

Building a Multilayer Macro-Network for the Netherlands: A  
New Way of Looking at Financial Accounts and  
International Investment Position Data

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# Literature and paper's contribution

- Great Financial Crisis highlights the importance of mapping interconnectedness and contagion channels; network analysis has become an increasingly popular tool.
- Chinazzi et al. (2013) and Castrèn and Rancan (2014) are examples of papers using network analysis.

Our contribution is twofold:

1. Provide a look on how financial network analysis can be further explored by extending the level of detail from the rest of the world sector (S.2).
2. Show that different economic sectors have different properties that lead to possible contagion paths across multiple economic instruments and countries.

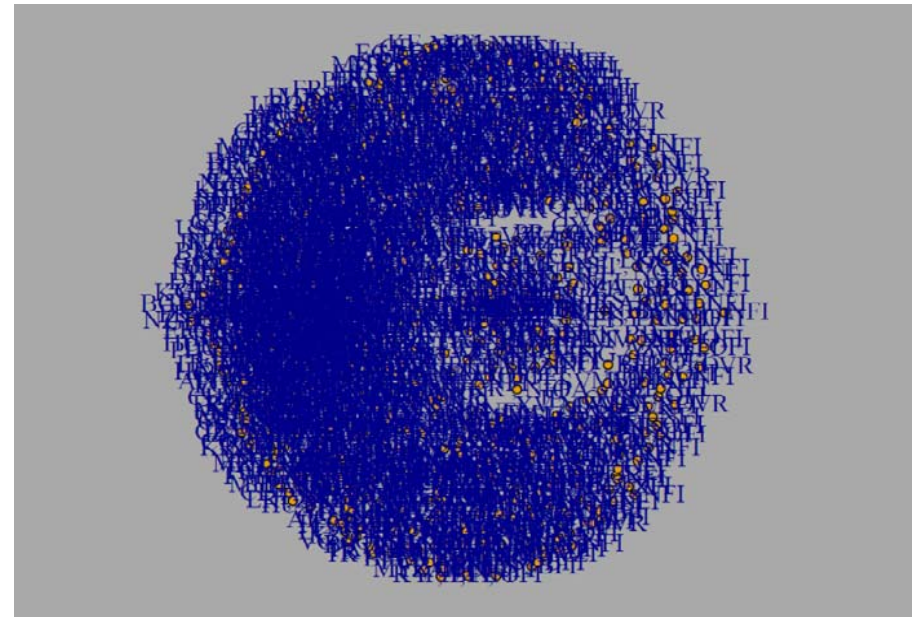
# Data

- Data from national accounts (from-whom-to-whom matrix) combined with data from the international investment position (IIP)
- IIP data is made consistent (scaled) with national accounts 'rest of the world' account positions
- Time series 2010-2016, exposures between sectors at instrument level (e.g. bonds, equity, loans)
- Data regarding counterpart rest of the world (in billion of euros):

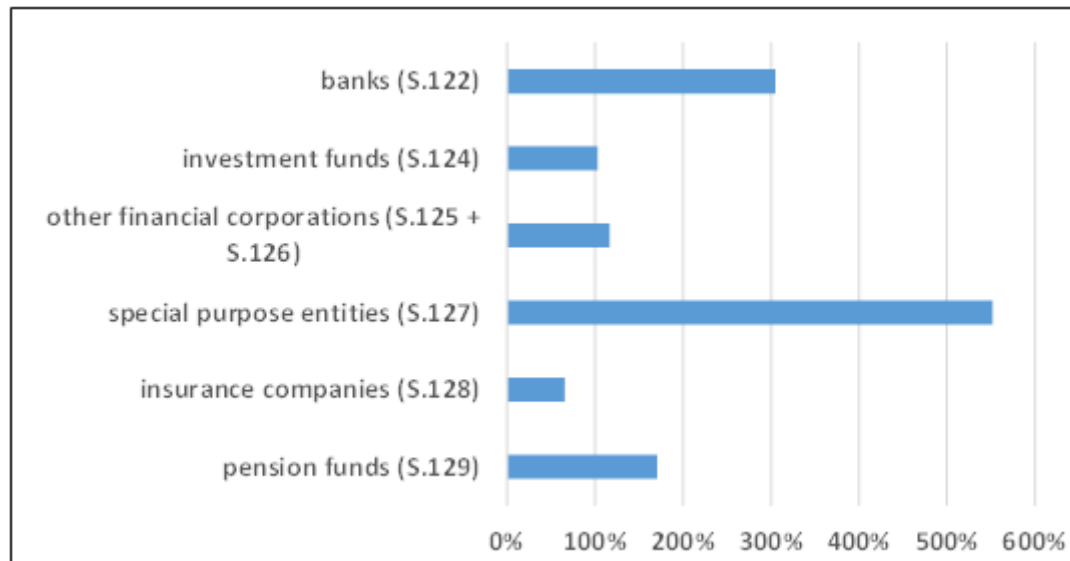
Variable	<u>Obs</u>	Mean	Std. Dev.	Min	Max
Original	9	1043.4	1079.1	21.4	3156.4
Augmented data	3,242	2.8	13.6	0.0	280.9

# Data

- When visualizing, we take away some levels of granularity
- Country groups (Europe, United States, Asia, Other countries)
- Combine all instruments
- Use data for 2016

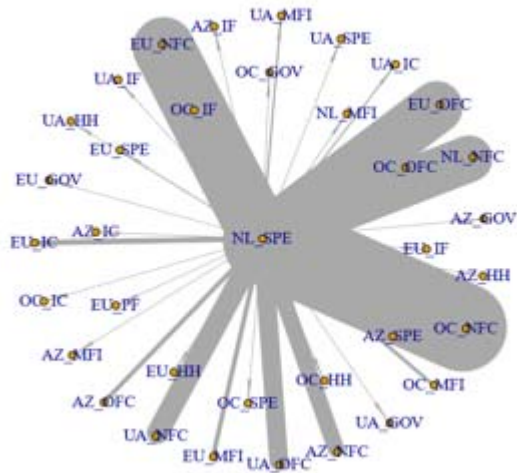


# Size Dutch financial sectors (2016, % gdp)

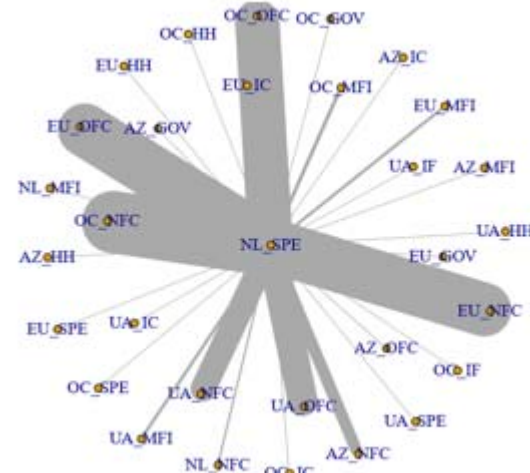


# SPE (S.127)

## Assets

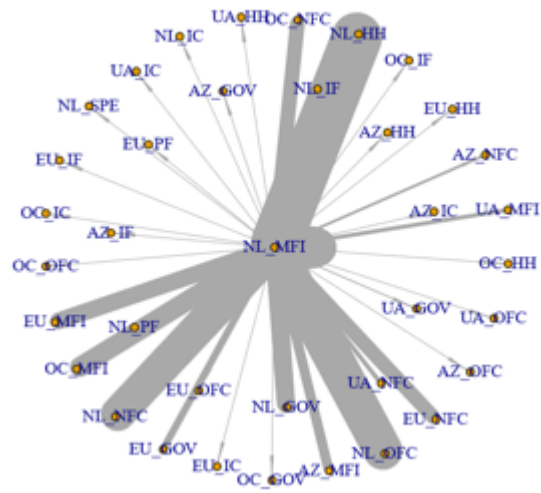


## Liabilities

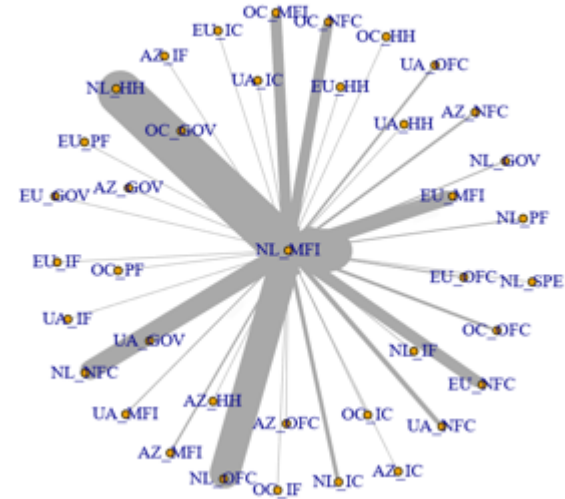


# MFI (S.122)

## Assets

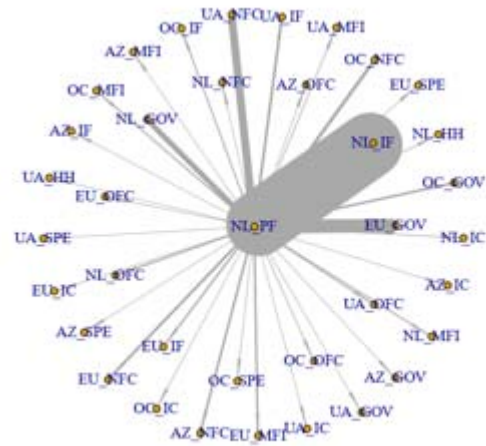


## Liabilities

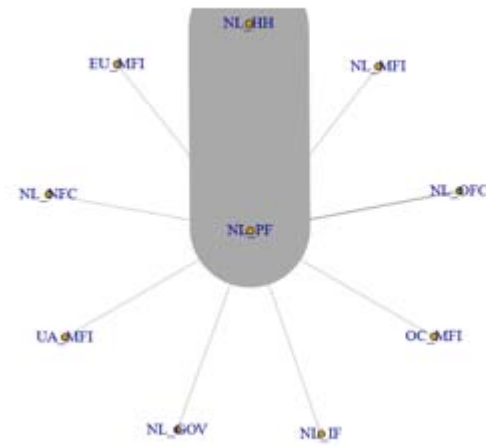


# PF (S.129)

## Assets



## Liabilities







# Conclusion

- Network data analysis is a powerful tool to depict structural differences between economic sectors across the world.
- It shows that the nature of intra-country exposures can vary by financial sector.
- It also improves the analysis of intermediation chains and helps identify different contagion layers.
- Data are limited to Dutch exposures.
- Many paths for future research: evaluate the properties of the network, evaluate time series effect, include stress-test analyses.