FTR Clearing ISO VM Resources

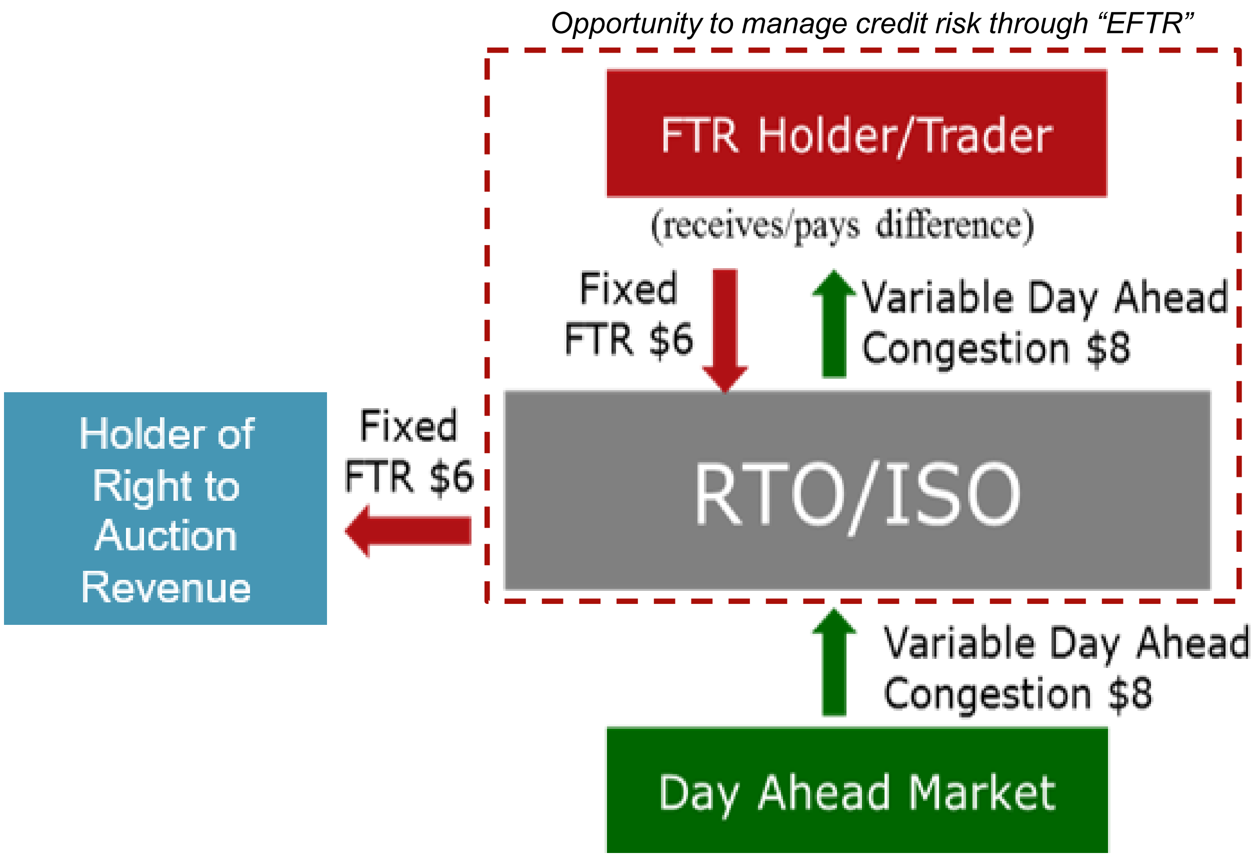
PJM

March 24, 2021

nodalclear

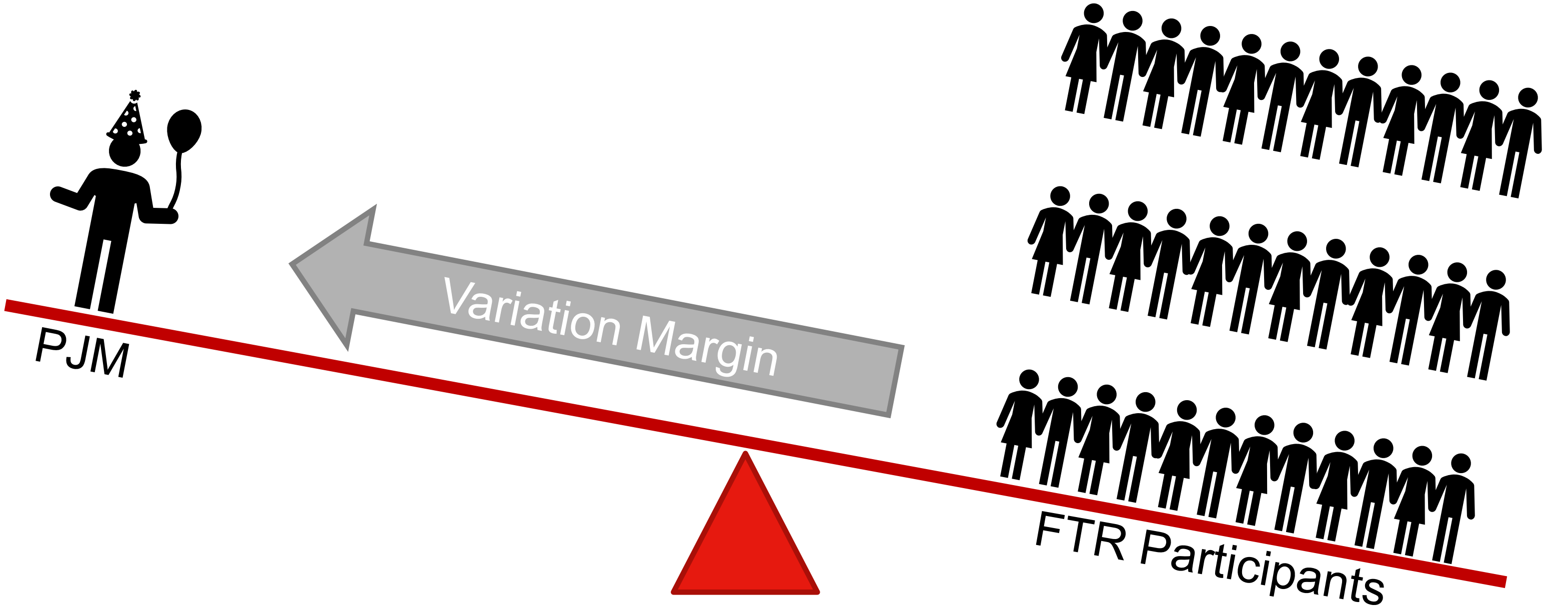
part of eex group

Under FTR Clearing, payments between FTR participants and PJM would be replaced with twice-daily Variation Margin (VM) payments



When the value of FTR positions moves against participants, they owe VM to the ISO, resulting in **participant default risk** if they cannot pay

FTR Clearing
is meant to solve:
participant defaults



Futures Commission Merchant (FCM) capital provides the first tier of protection against participant default affecting other exchange participants

ADM

BNP PARIBAS

BANK OF AMERICA

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MIZUHO

ED&F MAN EST. 1783 Capital Markets

Goldman Sachs

MACQUARIE

Morgan Stanley

WELLS FARGO

RBC Capital Markets

SOCIETE GENERALE Corporate & Investment Banking

Newedge

WEDBUSH

Note: Nodal Clear has one additional Clearing Member (CM), Royal Bank of Canada, which self-clears and is not authorized as an FCM
Note: On average, Nodal FCMs have $6.1B in Adjusted Net Capital

If a participant default depletes its FCM's resources, the default waterfall provides multiple tiers of added protection

1. Defaulting CM's Initial Margin

2. Defaulting CM's Guaranty Fund Contribution

3. Clearing House Contribution
"Skin in the Game"

4. Fully-funded Guaranty Fund
Contributed by all Standard CMs

5. Unfunded Assessment
Contributions from surviving CMs
2x Funded Guaranty Fund

6. Service Continuity Phase
Based on Recovery Plans

7. Closure

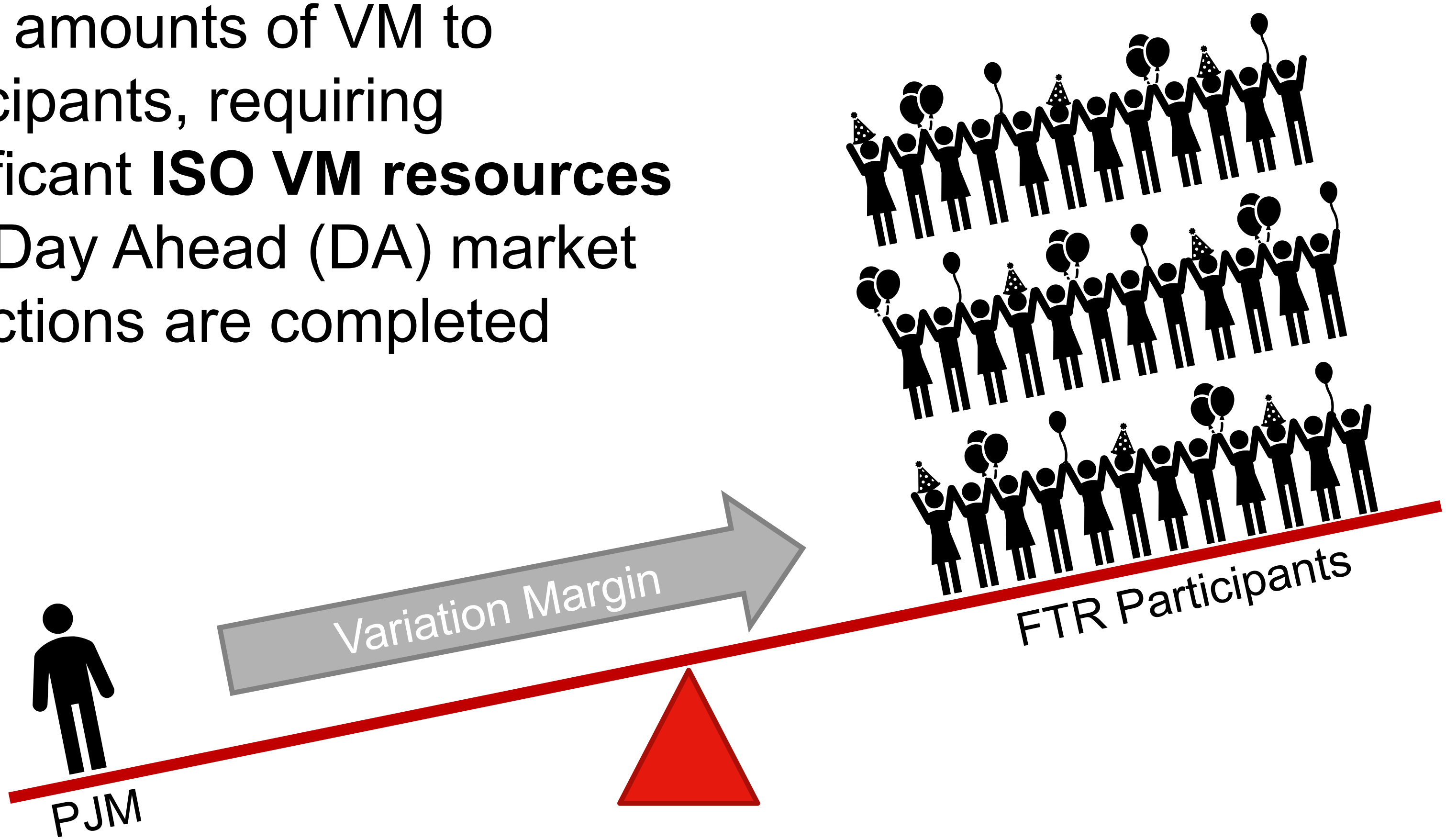
Clearing houses are incentivized to properly margin CM portfolios, as their resources are next in line if CM resources are insufficient to cover default

No default in a western clearing house has ever passed the Guaranty Fund level of the waterfall

Includes measures such as voluntary CM contributions or variation margin haircutting; at this extreme point in the waterfall, losses could be socialized among members

When the value of FTR positions moves in favor of participants, the ISO owes large amounts of VM to participants, requiring significant **ISO VM resources** until Day Ahead (DA) market collections are completed

FTR Clearing must manage: ISO liquidity



Proposed ISO VM resources: Line of Credit with accordion feature supported by fronted Letters of Credit

1. Line of Credit (LOC)

- Primary resource for covering ISO VM requirements under normal conditions
- Sized to cover at least the 99th percentile resource requirement based on historical cash flow analysis
- Reaching a certain threshold of utilization would trigger the accordion feature

2. LOC Accordion Feature

- Terms in LOC contract that allow resizing to cover VM requirements beyond the base LOC
- No fees until it is activated
- Once triggered, requires a two to four-week formal approval process

3. Fronted Letters of Credit (LCs)

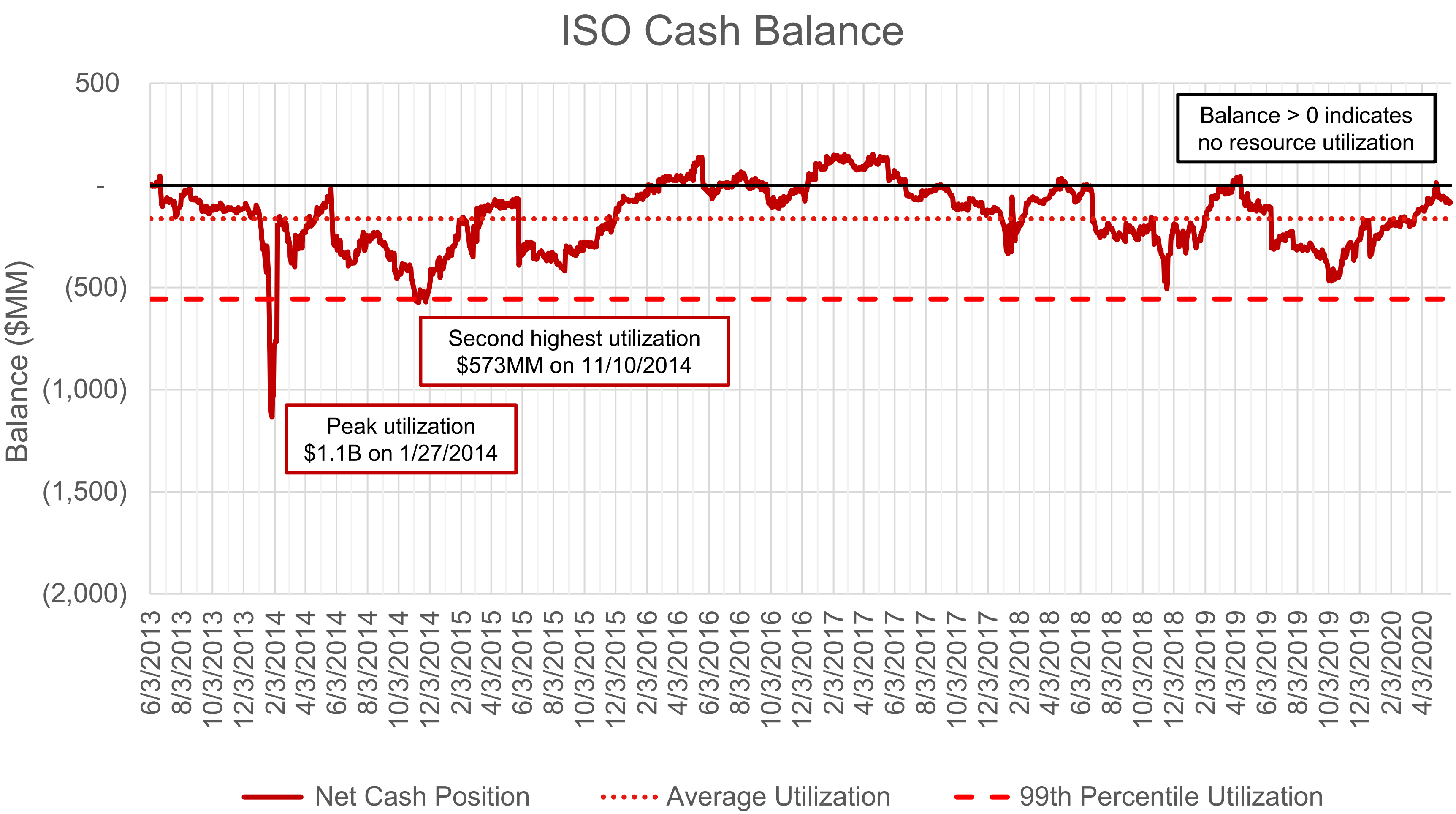
- Fully collateralized LCs backed by a bond from an insurance provider
- Can be drawn same-day, generally expected to be paid down within 30 days
- Would cover VM requirements over base LOC while resizing is underway or requirements beyond LOC + Accordion (never occurred in historical analysis)

Nodal back tested relevant cash flows to determine required size of ISO VM resources

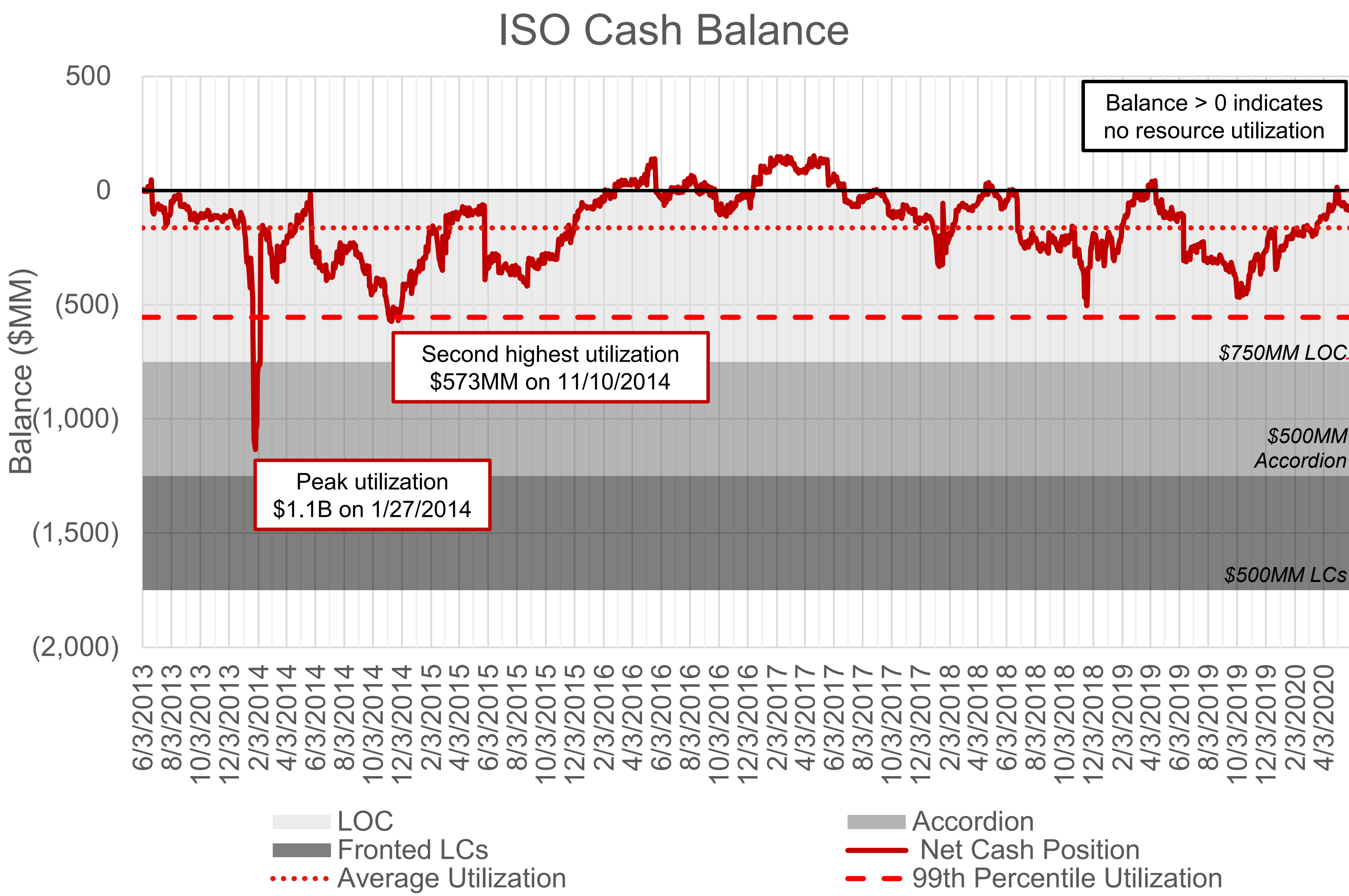
- Analysis focuses on Day Ahead Congestion Revenue, ARR, and FTR cash flows from June 2013 through May 2020
  - Congestion Revenue and ARR cash flows are managed on PJM’s weekly billing cycle
  - Variation Margin relating to FTR positions changes hands between FTR participants and PJM twice daily

$$\boxed{Daily\ ISO\ balance\ (drawdown) = cumulative\ VM + collections\ - payouts}$$

Outside of the extreme two weeks of the Polar Vortex, the ISO never requires more than $600 million in VM resources



$1.75B in ISO VM resources provides coverage for even the most extreme cash flow needs



Comfortably covers 99th percentile cash flow requirement and all outflows outside of the Polar Vortex

More than covers requirements during the Polar Vortex

Extra tier of resources and guaranteed liquidity

Cost of ISO VM resources is partially offset by earlier payout of positive VM to participants

- Reduces cash strain of futures VM calls against delayed settlement from FTRs for participants with exchange-traded hedges: VM on cleared FTR positions offsets corresponding VM on hedges

- VM offsets IM requirements: could receive VM > IM requirement
  - FTR with $100 IM requirement could $200 generate profits as soon as the market reflects increased expectation of settlement value, which participants would receive in real-time

- Time value of money: based on historic VM payments, participants would have benefitted from early cash delivery potentially worth $8.2MM to $24.5MM per year depending on cost of capital (e.g., 5% to 15%)

Thank you!

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