



EUROPEAN CENTRAL BANK

EUROSYSTEM

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Discussion of the article: FRM - The Financial Risk Meter

by Härdle and co-authors

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Bank Spring Conference Systemic Risk and
the Macroeconomy

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Key messages of the article

Financial Risk Meter (FRM)

- New measure capturing time varying intensity of tail dependencies among financial institutions (intensity of joint tail events)
- FRM builds on existing literature on tail events
 - VaR (individual institutions); CoVaR (links between institutions);
 - Härdle et al. 2016 – whole network (shrinkage techniques - LASSO)
- FRM focuses on the information content of the shrinkage parameter λ (firm specific)
 - λ provides Information on the active set on influential nodes for one individual
 - FRM = average of λ across individuals at one point in time

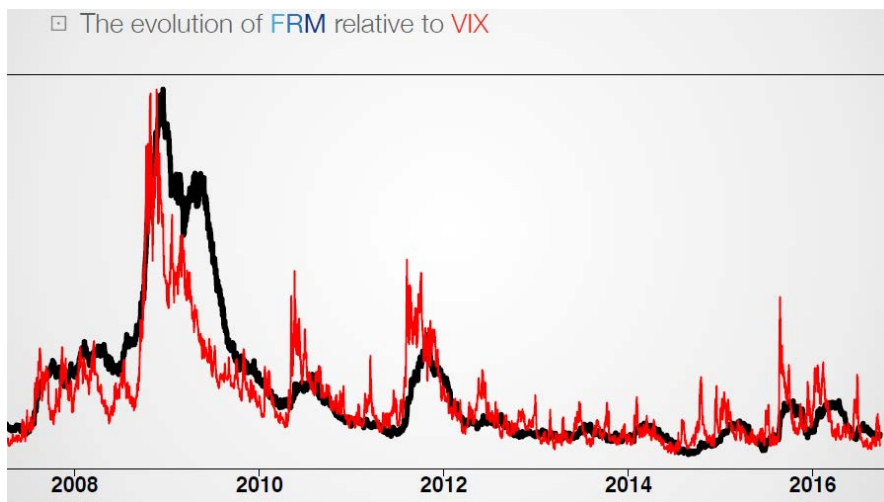
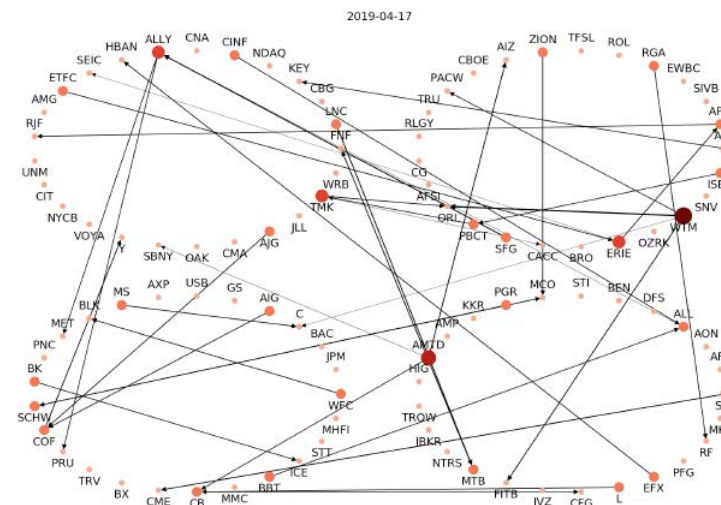
$$FRM_t \stackrel{def}{=} J^{-1} \sum_{j=1}^J \lambda_{jt}$$

□ The **FRM** time series is ONE index for joint TEs!

Key messages of the article

Financial Risk Meter – Results

- Application on US data
- FRM captures key episodes of financial stress
- FRM “predicts recessions”
- FRM provides information on the shape and dynamics of networks



FRM codes

hu.berlin/frm

Hold +32.62%

Anzahl: Buy: 12, Hold: 11, Sell: 1

Low Risk	<20%	severe risk of crisis
General Risk	20% - 40%	high risk of crisis
Elevated Risk	40% - 60%	elevated risk of crisis
High Risk	60% - 80%	general risk of crisis
Severe Risk	>80%	X low risk of crisis

General comments

Thanks for the paper: short and at the point!

Paper at the frontier from the technical perspective!

Key questions of the discussion:

- Is the methodology ready for policy use?

...some suggestions to answer with firm “yes”

What does the FRM measure? “Risk materialization”

- Intensity of joint tail events / contagion / cross sectional dimension of systemic risk / coincident indicator of systemic stress / crisis materialisation
 - **Complementary area:** early warning models of systemic crises / leading indicators of crises / composite indicators capturing the build up of systemic risk (activation of counter cyclical capital buffer) – ECB OP Lang et. al 2019 / Detken et al. ECB FSR May 2018

“Risk materialisation” is a crowded area...

- Deghi et al. ECB FSR May 2018 – Financial stability index (focus on spillover and contagion) / review of the literature of available measures
 - CISS (Hollo et al. 2009); Marginal Expected Shortfall (MES, Acharya et al. 2017); Component Expected Shortfall (CES, Banulescu and Dimitrescu, 2015); Conditional capital shortfall measure of systemic risk (SRISK, Brownlees and Egle, 2016); Distressed insurance premium (DIP, Huang et al. 2009); CATFIN (Allen et al. 2012); Dynamic Causality Index (Billio et al. 2012); Spillover index (Diebold and Yilmaz, 2014); etc

Suggestion: Strengthen the description of how this work relates to the literature and better highlight the value added (beyond technical advancement)

Is the FRM ready for policy use?

Check list

- **Quantitative dimensions**
 - Warning performance (in-sample and out-of-sample)
 - Correlation with measures of crisis severity
 - Performance in relation to alternative indicators
- **Qualitative dimensions**
 - Easy to communicate / economic interpretation / narrative
 - Robust to real-time estimation
 - Country-specificities
 - easy to implement across countries
 - Operational risk

Comment #2 - ready for policy use?

Is the FRM ready for policy use? Check list of Quantitative dimensions

- Warning performance
 - *Logit regression indicates FRM tracks well the US 2008/2009 recession*
 - *Only one recession / reporting of key performance indicators needed* (Type 1 and Type 2 errors; “usefulness”, AUROC)
- Correlation with measures of crisis severity
 - *Not tested* (impulse responses of GDP to FRM / impact of FRM on the distribution of GDP - focus on tails; e.g. IMF Growth at Risk)
 - Performance in relation to alternative indicators
 - *Not tested*

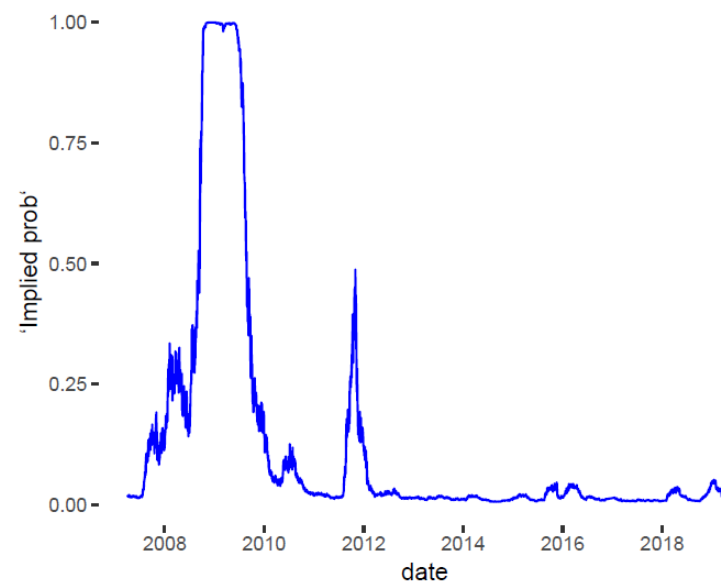


Figure 4: Implied recession probability by FRM

Comment #2 - ready for policy use?

Is the FRM ready for policy use? Check list of qualitative dimensions

- Easy to communicate / economic interpretation / narrative
 - *good: “contagion” / “intensity of joint tail events”*
 - *Less good: technicalities*
- Robust to real-time estimation
 - *Not clear*
- Country-specificities / Easy to implement across countries
 - *It requires relatively standard data*
- Operational risk
 - *Possible (infrastructure / coding / devoted operator with technical knowledge)*

Conclusions

Thanks for the paper: short and at the point!

Paper at the frontier from the technical perspective!

- Minor comment: some technical choices need to be better motivated
 - Choice of explanatory “macro” variables
 - Choice of time windows for λ

Key questions of the discussion:

- Is the methodology ready for policy use?
- Some suggestions before answering a firm “yes”
 - Positioning of within the literature and value added beyond technical improvement (+ expand references)
 - Strengthening the analysis of warning performance / link with crisis severity / performance in relation with competitors