Who Ran on Repo?

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  2. evidence that the flight of foreign financial institutions, domestic and offshore hedge funds, and other unregulated cash pools drove the run
- Relying exclusively on data from regulated institutions would miss the most important parts of the run

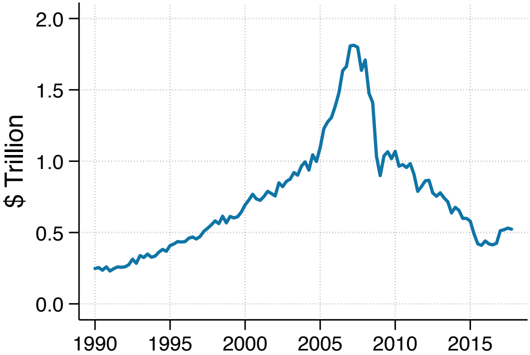
Introduction

- Two repo markets
  1. tri-party repo:
     - dominated by regulated institutions (i.e., dealers, money-market funds (MMFs), GCF)
     - relatively complete data available
  2. bilateral repo:
     - dominated by hedge funds, offshore funds, nonregulated cash pools
     - large data gap, especially for lenders
- Bond Market Association 2005 Survey estimate of relative size:
  - tri-party: $1.4 trillion
  - bilateral: $3.9 trillion

Flow-of-Funds Evidence
Table L.207

- Table L.207 combines primary sources to estimate tri-party and bilateral repo
- Total repo liabilities (tri-party + bilateral) is relatively complete
- Net repo funding to banks and broker dealers fell by ≈$900 billion

Net Repo Funding to Banks and Broker-Dealers



Net Repo Funding Sources

Flow-of-Funds Table L.207

- Lenders come from regulated and unregulated sectors, so official totals for liabilities exceed those for assets
- This is the "statistical discrepancy"
- Funding from the statistical discrepancy fell ≈$600 billion

Net Repo Funding from Statistical Discrepancy

Net Repo Funding Sources

Flow-of-Funds Table L.207

$ billions	2007Q2	2009Q1
Discrepancy	632	63
Rest-of-World	519	53
Money-Market Funds	435	578
Municipal	148	125
GSEs	145	159
Other Mutual Funds	43	24
Corporate	9	7
Pension	7	6
Holding/Funding	0	28
Insurance	-12	4
Total	1,926	1,049

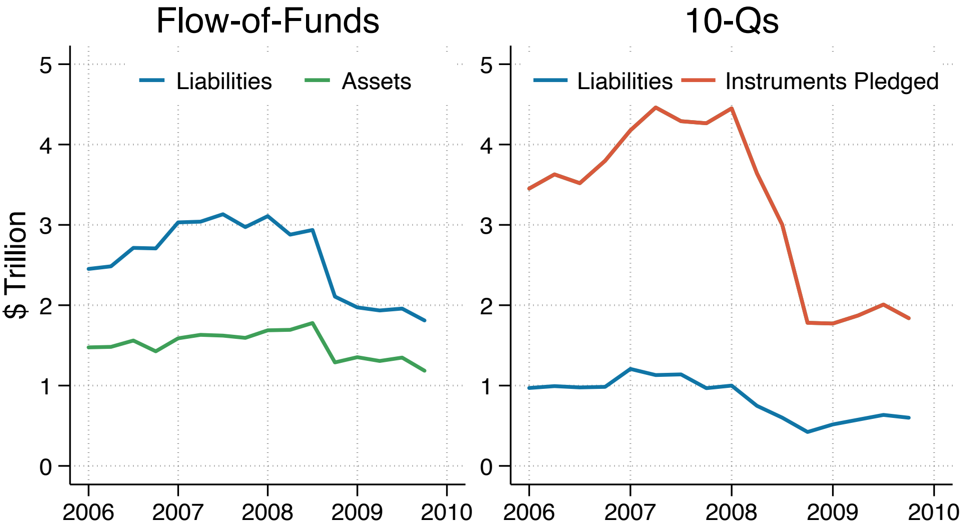
Discrepancy was the single largest repo lender on eve of crisis

Time-Series

Gross Repo Run

- Flow-of-Funds shows large decline in interdealer funding but does not reflect total volume of repo lending/borrowing
- Accounting rules allow offsetting if transactions are
  1. with same counterparty
  2. subject to master netting agreement
  3. settle on the same day
- Netting *doesn't require collateral underlying offsetting transaction to be the same or otherwise similar*
- Gross volumes better reflect the degree to which dealers intermediate, even if it does not show up on their balance sheets

Banks'/Broker-Dealers' Repo in Flow-of-Funds and 10-Qs



Firm-Specific Data

The Bond Market Association Survey: June 30, 2004

The Survey

- Fifteen primary dealers
- Survey doesn't distinguish between borrowing and lending $\rightarrow$ cannot make direct comparison to Flow-of-Funds
- Provides valuable data on composition of counterparties

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Key Findings

1. Bilateral repo is about $3\times$ the size of tri-party repo
2. Money-market mutual funds comprise only 2% of bilateral repo
3. Hedge funds and other unregulated capital pools are significant fraction of dealers' counterparties in bilateral repo

Participants in the Bilateral Repo Market

BMA Survey: June 30, 2004

US Counterparties

	$ Billions	%
Dealers	1,566	40.6
Other Investment Managers, Hedge Funds	348	9.0
Other	260	6.8
Financial and Mortgage Companies	148	3.8
Corporate	132	3.4
Agent Bank	113	2.9
Registered 40 Act Funds (inc. MMF)	60	1.6
Insurance Companies	26	0.7
Municipal	23	0.6
Foundations and Endowments	20	0.5
Federal Reserve Bank	14	0.4
Govt. Agencies	12	0.3
ERISA Pension Funds	8	0.2
Non-ERISA & Public Pension	7	0.2
Sub-Total	2,739	71.0

Non-US Counterparties

	$ Billions	%
Other Non-US	614	15.9
Off Shore Hedge Funds	319	8.3
Sovereign Govt. & Central Banks	159	4.1
Non-US Sovereign Govt Entities	14	0.4
Supranationals	13	0.3
Sub-Total	1,119	29
Grand Total	3,858	100
Total Hedge Funds, Investment Managers	*667*	*17.3*

Panel B: Size of Markets

Participants in the Bilateral Repo Market
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Survey Takeaway

- 30% of total repo—40% of bilateral—in the survey is hedge funds or “other”
- Half of this is from foreign sources
- Flow-of-Funds captures little—if any—of this

Conclusion

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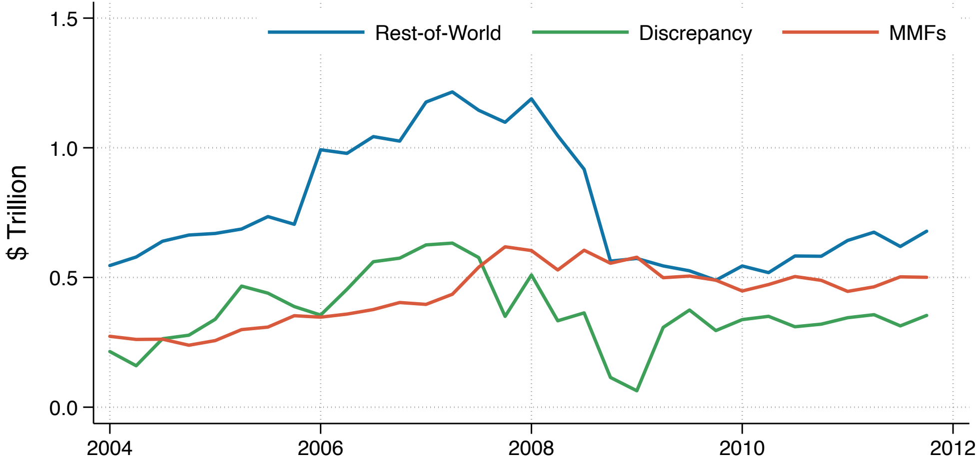
  - Tri-party market has the best data, and MMFs have the best data within tri-party
  - But, MMFs were not representative during the crisis: MMFs' repo assets increased by $1/3$ while net repo funding fell by nearly $1/2$

Appendix

Major Holders of Repo Assets



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Secured Borrowing and Lending Markets
BMA Survey: June 30, 2004

	$ Billions	% of Total
Bilateral Repo	3,858	49.2
Securities Lending	2,355	30.1
Tri-party Repo	1,350	17.2
NASD/NYSE	275	3.5
Total	7,838	100

- Survey does not distinguish between repo assets and liabilities, so the total may include double counting $\rightarrow$ cannot directly compare to FoF aggregates
- Under any reasonable assumption for ratio of borrowing and lending by counterparty, significantly more bilateral than tri-party.
- E.g., even if no double counting in tri-party and full double-counting of bilateral, latter is still 50 percent larger.

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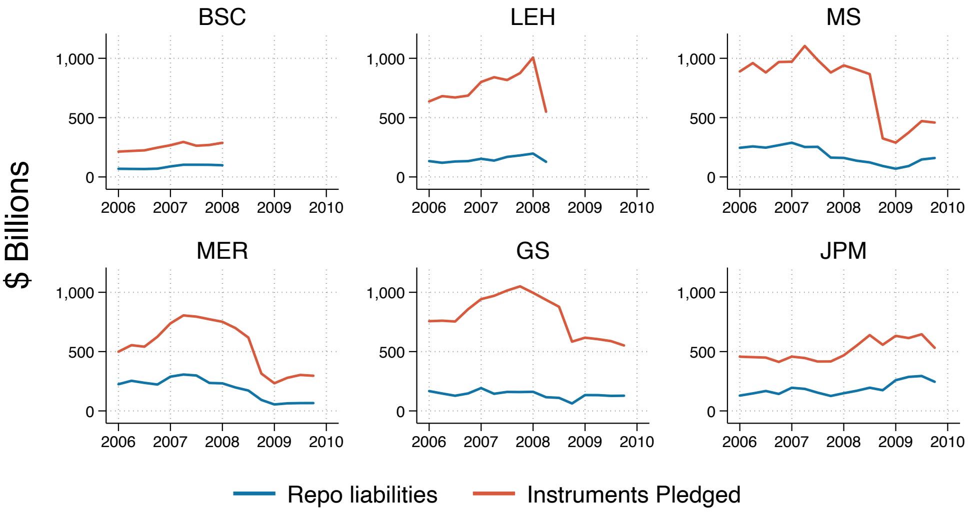
Instruments Pledged and Repo Liabilities



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