Modelling Spillover Effects amongst Financial Institutions: A SDSVaR approach
Adams, Füss and Gropp

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My broad take on this paper...

- A substantial empirical contribution
- Is the motivation/ interpretation appropriate?

What they do …

- Daily data, 04/02/2003 to 12/31/2010
  - 2,023 observations
- Market returns for four sectoral return indices (US data): Commercial Banks, Investment Banks, Insurance companies, Hedge Funds
- Step 1 – Exponential Garch(1,1) model of return volatility -> daily VaR observations
- Step 2 – Quantile regressions (for 16 quantiles) of "spillover" between estimated VaR
  - Spillover is when $VaR_{t,j}$ for sector j is predictive of $VaR_{t,i}$ for sector i
  - conditioning on lagged $VaR_{t-1,i}$
  - And using 2SLS to disentangle endogeneity of $VaR_{t,i}$ and $VaR_{t,j}$ with lagged values as instruments.

Their big (and surprising) finding …
panel 2 of Figure 1 in the paper

Spillover Coefficient $\beta_{1\theta}$

Quantile θ
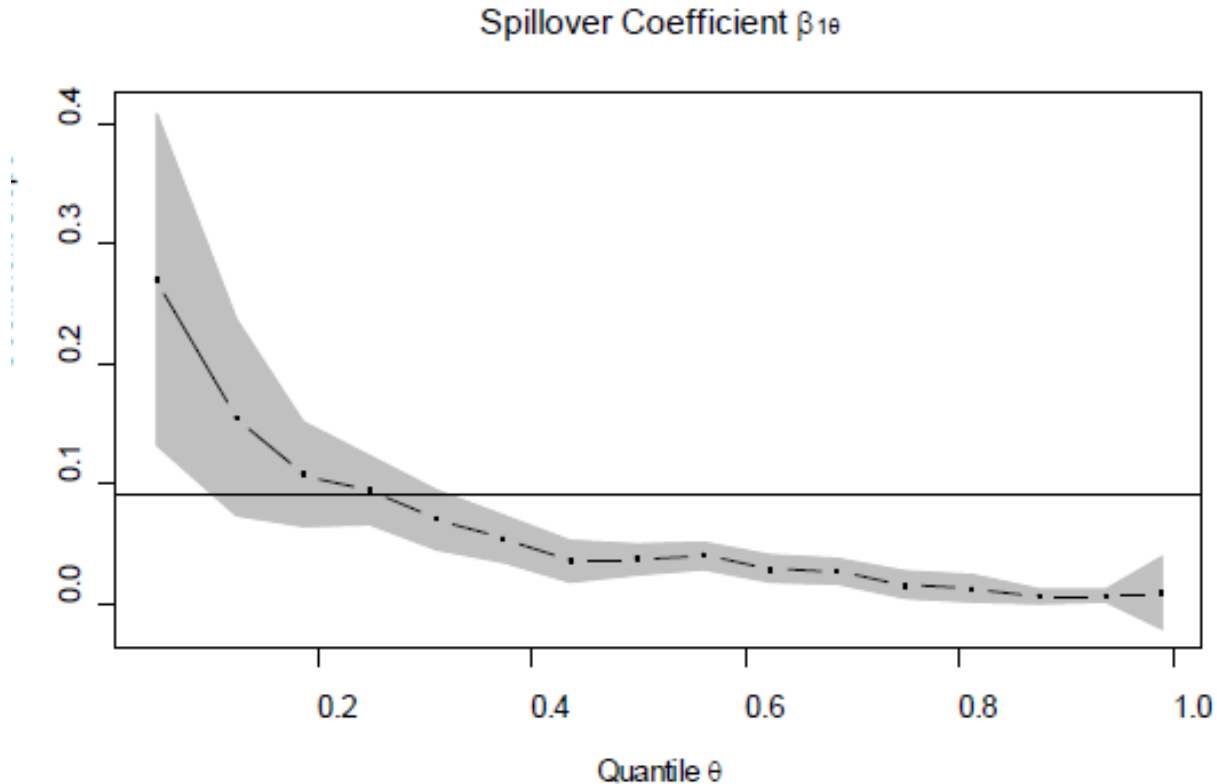
As volatility increases (moving left)

-> spill-over from hedge funds to investment banks increases markedly.

Similarly increasing but smaller for other sectors (See Table 1)

Variations

- Dynamic (one step ahead) forecasting (Fig 2)
  - SDSVaR similar time pattern as CoVar (panel A)
  - Spillovers greater for "distressed" 0.125 quartile and rise *in crisis period* (panels B, C)
  - Hedge fund spillovers especially large (panel B)
- Impulse response analysis (Fig 3)
  - Responses are persistent
- Distinguishing hedge fund 'styles' (Table 2)
  - Large and significant spillovers for global macro and event driven funds

Motivation?

- Presented as a contribution to the growing literature on quantifying contributions to systemic risk
  - CoVaR, Marginal ES, Shapley values
- Highlights spillovers from hedge funds

But ...

- Regulatory consensus, with good reason, does *not* regard hedge funds as a systemic concern
  - Failure of a hedge funds typically has no impact on other institutions (interconnections low -> just to prime broker)
  - Hedge funds played no transmission role in 2007-2009
  - Exception LTCM *was* systemically important
    - Fire sale externality
- Quantitative modelling of systemic risk suggestive but *not* central to policy
  - VaR models unreliable enough, without additional systemic dimension
  - Not robust enough to be used for quantifying macroprudential policy
    - E.g. Major change in coefficients reported in this paper when one year data added

Alternative motivation …

- Endogenous risk
  - E.g. Theoretical papers such as Brunnermeier and Pederson (2009) *cited in paper*
  - Also empirical contributions such as Adrian and Shin (2008), Adrian, Etula, Shin (2010) *not cited in paper*
- My take on this paper, it is about illiquidity as a risk factor
  - when it emerges affects all asset returns
  - both ex-ante expected and ex-post realised
  - Strongest impact on hedge funds
    - intermediate impact on investment banks,
    - lower on commercial banks and insurance
- Suggests a major inefficiency (externality) in financial markets and hence a potential rewriting of textbooks
- You need to decide: systemic spillovers *or* endogenous risk?

A few other comments …

- Why not present the 16 (4 x 4) spillover charts?
- 2SLS unclear. Why not directly report spillover from lagged $VaR_{t-1,j}$?
- Also worth reporting direct contemporaneous quantile correlations of $VaR_{t,i}$ and $VaR_{t,j}$.
  - Fig 1 suggests non-linear relationship
- Is VaR here different from σ (volatility)
  - I think not, I think what we are picking up here is
    - (a) how correlation alters in tail
    - (b) how high volatility in some sectors (hedge funds) predict high volatility in others (principally investment banks)
    - (c) Could be modelled as multivariate Garch.. But *non-linear*