



Empirical Research in Systemic Risk Measurement

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MFM Fall Meeting

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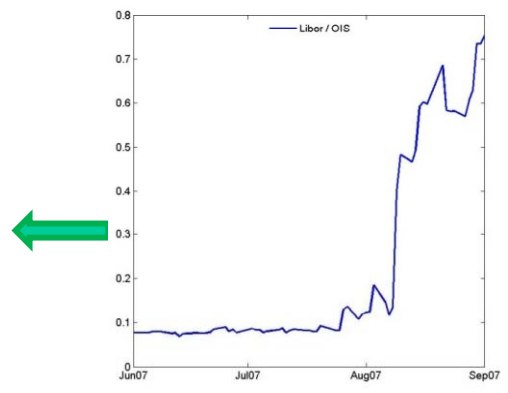
What Is Systemic Risk?

- No single consensus definition (yet)
- First define what a “systemic event” is
 - “Any set of circumstances that threatens the stability of or public confidence in the financial system”?
 - LTCM vs. Amaranth, failure of regional bank vs. money market fund
 - Common themes: liquidity, leverage, linkages, losses
- Can we measure systemic risk without fully articulated theory of the entire economy?
- Knight: “If you cannot measure a thing, go ahead and measure it anyway.”

- Survey of systemic risk measures (Bisias, Flood, Lo, Valavanis, 2012): 31 measures, Matlab code
- Empirical comparison of these measures during “systemic” events (Lo, Zhou, 2012; Sgherri and Zhou, 2012): MES and hedge-fund returns
- Consumer credit risk models (Khandani, Kim, Lo, 2010, 2012; Butaru, Chen, Clark, Das, Lo, Siddique, 2012): seems to have forecast power up to 12 months ahead, but very short history

Empirical Approach

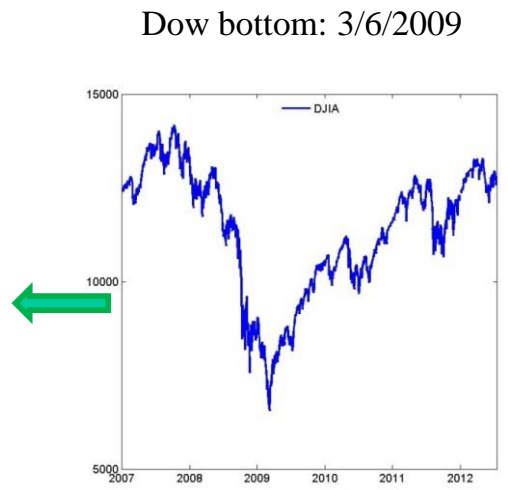
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Where do we stand now ?		

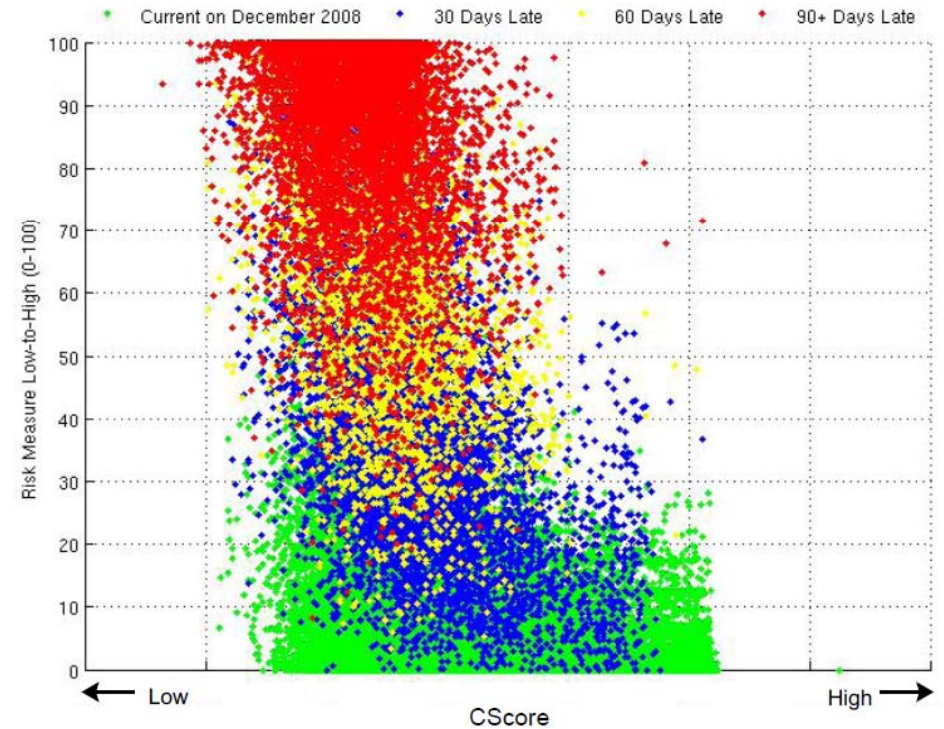
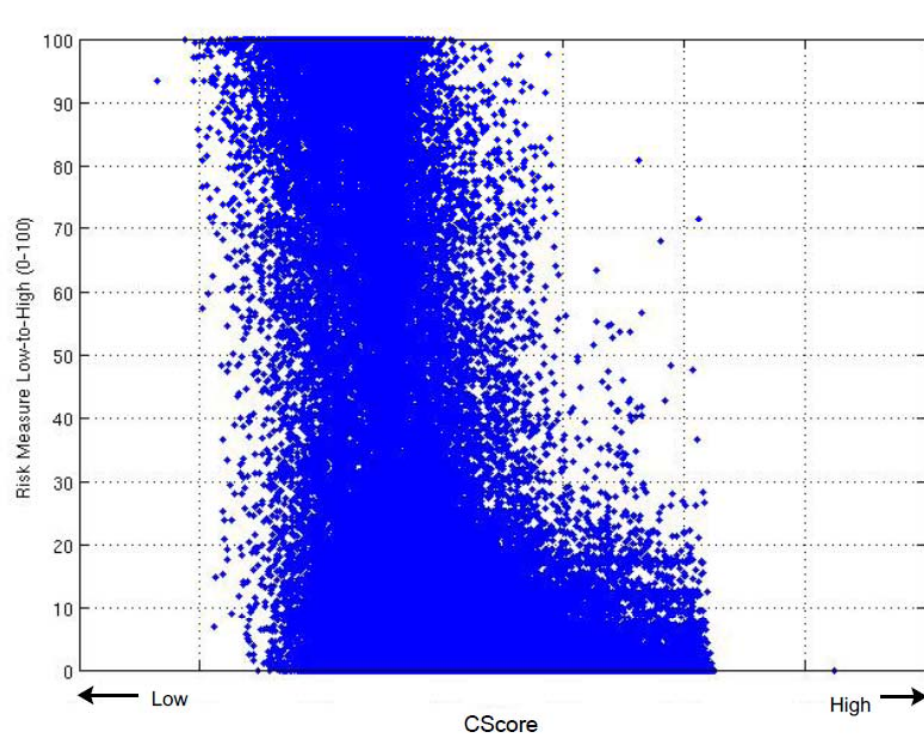
← Greek, Portugal, Ireland downgrade (Jun, Jul)

Italian austerity package (Jul)



Sgherri and Zhou (2012)

Empirical Approach

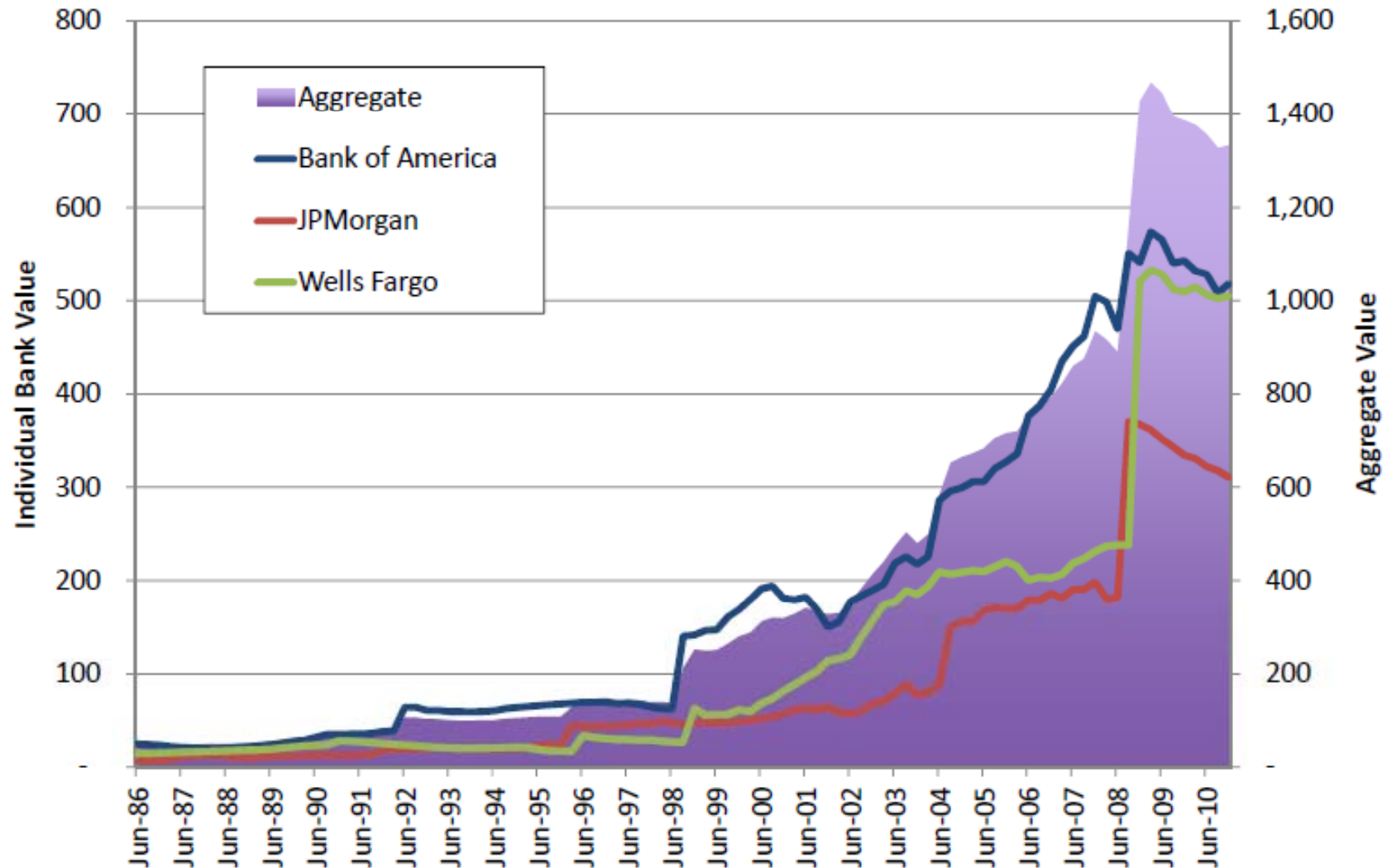


Khandani, Kim, Lo (2010)

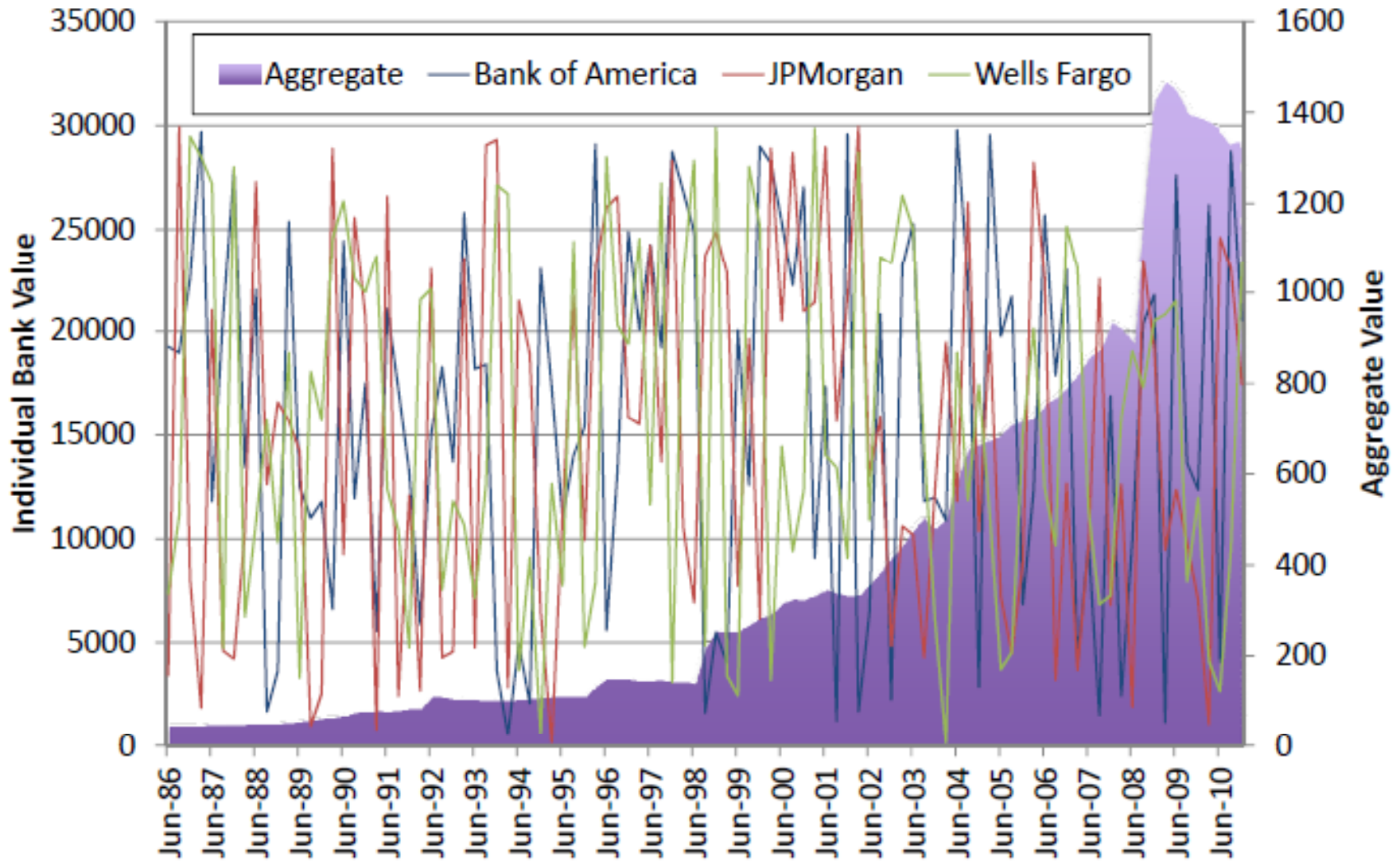
For Many Measures, Data Are Not Publicly Available

- Industry consortium (Moody's, State Street, etc.)
 - Research meetings to share information
 - Collaborations between academia/industry/govt
- Secure multi-party computation algorithms
 - Apply encryption methods that are homomorphic
 - Privacy is preserved, aggregation is feasible
 - Abbe, Khandani, Lo (2012): sample moments and co-moments, Herfindahl indexes, etc.
 - If privacy is preserved, sharing is less threatening

Example: Aggregate RE Loans Outstanding



Example: Aggregate RE Loans Outstanding



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