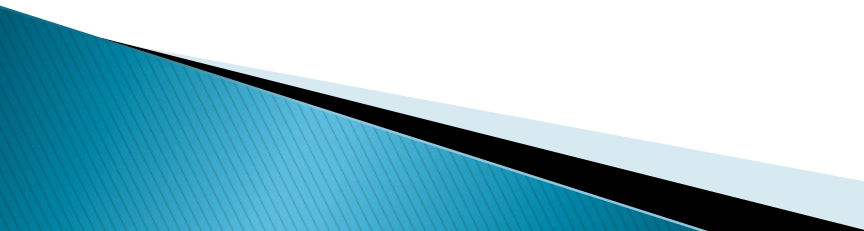# Credit Default Swap Spreads & Systemic Financial Risk

Stefano Giglio
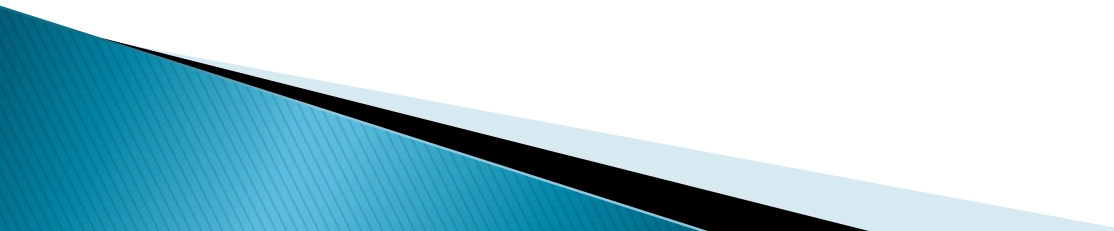(Harvard University)
Comments by Phil Molyneux (Bangor, Wales)

Aims

- Measures joint default risk of large financial institutions (systemic default risk)
- Uses information on bond and credit swap (CDS) prices to do this – namely, the paper incorporates default probabilities of bond issuers + protection sellers
- Constructs optimal bounds on the probability of default using bond/CDS basis – reasonably complex function of constraints model using non-parametric LP + network style framework (So pretty clever)

Findings

- The approach presented gives alternative indicators of systemic risk – compared with traditional bond + CDS spread measures
- Illustrates that markets anticipated 'by more than a month' a sharp increase in the default probability of Lehman and Merrill Lynch (that defaulted the same time – weekend of 13-14th September

Comments 1

- Probability Bounds – there is a big literature (with substantial applied application in environmental science, computer science + elsewhere). It needs to be clear how much of the bounds discussion is new? Or whether its simply applying established theory to a 3 banks + 2 time-periods setting?

- Boros + Pekopa provide a mathematical discussion of bound probabilities in an OR context – but how novel is the application of LP to solving bounds issues? Is it common? Or unique?

- As readers will be pretty familiar with the finance area – probably need more guidance on the bounds theory in terms of supportive literature etc

Comments 2

▸ The paper is good at pointing out the limitations of the analysis in certain areas – but personally I think this is overplayed / over-emphasised

▸ Particularly in areas relating to:
◦ Data (CDS spreads – equal weighted average of quotes reported by set of dealers) + interpolation for missing observations
◦ Number of broker-dealers (15)
◦ Liquidity assumptions

Comments 3

- Use of hazard model to estimate default probabilities is noted but there are a range of hazard models that one can estimate – so this could be clearer
- Figures 4 + 5 rarely do the Bonds and CDS systemic risk bounds exceed only those for bonds – is this a case for regulators to focus on bond spreads (being conservative) and to forget about CDS +CDS/Bonds altogether
- Figure 6 network – again there is an extensive network economics literature gauging inter-linkages in the financial and other areas. Has this been used at all or is the figure just to illustrate a network??

Summing Up

- Very interesting, detailed and novel paper.
- Presents a new approach to model systemic risk – technically innovative as well
- Could be more succint in places and direct reader a bit more – especially in areas they are likely to be less familiar with (I'm not sure how many folk are familiar with bounds theory, network economics, linear programming and the 'nitty gritty' of the CDS market?
- Need not be so apologetic re assumptions made
- Work could be an excellent guide to future analysis of systemic risk – it would be neat to have actual CDS spreads / bond spreads on all banks and link them via a bigger network to calculate similar bounds and systemic default probabilities