"Global financial spillovers: A non-linear assessment of the uncertainty channel"

by Bertrand Candelon, Laurent Ferrara, and Marc Joëts

Discussion by
Alessandro Galesi
(Banco de España)

14th Emerging Markets Workshop on
‘‘Spillovers and spillbacks from major transitions in the global economy"
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A very interesting paper

- Recent emphasis on the economic importance of **uncertainty**
  - for the business cycle (Bloom, 2009)
  - for financial contagion: some theoretical contributions **but still few empirical evidence**
- Authors propose a **Threshold VAR** for high/low uncertainty regimes
  - Stock market returns for 13 advanced & emerging economies
  - Model's coefficients may switch if uncertainty is low/high
  - Various proxies for uncertainty (financial, macro, economic policy)
- Very interesting results
  - **Stronger contagion when uncertainty is high**
  - Countries as U.K. are receiver/transmitter depending on **uncertainty**

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The Threshold VAR

$$u_t = B_1(L)u_{t-1} + I_t(z_{t-1} \geq \mu)B_2(L)u_{t-1} + \eta_t$$

- u_t comprises monthly data (Jan1998 – Dec2015) on
  - **stock market returns** for 9 developed and 4 emerging economies
  - **uncertainty index** z_t: three alternative measures
    1) financial uncertainty (implied volatility)
    2) macroeconomic uncertainty (following Jurado et al. 2015)
    3) economic policy uncertainty (news for U.S., Europe, China)

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  - To get further insights, given recent Euro sovereign bond crisis
  - See related paper of Beirne and Gieck (2014)

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The Threshold VAR

$$u_t = B_1(L)u_{t-1} + \underbrace{I_t(z_{t-1} \geq \mu)}_{\substack{\textbf{threshold} \\ \textbf{indicator}}} B_2(L)u_{t-1} + \eta_t$$

- $I_t(z_{t-1} \geq \mu)$ takes value 1 if uncertainty is sufficiently high
  - μ: unobserved threshold value for uncertainty
  - Regime switching is endogenous
- Conditioning on the regime, the model is linear:

low uncertainty: $u_t = B_1(L)u_{t-1} + \eta_t$

high uncertainty: $u_t = [B_1(L) + B_2(L)]u_{t-1} + \eta_t$

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- (Generalized) Forecast Error Variance Decompositions & Diebold-Yilmax index to assess the role of **international spillovers**
  - Pros: GFEVDs are invariant to the ordering of variables
  - Cons: (not-identified) shocks are **contemporaneously correlated**
- In this respect, what is the role of **common/regional shocks**?
  - May want to check pairwise correlations of shocks
  - Possibly, **"clean out" correlations** once controlling for common/regional factors (as in Dees et al. 2007)

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International financial markets' spillovers

	USA	UK	GER	FRA	ITA	NLD	ESP	PRT	GRC	CHN	BRA	RUS	IND	FROM
USA	87.6	1.4	3.6	0.1	1.0	1.4	0.4	0.6	0.1	2.0	0.5	1.2	0.1	12
UK	62.0	27.7	3.0	0.4	0.8	0.8	0.5	1.0	0.1	2.7	0.1	0.5	0.4	72
GER	61.1	7.5	24.1	0.5	0.3	1.1	0.5	0.8	0.1	1.4	0.9	1.6	0.3	76
FRA	62.3	12.5	11.7	9.4	0.2	0.3	0.2	0.5	0.1	1.6	0.3	0.6	0.2	91
ITA	46.5	14.7	12.4	9.1	14.5	0.3	0.1	0.7	0.1	0.8	0.2	0.2	0.4	85
NLD	58.7	14.4	8.7	2.5	0.4	10.9	0.4	0.3	0.2	2.4	0.1	0.5	0.3	89
SPA	47.9	15.1	6.9	7.6	4.0	0.2	15.3	0.7	0.3	0.8	0.3	0.2	0.7	85
PRT	33.2	18.0	8.7	12.1	2.3	0.6	2.1	20.1	0.5	1.1	0.5	0.1	0.7	80
GRC	27.5	13.9	4.5	7.8	1.8	0.3	3.8	1.5	33.5	2.3	0.3	0.5	2.2	67
CHN	7.7	1.9	1.6	1.0	0.5	0.2	0.4	2.8	1.9	79.6	0.7	0.7	1.0	20
BRA	39.5	8.4	1.7	0.6	0.4	2.8	1.5	0.8	1.3	1.6	40.6	0.1	0.8	59
RUS	29.5	5.0	1.2	0.4	0.7	3.4	2.0	1.3	1.8	1.1	8.3	43.2	2.0	57
IND	25.0	6.1	1.2	0.4	4.6	1.2	0.6	1.9	1.5	4.1	2.5	0.6	50.3	50
TO	501	119	65	42	17	13	12	13	8	22	15	7	9	64.9%
NET	489	47	-11	-49	-68	-76	-73	-72	-59	2	-44	-50	-41	

International financial markets' spillovers

Large spillovers from U.S. shocks, especially in developed economies

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Small spillovers from China

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Spillovers account on average for about 64% of forecast error variance

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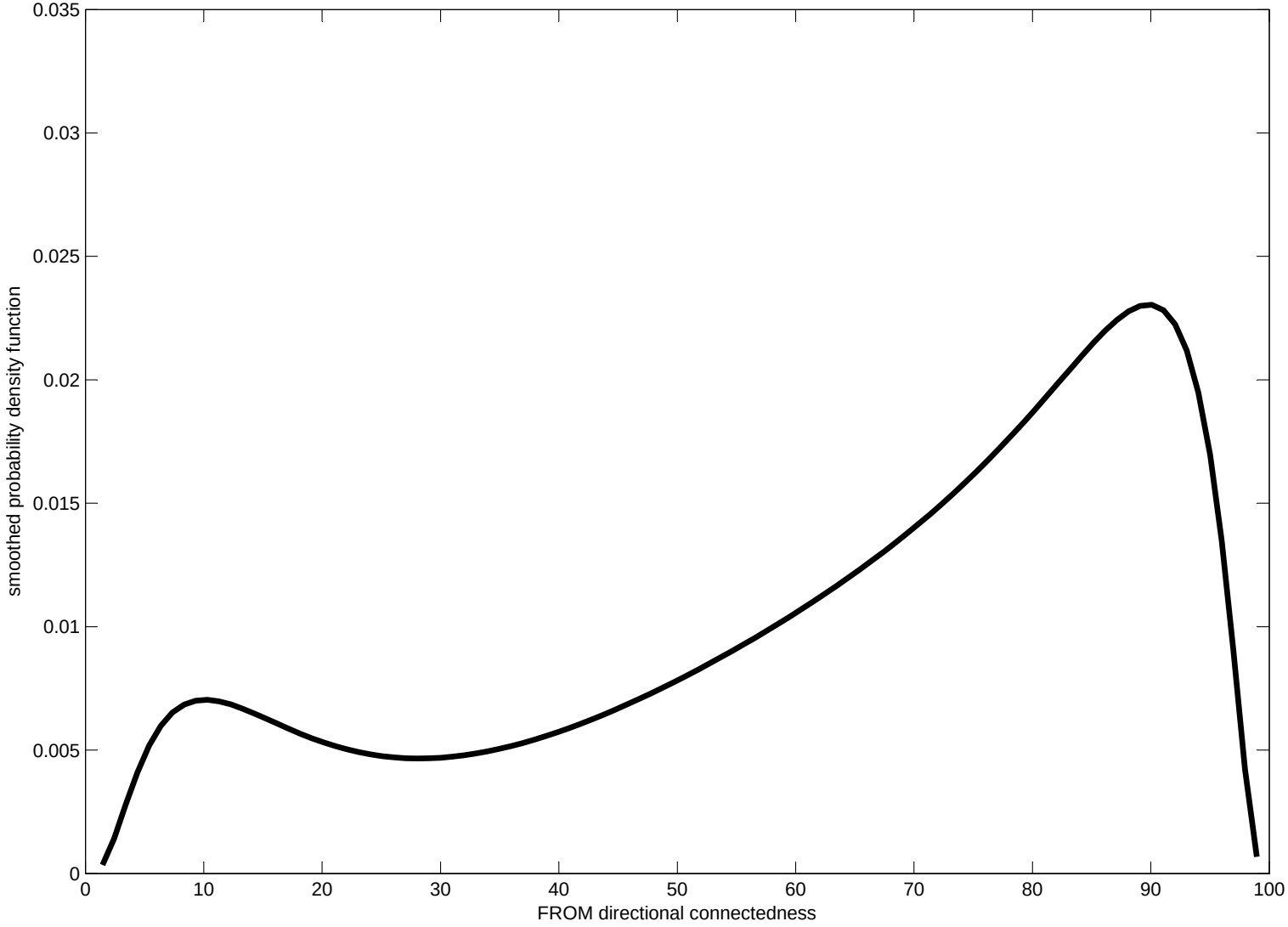
Uncertainty and financial spillovers

Estimated Kernel densities of FROM connectedness measures

black: unconditional, **blue: low financial uncertainty**, **red: high financial uncertainty**



spillovers play a key role (most of the mass lies above 50%)

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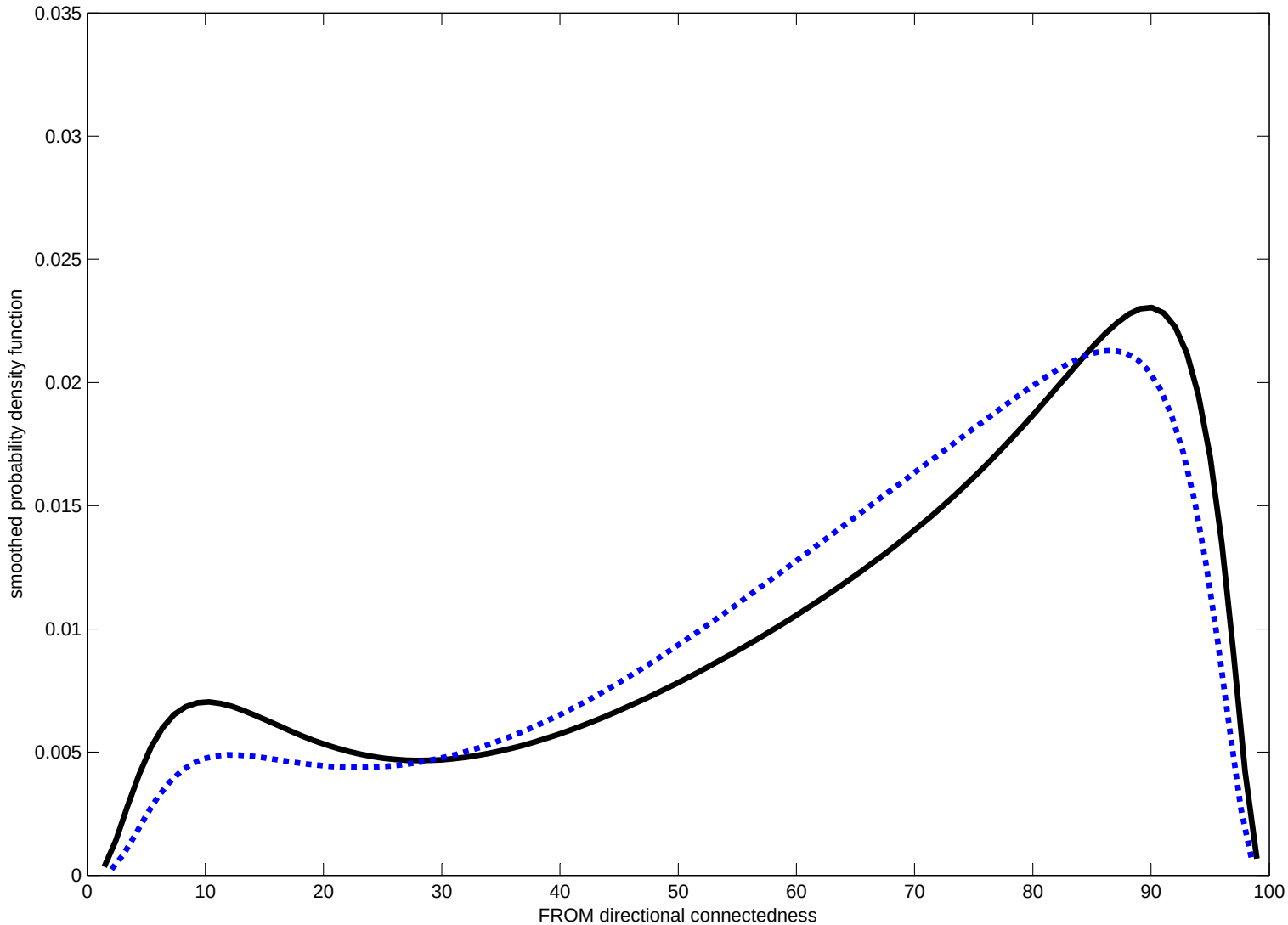

similar picture if uncertainty is low

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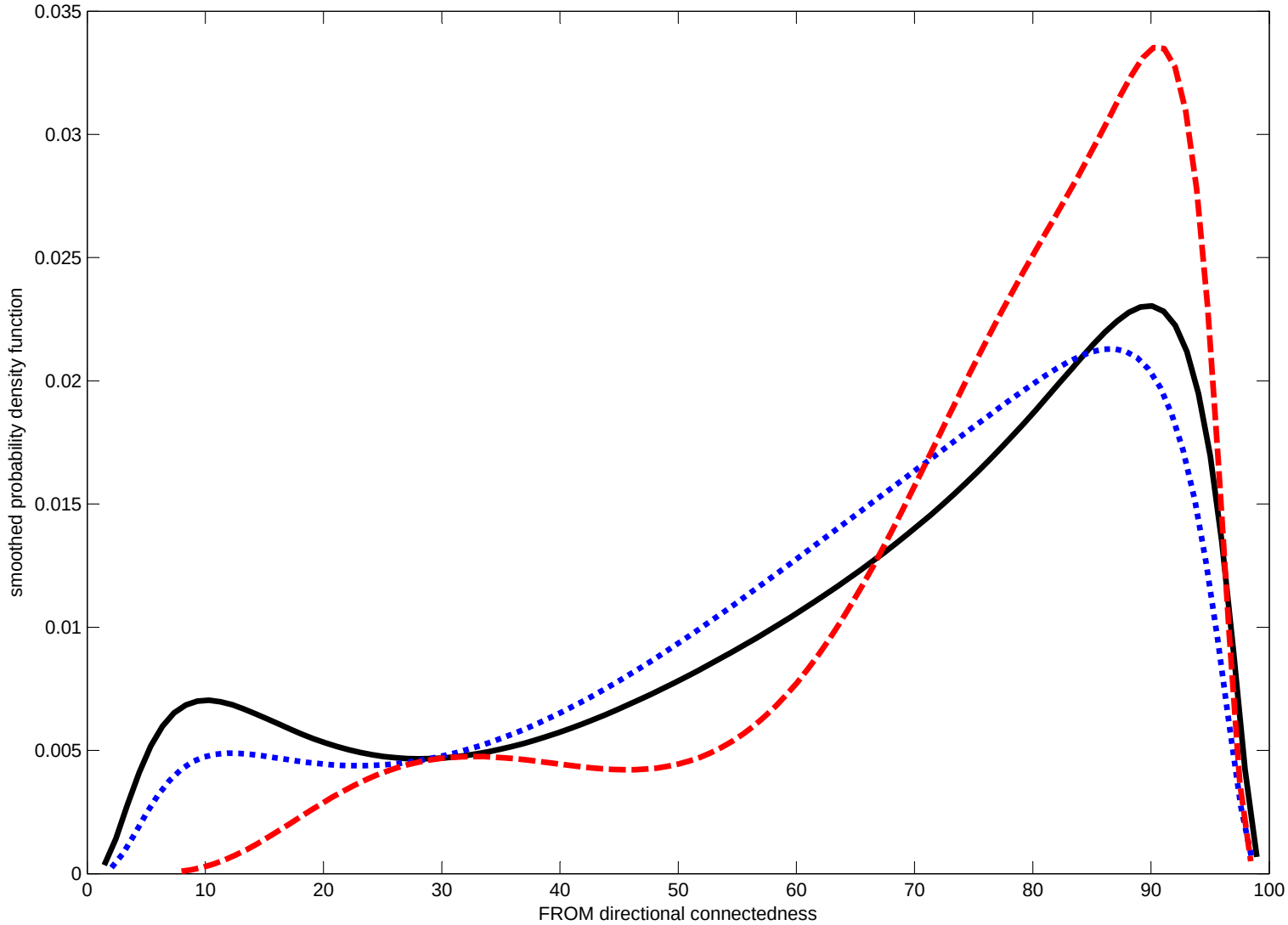
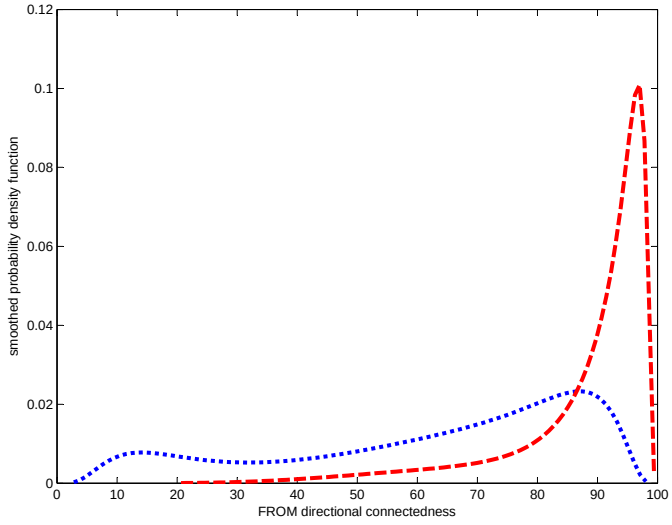


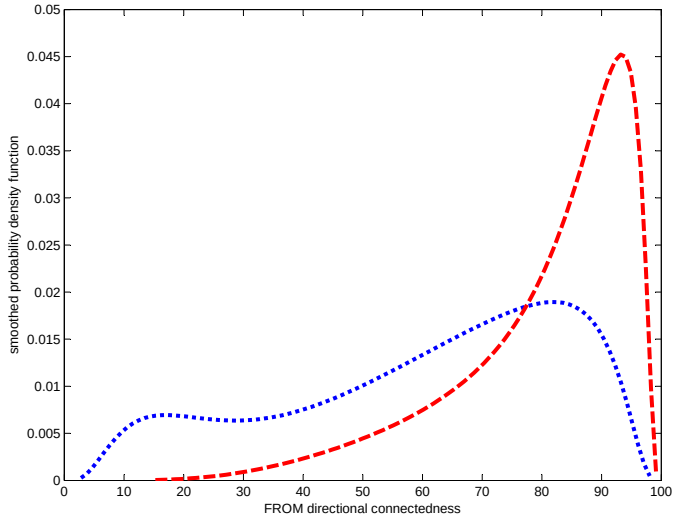
stronger contagion when uncertainty is high

Results robust to alternative uncertainty indicators

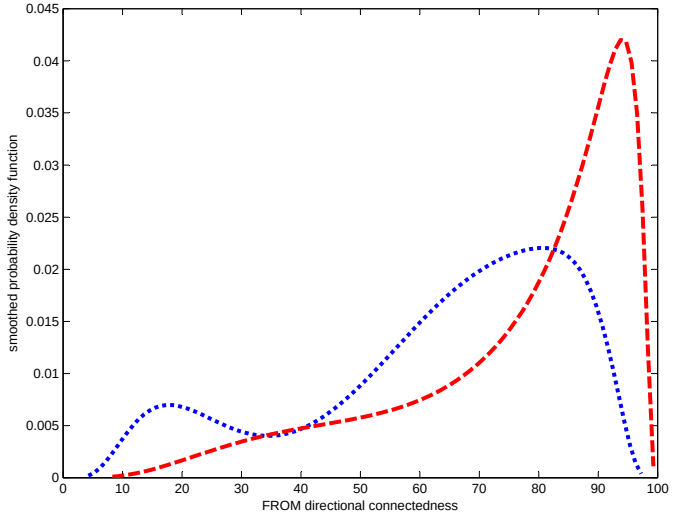
blue: low uncertainty, red: high uncertainty



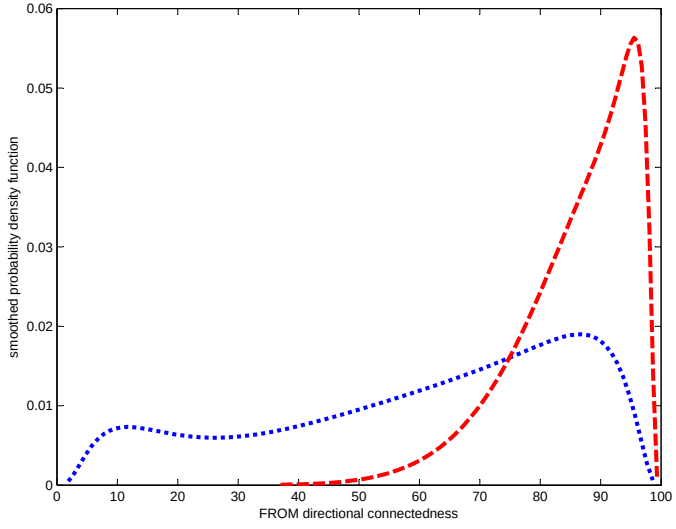
(a) Macroeconomic uncertainty



(b) U.S. policy uncertainty



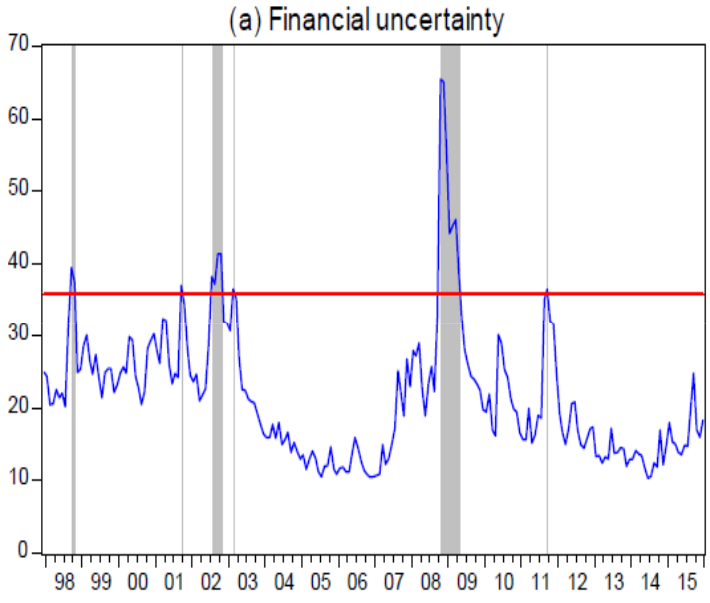
(c) Europe policy uncertainty

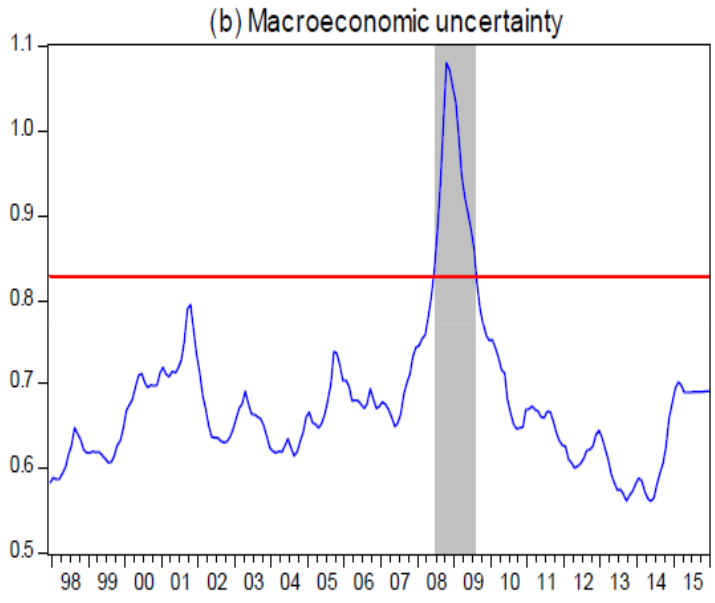


(d) China policy uncertainty

Uncertainty and crises

- Periods of high uncertainty may coincide with crises





- Strengthen the point that **high uncertainty $\neq$ crisis**
  - Compare results with a TVAR for crisis/no-crisis regimes
  - Do contagion patterns differ? If so, **stress them**

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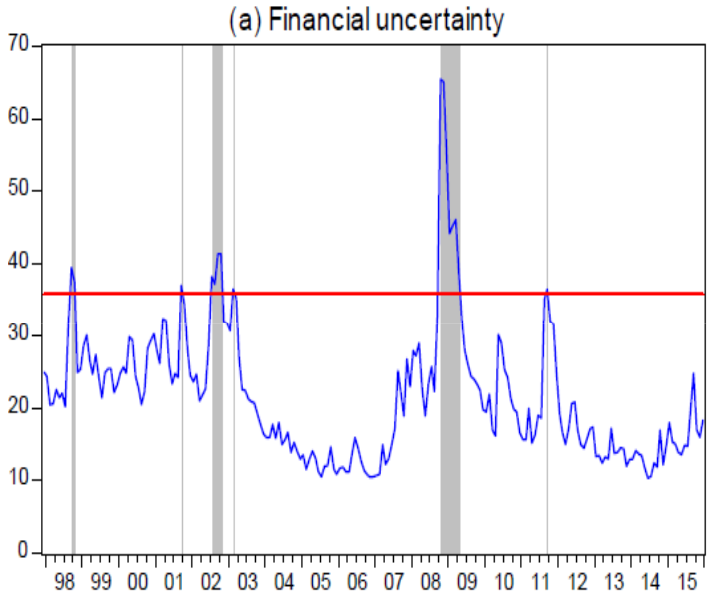

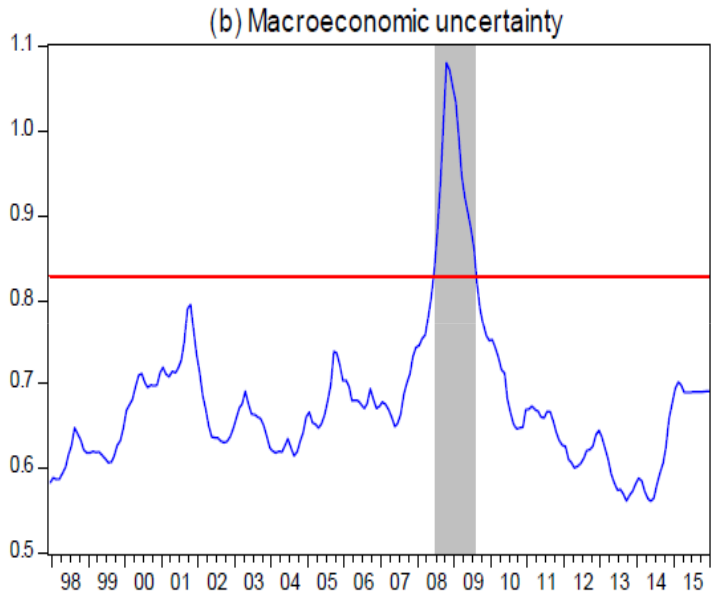

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Concluding remarks

- Clear and very relevant research question
- Simple and elegant model, very well suited for the question
- Key finding: **stronger contagion when uncertainty is high**
  - This is a very important result
  - Monetary authorities should account for such amplification

Thank you for your attention!