

INVESTOR FRAGILITY, BARGAINING POWER, AND PRICING IMPLICATIONS FOR SHORT-TERM FUNDING MARKETS

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CPs ARE IMPORTANT FORMS OF FINANCING

- Firms need liquidity.
- Commercial papers (CPs) are an important source of liquidity.
 - Over \$1 trillion outstanding.
- CP rates serve as barometers of money market functioning.
 - Included in the Fed's H.15 Release on Select Interest Rate.
- Q: How are CP rates determined?

THIS PAPER

- A: MMFs' funding fragility (i.e., AUM outflows) affects CP pricing.
 - (Prime) MMFs: large CP lenders (25%).

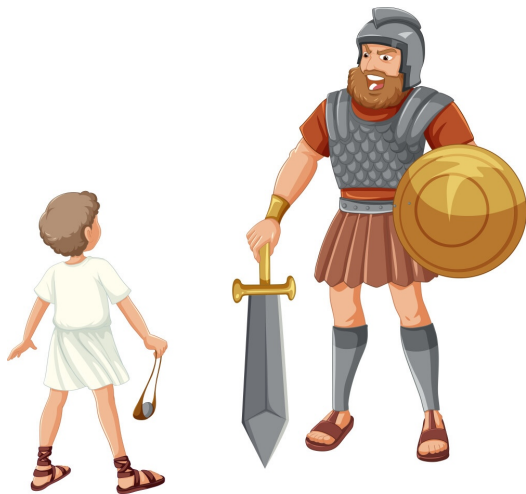
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 - (Prime) MMFs: large CP lenders (25%).
- Numerous interesting findings:
 - 2016 MMF reform \Rightarrow Prime MMF AUM $\downarrow \Rightarrow$ CP issuance (qty) \rightarrow , CP rate \uparrow .
 - 2014-2024: CP issuers with funding shortfalls due to (Prime) MMF AUM outflow see CP rate \uparrow (CP qty \rightarrow).
 - Larger CP rate increase if:
 - (Prime) MMFs in aggregate owned more CP.
 - Issuers have higher credit risk.
 - Issuance placement is dealer-intermediated.

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 - Larger CP rate increase if:
 - (Prime) MMFs in aggregate owned more CP.
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 - Issuance placement is dealer-intermediated.
- Theoretical framework: Nash bargaining.
 - Focus on CP rate as CP qty doesn't change.
- Conclusion: Issuers with weaker bargaining power face greater pricing penalties when (Prime) MMFs experience AUM outflows.

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 - Could there be hope that MMFs are not *the* villain?
- Suggestive evidence that MMFs' counterparties are also big boys.
 - MMFs account for 25% of CP funding in aggregate, but only 10% of CP funding for issuers who borrow from MMFs.
 - Issuers borrowing from MMFs on average obtain lower CP rates.

KEY RESULTS: A REFRESHER

- Finding: MMFs' AUM outflow affects CP rates but not amount.
 - AUM outflow: large if either (1) MMFs have big redemption, or (2) issuers previously obtain lots of MMF investments.
 - CP rates: issuer-specific issuance yield, averaged across all investors.

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- Framework: Nash bargaining between CP issuer and MMF.

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- MMFs AUM outflow affects price because of liquidity cost ($C(f, \beta)$).
- MMFs with higher bargaining power ($1 - \beta$) passes on more cost.

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 - MMFs with higher bargaining power ($1 - \beta$) passes on more cost.
- Takeaway: MMFs uniquely affect CP rates because AUM outflows affect liquidity cost.

ANOTHER LOOK AT THE FRAMEWORK

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- Could MMFs' AUM outflow affect price because it changes outside option?
 - AUM outflow gives MMFs less to invest \Rightarrow portfolio reallocation \Rightarrow raising required return on CP.
 - $r_0 = r_0(f); r'_0(f) > 0$.
 - AUM outflow reduces MMFs' CP investment \Rightarrow overall CP supply diminishes \Rightarrow to induce more investors to step in, required return increases.
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- Consistent with empirical evidence, where rate increase more pronounced if:
 - Issuer borrowed more from MMFs: $\Delta f \uparrow \Rightarrow r_B(\Delta f) \uparrow, r_0(\Delta f) \uparrow$.
 - Issuer has lower credit rating: $r'_B(f) \uparrow \Rightarrow r_B(\Delta f) \uparrow$.
 - Even if $\beta > \frac{1}{2}$, issuer with lower credit rating would *still* see larger price increase.

REASON FOR HOPE: NORMAL SUPPLY AND DEMAND?

- Could it be: MMFs AUM outflows affect CP rates because of normal supply and demand?
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 - Difficult to tease out if CP rates are measured as average across all investors.
- Perhaps it's not MMFs who are the villain, but OTC nature of the market, where search friction leads to greater price impact on exposed issuers.
 - But even on exchanges, shocks are not instantaneously absorbed due to slow-moving capital.
 - How long does the issuer-specific CP funding cost increase last?

REASON FOR HOPE: RESILIENT CP MARKET?

- 2016 MMF reform:
 - Wiped off \$600B in prime MMF AUM.
 - No run, but did reduced MMFs' CP investment by \$270B.
- Remarkably: The CP market wasn't really affected.
 - Corporations and foreign investors quickly stepped in.
 - CP market size has been growing despite shrinking MMFs' share.
- 2007-09 GFC:
 - CP was not the only market that froze (and got rescued).
 - Not clear if MMFs were not there, funding would have been made available by CP's current big investors.

CONCLUSION

- CP is an important funding market.
- To study CP funding conditions, natural to focus on MMFs.
- Robust evidence that MMFs' AUM outflows affect CP pricing.
- Glimmers of hope that MMFs' impact on CP pricing is not unduly contributing to the market's fragility.
- Timely research question. Good luck!