Interest Rates Hikes, Collateral Deterioration and Search for Yield: Evidence from Shadow Banks

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Motivation

- Shadow banking creates money-like instruments in response to growing demand from institutional investors (Gennaioli et al., 2013; Sunderam, 2015). It also allows banks to exploit regulatory arbitrage (Acharya et al. 2013, Irani et al. 2021).
- Much of the attention has been on shadow liabilities and their exposure to run/roll-over risk. Less attention is devoted to the collateral backing the production of shadow liabilities.
- Collateral quality matters as it affects the ability to recover liquidity at the time of a run.
- Shadow banks perform maturity transformation as banks but with no deposit franchise, no access to central banks' liquidity and are funded by highly responsive liabilities.

Our laboratory: ABCP Market

"For the first time in more than 10 years, [ABCP] conduits were drawing liquidity regularly to repay CP and participants were asking more questions surrounding conduits' assets". Capital IQ, Nov. 20, 2008

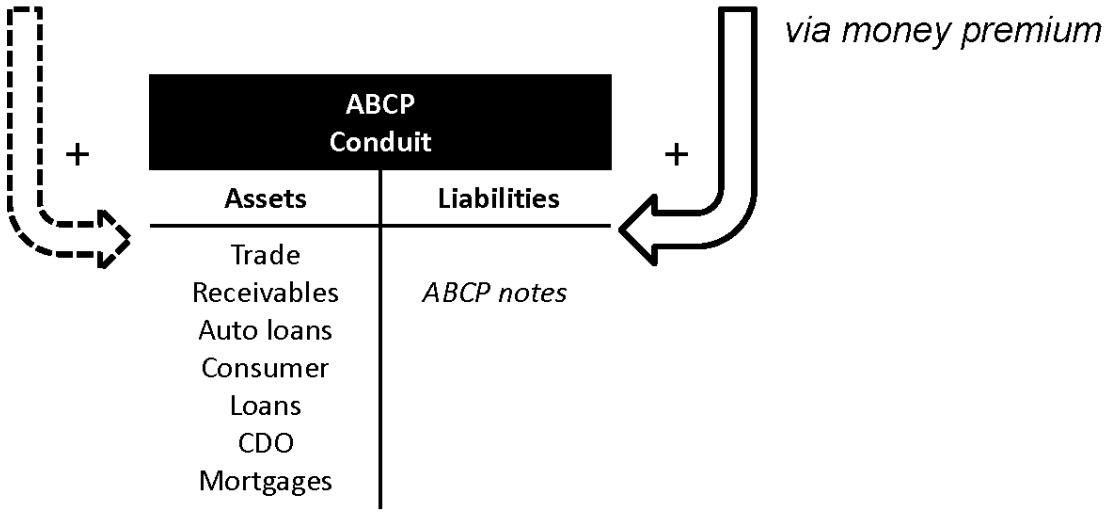
- After reaching trillions of volume outstanding, in August 2007, the ABCP market dropped by 35% in few months, because of concerns about mounting delinquencies on sub-prime mortgages in their portfolio. Graph ABCP Market
- Severe losses affected the sponsoring banks providing liquidity and credit facilities, with conduits' assets brought back to their balance sheet.
- The cost of their liabilities increased, in almost a 1:1 relationship with policy rates, from 1% to 5% between 2004 and 2007, but the market kept growing in response to demand.
  ABCP Rates and Fed rate | Money Market Mutual Funds

  How?

This Paper - In A Nutshell

Demand for Safe assets:

L. Higher Demand for Money-like Assets → Higher Issuance of ABCP (Sunderam, 2015)
A. Higher Demand for Money-like Assets → Higher Securitization (Gennaioli et al., 2013)



Term Spread

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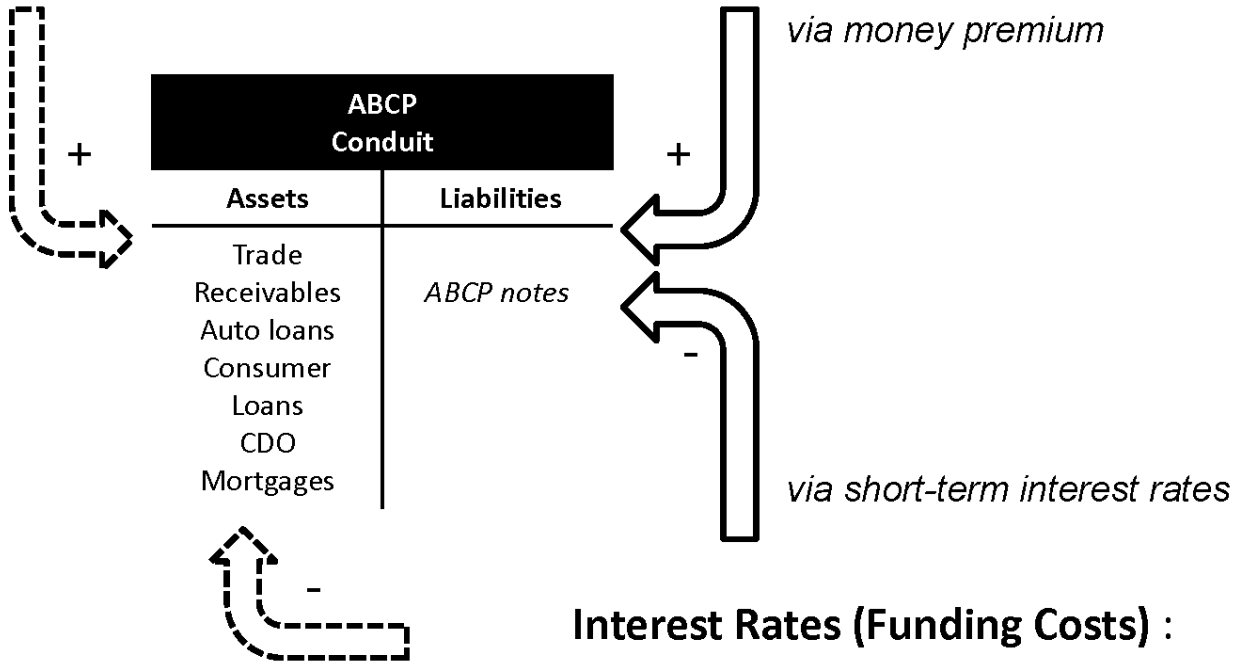

Interest Rates (Funding Costs) :

L. Higher Interest Rates → ABCP Rates → Higher Funding Costs→ Lower Issuance of ABCP
A. High Rates → Lower Marginal Profitability of Extra Loan (Adrian and Shin, 2013).

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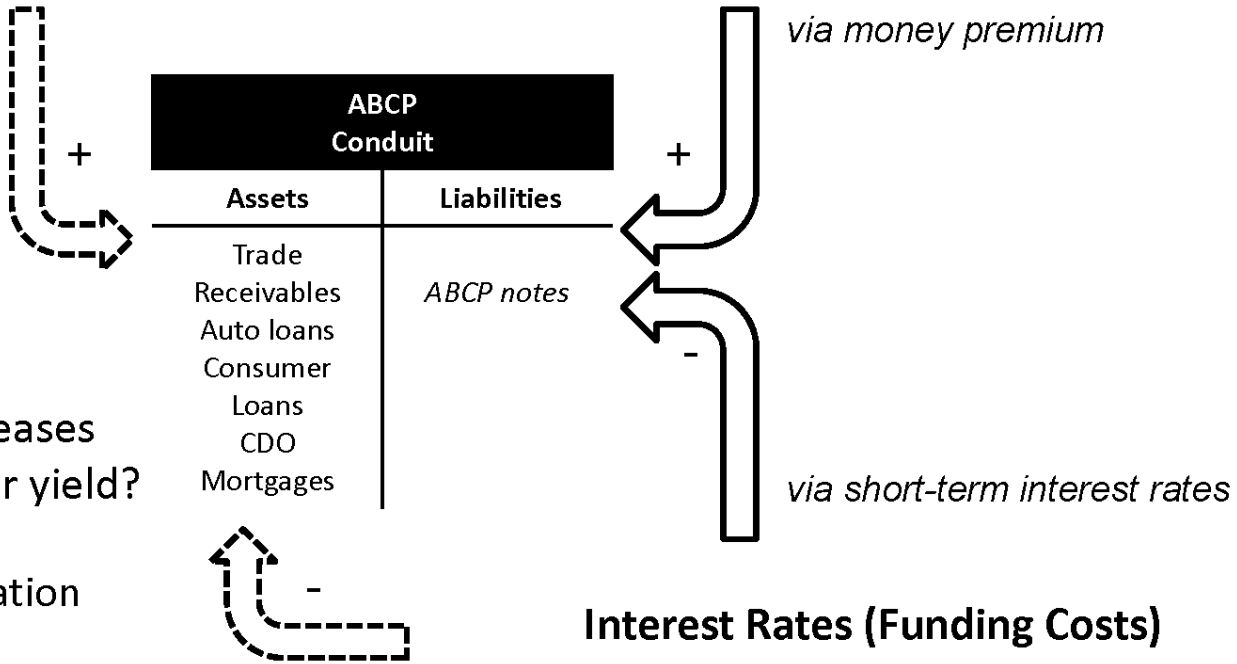

RQ: Do interest rates increases lead conduits to search for yield?

TEST: Portfolio Reallocation

- Changes in collateral ratings
- Changes in type of collateral

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Term Spread

Results Preview

1. Conduits reduce issuance and collateral acquisition in response to increase in interest rates but the effect is muted when the demand for safe assets is strong.

- Additional tests: Difference-in-differences test to provide clean evidence of the *funding cost channel* and policy shocks to mitigate endogeneity concerns.

II. On the portfolio holdings, interest rate increase lead to a substitution between high credit quality, short-term, liquid assets with riskier, long-term, illiquid assets, such as MBS and CDO.

- Additional test: Link higher holdings of these assets and funding received from the TAF liquidity facility in the immediate aftermath of the run.

Results Preview

II.a Changes in ABCP Portfolios by Collateral Ratings:

$\Rightarrow$ Higher interest rates lead to lower % of AAA collateral, but the effect is muted when controlling for the demand.

$\Rightarrow$ Higher interest rates lead to lower holdings of collateral AA and A, in favour of collateral rated BBB and lower. The effect persists when controlling for demand.

II.b Changes in ABCP Portfolios by Collateral Types:

$\Rightarrow$ Higher interest rates leads to higher % of Consumer loans, CDO and MBS and lower % of auto loans and Other. The effect persists when controlling for demand (reducing concerns on supply effect).

Takeaway: ABCP conduits search for yield to compensate the higher funding costs and meet the increasing demand for safe assets from investors.

Data collection and Sample

New Dataset

A granular entity-based dataset of ABCP conduits on the USD market.

- Data from Capital IQ:

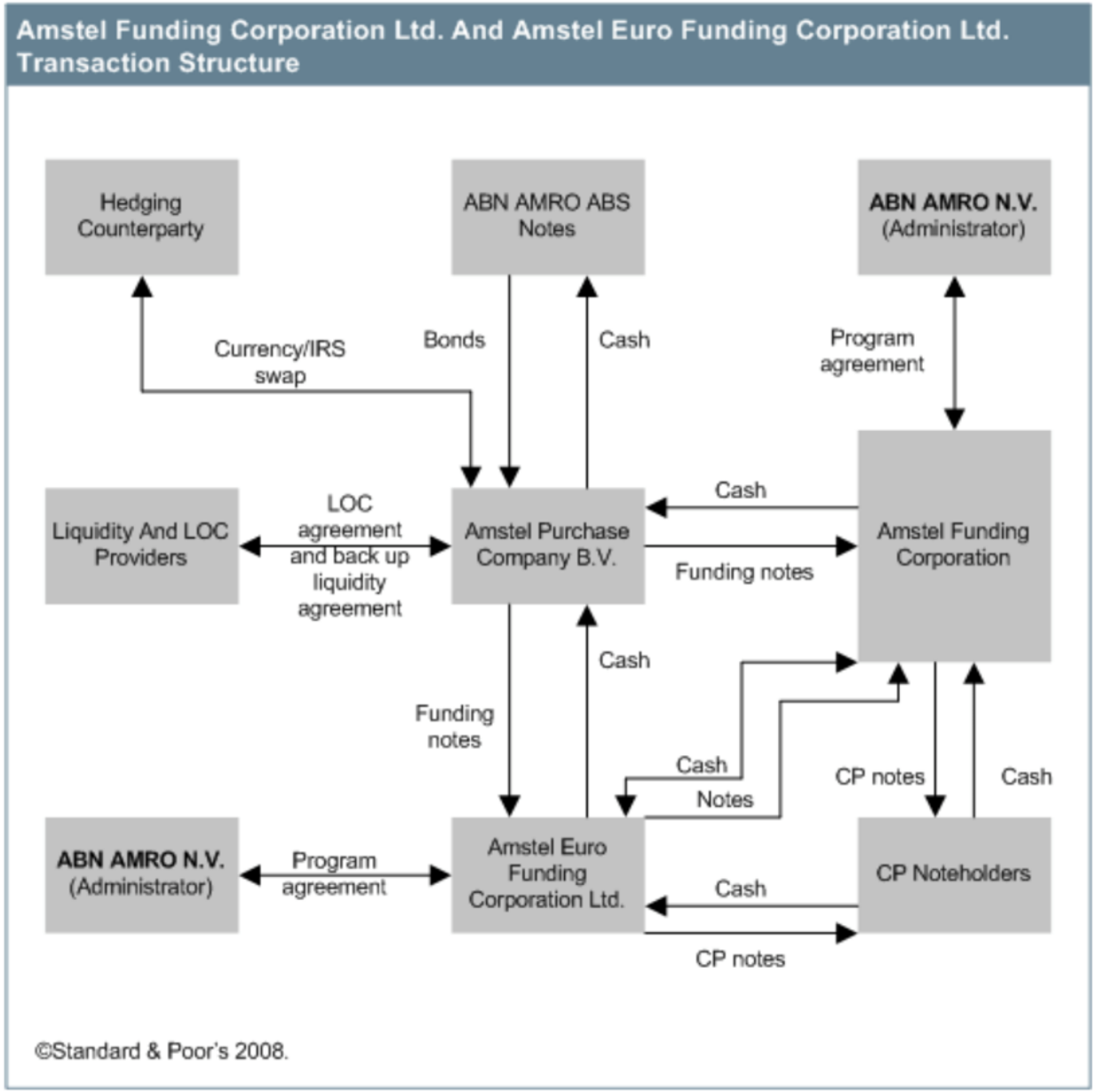
  - ABCP Amount Outstanding - 20031m1 - 2007m3 (liabilities)
  - Aggregate Financing Limit - 20031m1 - 2007m3 (assets)
  - Net Collateral Entering (Collateral Purchased - Sold) - 20031m1 - 2007m3
  - Portfolio Holdings by type and rating - 20041q2 - 2007q1
  - Institutional features (rating, type of conduits, sponsor, liquidity providers)

- Final Sample:

  - 74 ABCP conduits (funding structure) issuing on USD market
  - 49 Sponsoring Banks
  - Sample coverage: about 50% of the ABCP Market in 2007.

Institutional setting

Amstel ABCP Conduit sponsored by ABN AMRO



ABCP Net Issuance

OLS Regression:

$$\Delta log(ABCP)_{ijt} = F_i + \lambda_t + \beta \Delta fed\ rate_t + \gamma \Delta (Tbill - OIS)_t + \delta X_{ijt-1} + \epsilon_{ijt} \quad (1)$$

Table 3: ABCP Net Issuance - OLS Analyses

	(1) $\Delta\ log(ABCP)_t$ β / SE	(2) $\Delta\ log(ABCP)_t$ β / SE	(3) $\Delta\ log(ABCP)_t$ β / SE	(4) $\Delta\ log(ABCP)_t$ β / SE
$\Delta\ fed\ rate_t$	−0.063**	−0.075**		−0.013
	(0.029)	(0.032)		(0.035)
$\Delta\ (Tbill - OIS)_t$			−0.096***	−0.092***
			(0.023)	(0.026)
$\Delta\ log(ABCP)_{t-1}$	−0.067**	−0.089***	−0.086***	−0.086***
	(0.029)	(0.025)	(0.024)	(0.024)
$\Delta\ log(ABCP)_{t-2}$		−0.049*	−0.042	−0.042
		(0.026)	(0.026)	(0.026)
$log(ABCP)_{t-1}$		−0.057***	−0.057***	−0.057***
		(0.009)	(0.009)	(0.009)
Time FE	Yes	Yes	Yes	Yes
Conduit FE	No	Yes	Yes	Yes
Adj R^2	0.017	0.092	0.099	0.099
Observations	3041	2963	2963	2963
No. of Conduits	74	74	74	74

This table reports estimations based on OLS regressions. Standard errors are clustered by time and conduit. All variables - except rates - are winsorezed at 5%. See the Appendix A for variables' definitions. Significance levels: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Robust to: Time-varying conduit-level controls, macro controls, Rating FE, exclusion of "new" players (after 2004).

ABCP Net Issuance

Dynamic Panel Regression - Iterative bootstrap-based bias correction:

$$\Delta log(ABCP)_{ijt} = F_i + \lambda_t + \beta \Delta fed\ rate_t + \gamma \Delta (Tbill - OIS)_t + \delta X_{ijt-1} + \epsilon_{ijt}$$

Table B1: ABCP Net Issuance - Bootstrap-corrected Fixed Effects (LSDV) estimator for Dynamic Panel

	(1) $\Delta\ log(ABCP)_t$ β / SE	(2) $\Delta\ log(ABCP)_t$ β / SE	(3) $\Delta\ log(ABCP)_t$ β / SE	(4) $\Delta\ log(ABCP)_t$ β / SE
$\Delta\ fed\ rate_t$	−0.061**	−0.074***		−0.011
	(0.029)	(0.028)		(0.030)
$\Delta\ (Tbill - OIS)_t$			−0.096***	−0.093***
			(0.018)	(0.020)
$\Delta\ log(ABCP)_{t-1}$	−0.086***	−0.049***	−0.048**	−0.048**
	(0.018)	(0.019)	(0.019)	(0.019)
$\Delta\ log(ABCP)_{t-2}$		−0.005	−0.005	−0.005
		(0.017)	(0.017)	(0.017)
$log(ABCP)_{t-1}$		−0.053***	−0.054***	−0.054***
		(0.005)	(0.005)	(0.005)
Time FE	Yes	Yes	Yes	Yes
Conduit FE	Yes	Yes	Yes	Yes
Observations	2977	2903	2903	2903
No. of Conduits	74	74	74	74

This table reports estimations based on an iterative bootstrap-based bias correction for the fixed effects model for dynamic panels. Adjusted Standard errors for global serial correlations. Conduit variables are winsorezed at 5%. Significance levels: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

New Collateral

$$Net_{ijt\%} = F_i + \lambda_t + \beta \Delta fed\ rate_t + \gamma \Delta (Tbill - OIS)_t + \delta X_{ijt-1} + \epsilon_{ijt}$$

Table 6: Net Amount of Collateral Entering the ABCP Portfolio (%)

	(1) Δ Net % $_t$ β / SE	(2) Δ Net % $_t$ β / SE	(3) Δ Net % $_t$ β / SE	(4) Δ Net % $_t$ β / SE
Δ $fed\ rate_t$	−0.043*	−0.034**		−0.010
	(0.024)	(0.016)		(0.018)
Δ $(Tbill - OIS)_t$			−0.039***	−0.036***
			(0.006)	(0.008)
Δ Net % $_{t-1}$	−0.491***	−0.670***	−0.669***	−0.669***
	(0.020)	(0.024)	(0.024)	(0.024)
Δ Net % $_{t-2}$		−0.361***	−0.354***	−0.354***
		(0.022)	(0.023)	(0.022)
$log(ABCP)_{t-1}$	−0.002***	−0.016***	−0.016***	−0.016***
	(0.000)	(0.004)	(0.004)	(0.004)
Time FE	Yes	Yes	Yes	Yes
Conduit FE	No	Yes	Yes	Yes
Adj R^2	0.248	0.341	0.344	0.344
Observations	2902	2831	2831	2831
No. of Conduits	71	71	71	71

This table reports OLS estimations for the period from January 2003 to March 2007. The dependent variables is change in the difference between the amount of new collateral entering the portfolio of the conduit and amount exiting as percentage of the overall portfolio for each month. Standard errors are clustered by time and conduit. All variables - except rates - are winsorized at 5%. Similar results are obtained with bootstrap-corrected Fixed Effects (LSDV) estimator for dynamic panel (unreported table). See the Appendix A for variables definitions. Significance level: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Changes in ABCP Portfolios by Collateral Ratings

$$\Delta\ \%\ Portfolio\ Holdings_{ijt} = F_i + \lambda_t + \beta \Delta fed\ rate_t + \gamma \Delta (Tbill - OIS)_t + \delta X_{ijt-1} + \epsilon_{ijt} \quad (2)$$

Table 8: ABCP Portfolio Composition by RATING of Collateral

	(1) Δ AAA β / SE	(2) Δ AAA β / SE	(3) Δ AAA β / SE	(4) Δ AA A β / SE	(5) Δ BBB β / SE	(6) Δ Below/NR β / SE	(7) Δ Not rated β / SE	(8) Δ NA β / SE
$\Delta\ fed\ rate_t$	−0.144**		−0.441	−0.657***	0.404**	−1.005***	−0.078	0.786
	(0.049)		(0.280)	(0.190)	(0.136)	(0.193)	(0.241)	(0.507)
$\Delta\ (Tbill - OIS)_t$		−0.096	0.391	0.761***	−0.555***	1.105***	−0.024	−0.882
		(0.094)	(0.364)	(0.212)	(0.149)	(0.262)	(0.387)	(0.622)
$log(ABCP)_{t-1}$	−0.005	−0.005	−0.004	−0.014	−0.015	0.019	0.013	0.009
	(0.019)	(0.019)	(0.019)	(0.013)	(0.013)	(0.019)	(0.017)	(0.048)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarter-of-the-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Conduit FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$Adj.R^2$	0.018	0.016	0.018	-0.049	0.004	0.036	0.005	-0.073
Observations	444	444	444	473	388	435	321	315

This table presents OLS estimation on quarterly data from 2004q2 to 2007q1. The dependent variable in each column is the change in the percentage of holdings of a rating category to the overall amount in the portfolio. Categories are from Capital IQ. Standard errors are clustered by quarter and conduit. In unreported table, we add Conduit-rating FE and results are unchanged. Conduits variables are winsorized at 5%. Significance level: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Changes in ABCP Portfolios by Collateral Types

$$\Delta \text{ \% } Portfolio\ Holdings_{ijt} = F_i + \lambda_t + \beta \Delta fed\ rate_t + \gamma \Delta (Tbill - OIS)_t + \delta X_{ijt-1} + \epsilon_{ijt}$$

Table 9: ABCP Portfolio Composition by Type of Collateral

	(1) Δ Auto β / SE	(2) Δ CDO β / SE	(3) Δ Commercial β / SE	(4) Δ Consumer β / SE	(5) Δ Credit cards β / SE	(6) Δ Trade β / SE	(7) Δ Mortgage β / SE	(8) Δ Other β / SE
$\Delta\ fed\ rate_t$	−0.120***	0.535***	−0.023	0.570***	0.024	−0.104	0.732***	−0.338***
	(0.005)	(0.123)	(0.015)	(0.056)	(0.046)	(0.109)	(0.081)	(0.090)
$\Delta\ (Tbill - OIS)_t$	0.155***	−0.592***	−0.037***	−0.741***	0.045	0.178	−1.024***	0.494***
	(0.036)	(0.175)	(0.011)	(0.068)	(0.052)	(0.126)	(0.125)	(0.080)
$log(ABCP)_{t-1}$	0.025**	0.018	−0.028	−0.020*	−0.004	0.026	−0.035	−0.005
	(0.010)	(0.024)	(0.024)	(0.010)	(0.005)	(0.017)	(0.019)	(0.023)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quarter-of-the-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Conduit FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$Adj.R^2$	-0.019	0.321	0.029	0.155	-0.035	-0.033	0.035	0.0.061
Observations	444	302	376	363	405	476	517	460

This table presents OLS estimation on quarterly data from 2004q2 to 2007q1. The dependent variable in each column is the change in the percentage of holdings of a collateral category to the overall amount in the portfolio. Categories are from Capital IQ. Standard errors are clustered by quarter and conduit. In unreported table, we add Conduit-rating FE and results are unchanged. Conduits variables are winsorized at 5%. Significance level: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

ABCP Collateral and TAF Programme

- Established in December 2007, ended in March 2010.
- Only Depository Institutions were eligible.
- No. TAF loans = Proxy of sponsoring banks' liquidity shortages.

Table 10: Participation in Fed Term Auction Programme

	(1) No. TAF loans β / SE	(2) No. TAF loans β / SE	(3) No. TAF loans β / SE
Mortgage (%)	2.718***		3.030***
	(0.895)		(0.891)
CDO (%)		0.522	−1.766
		(1.682)	(1.308)
High Rating A-1+	−1.250***	−0.955***	−1.182***
	(0.304)	(0.285)	(0.304)
Arbitrage Type	0.381	1.008**	0.353
	(0.245)	(0.395)	(0.288)
Liquidity providers (ln)	0.066**	0.048	
	(0.027)	(0.029)	
Constant	2.857***	3.168***	3.198***
	(0.239)	(0.240)	(0.192)
$Adj.R^2$	0.307	0.147	0.247
Observations	42	43	40

This table reports OLS cross-sectional regressions for the sample of conduits operating in December 2006 and sponsored by eligible sponsors. The dependent variable is the log of the total number of loans a sponsor of a conduit has borrowed under the Term Auction Facility established by the Federal Reserve in December 2007, i.e. after the ABCP collapse in August. Mortgage and CDO variables are the percentage of holdings in the conduits' portfolio reported at December 2006. The number of conduits is reduced because only depository institutions were eligible for the facility. Robust standard errors are reported. Results are robust to conduit-level clustering. Significance level: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Additional test: Policy Shocks

Identification concern: exogeneity of interest rate changes.

Table 11: ABCP Net Issuances - Surprise Changes in Federal Funds Rates

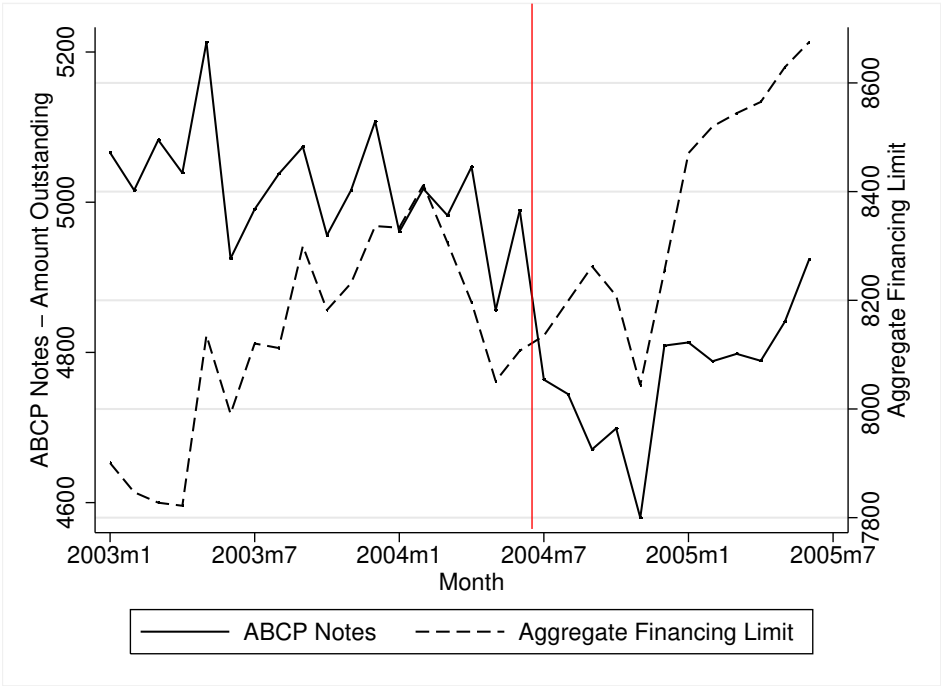
	(1) $\Delta\ log(ABCP)_t$ β / SE	(2) $\Delta\ log(ABCP)_t$ β / SE	(3) $\Delta\ log(ABCP)_t$ β / SE	(4) $\Delta\ log(ABCP)_t$ β / SE
FFR factor	−0.014***	−0.012***		−0.023***
	(0.006)	(0.006)		(0.005)
$\Delta\ (Tbill - OIS)_t$			−0.087***	−0.099***
			(0.023)	(0.022)
$\Delta\ log(ABCP)_{t-1}$	−0.055	−0.078**	−0.075**	−0.074*
	(0.040)	(0.034)	(0.033)	(0.033)
$\Delta\ log(ABCP)_{t-2}$		−0.078	−0.067	−0.067
		(0.047)	(0.045)	(0.045)
$log(ABCP)_{t-1}$		−0.060***	−0.061***	−0.060***
		(0.011)	(0.011)	(0.011)
Time FE	Yes	Yes	Yes	Yes
Conduit FE	No	Yes	Yes	Yes
$Adj\,R^2$	0.019	0.065	0.103	0.104
Observations	2025	1998	1998	1998
No. of Conduits	74	74	74	74

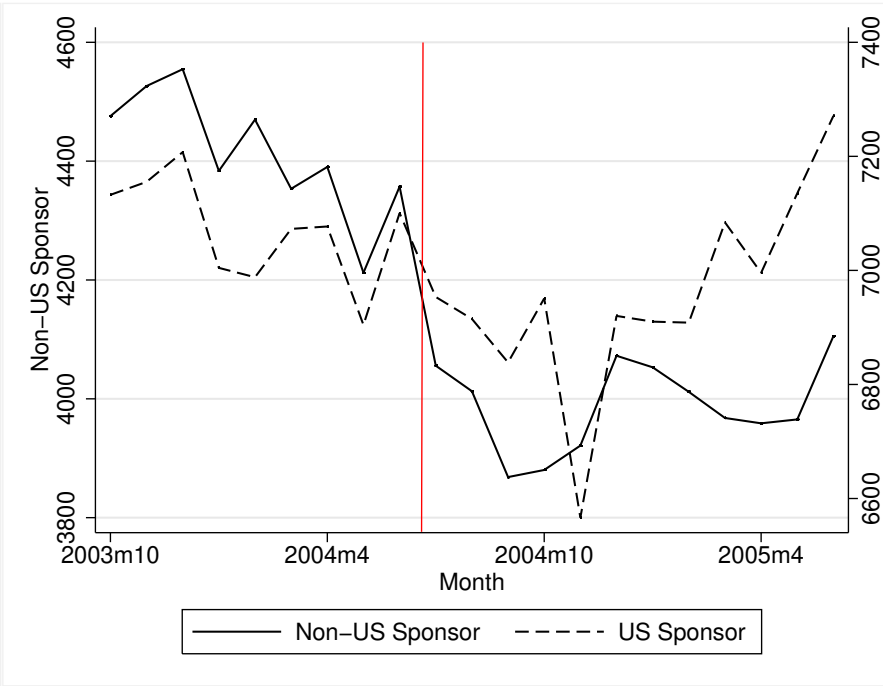
This This table reports the results of the estimations based on OLS regressions. The federal funds rate component of FOMC announcements are from Swanson (2021). Standard errors are clustered by time and country-sponsor. All variables - except rates - are winsorezed at 5%. See Appendix A for the definitions of the variables. Significance level: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Testing for the Funding Constraints

Identification concern: disentangle demand and funding channel

- Shock: Fed decision to increase the rate in June 2004.
  - Before the boom of securitization and raising of MMMFs demand.
  - ABCP market is small, main collateral are receivables and auto laons.





- Non-US-sponsored conduits have more funding constraints than US-sponsored conduits as they have less access to US insured deposit base (Ivashina et al. 2005).

Difference-in-Differences Test

$$log(ABCP)_{ijt} = \alpha + F_i + \beta POST_t + \gamma US\ Sponsor_i + \lambda POST_t \cdot US\ Sponsor_i + \epsilon_{ijt} \quad (3)$$

Table 11: Difference-in-Difference: US vs Non-US Sponsored Conduits

	(1) $log(ABCP)_t$ β / SE	(2) $log(ABCP)_t$ β / SE	(3) $log(ABCP)_t$ β / SE	(4) $log(Fin.\ Limit)_t$ β / SE	(5) $log(Fin.\ Limit)_t$ β / SE	(6) $log(Fin.\ Limit)_t$ β / SE
US Sponsor x POST	0.049**	0.048**	0.048**	−0.013	−0.018	−0.018
	(0.020)	(0.020)	(0.021)	(0.028)	(0.028)	(0.028)
US Sponsor	0.387***	0.296***	0.296***	0.167***	0.104***	0.104***
	(0.014)	(0.012)	(0.012)	(0.011)	(0.017)	(0.017)
POST	−0.065***	−0.063***		0.007	0.009	
	(0.011)	(0.010)		(0.012)	(0.012)	
Time FE	No	No	Yes	No	No	Yes
Conduit-type FE	No	Yes	Yes	No	Yes	Yes
Observations	684	684	684	684	684	684
Adj R^2	0.063	0.106	0.107	0.103	0.045	0.045

This table reports OLS estimations for a 6-month period around the federal funds rate increase in June 2004. Standard errors are clustered by time. Conduit types are Multi-seller, Single-seller, Arbitrage, Hybrid. See Appendix A for variables description. Results are robust to inclusion of Conduit FE, Time FE and robust standard errors (unreported tables). Significance level: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Difference-in-Differences Test - Extended

Table 12: Difference-in-Difference: US vs Non-US Sponsored Conduits - Extended Models

	(1) $log(ABCP)_t$ β / SE	(2) $log(ABCP)_t$ β / SE	(3) $log(ABCP)_t$ β / SE	(4) $log(ABCP)_t$ β / SE
US Sponsor x POST	0.050**	0.050**	0.050**	0.050**
	(0.016)	(0.018)	(0.018)	(0.018)
US Sponsor	0.204***	0.300***	0.300***	0.300***
	(0.005)	(0.007)	(0.007)	(0.007)
POST	−0.023**	−0.064**	−0.057*	
	(0.008)	(0.023)	(0.029)	
Non-US Assets	−0.330***	−0.333***	−0.333***	−0.333***
	(0.019)	(0.019)	(0.019)	(0.019)
US Sponsor x Non-US Assets	−1.509***	−1.750***	−1.749***	−1.747***
	(0.023)	(0.033)	(0.032)	(0.034)
Non-US Assets x POST	−0.092***	−0.063**	−0.064**	−0.063**
	(0.027)	(0.027)	(0.027)	(0.027)
Arbitrage x POST		−0.015	−0.016	−0.015
		(0.066)	(0.066)	(0.066)
High rating (A-1+)		0.589***	0.589***	0.589***
		(0.022)	(0.022)	(0.022)
High rating (A-1+) x POST		0.060**	0.060**	0.060**
		(0.023)	(0.023)	(0.023)
$(Tbill - OIS)_t$			0.062	0.115
			(0.106)	(0.157)
$(Tbill - OIS)_t$ x POST				−0.168
				(0.164)
Time FE	No	No	No	Yes
Conduit-type FE	Yes	Yes	Yes	Yes
Observations	684	684	684	684
Adj R^2	0.154	0.285	0.285	0.285

This table reports OLS estimations for a 6-month period before and after the federal funds rate increase in June 2004. Standard errors are clustered by time. Conduit types are Multi-seller, Single-seller, Arbitrage, Hybrid. See Appendix A for variables description. Results are robust to inclusion of Conduit FE, Time FE and robust standard errors (unreported tables) Significance level: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Additional test: High vs Low Term Spread

Table 13: ABCP Net Issuance - OLS Analyses - High vs Low Term Spread Periods

	(1) $\Delta\ log(ABCP)_t$ β / SE $Term\ Spread >= 0$	(2) $\Delta\ log(ABCP)_t$ β / SE $Term\ Spread >= 0$	(3) $\Delta\ log(ABCP)_t$ β / SE $Term\ Spread >= 0$	(4) $\Delta\ log(ABCP)_t$ β / SE $Term\ Spread < 0$	(5) $\Delta\ log(ABCP)_t$ β / SE $Term\ Spread < 0$	(6) $\Delta\ log(ABCP)_t$ β / SE $Term\ Spread < 0$
$\Delta\ fed\ rate_t$	−0.004	−0.000	−0.008	−0.017***	−0.004	−0.248***
	(0.004)	(0.005)	(0.005)	(0.003)	(0.004)	(0.012)
$\Delta\ (Tbill - OIS)_t$		−0.004**	0.002		−0.012**	0.080***
		(0.002)	(0.003)		(0.004)	(0.006)
$\Delta\ fed\ rate_t$ x						
$\Delta\ (Tbill - OIS)_t$			−0.010**			0.108***
			(0.004)			(0.005)
$\Delta\ log(ABCP)_{t-1}$	−0.063**	−0.064**	−0.063**	−0.205***	−0.182***	−0.191***
	(0.028)	(0.028)	(0.027)	(0.036)	(0.036)	(0.038)
$\Delta\ log(ABCP)_{t-2}$	−0.033	−0.029	−0.028	−0.162***	−0.137**	−0.136**
	(0.027)	(0.027)	(0.027)	(0.045)	(0.043)	(0.043)
$log(ABCP)_{t-1}$	−0.071***	−0.071***	−0.072***	−0.074***	−0.079***	−0.079***
	(0.010)	(0.010)	(0.010)	(0.021)	(0.022)	(0.021)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Conduit FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2274	2274	2274	678	678	678
Adj R^2	0.101	0.102	0.104	0.153	0.173	0.179
No. of Conduits	71	71	71	73	73	73

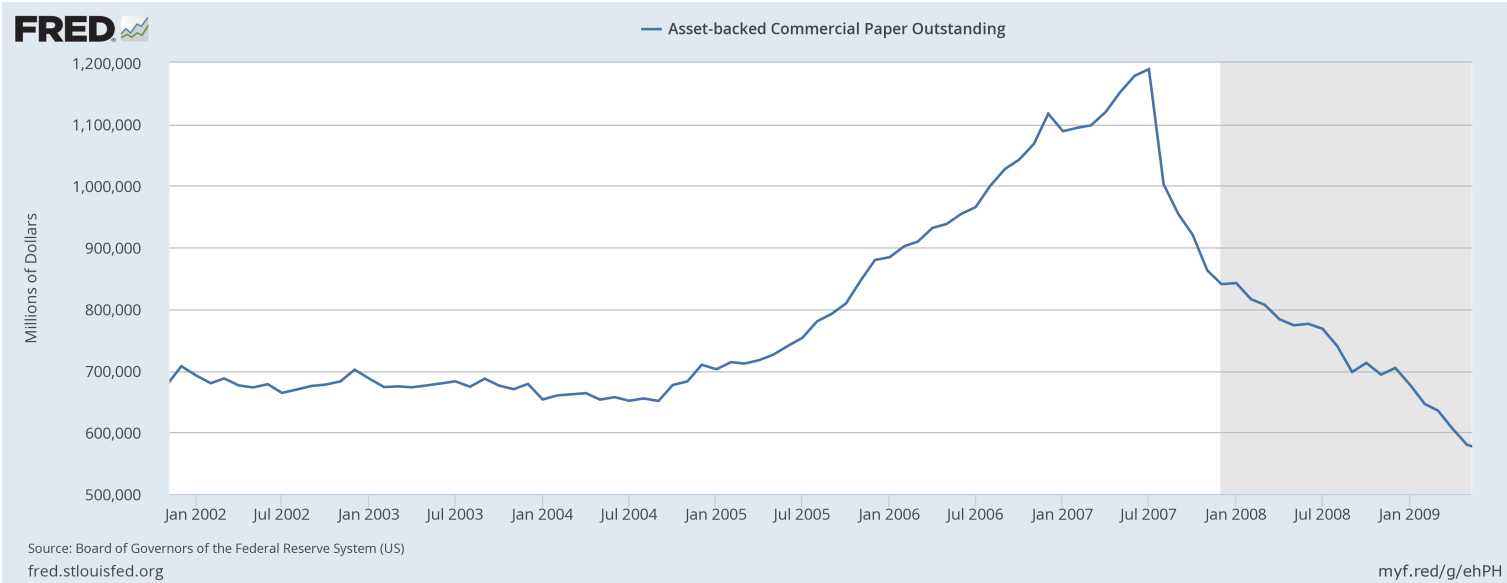
This table reports estimations based on OLS regressions. Key variables (fed funds and money premium) are standardized to mitigate multi-collinearity with the interaction term. Term Spread is the spread between 10-Year Treasury Constant Maturity and 3-Month Treasury Constant Maturity. Standard errors are clustered for time and conduit-levels. All variables - except rates - are winsorized at 5%. See the Appendix A for variables definitions. Significance levels: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Discussion

- Strong demand combined with market conditions imposing severe funding constraints, lead to a search for yield outside the formal banking system, with implications also for the stability of the regular banking system.
- Even in absence of regulatory arbitrage opportunity, collateral-based funding markets still represent an alternative source of funding for banks, mostly dependent on the demand for safe assets from institutional investors such as MMMFs.
- Even if banking regulators impose costs on explicit liquidity/credit guarantees granted to these structures, implicit guarantees could still be in place for reputational concerns.
- The interplay between macro conditions and micro features is not new, but still unexplored.

ABCP Run

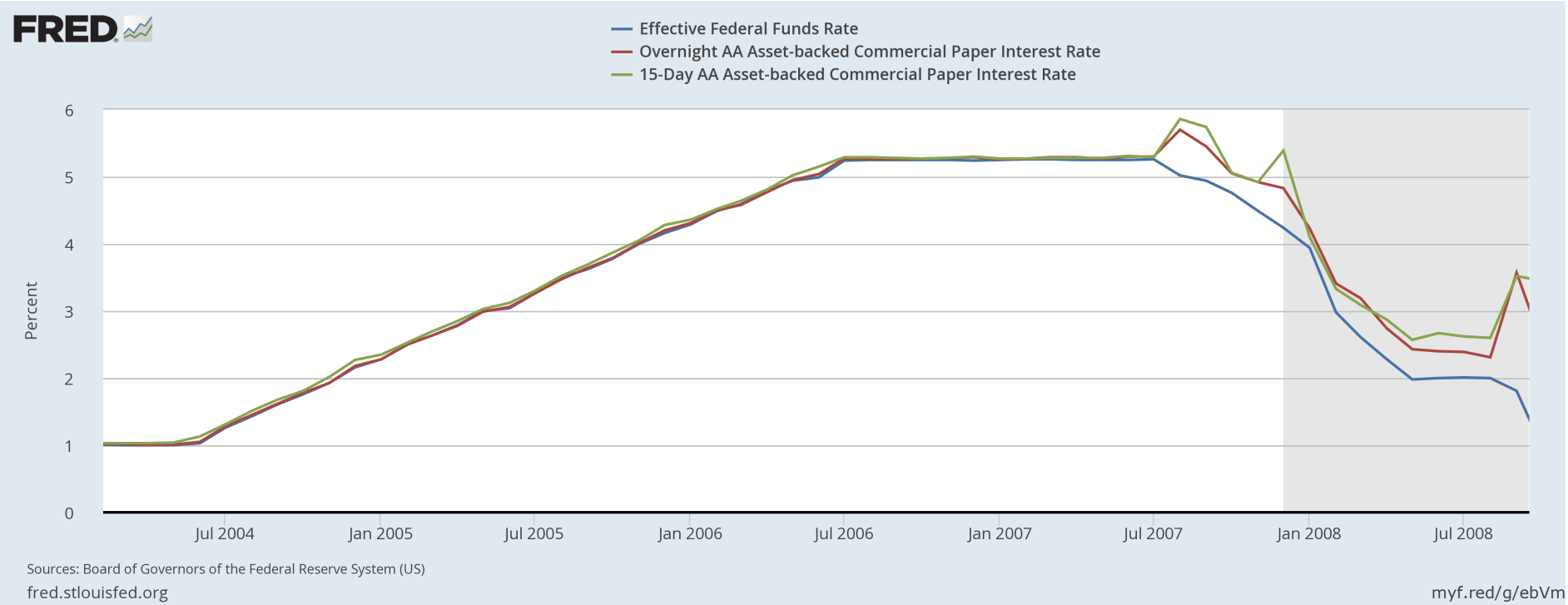
- In January 2007, USD ABCP amount outstanding accounted for $1.3 trillion. From 7.5% of the CP market in 1990 to 59.9% in 2007.



- Runs in August 2007 revealed the fragility of ABCP conduits due to their rollover risk and leverage.

«

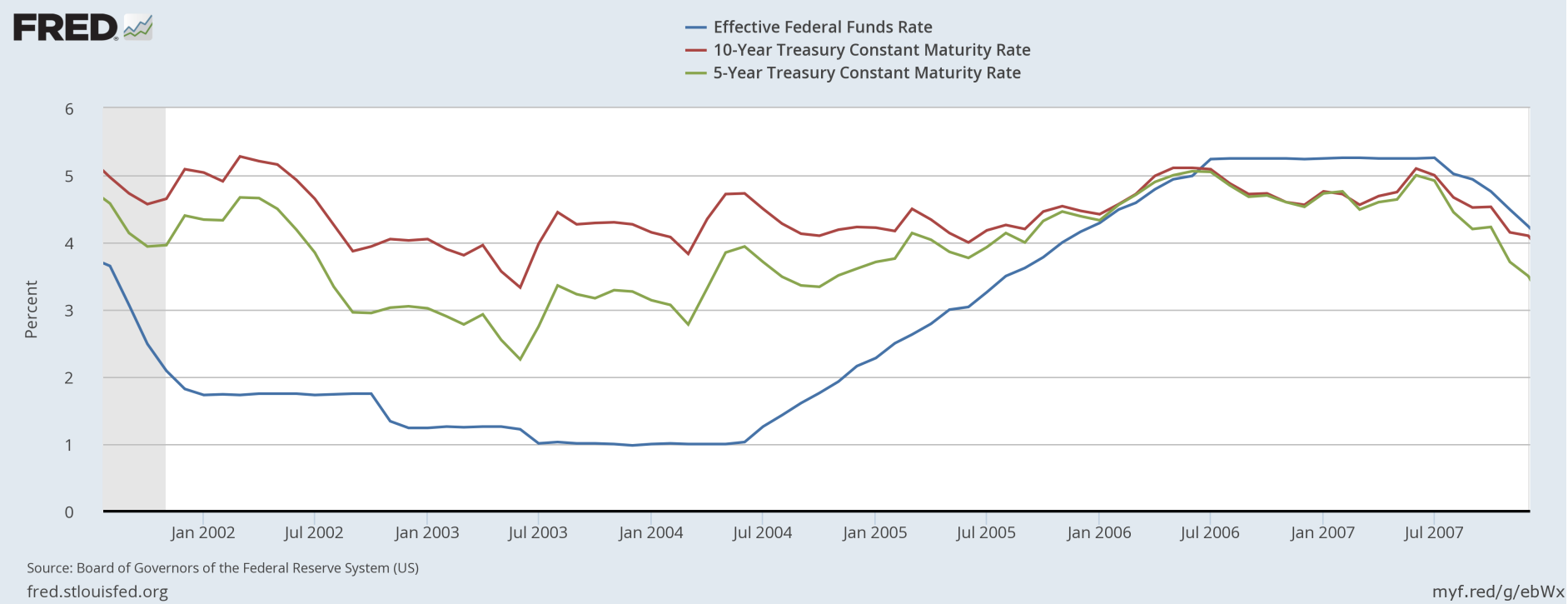
USD ABCP Rates



- ABCP rates = fed rate + credit spread (short-term rating)
- ABCP rates higher than rates on Treasury bills with the same maturity
- ABCP rates are higher than CP rates. They include a premium for opacity

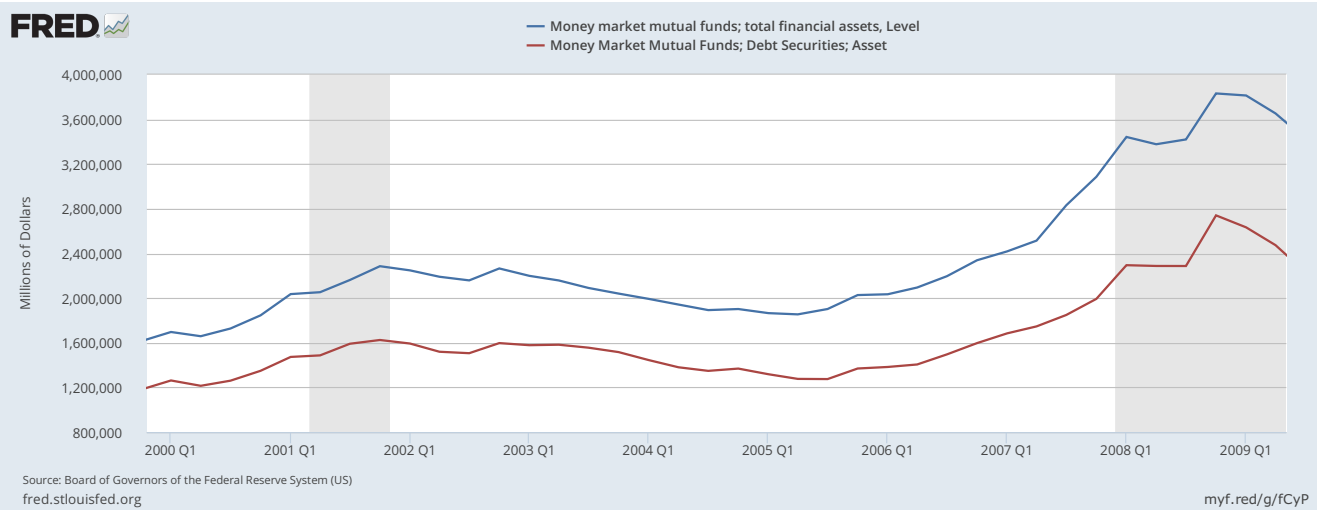
«

Term Spread



- The term spread becomes smaller and smaller and then negative. «

Money Market Mutual Funds



- Insured deposit alternatives dominate institutional cash pools' investment portfolios relative to deposits.
- The principal reason for this is not search for yield, but search for principal safety and liquidity (Pozsar, 2011). «

ABCP Conduits

- Complex funding structure (SPV) set up by large banks as an extension of their credit intermediation.
- Short term liabilities (ABCP) are issued to purchase medium-long term assets from other financial institutions or large corporations.
- "De-facto" banks: maturity, risk and liquidity transformation but market-based and demand driven (MMFs).
- ABCP conduits are shadow entities because of unregistered liabilities and anonymous assets
- They depend on the rating to access MMFs market. Rating agencies "regulate" the conduits
- They fit the systemic-relevant definition of shadow banking entity as they need an external risk absorbing capacity to operate - that creates the links with banks.