Good and Bad Uncertainty: Macroeconomic and Financial Market Implications

by Gill Segal, Ivan Shaliastovich, and Amir Yaron

Discussion

Pietro Veronesi

The University of Chicago Booth School of Business
Outline of Discussion (directed by the planner)

- Discuss SSY in light of my recent research.
- Circle back to SSY to discuss some additional issues
Volatility and Asset Prices

- The correlation between P/E and stock volatility is strongly time varying.

A. Return Volatility and P/E Ratio

B. 5-Year Rolling Correlation between Volatility and P/E Ratio
Log P/E is not related to return volatility.

## C. Data

<table>
<thead>
<tr>
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<th>Expected Earnings</th>
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Source: David and Veronesi “What ties return volatilities to price valuations and fundamentals?” (JPE, 2013)
Volatility and Asset Prices

- Most models that feature time-varying volatility (habit formation, long-run risk) would imply that log P/E would be highly correlated with return volatility.

  - The data just says otherwise.
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  (e.g. late 1920s, 1990s etc – good volatility)
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• The model generates vast volatility variation (it is fitted to the data), but very hard to predict from observable quantities.
Model also does not explain volatility from log P/E

### A. Model: Simulations

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Source: David and Veronesi “What ties return volatilities to price valuations and fundamentals?” (JPE, 2013)
Model suggest a non-linear relation between volatility and log P/E (but far from perfect)

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Source: David and Veronesi “What ties return volatilities to price valuations and fundamentals?” (JPE, 2013)
Volatility and Asset Prices

- This non-linearity between volatility and prices is there also for Treasury bonds.
Volatility and Asset Prices

- The same mechanism is at play:
- Three regimes for inflation: High Inflation, Medium Inflation, Deflation

⇒ Uncertainty between HI and MI ⇒ high yield and high volatility (1980s, bad volatility?)
⇒ Uncertainty between MI and Def ⇒ low yield and high volatility (2000s, good volatility?)
Volatility and Asset Prices

• The *same* mechanism is at play:

• Three regimes for inflation: High Inflation, Medium Inflation, Deflation
  
  $\Rightarrow$ Uncertainty between HI and MI $\Rightarrow$ high yield and high volatility
  
  (1980s, bad volatility?)
  
  $\Rightarrow$ Uncertainty between MI and Def $\Rightarrow$ low yield and high volatility
  
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• In fact, the same mechanism explains the time-variation in *stock/bond covariance*

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Policy Regimes and Political Uncertainty

- Policy decisions affect the economic environment in which firms operate.
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- Such uncertainty affects the cross-section of firms
  \[\rightarrow\text{undiversifiable risk} \rightarrow \text{risk premium}.\]
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- Is political uncertainty priced? How?
  - Difficult question to tackle empirically:
    - Hard to disentangle political uncertainty from other sources of uncertainty
    - Endogeneity issues: e.g. political uncertainty may be large because of high return volatility, etc.
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    * Endogeneity issues: e.g. political uncertainty may be large \textit{because} of high return volatility, etc.
• Kelly, Pastor and Veronesi (2014):
  – Use option prices and elections and global summits to estimate impact of political uncertainty on asset prices
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  \[ \implies \text{undiversifiable risk} \implies \text{risk premium}. \]

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\[ \begin{align*}
\text{control} & \quad \text{treatment} & \quad \text{control} \\
\hline
a - s & a & b - s & b & c - s & c
\end{align*} \]

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  * overpriced due to a positive political risk premium
  * more expensive when political uncertainty is higher than options whose lives do not span political events.
Back to Segal, Shaliastovich, Yaron

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- Uncertainty = Realized Fundamental Volatility
  - Different from belief-based uncertainty about long-term growth
Back to Segal, Shaliastovich, Yaron

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  - In investment uncertainty literature, higher uncertainty may increase value to keep the option to invest alive.
  - \( \Rightarrow \) Investments decrease and less growth.
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• How does the good uncertainty work in an investment model?
  – Cross-sectional convexity effect?
    * Cross-sectional heterogeneity increase growth rate of aggregate capital.
    * It increase average prices.
    * It may plausibly be generated by innovation.
The Cross-sectional Standard Deviation of Profitability: Nasdaq vs NYSE/Amex

Fig. 9. Cross-sectional standard deviation of profitability for Nasdaq firms and for NYSE/Amex firms. Profitability (return on equity, ROE) of each firm in each year is computed as the firm’s earnings in the given year divided by the firm’s book equity at the end of the previous year. ROEs larger than 1,000% per year in absolute value are excluded.

Source: Pastor and Veronesi “Was There a Nasdaq Bubble in the late 1990s?” (JFE, 2006)
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- In this model:
  - $\sigma_\theta = \text{Good uncertainty}$
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Concluding Remarks

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  – This is reduced form, and it is good to see it works. But what is good / bad uncertainty? Why do periods with large innovations (e.g. 1990s) have large \textit{realized} volatility of fundamentals?
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• The measurement of realized good / bad uncertainty uses realized volatility, but at monthly frequency it is hard to measure well.
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• How about the flip-flop nature of the relation between Treasury yields and bond return volatility? What is the mechanism there? good/bad monetary policy uncertainty?