THE REFORM OF THE MONEY MARKET FUND INDUSTRY AND THE SHORTAGE OF SHORT TERM FUNDING IN THE US

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- On September 17, 2019, for the first time in a decade, the Fed injected cash in the short-term money market in response to a spiking repo rate

- Especially the safest banks and companies in the US seem to be short of cash
  - Differently from 2007 there are no doubts on the quality of the collateral

- I will talk about the recent reform of the US MMFs, which may contribute to explain why we observe shortage of short-term funding in the US
  - Based on a working paper I coauthored with Ramin Baghai and Ivika Jager

Money market funds (MMFs)

- Prime MMFs purchase short-term liabilities of corporations and financial institutions

- Their liabilities were typically regarded by investors as profitable substitutes for deposits
  - Debt-on-debt structure: Traded at **constant NAV** guaranteeing $1 for a $1 investment

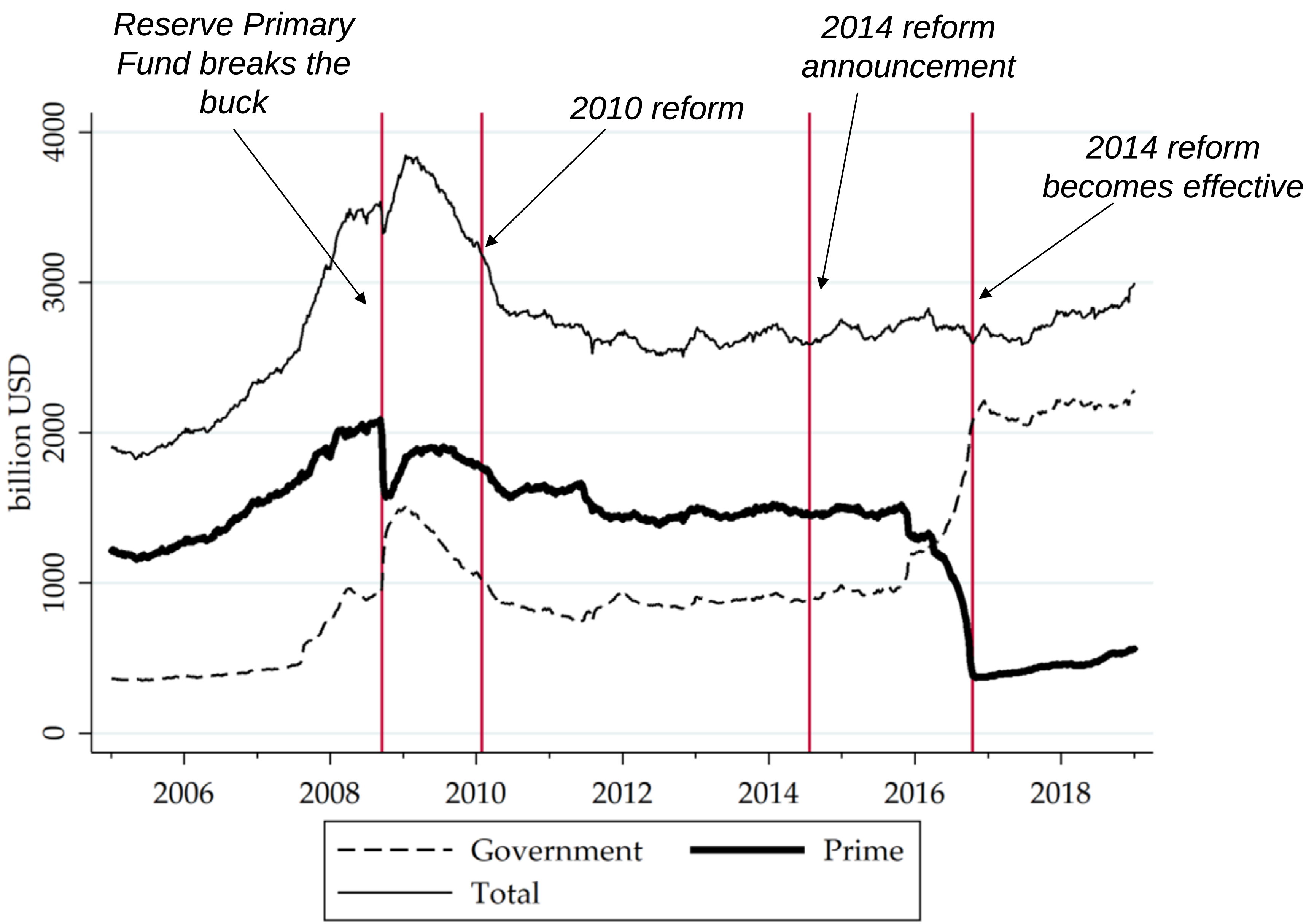
- **Debt-on-debt structure** guarantees liquidity (Dang, Gorton and Holmström 2019), but made MMFs subject to runs, which became evident in 2008
  - Sweeping regulatory efforts to avoid future runs on MMFs in the US followed

The Reform

- Changes to Rule 2a-7 (Investment Company Act of 1940)
  - Announced in 2014, implemented in 2016
  - Liabilities of (prime) MMF marketed to institutional investors trade at actual NAV
  - Prime MMFs marketed to retail investors still trade at constant NAV

- MMFs marketed to institutions no longer have a debt-on-debt structure, became more information-sensitive
  - Information-sensitive claims are less liquid (Gorton and Pennacchi, 1990; Dang, Gorton and Holmström 2015)

MMFs’ assets



Reserve Primary Fund breaks the buck
2010 reform
2014 reform announcement
2014 reform becomes effective
billion USD
0
1000
2000
3000
4000
2006
2008
2010
2012
2014
2016
2018
Government
Prime
Total

How does a change in the structure of liabilities affect funds' assets?

- On one hand: To circumvent effects of regulation, MMFs may decrease riskiness of claims to provide as safe assets as before

- But: funds unable to commit to not imposing liquidity fees and redemption gates ex post in absence of appropriate regulation (Holmström and Tirole 2011)

What we do & what we find

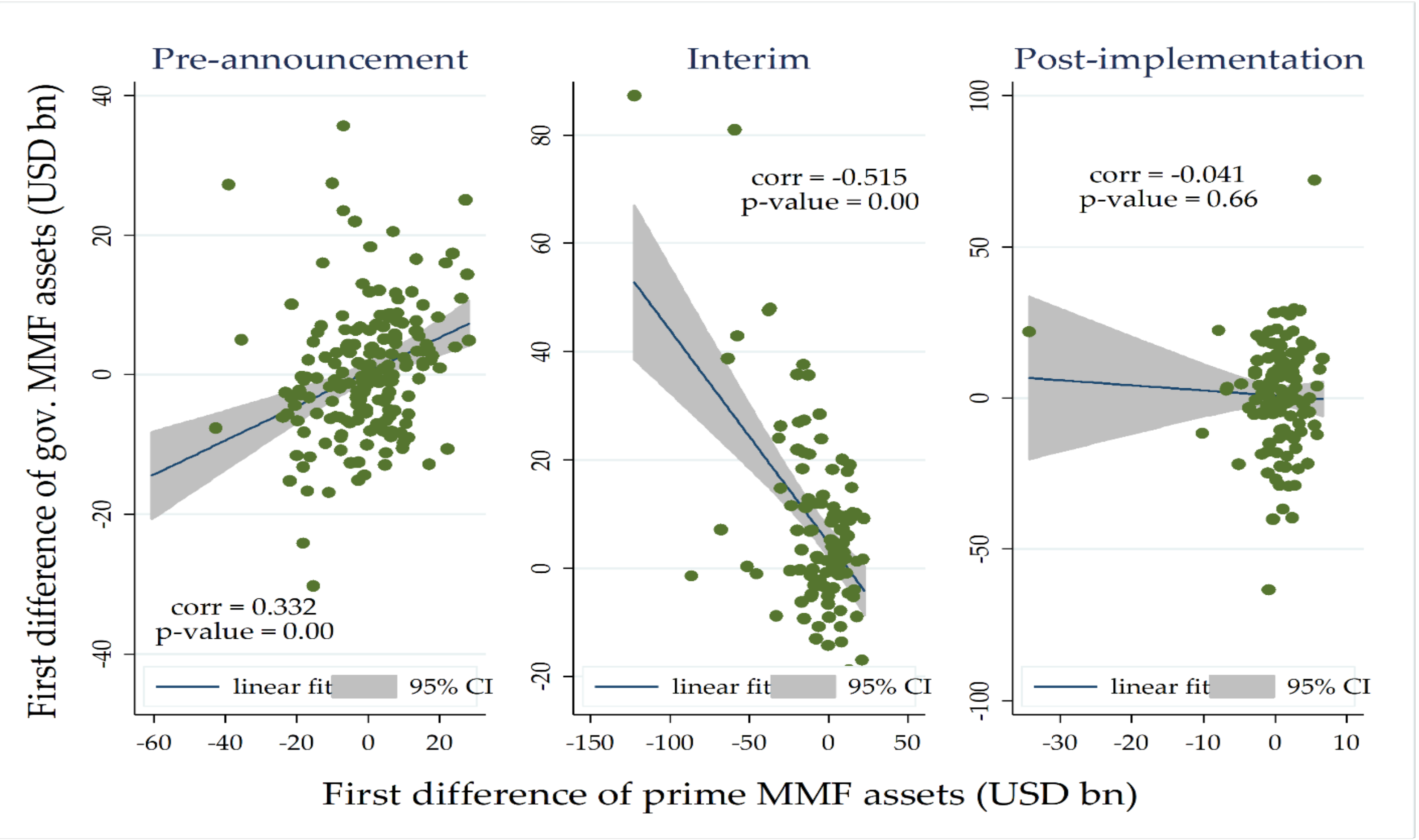
- How has the structure of the money market industry changed?
  - Low-risk prime MMFs exited industry, many prime MMFs convert to government MMFs
  - MMFs became poorer substitute for money-like claims such as Treasury bills

- Did the clientele of MMFs change?
  - Flow-performance sensitivity increased (especially for MMFs targeted at institutional investors)

- How has MMFs' risk taking changed?
  - Prime MMFs (especially institutional) take more risk after reform, decreasing funding supply to safe borrowers

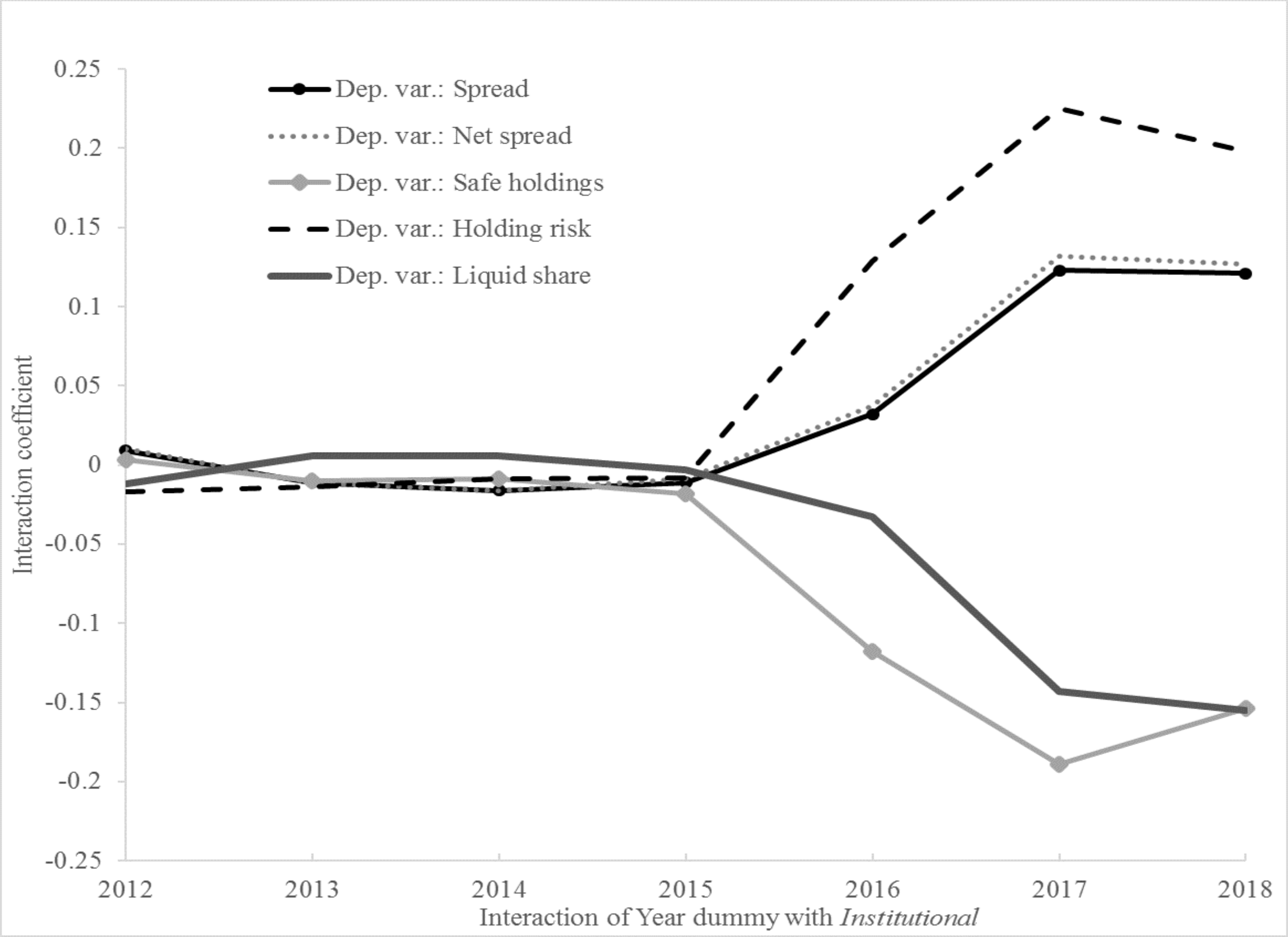
- What are the effects on US issuers?
  - Permanent lower funding from US MMFs

Correlation between institutional flows into prime and government MMFs



Investors search for high returns MMFs

MMF risk taking before and after the reform: institutional versus retail funds



Issuer-level evidence on funding provision

Issuers with higher credit risk receive more funding

	(1)	(2)	(3)	(4)
		Ln(Value)		
PD · Post [2014]	1.630*			
	(0.836)			
PD · Post [2016]	7.181**			
	(2.787)			
PD	-1.967**			
	(0.932)			
Inst. funding · Post [2014]		-0.074	-0.217***	-0.062
		(0.071)	(0.039)	(0.072)
Inst. funding · Post [2016]		-1.329***	-1.351***	-1.384***
		(0.101)	(0.062)	(0.102)
Inst. Funding		0.678***	0.582***	0.668***
		(0.075)	(0.041)	(0.077)
Inst. funding · Post [2014] · PD				-0.516
				(0.356)
Inst. funding · Post [2016] · PD				14.909***
				(3.034)
Inst. funding · PD				0.424
				(0.379)
Issuer and month F.E.	Yes	No	No	No
Issuer-month F.E.	No	Yes	Yes	Yes
Observations	27,802	55,654	232,464	55,654
Adjusted R-squared	0.790	0.819	0.659	0.820

Issuer-level evidence on funding provision

Less funding by institutional funds

Within-issuer variation points to a supply effect

	(1)	(2)	(3)	(4)
	Ln(Value)			
PD · Post [2014]	1.630*			
	(0.836)			
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Issuer-level evidence on funding provision

Institutional MMFs decreased funding to safe borrowers to a larger extent

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	Ln(Value)			
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Consequences for Issuers (Table 8)

US issuers have temporarily less commercial paper outstanding

	(1)
	Ln(Commercial paper)
Year 2014	0.112
	(0.068)
Year 2015	-0.492***
	(0.082)
Year 2016	-0.458***
	(0.096)
Year 2017	0.113
	(0.127)
Year 2018	0.337
	(0.202)
Year F.E.	No
Issuer F.E.	Yes
Observations	824
Adjusted R-squared	0.521

Consequences for Issuers (Table 8)

Issuers more dependent on institutional MMF funding experience larger drop

	(2)	(3)
Year 2014 · Inst. dependence	-1.029***	-0.956**
	(0.192)	(0.278)
Year 2015 · Inst. dependence	-0.664***	-0.187
	(0.177)	(0.250)
Year 2016 · Inst. dependence	-0.900***	-1.247**
	(0.215)	(0.362)
Year 2017 · Inst. dependence	-0.407	-0.883**
	(0.257)	(0.338)
Year 2018 · Inst. dependence	-0.468*	-1.058
	(0.224)	(0.570)
Year 2014 · Inst. dependence · PD		245.675
		(265.294)
Year 2015 · Inst. dependence · PD		-585.728
		(390.751)
Year 2016 · Inst. dependence · PD		448.721**
		(128.949)
Year 2017 · Inst. dependence · PD		219.148
		(336.619)
Year 2018 · Inst. dependence · PD		73.010
		(1,176.379)
Year 2014 · PD		12.688
		(173.257)
Year 2015 · PD		-505.546**
		(208.247)
Year 2016 · PD		-486.741***
		(91.538)
Year 2017 · PD		-241.741
		(338.606)
Year 2018 · PD		33.762
		(535.957)
Inst. dependence · PD		-103.335
		(88.427)
PD		119.929
		(87.720)
Constant	5.023***	5.752***
	(0.030)	(0.075)
Year F.E.	Yes	Yes
Issuer F.E.	Yes	Yes
Observations	824	696
Adjusted R-squared	0.521	0.563

Consequences for Issuers (Table 8)

Issuers more dependent on institutional MMF funding experience larger drop

… but riskier issuers are less affected

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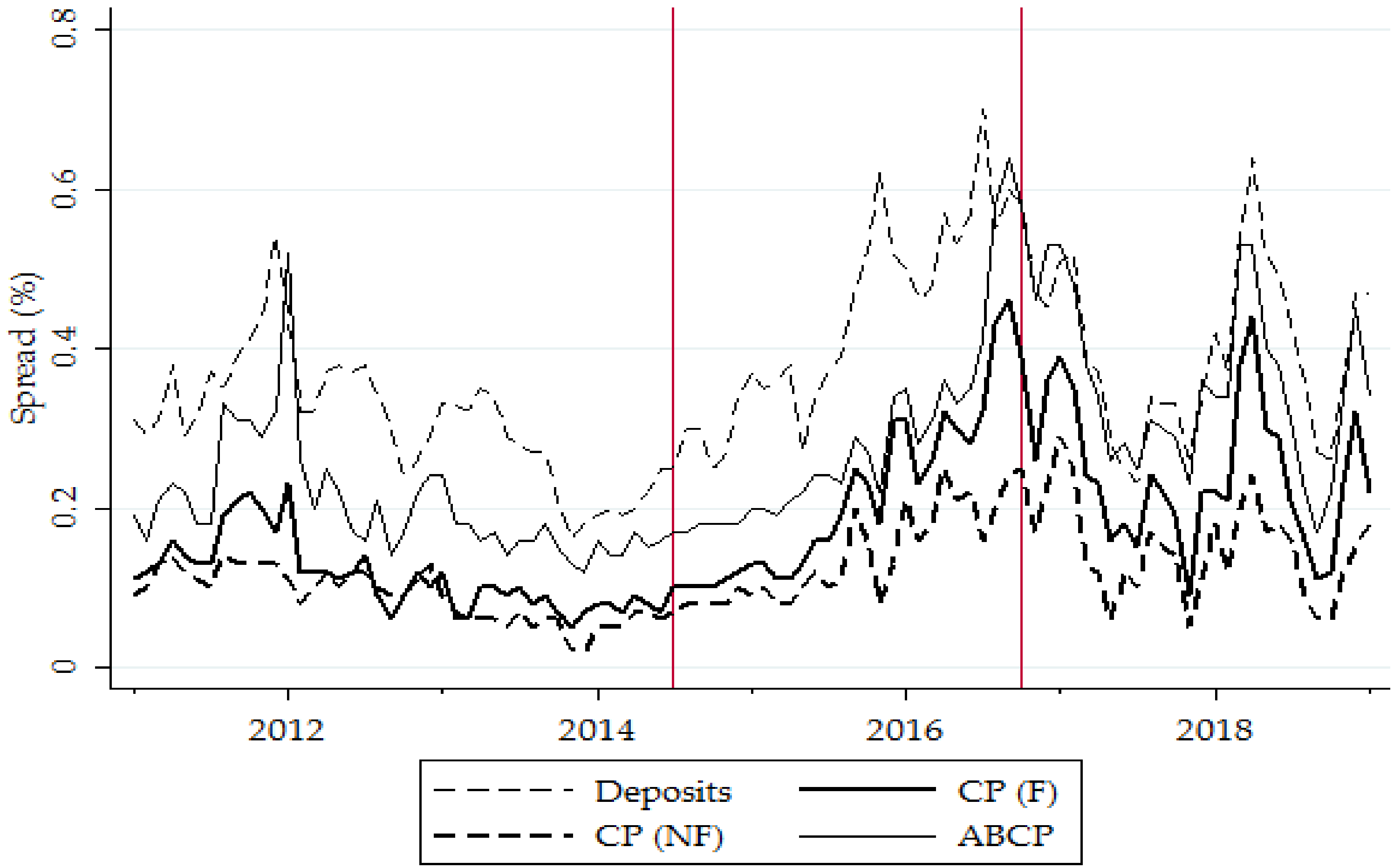
Spreads by money market instrument category



Conclusions

- 2014 regulatory change made prime MMFs’ liabilities more information-sensitive

- Consequently, less risky MMFs exited the industry

- Remaining MMFs
  - Experienced an increase in sensitivity of their flows to performance and
  - increased riskiness of their portfolios

- Regulation impacted negatively the ability to US MMFs to create liquidity
  - Intermediaries unable to undo a decrease in money-likeness of their claims imposed by regulation (Holmström and Tirole 2011)

- Supply of funding to safe borrowers by US MMFs decreased