Non-bank financial intermediaries and financial stability

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1The views expressed in this presentation are my own and do not represent those of the Federal Reserve Board, Federal Reserve System, Bank for International Settlements, their principals, or staff members.
The rise in broker-dealers’ assets after 1980ish, and their flattening since the GFC, mark key structural changes in the financial system.

- Regulation is only part of the story.

Aramonte, Schrimpf, Shin (FRB, BIS, BIS)

NBFIs and financial stability

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An example: The corporate credit market

- Starting in the late 1970s:
  - Bank loans became (relatively) less important
  - **Corporate bonds** gained ground
  - **Dealers** provided liquidity to market-based intermediation

- After the late 2000s:
  - Growth of corporate-bond mutual funds **accelerated**
    - They can generate spikes in liquidity demand
  - Liquidity provision by dealers **slowed**

- The risk of **liquidity imbalances** increased
The non-bank financial system

- Broker-dealers (mostly bank affiliated)
- Principal trading firms
- Exchanges/Platforms/CCPs
- Hedge funds
- Asset managers
- Money market funds
- Ultimate borrowers
- PB relation
- OTC trading (eg, CP/CD, bonds, derivatives)
- Repo/Rev. repo (also PB borrowing)
- Trading
- Repo
- Rev. repo
- Ultimate savers

Market intermediaries

Financial market infrastructures

Institutional investors

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Our paper

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   - Liquidity provision can be flighty and often takes the form of leverage-based arbitrage.
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2) Leverage and liquidity risk, through the lens of margins
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2) Leverage and liquidity risk, through the lens of margins
   ○ Margins – a key element of non-bank credit intermediation – affect system-wide balance-sheet capacity
   ○ Margins are a useful risk-management tool for individual entities, but sudden increases can set off system-wide deleveraging spirals that propagate liquidity risk
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3) At times of stress, liquidity demand rises just when deleveraging constrains liquidity supply
   - March 2020 in the Treasury market
   - The policy debate
Focus on NBFIs with business models that involve leverage or some degree of liquidity transformation

- Money-market funds
- Mutual funds
- ETFs, though the redemptions mechanism discourages runs
- Hedge funds, leveraged though they often have long redemption notices
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NBFIs’ liquidity supply

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- Certain hedge funds trade in fixed income markets by exploiting small mispricing between:
  - Similar instruments, such as cash bonds and futures contracts
  - Bonds whose prices deviate from those implied by a “smooth” yield curve
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- Principal trading firms (PTFs) buy and sell securities while keeping minimal inventories
Leverage and liquidity risk

- We use a model to formalize how changes in margins can contribute to broad fluctuations in debt capacity and, consequently, in liquidity.
- The model builds on a risk-neutral investor that maximizes expected returns, subject to a Value-at-Risk constraint.
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- The key takeaways are that:
  - Debt capacity is recursive: leverage enables greater leverage.
  - Conversely, a spike in margins can set off system-wide deleveraging.
  - Rising margins also facilitate a substitution of high-risk/high-margin positions for low-risk/low-margin positions – the "dash for cash".
  - In relative-value arbitrage, instability in correlations – typical of market turmoil – leads to declines in balance-sheet capacity.
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Margins and volatility

• Volatility is the main driver of margins. Figure from Barth & Kahn (2021)
The build-up to March 2020

- Hedge funds had become a key part of the ecosystem that supported US Treasury liquidity
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- Mostly thanks to the popularity of relative-value trades, buying cheaper cash bonds and selling more expensive futures
- Leverage was key to earning a profit
- After 2017, hedge funds became more active in funding their positions with capital-efficient “sponsored repo,” routed through a clearing platform and often funded by MMFs
Positioning in Treasury futures

Figure 1: Net positioning of traders in UST futures
Figure 2: Redemptions from prime institutional MMFs
Figure 3: Cumulated daily flows into MMFs

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March 2020 in Treasury markets

- As volatility surged, margins on Treasury futures rose quickly
  - In the context of a roughly $300 billion increase in initial margins requested by CCPs between early February and mid-March

Deleveraging was amplified by the recursive nature of debt capacity. Effectively, each position unwound generated externalities that led to more unwinding. This is where the macroprudential perspective becomes relevant. Such dynamics were an important contributor—though not the only one—to market dysfunction during the early stages of the pandemic.
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  - In the context of a roughly $300 billion increase in initial margins requested by CCPs between early February and mid-March
- The ensuing deleveraging led to position unwinds by hedge funds
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The overall amount of CCP initial margins rose quickly.

- Figure from BCBS, CPMI, and IOSCO (2021).
Sponsored repo reflected hedge-fund deleveraging
Policy considerations

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- But, they can also contribute to systemic risk
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- Realistically, there remains a role for central banks to step in as a “dealers of last resort” in tail events
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- **What balance to strike** between backstop arrangements and regulations to ensure that:
  - Liquidity is available in good times and bad – which is crucial in a market-based intermediation framework like the current NBFI system
  - Moral hazard and the boom-bust cycles it contributes to are kept in check