Discussion of "Global Financial Cycles and Risk Premiums"

by Jordà, Schularick, Taylor and Ward
Discussant: Mohammad R. Jahan-Parvar (FRB)

Global Research Forum International Macroeconomics and Finance

November 30, 2018, Frankfurt

Disclaimer: The views expressed herein are not necessarily those of the Board of Governors nor the Federal Reserve System.

Contributions of the paper:

The paper has roughly four main areas of contribution:

- The paper studies synchronization of financial and real quantities, using Spearman rank correlation.
  - Equity price correlations outpace other macro and financial correlations.
  - Rising equity return premia, leading to rising risk appetite.
- They separate "risk appetite" from equity data, through building a counterfactual "risk-neutral" equity price.
- Next, they study the transmission of monetary policy intervention and shocks in center countries to risk appetite measures:
  - Monetary policy and shocks only matter in the post-WWII period and centered on the U.S. actions.
- Floating exchange rates absorb some of the impact of monetary policy actions/shocks.

The goal of this study:

- Bring much needed historical perspective into macro-finance research and debates.
- Introduce historical data from a sample dating back to 19th century for a large cross section of countries, thus augmenting macro-finance data sources such as Bob Shiller's.
- Introduce new measures for synchronization, premia, and other macro-financial concepts.
- Study the impact of monetary policy and monetary shocks.
- I believe the main goal is to forge closer ties between finance and macroeconomic research and policy analysis.

Overall, an impressive undertaking. The paper is already forthcoming in the *IMF Economic Review*.

So why are you wasting our time MJ?

- I have been asked to complain, so complain I will.
- There are a few concepts that I had some difficulty with:
  - They may be due to exposition (easy to fix).
  - They may be due to differences in language and terminology between finance and macroeconomics.
  - They may need to be explained and tested more clearly, in future work.
- I also have a few implementation comments, in the "if I had to do it, I would do ..." tradition.

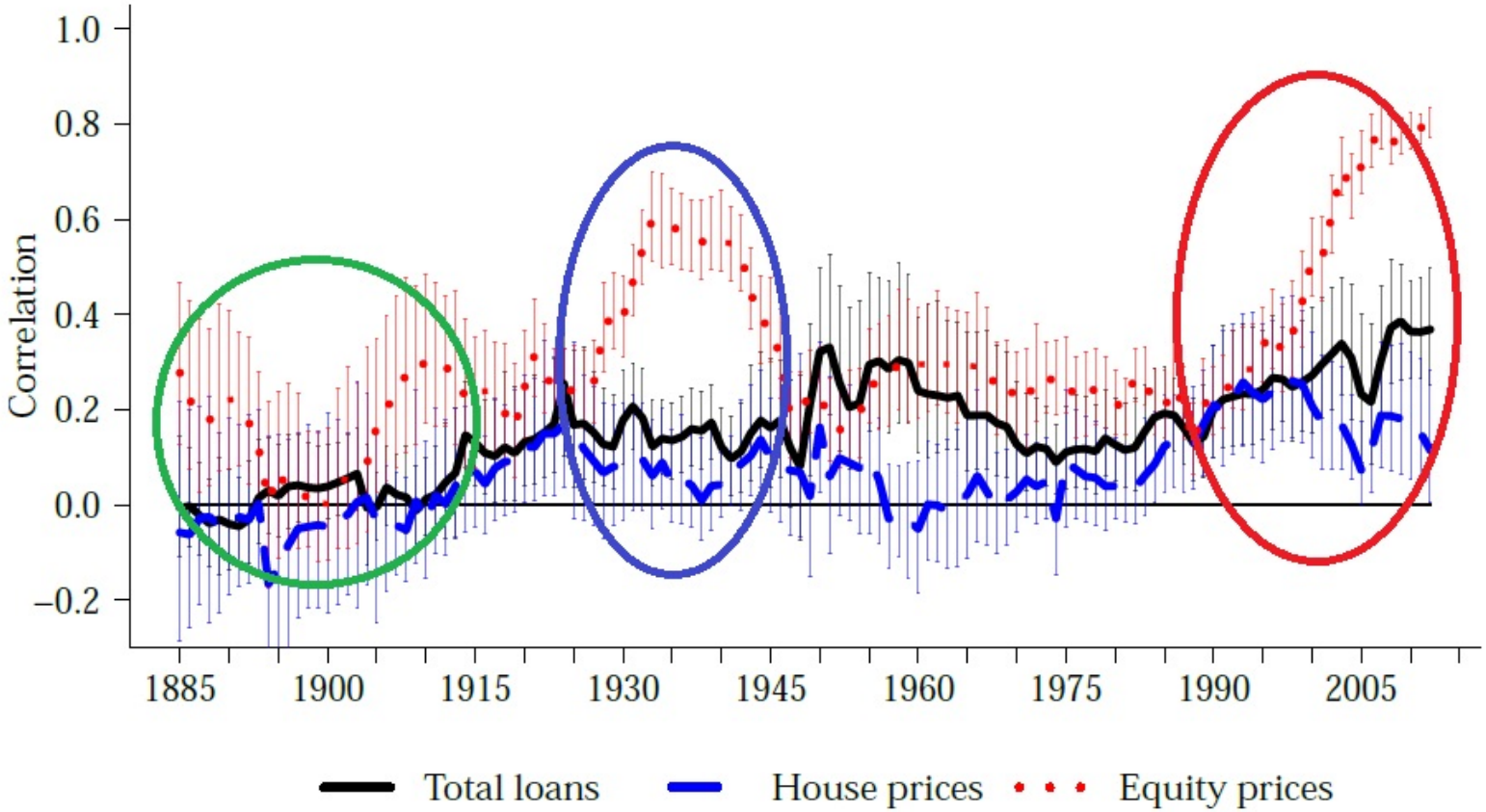
Step 1: Synchronization

Questions to ask:

- On page 4, what is the objectives from detrending using BK filter set for financial cycles? It seems that you detrend mostly nonfinancial data.
- I am a bit puzzled that your robustness results based on Hamilton filter are qualitatively similar to BK results.
- In Figure 1, you do not discuss the 1930s high co-movements in equity markets.

Some observations

Figure 1: *Average bilateral financial cycle correlation*



Step 1: Synchronization

Questions to ask:

- No object to proxy financial cycles? As a comparison, Miranda-Agrippino and Rey (2018) use a DFM to extract their financial factor, a proxy for the financial cyclical behavior.
- Technical aside: in turning bond yields into real values, subtracting CPI inflation directly causes trouble since there is a wedge between realized and forecast inflation (See: Bansal et al. (2016, JME), Schorfheide et al. (2018, ECTA), Gallant et al. (forthcoming, RFS), among others on how to address this issue).

Step 2: Equity price co-movements and risk appetite

My main conceptual problems are in this section:

- Your results crucially depend on the assumption that ex-ante expected values and ex-post realizations are equal.
  - Your sample includes several episodes where this assumption cannot be maintained.
  - Expectations about the state of the world in January 2014 and their realization in December 2014!
- How influential and how prevalent are expectation errors in your empirical study? Do you have a sense of robustness of your findings w.r.t. these errors?
- How you form expectations (the model in the background, model uncertainty, learning, ...) also matter.

Step 2: Equity price co-movements and risk appetite

My main conceptual problems are in this section:

- I am quite confused about where "risk neutrality" enters Equation (3). You are using expectations of real R_t and D_t values.

$$Q_t^{RN} = E_t \left\{ \sum_{k=1}^{\infty} \left(\prod_{j=1}^{k-1} R_{t+j}^{-1} \right) D_{t+k} \right\}$$

- When I hear the words "risk neutral," two concepts come to my mind:
  - There is an underlying utility function, agent's SDF is $M_{t,t+k}$, then $R_t = \mathbb{E}_t M_{t,t+k}^{-1}$. Thus, the agent is risk-neutral if the utility function yielding $M_{t,t+1}$ has $\gamma = 0$ (1 if parameterized as $1 - \gamma$), or
  - There is a Radon-Nykodim change of probability measure, that is Q_t^{RN} is evaluated under a $\mathbb{W}$-probability measure. I am not referencing option pricing here!
- Otherwise, expectations of both D_t and R_t include risk and notions of compensation for engaging in uncertain ventures.

Step 2: Equity price co-movements and risk appetite

- You then characterize ρ_t as "risk appetite." However, it may embed anything from equity premium, to variance risk premium, to disappointment premium, to ambiguity premium, and all the other forces mentioned in the paper, depending on how you form expectations (laws of motion, choice of preferences which dictates the SDF).

$$\rho_t = \frac{Q_t}{Q_t^{RN}}$$

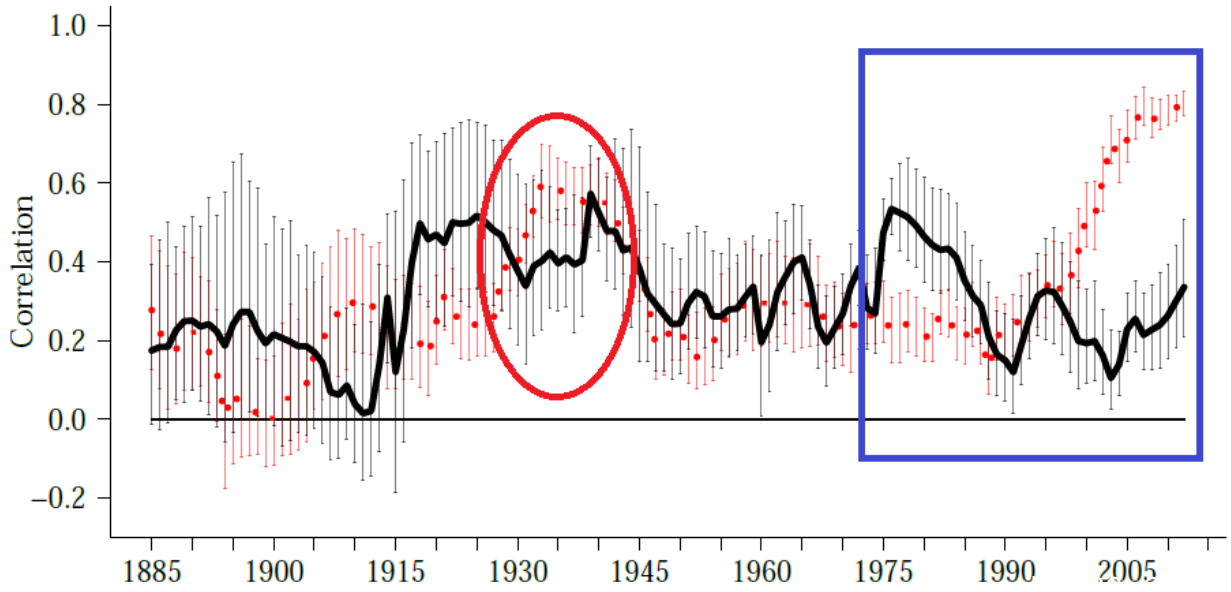
- Thus, ρ_t is not well-defined, and serves as a catch-all term.
- It follows immediately that the transmission of monetary policy actions and shocks that you characterize in the next section are hitting one (or a combination) of potentially many factors hidden in ρ_t, potentially with various loadings in the cross-section of countries.
- As the paper stands, characterizations of Q_t^{RN} and ρ_t are the weak links in the paper, at least to your asset pricing audience.

Step 2: Equity price co-movements and risk appetite

Data observation:

- There are two ways to look at dividends:
  - Financial dividend payouts (after tax, buy backs, retained earnings, ...)
  - Economic dividends (essentially premium demanded for assuming risk by producers)
  - Which definition/data is used here? This choice has non-trivial implications (Figure 5)

Figure 5: *Average bilateral equity price correlation*



Step 2: Equity price co-movements and risk appetite

Technical notes:

1. Since you have a rich cross-section of assets, you could have used Almeida et al. (2017, JFEc) method to extract risk-neutral distribution of returns without using derivatives (options and futures) data. If applicable, it could have simplified the interpretation of Q_t^{RN} and helped with identification.
2. On page 13, you mention that for the 1914-1947 period, you average the U.S. and the U.K. risk-free rates to account for the changing world order. A better method would have been splicing the two series as in Chernov et al. (2003, JEcon).

Step 3: Monetary policy and synchronization of risk taking

- It would have been nice to see the impact of monetary policy on components of country i risk free rates, especially their spread over the world risk-free rate. For example, if r_t^w is a measure of world interest rate, following Uribe and Yue (2006) or Schmitt-Grohe and Uribe (2003), let country interest rate and country spread be

$$r_t = r_t^w + P\left(\frac{X_t}{Y_t}\right) \tag{1}$$

$$P_t = p_2 e^{p_1\left(X_t/Y_t - \overline{XY}\right)}. \tag{2}$$

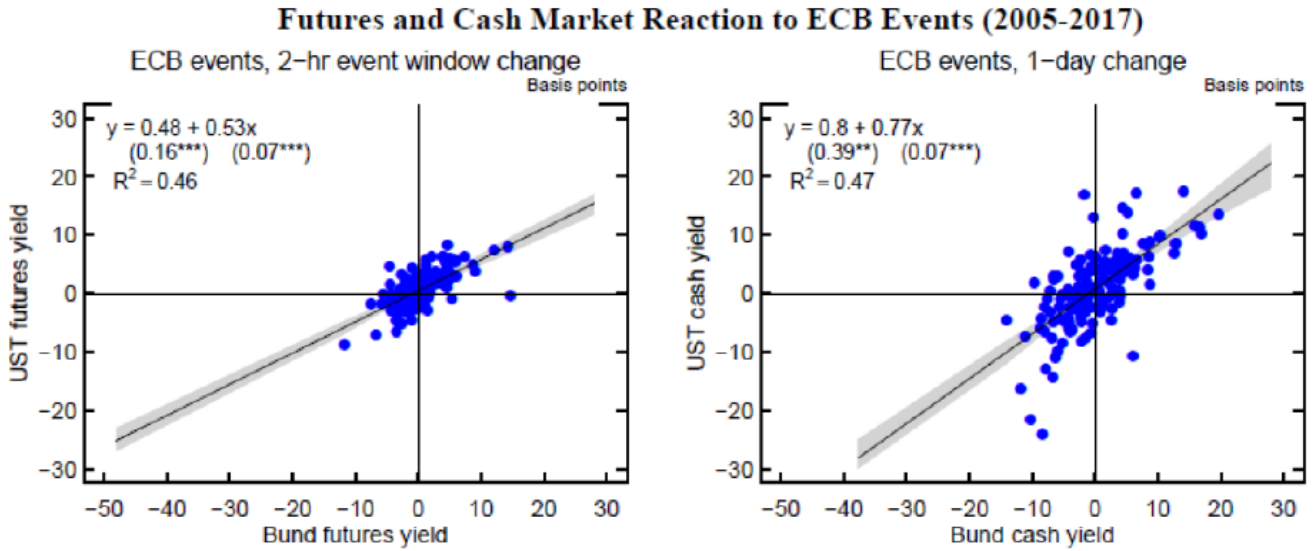
  where Y_t is the output and X_t is the current account, or any other relevant macroeconomic ratio or quantity.

- There are a number of interesting interaction scenarios that could have enriched the analysis.

U.S. monetary policy as the culprit?

- While your paper, Miranda-Agrippino and Rey (2018), and others consider U.S. monetary policy to drive the financial cycle in post-WWII period or recent decades, the evidence is not conclusive.
- One important piece of evidence is how policy decisions in other countries affect the U.S.

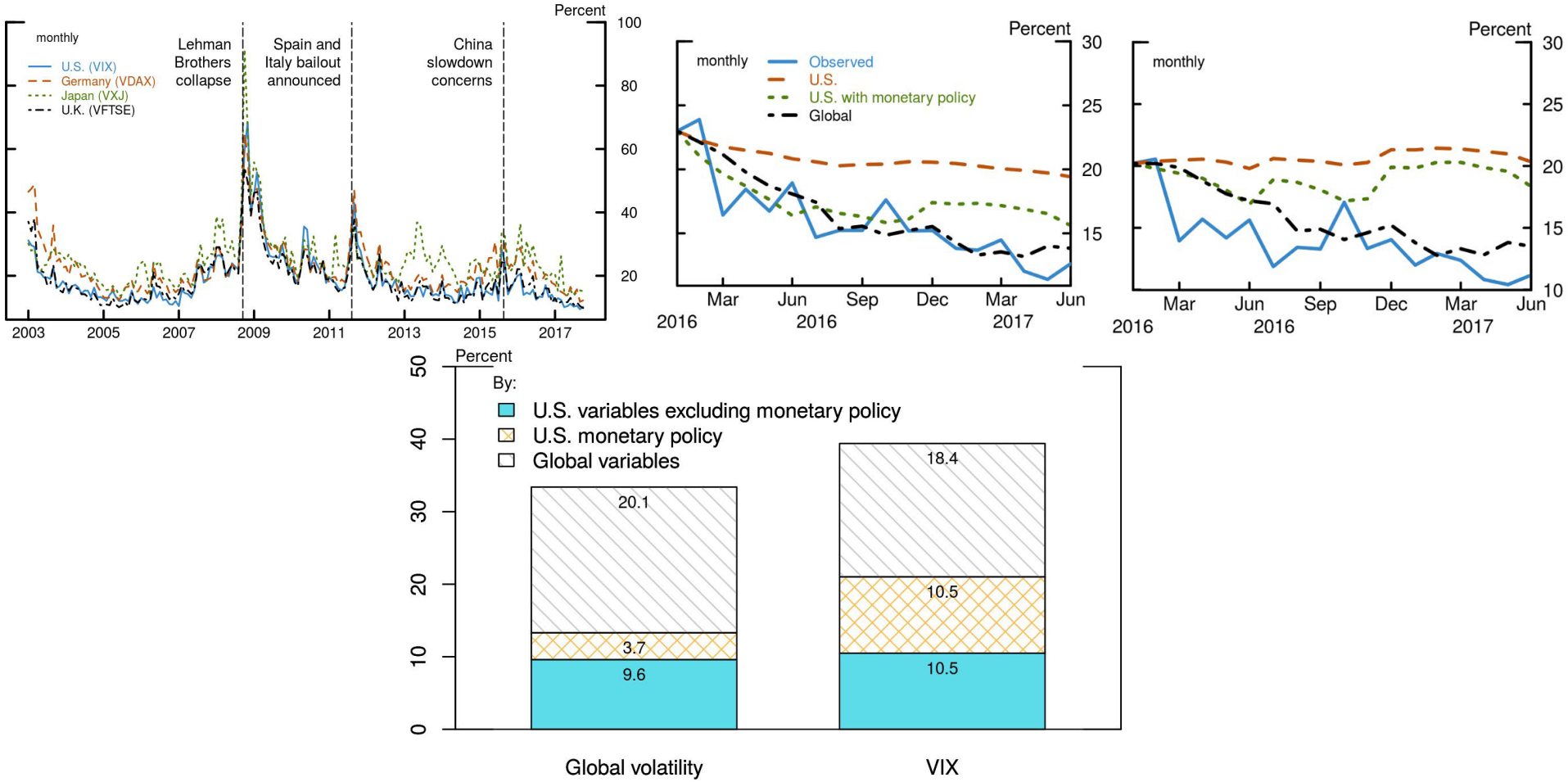
  - Monetary policies of other advanced economies can affect U.S. financial conditions: E.g. German yield changes related to ECB events affect U.S. yields



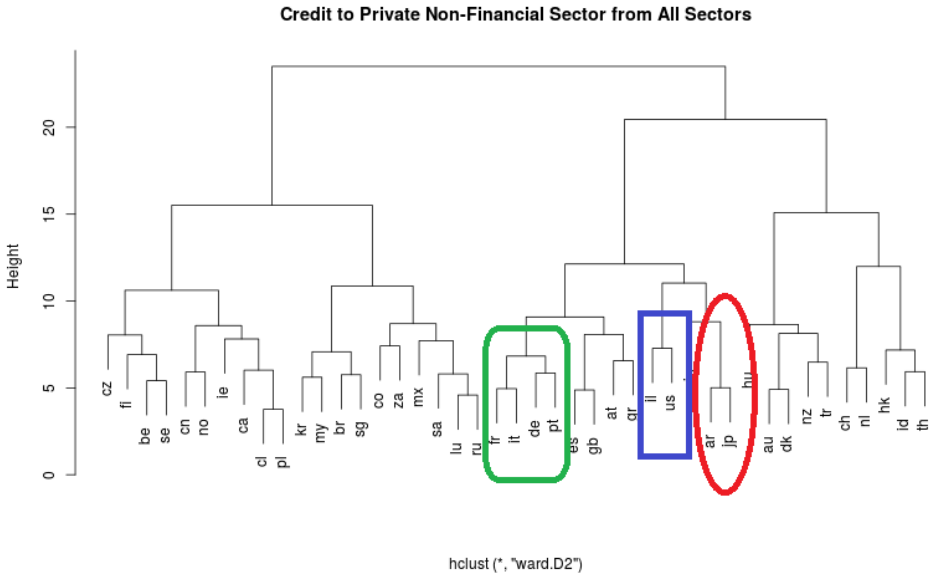
See: Curcuru, Pooter, and Eckerd (2018)

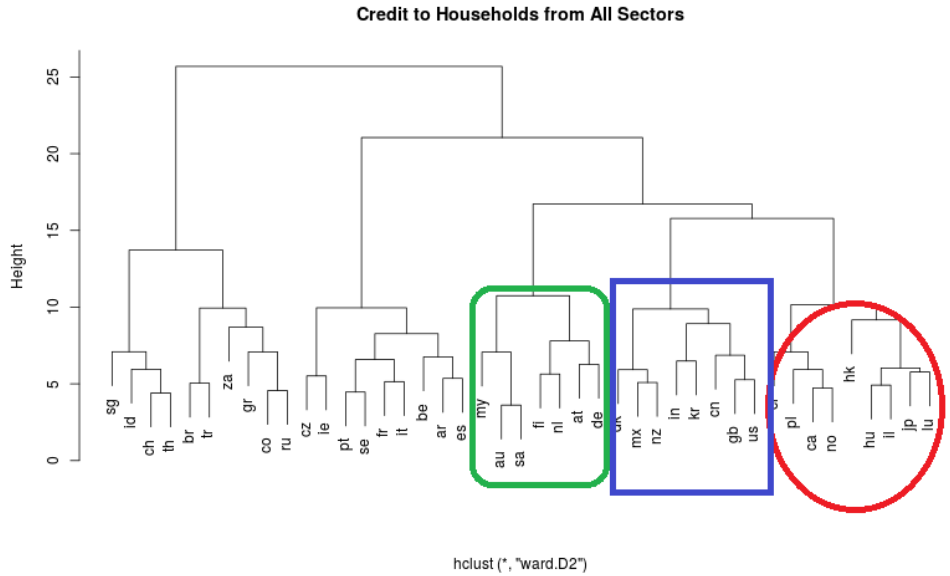
U.S. monetary policy as the culprit?

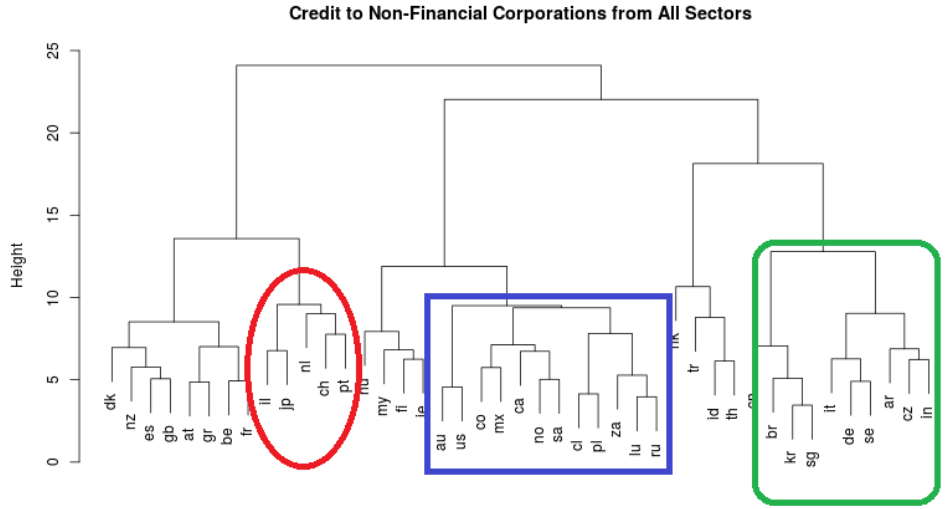
The other is through the contribution of the U.S. to aggregate volatility measures:



Some observations







Concluding remarks

- A nice and innovative paper.
- It has two weak links in risk neutral equity prices and the risk appetite measure.
- The study yields many interesting and novel results.

Thank you for the opportunity to discuss this paper!