Market Fragility and International Market Crashes

Dave Berger and Kuntara Pukthuanthong

discussion by
Razvan Vlahu

De Nederlandsche Bank
Eurosysteem

This paper

- **Provides an ex-ante measure for systemic risk**
  - Good predictor for simultaneous collapse of multiple markets
    - *"…will identify periods in which a shock of a given magnitude will have a greater impact, and a greater likelihood of propagating across multiple markets"*
  - Extension of the integration measure proposed by Pukthuanthong and Roll (2009)
- **Shows that in the presence of high systemic risk (as captured by the new measure), a global crash is more likely than a local crash**

Pukthuanthong and Roll (2009)

- **Proposes a measure of integration for global markets**
  - Principal components methodology
  - R^2 = proportion of a country's returns that can be explained by global factors (10)
  - $R^2 \downarrow \rightarrow$ local and regional factors dominate ~ less integration
- **Explains nicely why the cross-country correlations of stock index returns can not provide an accurate measure for integration**

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This paper - Methodology

- Similar estimation with PR (2009)
- Fragility Index (FI) = Aggregate country loadings on the first principal component
  - Cross-sectional equally-weighted average of loadings
- Conditional probabilities of simultaneous crash across countries

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Comments

- **Paper's main result quite intuitive:**
  - a negative shock to the main world factor can lead to joint market declines when exposure to this factor is high
- **But what does this imply for**
  - International investors / Diversification (should liquidate their portfolios?)
  - Policy makers (which exposures to target?)

Comments (cont'd)

- Not so clear that the common factor identified in the paper tells the whole story

  - PR (2009): *"…a single global market factor such as the first principal component is not able to fully capture the extent of market integration"*

    - 1st component captures 37% of variance, the first 5 capture 70%
    - need a better explanation

  - ↑ loadings of some countries → ↑ FI measure

    - Not so clear if the increase in loading is uniformly distributed
    - Shall we care more if this increase happens for Cohort 1 or for Cohorts 2 & 3 ?

Comments (cont'd)

- Alternative story
  - For *developing* markets, and in particular for small, illiquid *frontier* markets, the crash can be caused by foreign investors liquidating their investments in order to cover the losses in their home *developed* markets
  - Even if loadings are low, when random shocks affect developed economies, the emerging and frontier markets can crash
  - Can we control for this?
    - value-weighted average wrt to global market capitalization
    - ratio of foreign investments/market capitalization
- Implications for the 2nd result of the paper?
  - There is only one severe crash in the sample when the "global risk" was build in the largest developed economies
  - What is the impact of higher loadings for Cohort 2/3 VS Cohort 1 ?
  - Interesting to report the prediction power for '97, '98, '01 events

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Comments (cont'd)

- Better explanation is needed to distinguish between simultaneous and sequential effects

  - Systemic risk: *"…if a shock occurs during periods in which multiple countries share a high risk exposure to a common factor, then these multiple countries will experience simultaneous market declines"*

  - Contagion: *"…identifying periods in which national stock markets exhibit a high degree of inter-relation, and consequently identifying periods in which a shock in one market may be more likely to spread internationally"*

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Questions

- Stock markets are not an accurate representation of economic fundamentals in many countries (poor enforcement of investor rights, inadequate bankruptcy laws, alternative investments, etc)
  - Can we extend the analysis to real economy ? (i.e., variation in GDP, trading activity)
- Data: MSCI indices for robustness ?
- How does the equally-weighted index mitigate the non-simultaneous trading effect

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Conclusion

- Very interesting and timely paper, on a very important and topical question

- Has all the ingredients to make an important contribution

- In my view
  - economic motivation behind the modelling approach needs some work
  - the implications for internationals investors and policy makers are missing