Discussion of "How connected is the global sovereign credit risk network?"
by Gorkem Bostanci and Kamil Yilmaz

Peter Feldhütter
London Business School

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Main idea

- Question: How are credit risks of countries related?
- Market-based approach using daily sovereign CDS spreads (and volatilities)
- Diebold-Yilmaz connectedness index methodology
- The method allows for estimation of the simultaneous relation between many SCDS; in this analysis 38 countries

During the period 2009-2014

- Global factors are more important than local factors in the determinants of SCDS spreads
- The relative contribution of global vs domestic factors change over time
- Emerging market countries (Turkey, Russia,...) most important transmitters of sovereign credit risk shocks (not Greece, Italy,...)
- Shocks to SCDS of Safe-havens do not transmit to other countries

The Diebold-Yilmaz approach

- There are N countries with CDS data
- Estimate VAR for all CDS spread changes
- N large $\Rightarrow$ sparse VAR using elastic net estimator
- Calculate the H-step-ahead forecast error variance
- **'from connectedness'** of country i: the share of the H-step forecast-error variance of country i coming from shocks arising in other countries
- **'to connectedness'** of country i: the share of the H-step forecast-error variance of other countries coming from shocks arising in country i
- **'total connectedness'** of: the average share of the H-step forecast-error variance coming from shocks arising in other countries
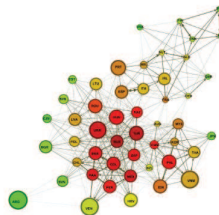
Network on June 19 and 20, 2013

- Difficult to eyeball; nodes are moving
- More summary statistics
  of network useful
- 149 out of 150 data points are identical
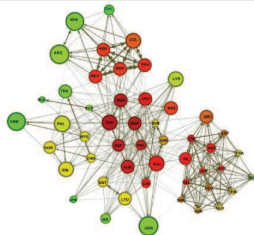 for the two networks?
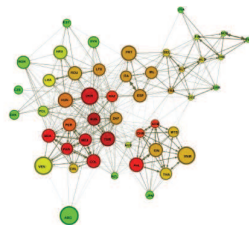
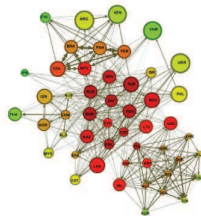(a) June 19, 2013

(b) June 20, 2013

Graphical interpretation of network

Network on May 3 and 10, 2013

- "On both May 3 and May 10 we can easily spot four clusters"
- "on May 10 we clearly see the increase in overall connectness"
- Denmark more "to others" connected than Greece on May 3?

(a) May 3 2010

(b) May 10 2010

- Total connectedness is interpreted as the importance of global factors
- But assume that you have lots of regional clusters that are independent across clusters but highly dependent within cluster
- Such a case would have high total connectedness, but the effect of global factors would be zero?

- Longstaff, Pan, Pedersen, and Singleton (2011) have similar conclusions to this paper
- They use a simpler approach, PC analysis
- Simple comparison of the approach here vs their approach:
    1. Download daily CDS spreads for 19 countries
    2. Do a rolling-window analysis using 150 days
    3. Calculate the explanatory power of first three PCs
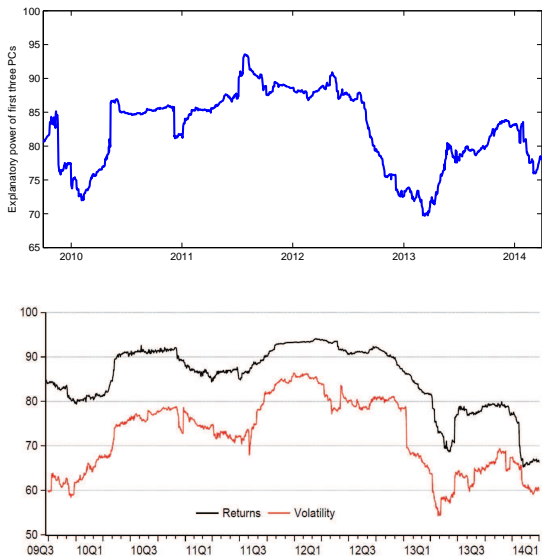
Dynamic connectedness in simple approach

Figure 4: System-wide Connectedness of SCDS Returns and Return Volatilities
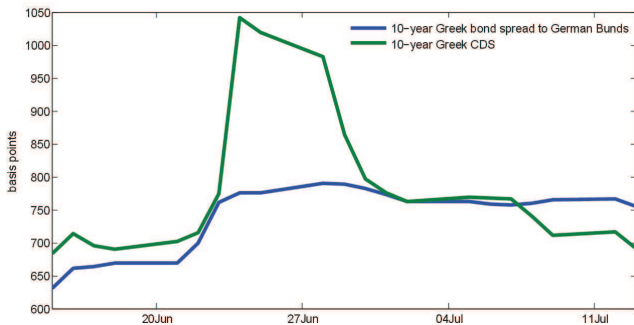
- Greek CDSs were eventually triggered on March 9, 2012
- Considerable uncertainty about whether CDSs would be triggered or not even though private investors where taking losses on the bonds
- High connectedness could be driven by expectations about default event trigger

- Longstaff, Pan, Pedersen, and Singleton (2011) find that on average a third of the sovereign CDS spread is due to a risk premium
- Can you decompose the CDS into default and risk premium components as in LPPS and analyse the components separately?

What is the network measuring? Liquidity

- Corporate CDS can be illiquid (Bai and Collin-Dufresne(2013), Bongaerts, De Jong, and Driessen(2011), Trolle and Junge(2014),...)
- Gyntelberg, Hordahl, Ters, and Urban(2013) find that the SCDSs leads sovereign bonds, but this is weak for daily data (they look at 7 liquid SCDS)
- Example from Summer 2010:

- Klingler and Lando(2015) find that SCDS of safe havens are mostly driven by regulatory requirements
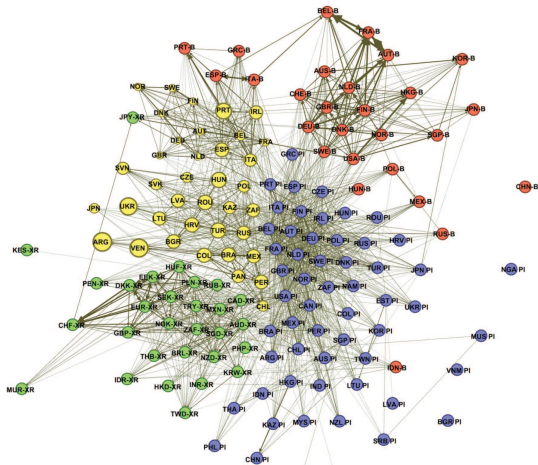- Alternative to illiquidity story suggested in the paper

Figure 3: Explaining Bond Yields with Risk-Free Rates and Credit Risk

$$\Delta Yield_t = \alpha + \beta^{CDS}\Delta CDS_t + \beta^{rf}\Delta rf_t + \varepsilon_t$$
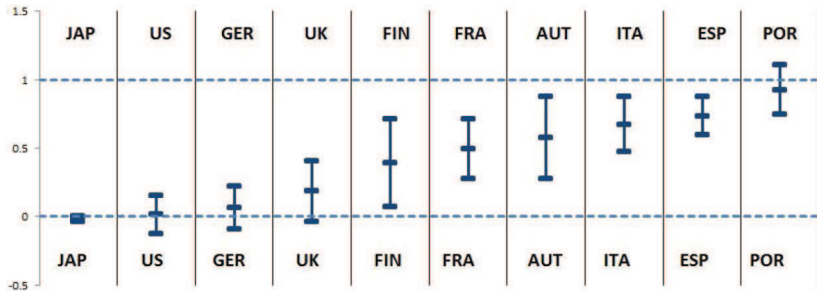
(a) Parameter estimates for β^{CDS}

- How can SCDS and bonds be so disconnected (bond yields vs bond spreads)?

Table 1: CDS and Debt Amounts Outstanding for the 10 Sovereigns in our Sample.

Rank	Entity	Net Notional	Debt Outst*	Pct of Debt
1	Italy	16.92	1,989.43	0.85%
3	Germany	13.12	2,160.19	0.61%
4	France	11.74	1,833.81	0.64%
5	Spain	9.26	884.65	1.05%
6	Japan	9.19	9,759.64	0.09%
12	GB	5.84	1,700.54	0.34%
16	Austria	4.22	227.17	1.86%
19	Portugal	3.68	204.84	1.80%
24	USA	3.39	12,975.07	0.03%
47	Finland	2.19	103.15	2.12%

Notes: All amounts are given in billion USD equivalent. The ranks refer to the whole single-name CDS market (including banks and corporates). Source: DTCC, September 2013 and CountryEconomy.com (*data are from 2012)

- Source: Klingler and Lando(2015)

Table 5: EU-Regulated Sovereign Single-Name CDS Weekly Average Trade Count

Sovereign CDS	Pre-Announcement	Post-Announcement	Change	Post-Implementation	Change
Bulgaria	28	9	-68%	15	71%
Croatia	15	10	-32%	15	46%
Czech Republic	6	13	125%	9	-32%
Estonia	1	1	-6%	2	66%
Latvia	5	9	61%	7	-25%
Lithuania	4	8	79%	8	9%
Poland	57	54	-5%	33	-39%
Slovakia	4	7	70%	6	-20%
Slovenia	4	7	93%	13	82%
Hungary	91	80	-12%	56	-30%

Source: DTCC Trade Information Warehouse

- Very compactly written
- A simple two or three country example would be helpful
- A more precise description of how the networks are created would be helpful
- Maturity of CDS (I assume 5y?)
- Is the one-day forecast analysed or multiple day forecasts (10-day forecast horizon)?
- Size of nodes are determined by rating - size of country may be more natural?
- Color of node is determined by 'to connectness' and depends on which countries are included (New Zealand and Australia) - adjust for country size?

Conclusion

- This paper nicely documents some facts about the commonality in changes in SCDS spreads across the world
- In terms of documenting the network of SCDSs having some summary statistics would be useful
- How should we understand the network?
  - Credit risk, recovery, risk premiums, liquidity, regulatory capital
- Bond spreads may be more informative than SCDSs