Monitoring the interbank market through dynamic network visualizations

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Discussant

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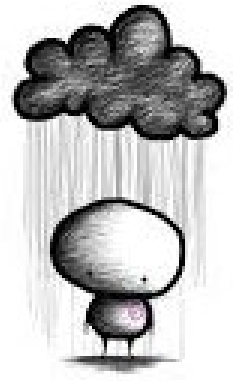
My summary

- Visualization of large static networks is difficult… *but dramatic progress has been made*
- *It is technologically more challenging to present an animated data set than a static one… but adds value to the existing monitoring*
- The aim of the paper is to *highlight significant […] advances made in the visualization of large dynamic networks*
- The data set is the Dutch interbank money market
- The tool is Gephi (https://**gephi**.org/)

My view



- It is good to know “I” (i.e. FIOD) am not alone…
- At Banco de la República we are currently thinking/designing our everyday (e.g. daily, real-time) FMIs oversight tools… and it is no easy task!
- The document and the presentation are particularly helpful since…
  - 50% of our efforts are on finding/designing/implementing tools for visualizing large and dynamic data…
  - 50% of our effort is on convincing senior staff about the convenience and reach of visual exploration of networks…
- More literature on financial networks’ data visualization and analysis is required… and the document will contribute to fill the gap.

My concerns/questions

- Furfine-based algorithms precision (?)
  - Armantier and Copeland (2012): Furfine-based algorithms yield average type I (false positive) and type II (false negative) errors from 2007 to 2011 about 81% and 23% for Fedwire, respectively.*
  - Arciero et al. (2013) report type II errors about 0.92% (very low!)... but type I error is not reported.
  - Can we live with type I >> type II?
- Are non-banking institutions irrelevant?
  - In the US… AIG, LTCM, Fannie Mae, etc.
  - In Colombia… Interbolsa, the largest most connected broker dealer.
  - The document refers to Lehman as a "systemically important bank"… but it wasn't (a bank)… it was a systemically important non-banking institution.
  - *Financial inst. = banking + shadow banking + clearly non-banking.*

(*) The type I corresponds to the probability of the receiving leg not being part of a fed funds loan conditional on the algorithm labeling the receiving leg as part of a fed funds loan (FALSE POSITIVE). The type II error rate is the probability of the algorithm not labeling the receiving leg as part of a fed funds loans conditional on the receiving leg being part of a fed funds loan (FALSE NEGATIVE).

My concerns/questions

- What about non-collateralized (unsecured) lending?
  - Is the repo market interesting? … the crisis suggests it is (e.g. Gorton and Metrick, 2009 & 2010)
  - In the Colombian case the interbank is practically absent (below 2% of the liquidity sources!), whereas the collateralized is about 84%.*
- If you find that non-collateralized is worth looking at… consider switching from LVPS data to Securities Settlement Systems data.
  - Repo and reverse-repo conditions are well-registered.
  - No need for Furfine-based algorithms!
  - The collateral-effect may be properly accounted for.
- Is it easy to integrate Gephi with other analytical tools (e.g Matlab)?

(*) Excluding Central Bank's liquidity facilities. If those facilities are considered the non-collateralized drops to 0.5% and the collateralized to 35.2%.

All in all…

- The document will (for sure) contribute to the existing literature on financial networks' data visualization.
- I will be particularly attentive to the final version of the paper… it will help support our 2014-15 budgetary dreams.
- My concerns/questions are not about the value of the *advances made in the visualization of large dynamic networks*… they are about:
  - The need to profit from them outside the traditional (narrow) interbank financial network
    - Secured lending (e.g. repos)
    - Non-banking institutions (shadow banking + clearly non-banking)
  - How to integrate it with existing (non-Java) tools (e.g. Matlab) to retain the "continuously running" feature.