Quantifying the Effects of Online Bullishness...
Investor Attention and FX Market Vol...

by Mao, Counts, Bollen
by Goddard, Kita, Wang

Discussion by Peter Reinhard Hansen

European University Institute

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by Huina Mao, Scott Counts, and Johan Bollen

- Simple Classification (Positive of Negative) of Twitter feeds & Google search queries.
- Twitter Bullishness predict daily returns one-day-ahead.
  - One standard deviation increase in Twitter Bullishness -> 12.56 bps higher return.

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- Classifier: Algorithms..
- Dictionary: Negative words from Harvard psychosocial dictionary.
  - "many words that are classified as negative [in a psychosocial sense] are not negative in a financial context".
- Here: "Bullish" "Bull Market" or "Bearish"/"Bear Market"

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Quantifying the Effects of Online...

- Regression

$$R_t = \alpha + \sum_{i=1}^{5} \beta_i R_{t-i} + \sum_{i=1}^{5} \chi_i T^B_{t-i} + \sum_{i=1}^{5} \delta_i Vol_{t-i} + \phi Exog_t + \epsilon_t$$

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  - E.g. What is the resulting Sharpe ratio?

$$\frac{r_t}{\sigma_t}$$

  - What if T_t^B is correlated with volatility.
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- Do the results hold Out-of-Sample?

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- Contemporaneous correlation.

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- VAR(2)

$$
\begin{aligned}
SVI_t &= \beta_0 + \beta_1 Vol_{t-1} + \beta_2 Vol_{t-1} + \beta_3 SVI_{t-1} + \beta_4 SVI_{t-2} + \eta_{1t} \\
Vol_t &= \lambda_0 + \lambda_1 SVI_{t-1} + \lambda_2 SVI_{t-2} + \lambda_3 Vol_{t-1} + \lambda_4 Vol_{t-1} + \eta_{2t}
\end{aligned}
$$

- Volatility from GARCH(1,1)

$$\sigma_t^2 = \omega + \beta\sigma_{t-1}^2 + \alpha r_{t-1}^2$$

- GARCH is "slow". Responds slowly to big changes in volatility.
  - Estimation unreliable if $T < 1000$.

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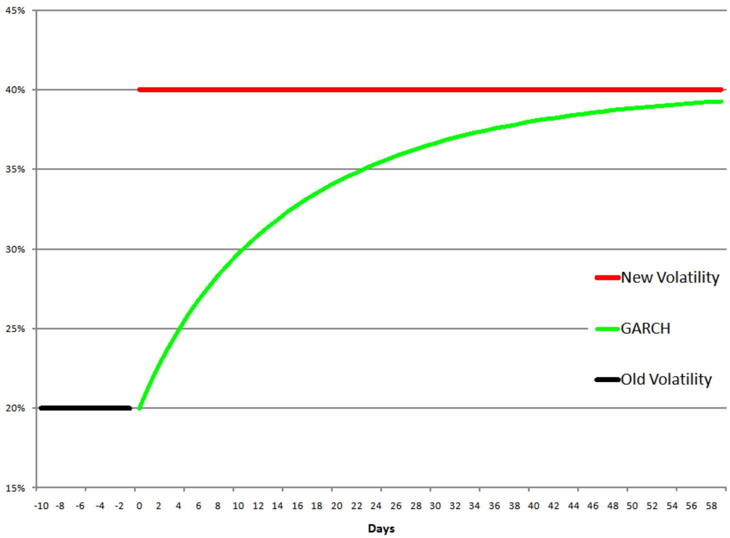
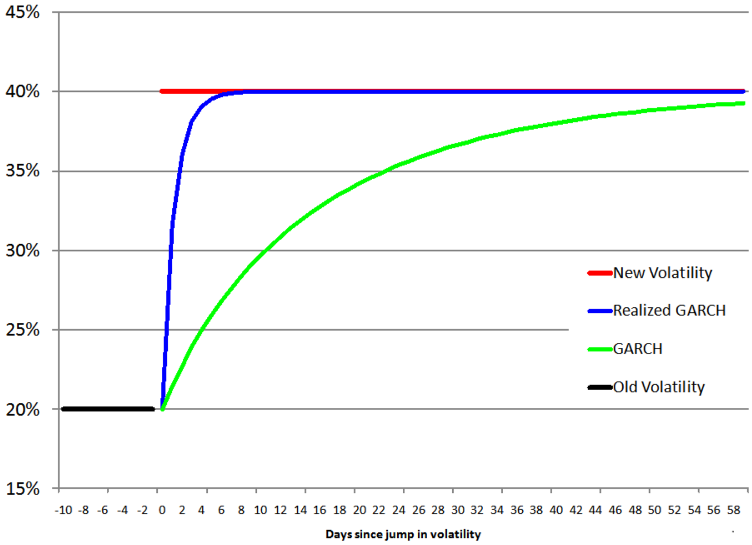
GARCH is Slow



GARCH-X with a Realized Measure is Fast



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- Extended GARCH

$$\sigma_t^2 = \exp(\lambda_0 + \lambda_1 SVI_t) + \gamma\sigma_{t-1}^2 + \cdots$$

  problematic because σ_t^2 is no longer $\mathcal{F}_{t-1}$-measurable.

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General Remarks

- Twitter & SVI in relation to equity market....
- Dynamic association with an evolutionary component.
- Conditional one-period-ahead models. SVI etc. taken as exogenous predictor.
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