

Discussion of
Size Premium Waves

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Main Idea

- Document stylized facts: at low frequencies,
 - ▶ Equity risk premium co-moves with macro uncertainty
 - ▶ Size and value premia co-move with cross-sectional dispersion (“micro uncertainty”)
 - ▶ Equity risk premium is negatively correlated with size and value premia
 - ▶ Macro and micro uncertainty negatively correlated

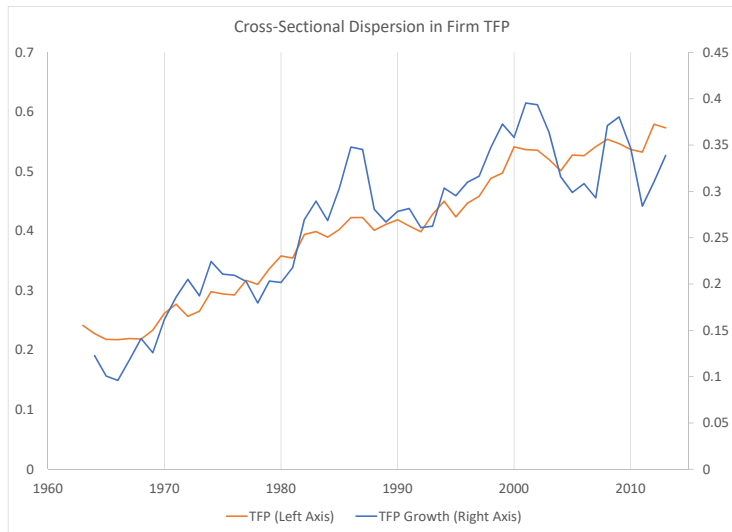
- Can firm productivity dynamics explain these? Yes.
 - ▶ Firm size contains information about past idiosyncratic productivity realizations
 - ▶ Persistent productivity \implies firm size contains info about future productivity
 - ▶ Future productivity affects timing of risky cash flows, something agents with EZ preferences care about \implies size premium

Discussion Overview

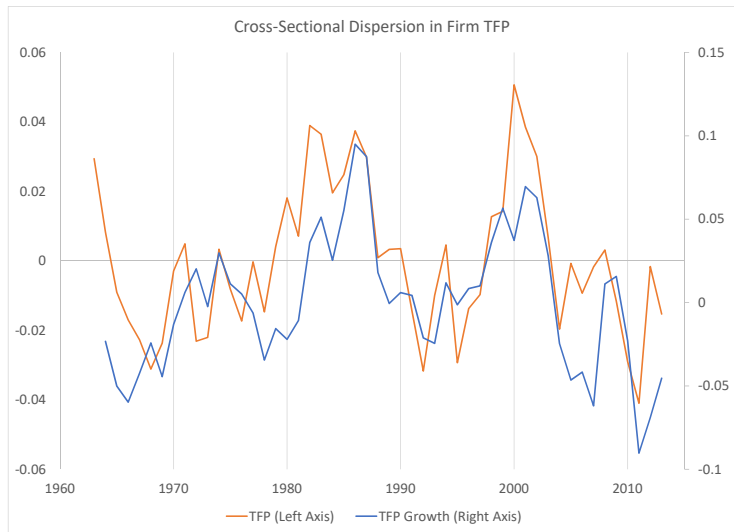
- I enjoyed reading this (very short) paper and liked very much!
- Model provides a simple framework to understand time-varying risk premia through a macro lens

- What I will talk about:
 - ▶ Review raw data underlying the low frequency stylized facts
 - ▶ Describe the main mechanism of the model
 - ▶ Provide comments

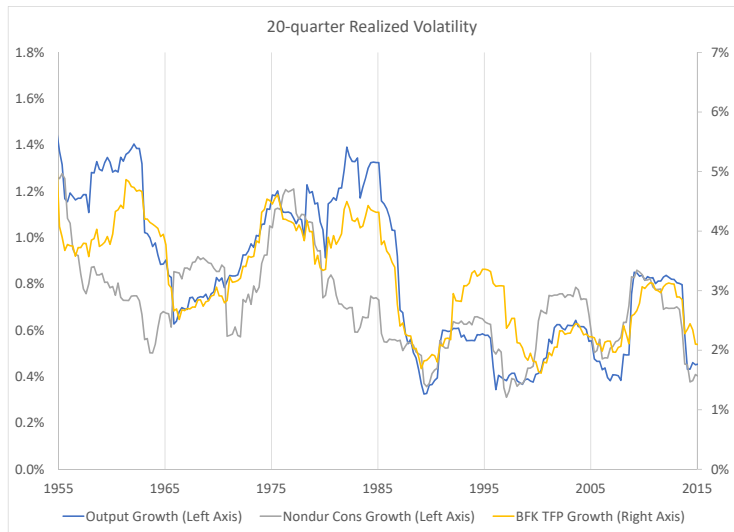
Trend in micro uncertainty – main low frequency fact?



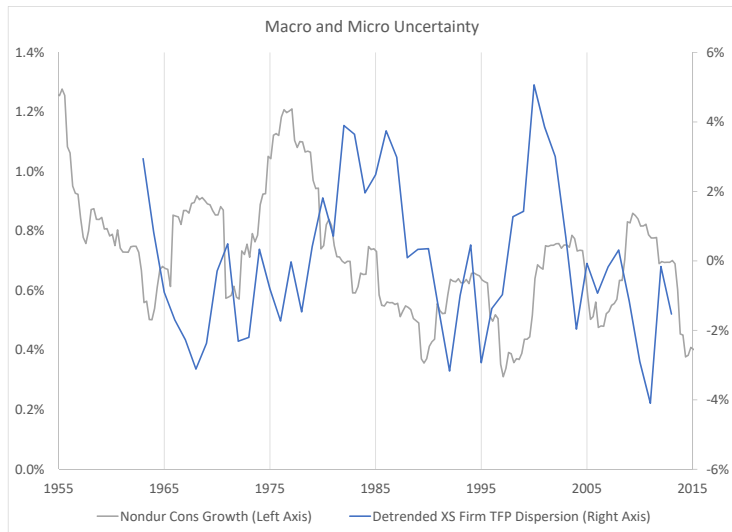
Taking out a (deterministic) trend



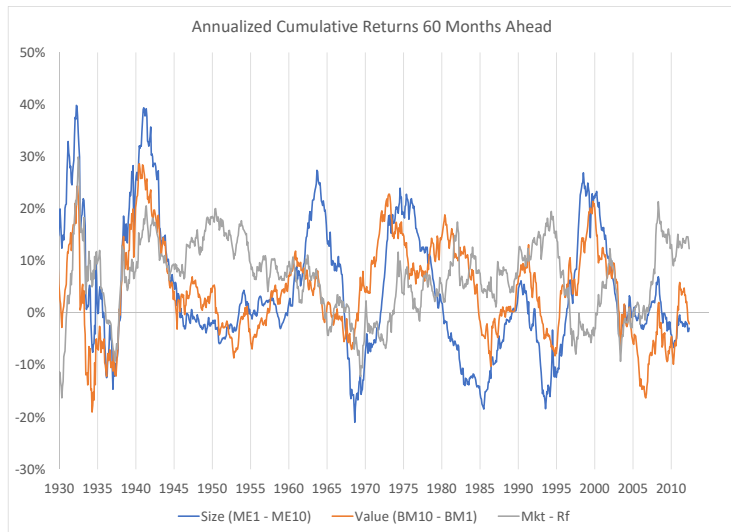
What about macro uncertainty?



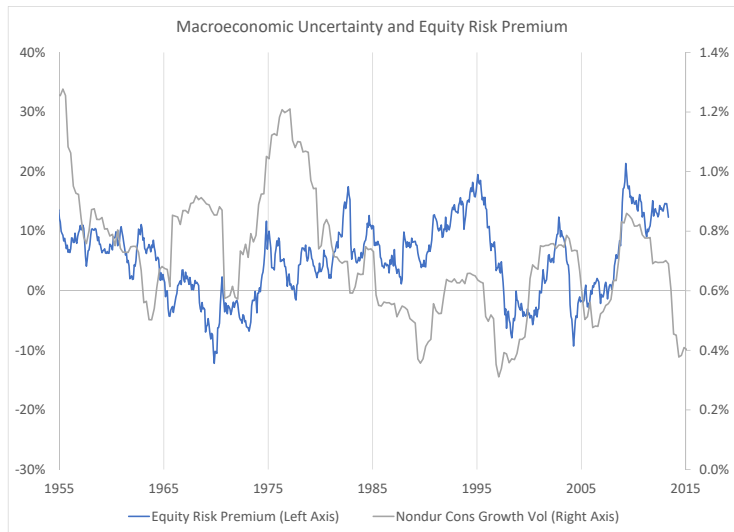
Macro vs. Micro



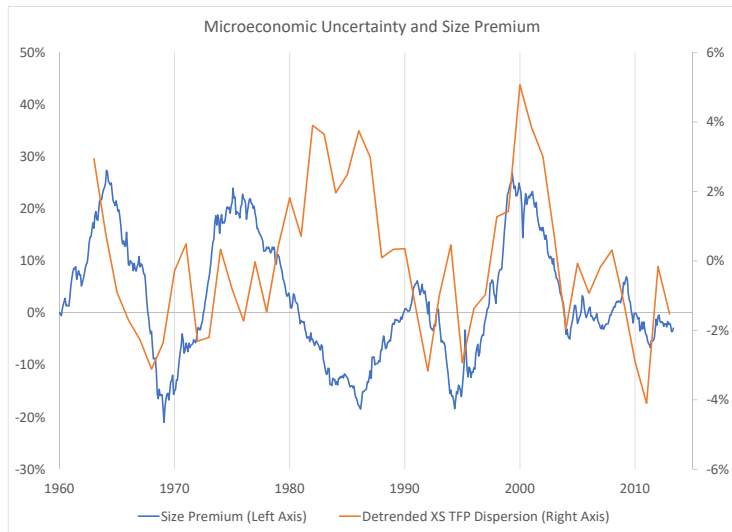
Looking at returns



Macro uncertainty and equity premium



Micro uncertainty and size premium



Empirical Recap

- Before wide band pass filtering a relatively short time series, do the stylized facts pass the eyeball test? Mostly
- Clear patterns
 - ▶ Dynamics of macro uncertainty
 - ▶ Negative correlation between detrended micro uncertainty and macro uncertainty
 - ▶ Relationship between macro uncertainty and ERP
- A few outstanding questions:
 - ▶ What about the trend in micro uncertainty? How to think about a detrended low frequency series?
 - ▶ Over the last 30 years, did value premium decouple from size and join ERP? What changed?
 - ▶ How long have size and micro uncertainty co-moved?

Model: Key Ingredients

- Exogenous consumption path
- Epstein-Zin preferences with $EIS > 1/RRA$ so preference for early resolution of uncertainty
- Firm productivity consists of aggregate and idiosyncratic components
 - ▶ Both are persistent
 - ▶ Both subject to shocks with time-varying vol
- Investment subject to quadratic asymmetric adjustment costs – disinvestment more costly

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 - ▶ Productivity is mean-reverting, so expected to increase for small firms, decrease for large firms
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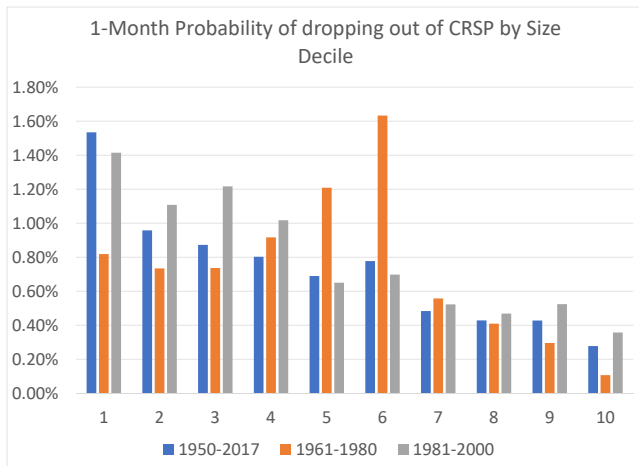
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- With preference for early resolution of uncertainty, small firms command higher risk premium
- \uparrow vol of idiosyncratic productivity shock \implies \uparrow cross-sectional dispersion \implies \uparrow difference in cash flow timing \implies \uparrow size premium

Main Comment: what happens to small firms?

- Model: they get bigger
- Data: they get bigger **or** they die



Time-Varying Dispersion and Exit

- If firms can exit, set of investable firms missing the left tail of the productivity distribution
- If dispersion goes up, marginal firm closer to mean/median productivity in standard deviation units, so
 - ▶ Time until large dividend payments is shorter
 - ▶ Probability of exit (potentially with large liquidating dividend) is higher
- Does size premium still go up?

More broadly: what does the model imply for decile transition dynamics?

Calibration target: monthly transition matrix for CRSP/Compustat

	Decile										
	1	2	3	4	5	6	7	8	9	10	Exit
1	72.32%	11.08%	4.15%	2.73%	2.87%	2.11%	1.32%	1.07%	0.63%	0.20%	1.53%
2	11.96%	76.34%	7.72%	1.58%	0.48%	0.17%	0.54%	0.26%	0.00%	0.00%	0.96%
3	4.20%	8.88%	76.19%	8.56%	0.21%	0.32%	0.76%	0.00%	0.00%	0.00%	0.87%
4	2.68%	1.53%	9.77%	75.59%	8.42%	0.95%	0.23%	0.03%	0.00%	0.00%	0.80%
5	2.81%	0.42%	0.18%	9.45%	77.48%	8.73%	0.16%	0.08%	0.00%	0.00%	0.69%
6	1.94%	0.07%	0.28%	0.94%	9.37%	79.35%	7.10%	0.14%	0.02%	0.00%	0.78%
7	1.19%	0.45%	0.67%	0.17%	0.15%	7.48%	83.01%	6.28%	0.11%	0.00%	0.48%
8	0.90%	0.24%	0.00%	0.00%	0.01%	0.08%	6.32%	87.08%	4.91%	0.01%	0.43%
9	0.53%	0.00%	0.00%	0.00%	0.00%	0.01%	0.03%	4.66%	91.63%	2.71%	0.43%
10	0.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	2.48%	97.04%	0.28%
Entry	0.03%	0.02%	0.02%	0.02%	0.02%	0.02%	0.01%	0.01%	0.01%	0.00%	

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- Takes existing framework for risk premia driven by cross-sectional differences in timing of cash flows and adds heteroskedasticity to explain low frequency fluctuations in expected returns
- Suggestions
 - ▶ Establish stylized facts a bit more thoroughly: why detrend TFP dispersion? Is 20-50 bandpass filtering really that informative when applied to a 50-80 year data set?
 - ▶ Given the empirical heterogeneous importance of firm exit across time and size, consider how robust the model's mechanism is to the constant-set-of-firms assumptions
 - ▶ Model generates rich set of quantitative predictions, which can be used to discipline it e.g. size decile transitions