

Shadow Banking – the Role of Money Market Funds

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What is shadow banking

- Pozsar (2010):
- “The rapid growth of the market-based financial system since the mid-1980s changed the nature of financial intermediation. Within the market-based financial system, “shadow banks” have served a critical role. Shadow banks are financial intermediaries that conduct maturity, credit, and liquidity transformation without explicit access to central bank liquidity or public sector credit guarantees.”

What are its institutions?

- Pozsar (2010):
- “Examples of shadow banks include finance companies, asset-backed commercial paper (ABCP) conduits, structured investment vehicles (SIVs), credit hedge funds, money market mutual funds, securities lenders, limited-purpose finance companies (LPFCs), and the government-sponsored enterprises (GSEs).”

Why Shadow Banking?

- “Supply Side”: In general, to engage in credit intermediation without the costs of the banking system
- Examples:
- **Banks:** part of “originate and distribute model”
- --- Keep assets off the balance sheet, where they would be subject to a capital charge
- **Investment banks:** finance long term assets at short term rates

Shadow Banking: Supply Side -- 2

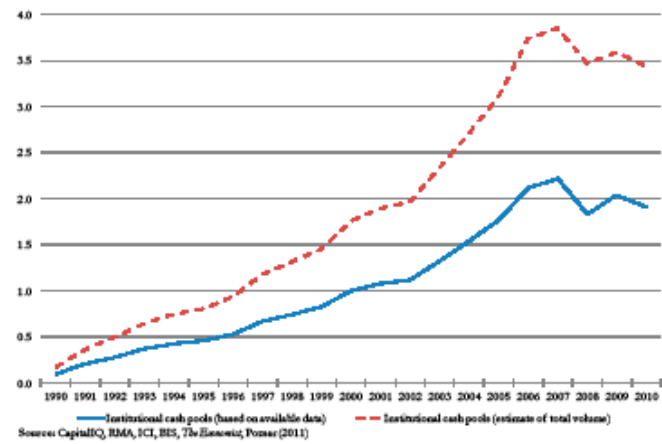
- Supply Side: Elements of the banking system can be replicated at lower cost through private ordering.
 - Securitization provides diversification, choices of risk level, and 3d party validation of credit risks
 - Liquidity puts and other explicit and implicit guarantees replace official LOLR

Why Shadow Banking? – Demand Side

- Rise of Large Institutional Cash Pools that are seeking to limit uninsured exposure to banks and thus seek “uninsured deposit alternatives.” Pozsar (2011)
- Eggs of such institutions: non-financial corporations, asset managers, securities lenders, pension funds; all with cash, looking for short term, safe, liquid, investment

Rise of Institutional Cash Pools

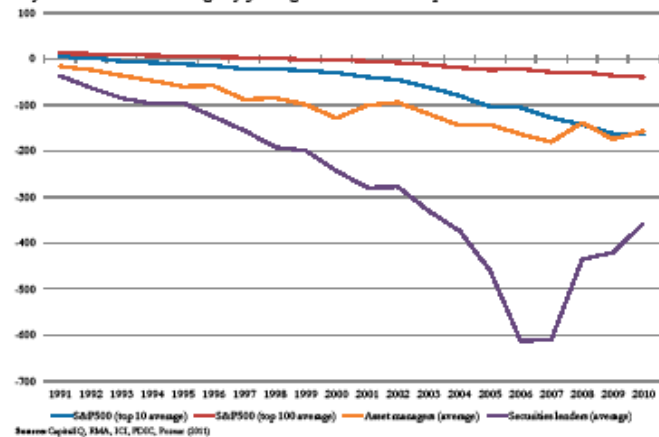
Figure 1: The Secular Rise of Institutional Cash Pools
\$ millions



Not enough banks

- Number of banks needed to provide insured deposit protection, assuming \$100,000 cap

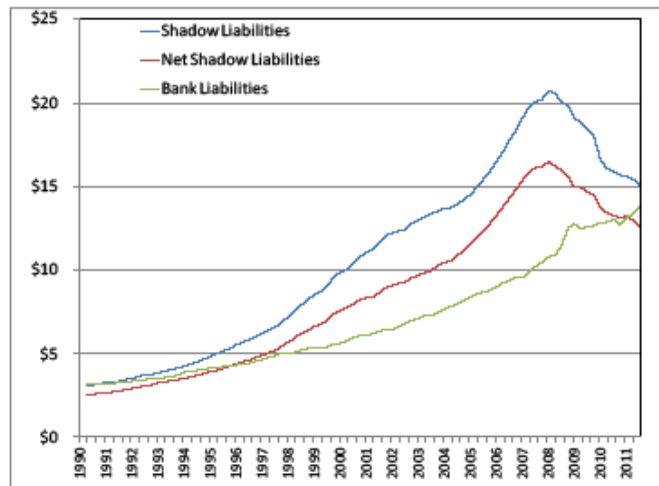
Figure 4: Not Enough Banks to Source Safety for Cash Pools
of additional banks needed to get safety through insured, \$100,000 deposits, thousands



Shadow Banking

- Supply side + demand side: the growth of the Shadow Banking System, alongside the traditional banking system

Figure 1: Shadow Bank Liabilities vs. Traditional Bank Liabilities, \$ million⁴

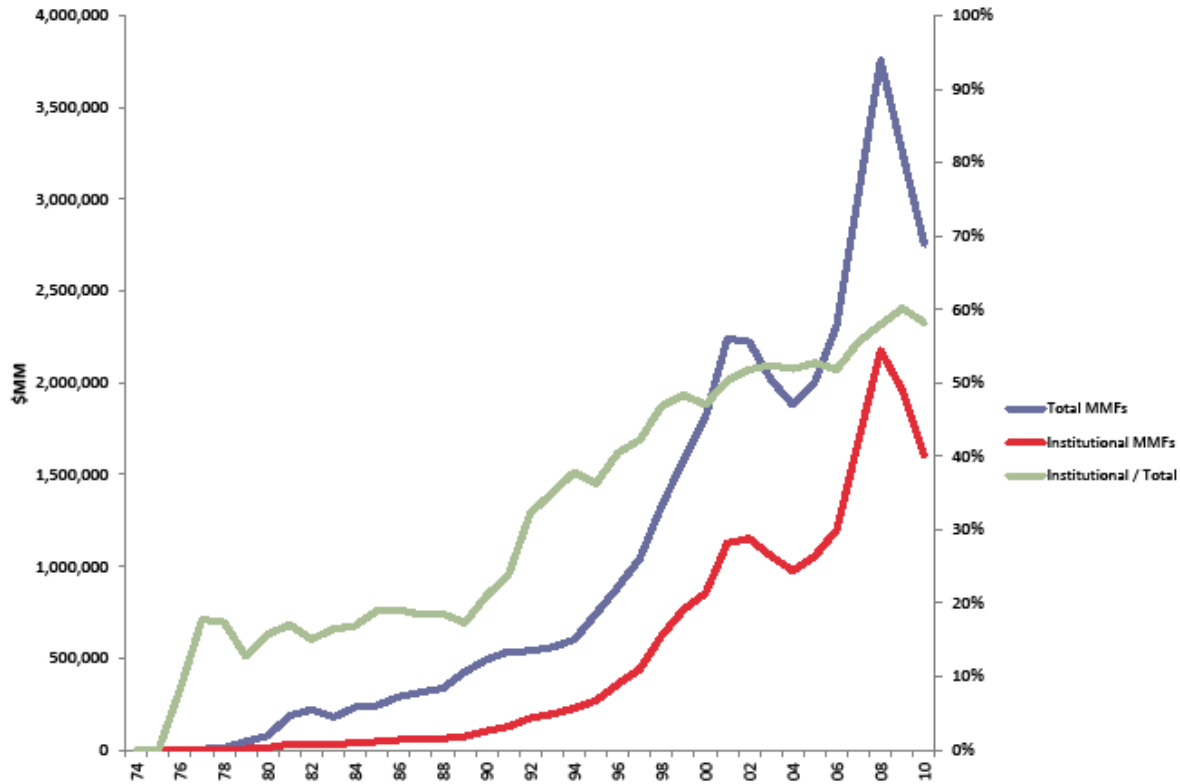


Source: Flow of Funds Accounts of the United States as of 2011:Q3 (FRB) and FRBNY.

Shadow Banking: the Role of MMFs

- Money market funds originated in the 1970s to provide retail bank depositors with access to money market rates, at a time of much lower artificially set bank rates
- Now – to provide institutional users with cash management services. With access to diversified, credit-screened insured deposit substitutes.

Institutional MMFs as a Percentage of Total: 1974-2010



MMFs

- The Deal: Fixed NAV (Insured Deposit Substitute) and continuous liquidity
- The Problem: MMFs (“prime” funds) hold risky assets (low risk, but some default risk); high (but variable) liquidity; and have no loss absorbency capacity (except implicit sponsor support, which as Reserve Primary Fund showed, may be inadequate)

MMFs – a source of systemic instability

- The “two sided run” problem
- Depositors may run if uncertain about the MMF portfolio and/or sponsor support
- Depositors may run if in anticipation of large redemptions requiring fire sale dispositions leading to Mark-to-Market losses on fund asset

Two-sided run -- 2

- In anticipation of possible depositor runs, MMFs may preemptively “run” on users of short term credit, by refusing to rollover existing positions
- In consequence: users of MMF finance face immediate funding emergency
- -- Since almost all non-USG assets of prime MMFs are financial sector claims, a run by MMF will destabilize the financial sector

Costs of the MMF rescue in fall 2008

- Treasury Guarantee (guarantee fee)
- --- \$50 BB backing \$3.5 Tr
- Asset Backed Commercial Paper MMF Liquidity Facility (AMLF) – Fed Facility
- -- Loan by Fed to Banks, which purchased ABCP – at amortized cost; ie, no haircut -- from MMFS (\$150 BB over 10 days). Loans were non-recourse to banks, secured by the purchased ABCP. Rate charged to banks: fed funds rate. Banks received the yield on the ABCP.

Reform Proposals

- **Originally**
- 1) Floating NAV (Volcker)
- 2) Liquidity facility (the MMF industry)
- 3) Capital (the academics)
- **SEC**
- Funds choose between floating NAV
- Or: Minimum Retained Balance (eg, 5%), designed to mitigate run risk plus small (sponsor provided) capital charge (< 1%) for loss absorbency

Current regulatory state of play, US

- Now: Stall on SEC Proposal
- FSOC will take up, with power either to propose regs that the SEC must accept or reject with explanation
- Or: designate specific funds or sponsors as SIFIs subject to the Fed's prudential oversight
- Depending on election outcome (who convenes FSOC), the SEC may revisit

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Money Market Funds Run Risk: Will Floating Net Asset Value Fix the Problem?

The Issue: whether floating NAV is a critical part of the systemic run risk posed by MMFs?

Note: floating NAV may reduce systemic threat of MMFs if as many in the industry claim, MMF users would go elsewhere, but this may merely transplant systemic risk, including making large banks even larger

The question

- Our question: Does floating NAV significantly affect MMF run risk?
- For: As true NAV slips below \$1 but remains above \$0.995, the Run is triggered by parties' desire to sell to capture the difference between true NAV and \$1, for $\$0.995 < \text{NAV} < \1 .
- Against: parties run to avoid losses from defaults and fire-sale valuations. In ordinary time floating NAV would be a tiny range; in extraordinary times, parties want cash or Treasuries

Natural Experiment

- European MMFs come in two forms, “stable” and “accumulating.”
- -- “Stable” is equivalent to “fixed”
- -- “Accumulating,” which adds dividends to NAV of a share and thus continuously changes NAV, is useful proxy for effects of “floating”
- Examine performance of these two different types of funds during Lehman week to examine run propensity

Conclusions - 1

- Run propensity is influenced by ex ante risk of the fund (as proxied by yield)
- the riskier the fund (before Lehman week), the greater the run during Lehman Week

“A 1 percent increase in yield (e.g., from 2.00 percent to 2.02 percent) was associated with approximately a 0.6 percent decrease in fund assets (e.g., from \$100 million to \$99.4 million). Over the approximately 1.8 percent yield range of the USD European MMFs, this suggests that the highest yielding funds on average should have experienced asset contractions of approximately 24% greater than the lowest yielding funds. To repeat, none of the contraction was explained by the difference between stable and accumulating NAV, indicating that NAV “fixedness” did not contribute to the run.”

Conclusions -- 2

- Expected sponsor support matters
- -- Investment bank-sponsored funds ran at higher rate than other funds.
- -- Investment banks under siege in fall 2008; lacked access to the social safety net.
- Funds sponsored by investment banks contracted at a 24 percent higher rate than other funds, meaning that if the average fund contracted by 20 percent, say, an investment-bank sponsored fund would have contracted by approximately 25 percent ($t=2.8$). After the failures of Bear and Lehman, investors were obviously wary of investment banks as a source of strength to their sponsored funds.

Table 5a:*Regression Results Summary*

Dependent variable is the logged net change in USD EMMF assets over Lehman week, Sept. 15-19, 2008. Independent variables are potential proxies for portfolio risk and sponsor risk. "Stable" reflects a dummy variable for whether the fund is a stable NAV or accumulating NAV fund. "Size" is the log of assets as of Sept. 12, 2008. "Yield" is the log of 30-day net yield for the period immediately prior to Lehman week. "Repo," "Time Deposits," "CDs," "CP," "Treasury" and "Government Other" reflect the share of MMF portfolio assets in the particular class of instrument. "iBank Sponsor," "Bank Sponsor" and "Lehman" are dummies for sponsor type. Table 5a reports coefficients only. Starred coefficients represent statistically significant results ($p < .05$). Table 5b reports all results. Coefficient is on top; standard error is in the middle; t-statistics is on the bottom.

	(1)	(2)	(3)	(4)
Stable	-.0511	-.0931	.0432	-.0444
Size	.0064	.0368*	.0030	.0082
Yield	-.589*	-.667*	-2.855*	-5.726*
Repo	.0033	.0042	-.0023	.0034
Time Deposits	.0037	.0042	-.0043	.0041
CDs	-.0015	-.0013	.001	-.0014
CP	.0026	.0032	-.0033	.0031
Treasury	.0065	.0067	-	.0219
Government Other	-.0049	-.0033	-.0289	-.0087
iBank Sponsor	-.2392*	-.28*	-.4067*	-.2212*
Bank Sponsor	.0523	.0269	-.0038	.0623
Expense Ratio	.0053	.032	-	.0050
Lehman	-	-1.12*	-	-
Constant	.1939	.1311	2.67*	.1451
N	169	177	38	148
R-squared	.1629	.3646	.4673	.1748
Adjusted R-squared	.0985	.3139	.2699	.1014
	(5)	(6)	(7)	(8)
Stable	.0031	.0199	.0041	.0465
Size	.0077	.0026	-.0034	-.0249
Yield	-2.503*	-2.49*	-7.7624*	-3.445
Repo	.0070	.0074	.0017	.0123
Time Deposits	.0075	.0079	.0017	.0076
CDs	.0027	.0026	-.0031	-.0016
CP	.0096	.0102	.0016	.0122
Treasury	.0025	.0191	.0019	.0189
Government Other	.0023	-.0025	-.0058	.0036
iBank Sponsor	-.3045*	-.2381	-.1984	-.2396
Bank Sponsor	.1079	.1248	.0803	.2812
Expense Ratio	-.1227	-.1392	-.0066	-.2574
Constant	1.17	1.11	.4511	1.834
N	107	89	106	63
R-squared	.2130	.2187	.1768	.2294
Adjusted R-squared	.1126	.0954	.0706	.0444

Conclusion

- Floating NAV does not add systemic stability
- SEC proposal will improve
- Need more focus on sponsor capacity