



April 9, 2024 Market Risk Advisory Committee Meeting



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**Welcome and
Opening Remarks**



**Section One—CCP Risk and Governance Subcommittee
Recommendations on Derivatives Clearing Organizations Recovery and Resilience**



**Section Two—Future of Finance Subcommittee
Presentation of Work Plan**



**Section Three—Market Structure Subcommittee, Part One
Presentation of Analysis on FCM Capacity and Concentration**



**Section Three—Market Structure Subcommittee, Part Two
U.S. Treasury Cash-Futures Basis Trade Presentation**

Executive Summary

Purpose

- The Treasury cash-futures basis trade has garnered significant attention recently, with elevated Treasury futures activity driving speculation that the strategy has grown amongst leveraged fund managers
- The basis trade is a convergence trade where market participants exploit the price difference—or “basis”—between a Treasury security and a related Treasury futures contract by buying the deliverable security and selling the future
- Treasury cash, futures, and repo markets are part of a broad Treasury ecosystem that is crucial to price discovery and liquidity provision in the financial system
- The basis trade supports the Treasury ecosystem by enhancing market liquidity and efficiency, lowering government funding costs, and improving capital formation and optimization
- Participants in the basis trade are exposed to various risks including volatility, liquidity and margin risks
- The return in the basis trade is small, so leverage is used to increase returns. Stress on these trades therefore could present a potential financial stability risk if unwound in large scale.
- Effectively managing these risks can reduce counterparty credit and market functioning risks and can improve financial stability

Background on the Basis Trade

Background on the Basis Trade

- Various public and private sector studies have explored the role of the basis trade in the market stresses experienced in March of 2020
 - Some studies have suggested that sales by hedge funds engaged in the basis trade amplified market stresses caused by broad selling of Treasury securities in March 2020
 - Federal Reserve studies have highlighted large sales by a range of investors including \$400 billion of sales by foreign institutions, sales by bond funds, and forced unwinding by mortgage REITS
 - Direct measures of Treasury sales tied to the exit from the basis trade are not available, but there are estimates ranging from \$35-\$173 billion in Treasury sales by hedge funds
 - Other amplification factors, such as margin increases, have also been cited as factors in the dysfunction
 - Some studies have pointed to 2008 (GFC) and 1998 (LTCM) as other historical episodes of basis unwinds
 - Some studies have suggested the basis trade poses financial stability risk in the Treasury market, noting that the market stress in 2020 was amplified by the unwinding of leverage associated with the basis trade, creating liquidity spirals
 - Some studies have highlighted the benefit of the basis trade, including better market liquidity, efficiency and funding, with the OFR noting that the continuation of the basis trade may have supported market liquidity in 2020
- The Inter-Agency Working Group (IAWG) laid out five workstreams to improve Treasury market resiliency, including a review of the effects of leverage and fund liquidity risk management practices

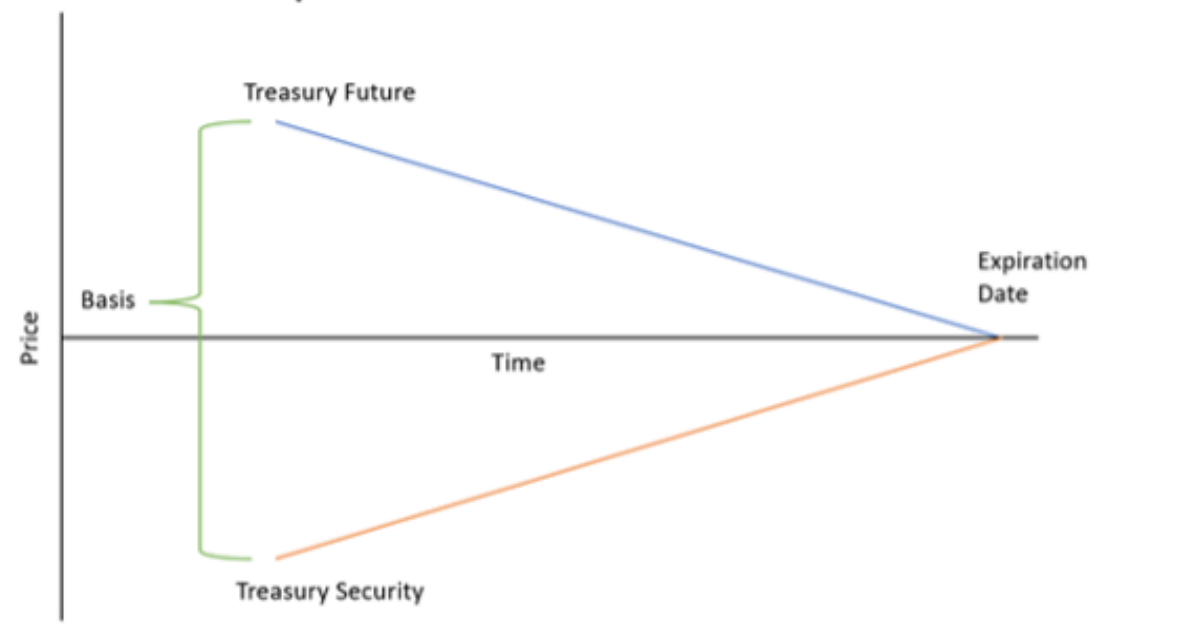
What is the Basis Trade?

What is the Basis Trade

The Mechanics

- Treasury basis trade refers to a position established through the purchase of a Treasury security, financed in repo, along with the simultaneous sale of a Treasury futures contract
- For every buyer of a futures contract, there needs to be a seller – and the supply and demand for futures is what determines their price

The price of the Treasury future and Treasury security converge as they reach their expiration date

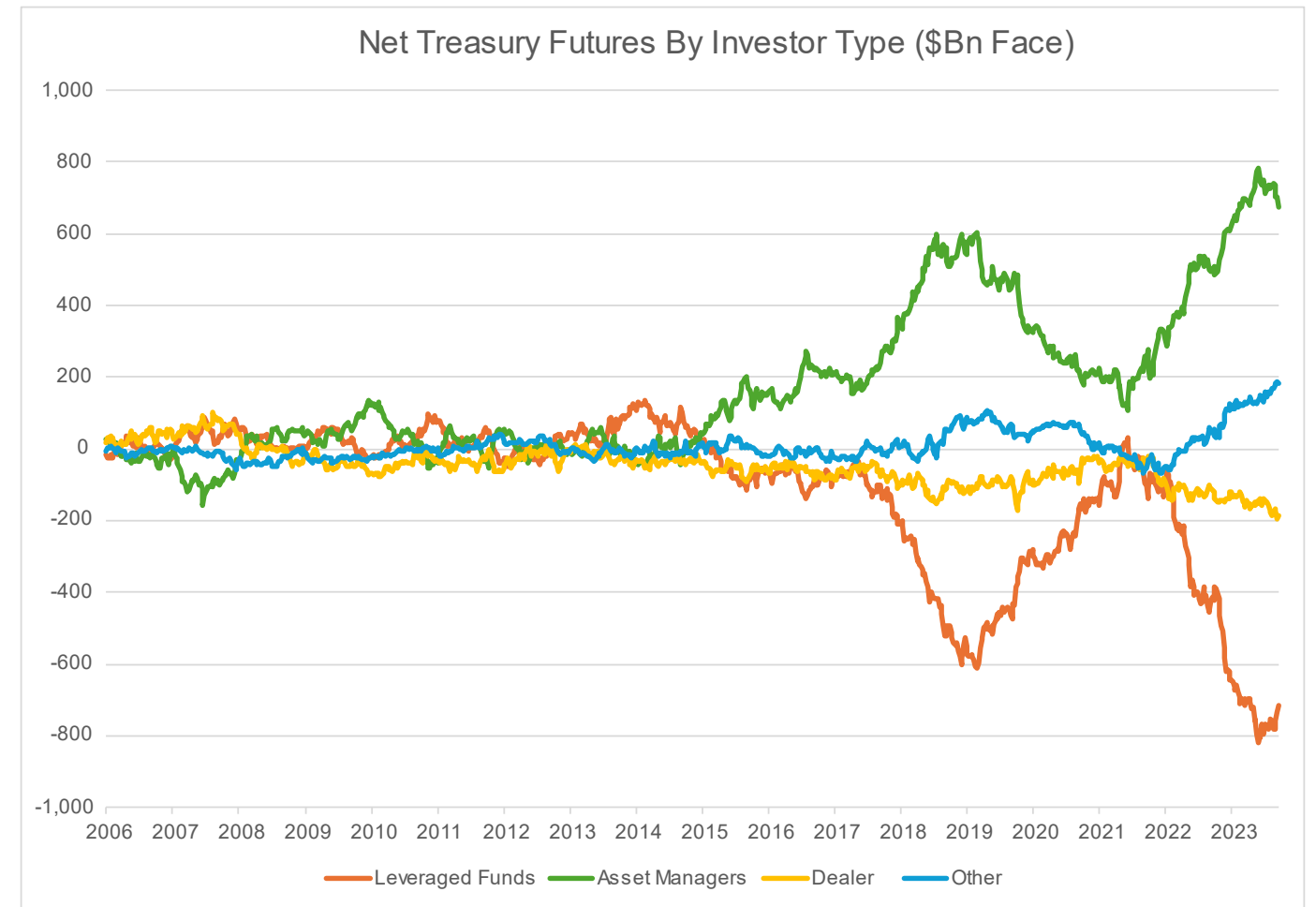


- High demand for Treasury futures relative to supply leads to price differences between the two, with the futures contract trading at a premium to the underlying bond
- The pricing discrepancy – or “basis” – provides an opportunity for basis traders to profit by selling the future and buying an underlying deliverable cash Treasury
- At the expiry date of the futures contract, the prices converge, providing the seller of the futures contract with a profit, less any carry or financing costs

What is the Basis Trade

Mechanics, continued...

- Various market participants—including some hedge funds, engage in the arbitrage
- Leverage is generally required to make the basis trade economically viable, because the difference in price between the Treasury future and the bond is generally small. Participants buy Treasuries in the cash market and then fund their purchases through banks by borrowing in the repo market
 - Basis traders are constrained in how much leverage they can utilize, in part because the futures contracts they are shorting against their Treasury longs are subject to the CME margin regime, including initial margin requirements
- For banks, the repo trade has counterparty credit risk, though this can be very small if the repo is centrally cleared



What is the Basis Trade

Long cash position financed in repo

- Hedge funds use both the noncentrally-cleared bilateral repo (NCCBR) market and the centrally cleared (sponsored) repo market for financing
 - An OFR pilot study has shown that a sizeable portion of NCCBR activity are conducted with zero haircut. Most of these trades are structured to net against other trades with the dealer on a portfolio basis, but the maturities of the netting securities can vary. The OFR study does not capture other sources of collateralization to the dealer, such as Treasury futures.
 - Sponsored repo trades are subject to FICC's margin regime, but it is a common market practice for dealers to post their own funds (rather than client funds) as margin to FICC on sponsored trades on behalf of their hedge-fund clients.

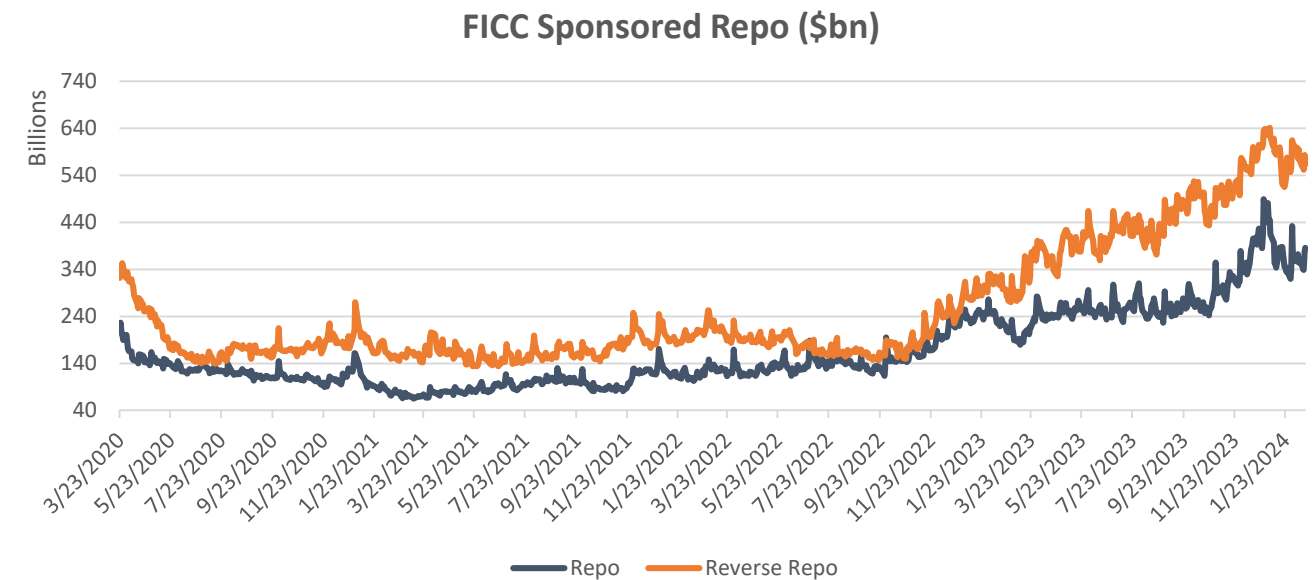
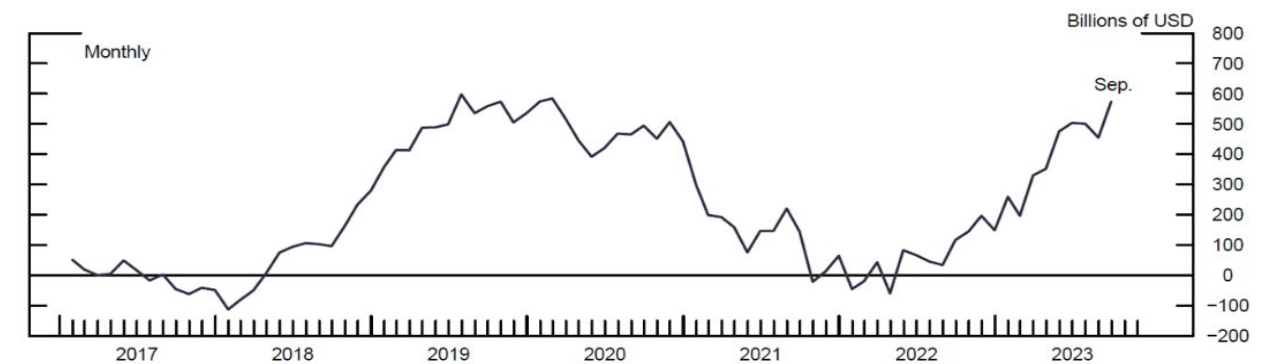


Figure 5. Hedge Fund Net Repo Positioning



Note: Net repo is defined as the total repo positions minus reverse repo positions held by qualifying hedge funds that report on SEC Form PF.

Source: SEC Form PF.

What Creates the Basis?

What Creates a Basis

What drives the long futures position?

- CFTC Commitment of Traders data shows a clear bias from asset managers to be long futures contracts
- Asset managers use Treasury futures for hedging and duration management or to obtain leverage
 - Managers of portfolios of securities seeking to track to a benchmark index may invest in shorter-duration corporate and mortgage securities with higher returns and then use Treasury futures to adjust the portfolio's overall duration
 - Treasury futures are also used as an alternative to buying (or selling) cash bonds to quickly gain or reduce exposure to duration in response to large inflows or outflows. The ability to quickly add duration using futures can allow for additional time to source cash securities to achieve desired weightings relative to a benchmark
 - In certain cases, asset managers may also use Treasury futures to obtain leverage and a higher rate of return

What Creates a Basis

What drives the long futures position?

Regulatory and accounting rules may drive preferences between use of Treasury futures relative to investing in cash securities financed through repo or using other types of derivatives (such as interest rate swaps or total return swaps) even though they are economically similar:

- **40-Act funds** use futures rather than swaps or other derivatives because of their higher liquidity and perceived transparency
 - These funds have leverage limits, but futures do not count toward those limits while repo positions do.
 - These funds tend to compete in terms of interest expenses (a fund with a higher reported interest expense may be less attractive to clients), and repo financing is counted under reported interest expenses while futures are not.
- **Insurance firms** may place higher weight on hedge accounting treatment and thus prefer to use interest rate swaps to hedge their interest rate risk.
 - Use of Treasury futures may be more limited and directed toward hedging an upcoming issuance or purchase of securities that will be settled at a future date and for products that call for dynamic hedging such as annuities.
 - Under applicable accounting rules, repo transactions are on balance sheet whereas futures are considered to be off balance sheet in terms of measuring leverage. There are also higher capital costs for an insurance company to repo a cash Treasury compared to a Treasury futures contract (the U.S. Risk-Based Capital (RBC) framework assigns a noticeable charge on repo transactions).
- **Pension funds** appear to face fewer accounting and regulatory impediments to repo activity and may be more likely to engage in repo financing rather than futures to obtain leverage.
 - Repo can help to avoid tracking error relative to futures since it can be difficult to forecast which cusips will be delivered.
 - Futures may be used in addition to repo in order to diversify sources of funding and because of their liquidity.

Benefits and Risks of the Basis Trade

Benefits of the Treasury Cash-Futures Basis Trade

- Improves market depth and liquidity
 - Contributes to the overall efficiency and liquidity of the Treasury market through greater market depth, reduced bid-ask spreads, and dampened volatility
- Price efficiency
 - Plays a vital role in narrowing price dislocations / aligning efficient pricing between futures and cash securities
- Lowers government funding costs
 - Increased demand for cash Treasuries reduces yields, and by extension, the interest rate paid by the U.S. government when it issues debt
- Improves portfolio optimization and capital formation
 - Allows traditional asset managers to optimize their portfolios and in turn allocate more cash to invest into more productive, higher yielding assets

Risks of the Basis Trade

Specific Risks Associated with the Basis Trade

Futures Positions

- Both long and short futures positions involve leverage that is subject to margin requirements and price volatility

Basis Trade

- Correlation between cash and futures prices
 - The relationship between these prices can change under market stresses, driving the spread wider/narrower
- Repo financing costs and potential roll-over risks that could change the financing costs including the potential consideration that financing may not be available at repo maturity
 - Concentration of repo funding sources
- Increase in margin requirements – both initial and variation margin for short futures or repo funding
- Cheapest to deliver (CTD) options and premiums risk

Repo Funding

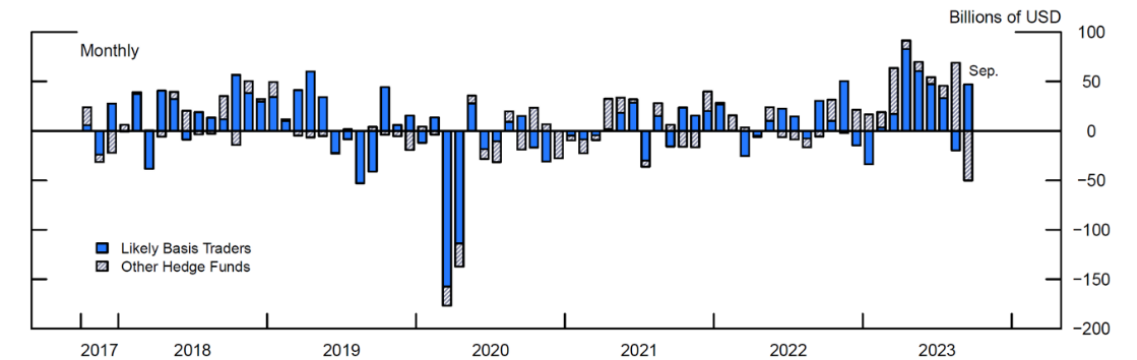
- Counterparty credit risk in the event of default

Risks of the Basis Trade

Systemic Risks Considerations

- A stress event could cause dislocations in the premium and/or funding markets that can impact the profitability of the trade across multiple market participants and could result in fire sales
- When financial markets are stressed, capital deployment, funding markets and price formation can become impaired
 - In a highly interconnected market, the stress could have both similar and disparate impacts on market participants
- Reliance on overnight and short-term repos can make trades vulnerable to spikes in repo rates that can create a cascading feedback loops of increasing basis dislocations and trade unwinds
- The use of Treasury futures by asset managers can put additional stress on the futures' premium during a stress event and corresponding de-risking of credit exposure

Figure 4. Estimated Net Treasury Purchases by Basis Traders and Other Hedge Funds



Note: Net Treasury purchases are monthly changes in valuation-adjusted Treasury holdings, estimated from reported Treasury exposures of qualifying hedge funds on Form PF. Likely basis traders classified based on reported strategy and the co-movement of their long and short Treasury exposures with their net repo exposure between 2018 and 2020. See Banegas, Monin and Petrasek (2021).

Source: SEC Form PF, Haver Analytics, authors' calculations.

Effective Management of Basis Trade Risks

Risk Management for the Basis Trade

What Good Looks Like

- Market participants should assess and manage the risks associated with the basis trade, including long futures positions, basis trade and dealer funding risks
- Cashflow modeling and stress scenario analysis should be performed to understand and manage the individual and portfolio risks associated with the long futures, basis trade and funding positions
 - Correlation between markets can change under different market conditions – using various historical stress scenarios can inform extreme correlation impacts and potential liquidity needs
 - Potential repo rates can be modeled to understand the impact of financing costs as well as considerations for the reduction/unavailability of repo financing during the trade
 - Price volatility scenarios can be generated for long futures, basis trade and funding positions to understand impact on margin requirements
 - The futures contract terms dictate what type of securities are allowed to be delivered. Scenario modeling can be done to understand impact of Treasury yield volatility and how that could impact the deliverable CTD securities
- Tolerances should be set and measured daily for key risks

Risk Management for the Basis Trade

What Good Looks Like

- Market participants should manage liquidity risks at the inception and during the lifetime of the trade
 - Market participants should recognize that funding maturity mismatches can lead to fire sale risks
 - Market participants should evaluate and manage the refinancing risks with the tenor of their repo funding
 - If there are funding mismatches, market participants can use tools like term funding or liquidity buffers to assist in the management of market volatility and funding cost increases
 - Trades should be appropriately collateralized to protect against the risk of losses due to counterparty default
- Market participants should do mark-to-market attribution daily to reduce counterparty risks
 - The linkage between expected and actual performance can be better understood by analyzing differences between actual mark-to-market changes (MtM) and the risk factor-based MtM
 - Market participants should adjust trade components when risks do not perform as expected
- Leveraged fund managers with portfolios concentrated in the basis trade are more exposed to basis dislocations
 - Managers should consider strategies to manage portfolio concentration risks, for example through diversification or liquidity buffers

Are there other things that should be considered?

Additional Considerations

Other recommendations that could be pursued

- Improve the availability of data to the official sector and/or public on the size of long asset manager/futures position, basis trade, and associated risk management practices
- Review accounting and reporting practices that may result in prices discrepancies between Treasury futures and cash instruments

Appendix

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Management of Key Risks in the Basis Trade

Trade	Key Risk	Best Practices
Asset Manager - Long Futures Trade	Prices could fall, margins could increase	Price volatility scenarios can be generated to understand impact on margin requirements and liquidity risk mitigants
Basis Trade	Correlation between cash and futures prices could diverge	Historical stress scenarios can be used to understand current and extreme correlation impacts and liquidity needs. Market participants should do mark-to-market attribution daily to reduce counterparty risks. Market participants should adjust trade components when risks do not perform as expect.
Basis Trade	Repo financing could spike or be unavailable	Market participants should manage liquidity risks at the inception and during the lifetime of the trade. Market participants should evaluate and manage refinancing risks. If there are funding mismatches, market participants can use tools like term funding or liquidity buffers to assist in the management of market volatility and funding cost increases.

Management of Key Risks in the Basis Trade, Continued

Trade	Key Risk	Best Practices
Basis Trade	Cheapest to deliver security could change	Scenario modeling can be done to understand impact of Treasury yield volatility and how that could impact the CTD securities
Basis Trade	Portfolio could be concentrated in basis trade	Managers should consider strategies to manage portfolio concentration risks, for example through diversification or liquidity buffers
Funding Trade	Counterparty could default resulting in losses	Trades should be appropriately collateralized to protect against the risk of losses due to counterparty default



**Section Three—Market Structure Subcommittee, Part Three
Block Implementation**



**Section Three—Market Structure Subcommittee, Part Four
Post-Trade Risk Reduction**



Section Four—Climate-Related Market Risk Subcommittee



Closing Remarks



Adjournment