

Discussion of
Term structure of recession probabilities and the
cross section of asset returns

by Ti Zhou

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Macroeconomic Activity and Asset Returns

'Expected returns contain a risk premium that is related to longer-term aspects of business conditions. [...] The general message is that expected returns are lower when economic conditions are strong and higher when conditions are weak.'

Lang and Stulz (1992, JFE)

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This paper

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[This paper](#)

Main ingredients:

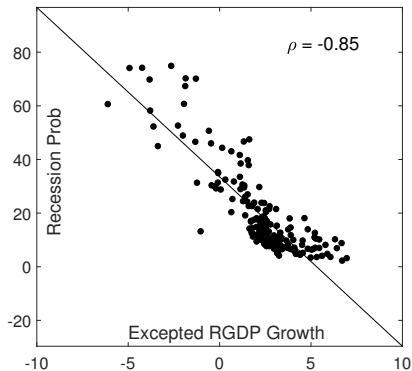
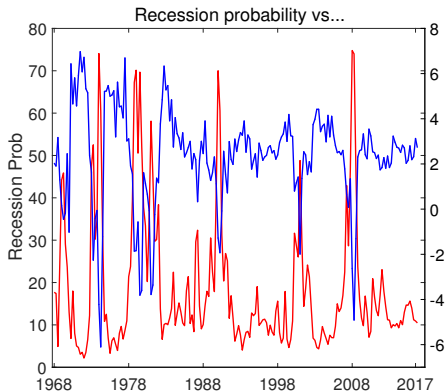
- ▶ Standard I-CAPM setting
- ▶ Survey of Professional Forecasters (SPF) from Philadelphia Fed to proxy expectations
- ▶ Expected recession probabilities to signal concerns on future economic activity

Point 1: Recession Prob vs. Economic Growth

- ▶ In the model, concerns about economic activity = recession probabilities

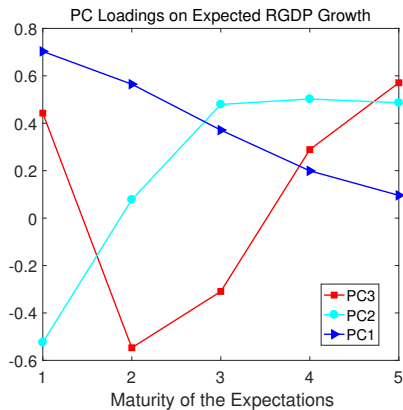
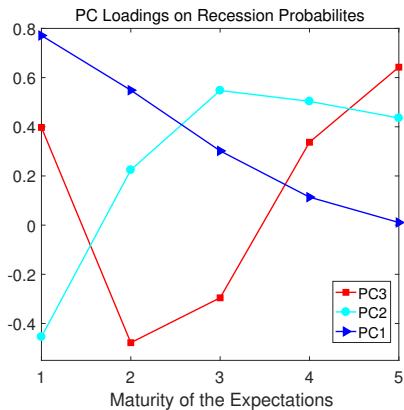
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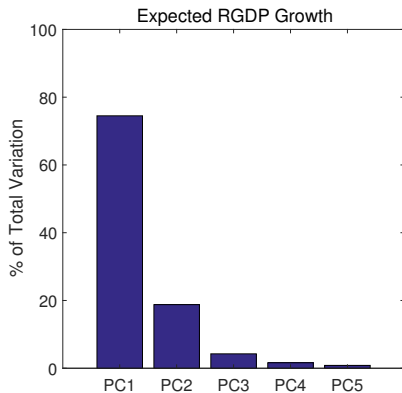
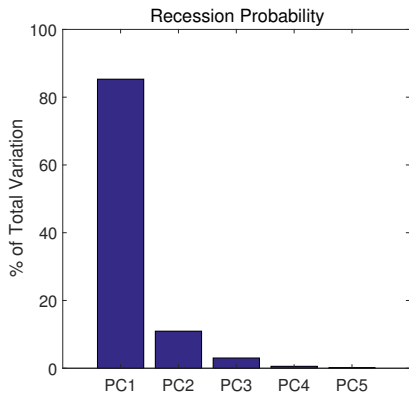
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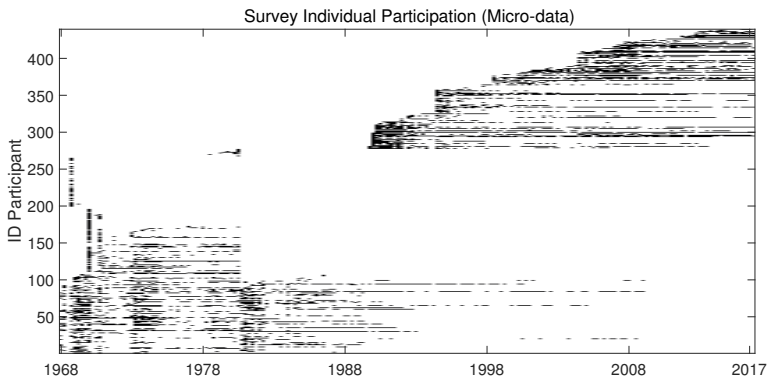
- ▶ **Comment:** Perceived recession probabilities and expected economic growth *likely* are conditional on the same **information** set
- ▶ **Question:** What is special about **recession probabilities** for pricing assets that cannot be captured by **expected economic growth**?
- ▶ **Suggestion:** You should motivate a bit better from the beginning why focus on recession probabilities (which \neq rare disasters). Perhaps the evidence on forecasting recessions might help (recession probs forecasts NBER recession dates, expected growth... much less).

Point 2. Survey of Professional Forecasters (SPF)

- ▶ Perceived recession probabilities measured by individual forecasts from SPF across different maturities.
 - ▶ Cross-sectional average \approx aggregate investors' expectations

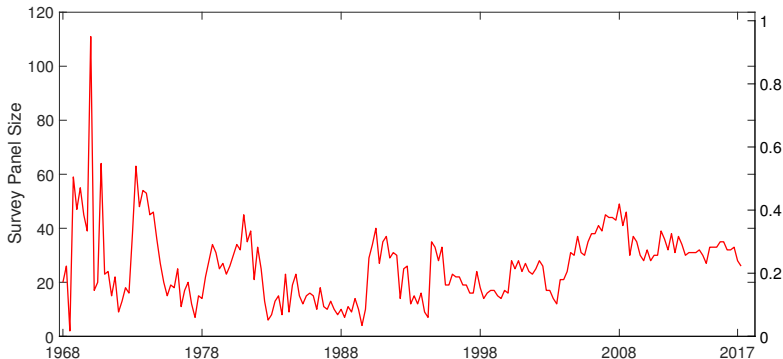
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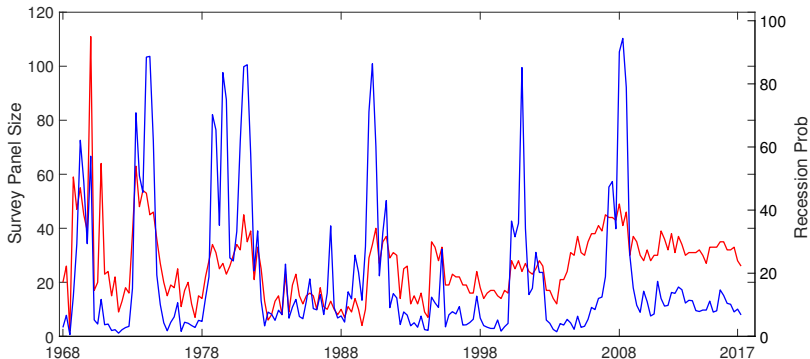
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Point 2. Survey of Professional Forecasters (SPF)

- ▶ **Comment:** Huge amount of **heterogeneity** in the survey which is likely killed by the simple average
- ▶ **Question:** How do we cope with such heterogeneity? Does it matter for the aggregation? Can we think about better way to aggregate individual forecasts?
- ▶ **Suggestion:** Perhaps check the consistency of the survey dynamics with some theories of expectations updating/formation (see, e.g. Malmendier and Nagel 2015, Giacomini, Skreta and Turen 2016, Gaglianone, Giacomini, Issler and Skreta 2017, Bianchi and Piana 2017)

Point 3. I-CAPM Implementation

- ▶ Step 1: Time series regression to get risk exposures

$$y_{it} = \alpha_i + \beta_{i,mkt} Mkt_t + \gamma' \hat{u}_t + \epsilon_{it}, \quad i = 1, \dots, N$$

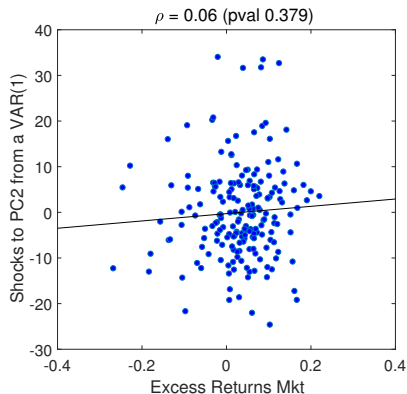
with $\hat{u}_t = Z_t - \hat{A}Z_{t-1}$ and $Z_t = (PC1_t, PC2_t)'$.

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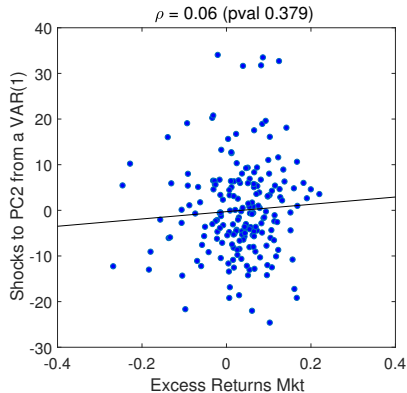
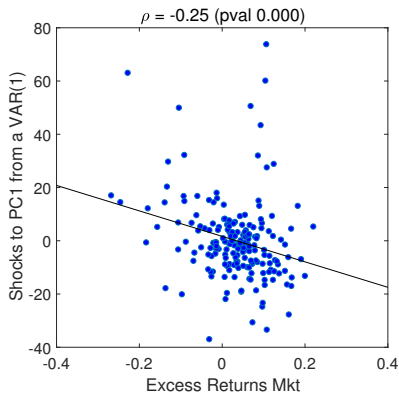


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Point 3. I-CAPM Implementation

- ▶ **Comment 1:** Campbell (1996) emphasizes that it is hard to interpret estimation results for a factor model unless the factors are **orthogonalized** and scaled in some way.
- ▶ **Comment 2:** Collinearity between Mkt_t and \hat{u}_t might reduce the effective amount of information available to assess the unique effect of PCs
- ▶ **Question:** Why not orthogonalize PC shocks w.r.t to Mkt_t ?
- ▶ **Suggestion:** Triangular VAR(1) with Cholesky identification (see, e.g. Petkova 2006) or regress Mkt_t on \hat{u}_t to get the orthogonalized shocks.

Conclusions

Very interesting paper!