicators survey by ASPEN Publishers

- Long-range surveys with 5Y ahead forecasts + average for the following 5Y
- Available since 1983, updates in **March** and **October**
- Available in Haver Analytics database

Variables used:

1. Nominal pre-tax corporate profits (NIPA concept)
2. 10Y Treasury Note Yield

Behavior of Earnings Forecast

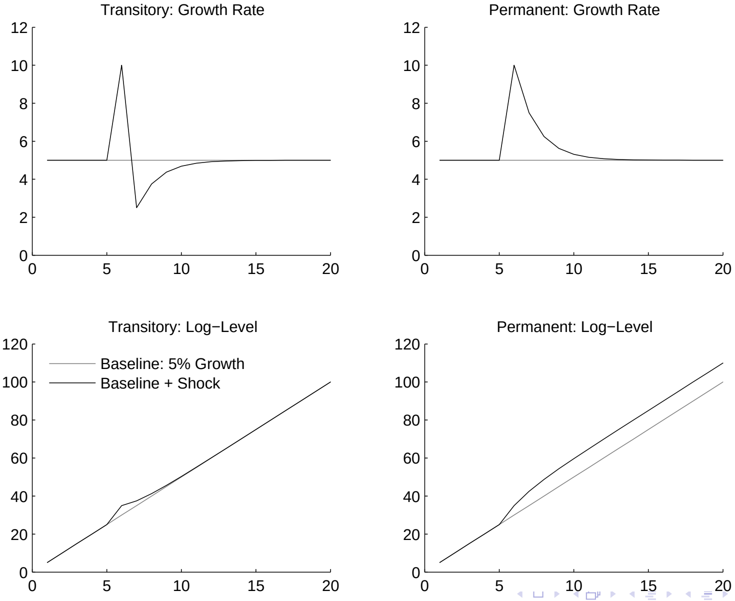
Do forecasters account for cyclicality of earnings?

- Is the forecast of earnings growth smooth or not?
- For cyclical shocks the P/E ratio should decline
- For growth-rate and level shock the P/E increases or stable

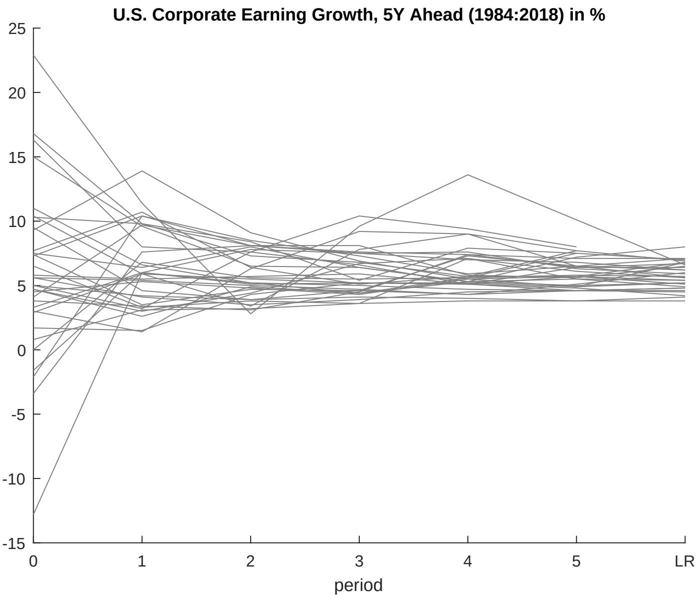
Can I use a simplified FED/Gordon model? NO!

- Assuming $V_t = D_t/(ir_t - gn_t)$ ignores cycles and increases the variance of valuation, it's a dangerous thing in general...
- Ignores the time variation, cycle, in interest rates and nominal growth

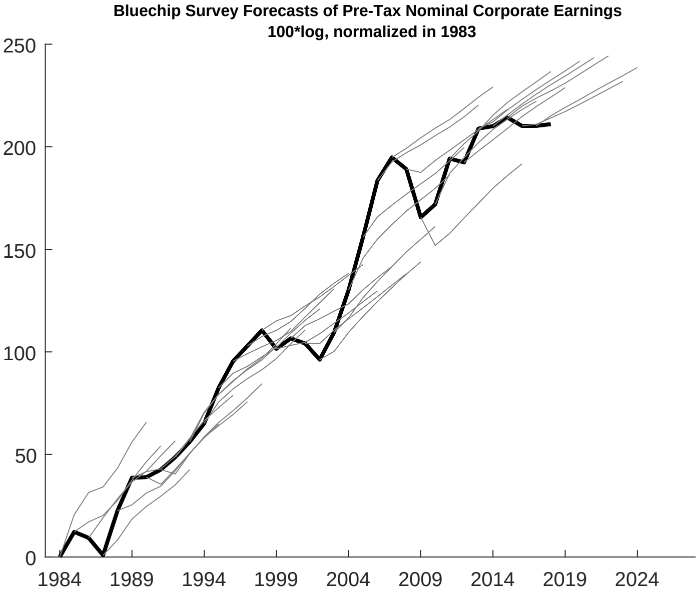
Cyclical vs. Permanent Level Shocks



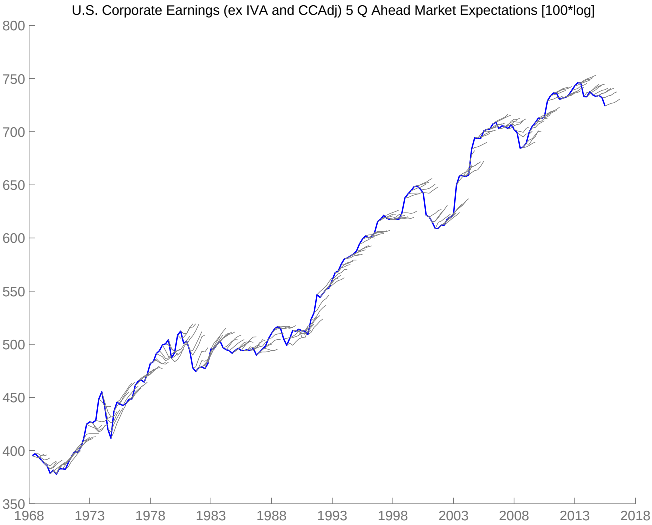
Earnings Growth – Forecast Profiles



Earnings Levels – Forecast Profiles

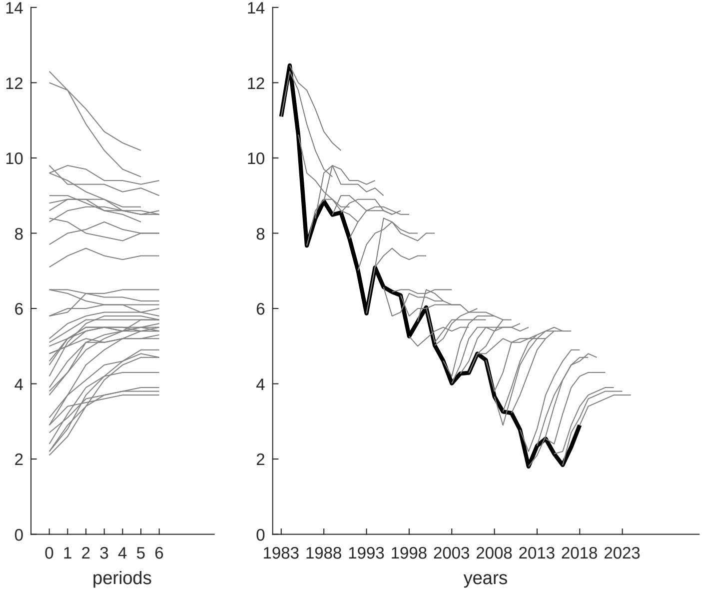


Earnings Levels – Forecast Profiles, Quarterly

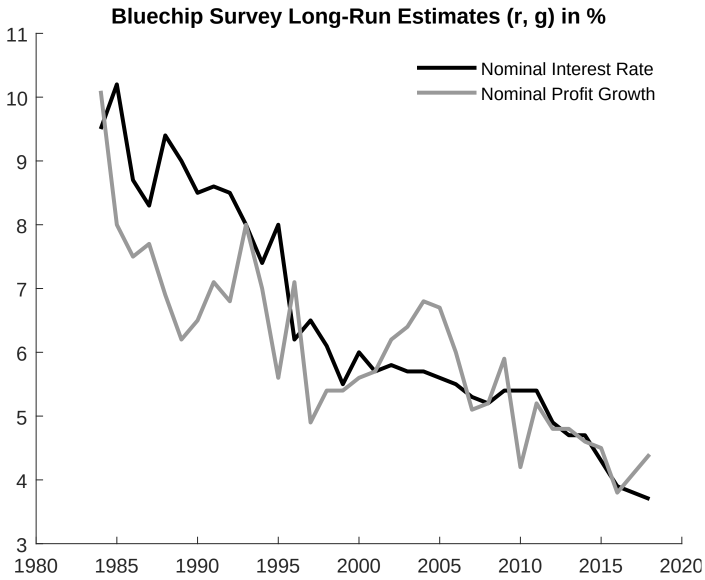


Data: Philadelphia SPF

Ten-Year Treasury Note – Forecast Profiles



Survey Views on "(r - g)"



Valuation Assumptions

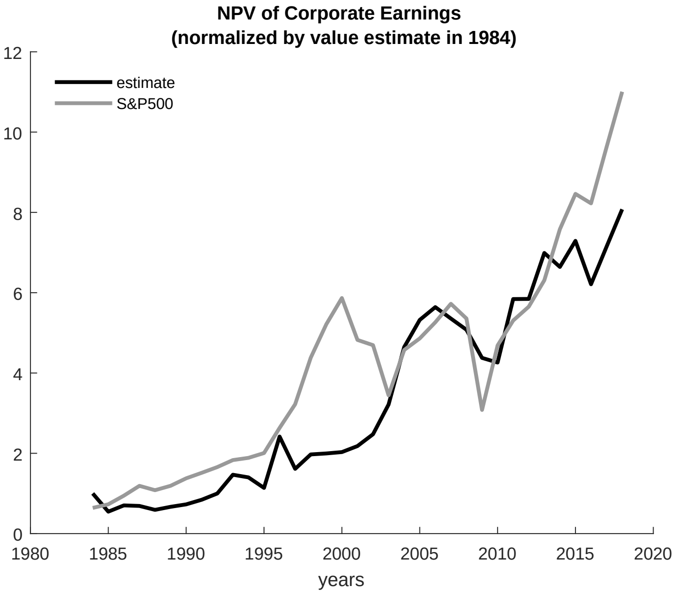
Valuation:

- Two-stage discounted dividend model, using the survey data
- Constant pay-out ratio (50 %)
- Constant equity premium of 4 % (on purpose)
- Using only March data

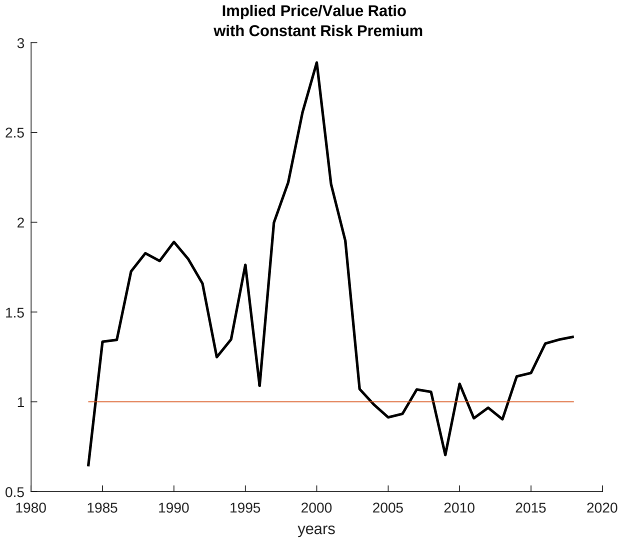
Comparing to S&P 500:

- NIPA and S&P 500 earnings are not fully comparable
- P/E ratio from March 1984 used to convert the index to USD

Valuation Results



Valuation Results



Recall: constant equity premium

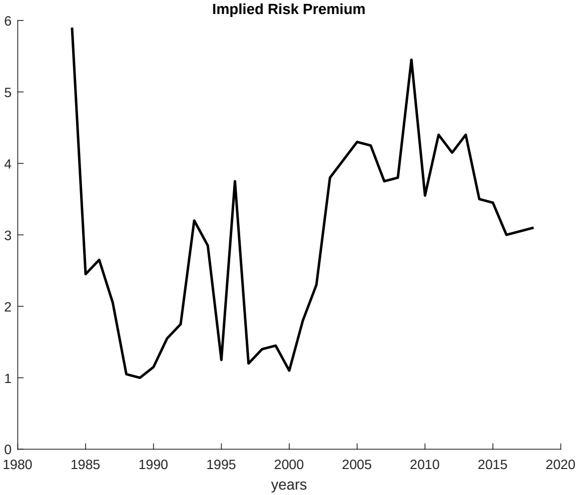
The Inverse Problem – What is the ERP?

What Equity Risk Premium is needed to match S&P500?

Searching for ERP:

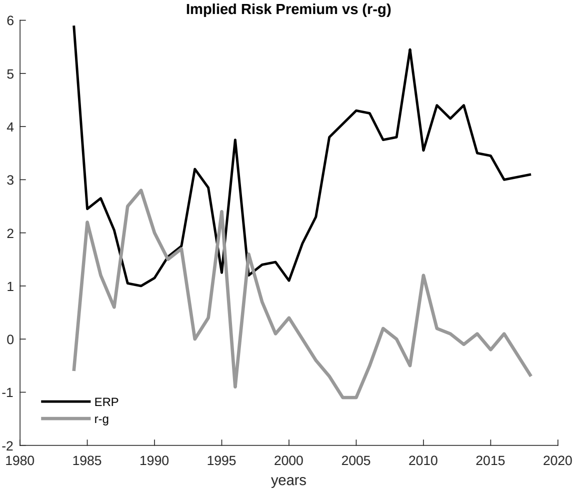
- Every period (March), find a risk-premium applied for the whole valuation horizon
- The estimated ERP is strongly influenced by the $(r - g)$ implied by the survey
- Estimates to be interpreted causiously but are informative about trends. . .

Implied Equity Return Premium (i)



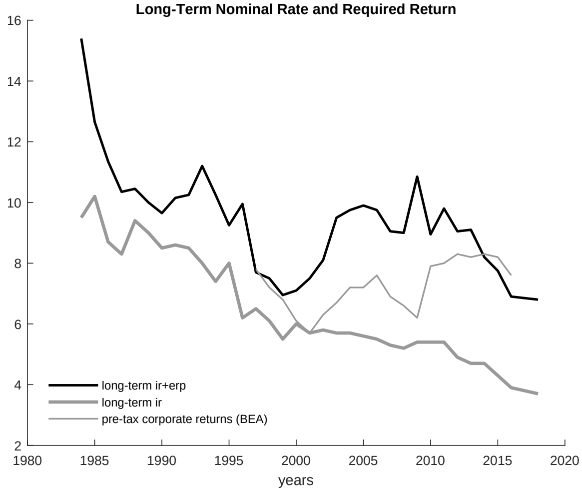
Recall: payout ratio still constant!

Implied Equity Return Premium (ii)



Recall: payout ratio still constant!

Nominal Effective Discount Factor (Long-run)



Conclusions

Tool:

- Real-time survey data + simple two-stage model provide informative valuation with a story
- Survey data updated in early March and October
- Apart from valuation, the implied ERP can be tracked

Results:

- Earnings forecasts tend to mixup trends and cycles
  (a paper-in-progress with a state-space model. . .)
- Stock prices are expensive but it’s not 1999. . .

Thank you for your patience...

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