Collateral Runs

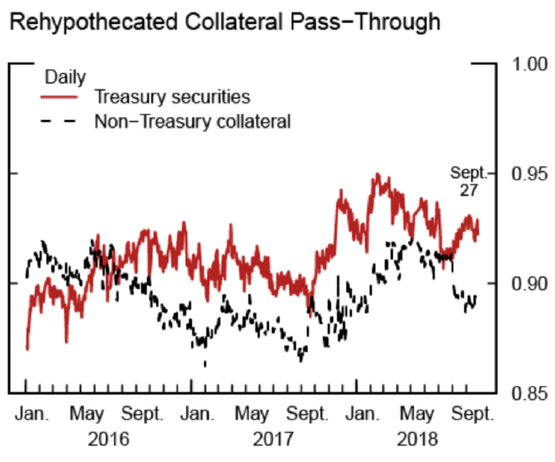
Sebastian Infante and Alexandros Vardoulakis
Federal Reserve Board

Highlights

We characterize a source of instability in money markets from the intermediation of collateral by broker dealers

- Cash goes from lenders to borrowers and collateral from borrowers to lenders
- Most of the literature has focused on the instability from concerned lenders
- Policy makers have responded by proposing tighter collateral (haircut) requirements
- Yet, broker dealers have market power allowing them to charge higher haircuts to borrowers than those demanded by lenders
- This activity creates a *collateral liability* as opposed to a *money liability* and can result in a run from *collateral providers*
- Such runs are distinct from runs stemming from *cash providers* known as *repo runs* (Gorton and Metrick, 2012)
- We call the instability from collateral providers *"Collateral Runs"*

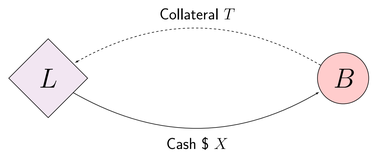
How big is collateral re-use?



Source: Infante, Press and Strauss (2018)

What is a repo?

Borrower borrows $\$X$ from Lender(s) after pledging collateral T



- If B defaults, L seizes the collateral
- But, if the value of T is lower that X, then L looses money

Traditional Repo Runs

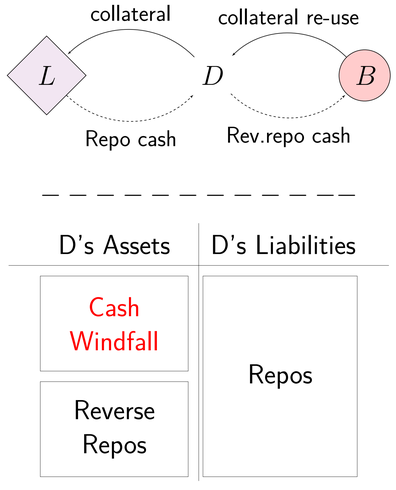
- Consider a security that is worth 100 today, while its value tomorrow is between 80 and 120
- B borrows $X >> 80$ from multiple L through short-term repo
- If low values are likely, lenders may get "spooked" and run to withdraw their cash
- The coordinated behavior of cash providers can result in a *repo run*
- Solution: Over-collateralization/Zero VaR contract whereby $X \leq 80$

Important Result

Collateral runs are distinct from repo runs and require different policy responses

What is rehypothecation?

A broker dealer engages in a repo with a lender and a reverse repo with a borrower, and *rehypothecates* the collateral



Cash windfall=Cash from L minus cash to B against same collateral

Collateral Runs

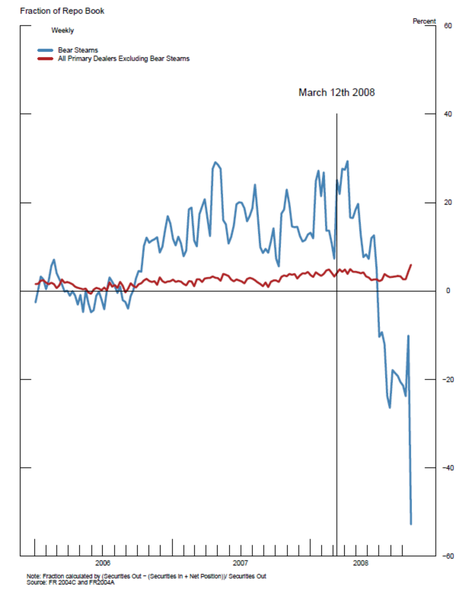
- To exclude repo runs have L lend 80 and post collateral worth 100 today
- Assume that D passes only 70 to B but requires collateral worth 100 today
- D invests the windfall of 10 to some security Y
- If B asks the collateral back, she repays 70 and D needs 10 more to repurchase the collateral from L
- D can get the money by selling security Y, but if Y is worth less than 10, then D may default and L seizes the collateral
- Concerned borrowers may get "spooked" if they believe that the value of proprietary investment Y (not of collateral) is low
- The coordinated behavior of collateral providers, who withdraw their collateral, can result in a *collateral run*
- Potential solutions: Limit rehypothecation, prudential requirements for dealers

Methodological

1. Using global game techniques we show that the run equilibrium is unique
2. There exist equilibrium contracting terms resulting in Collateral Runs
   - The dealer would like to increase the liquidity windfall invested in the risky asset
   - But, understands that by doing so she might increase the probability that a run occurs

Case study

- The figure plots an estimate of the windfall from charging different haircuts
- Anecdotally, Bear Stearns had proprietary investment in subprime MBS



Contact Information

sebastian.infantebilbao@frb.gov
alexandros.vardoulakis@frb.gov