

STATE OF RHODE ISLAND

RUSSELL INVESTMENTS – OVERLAY SERVICES

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May 22, 2024

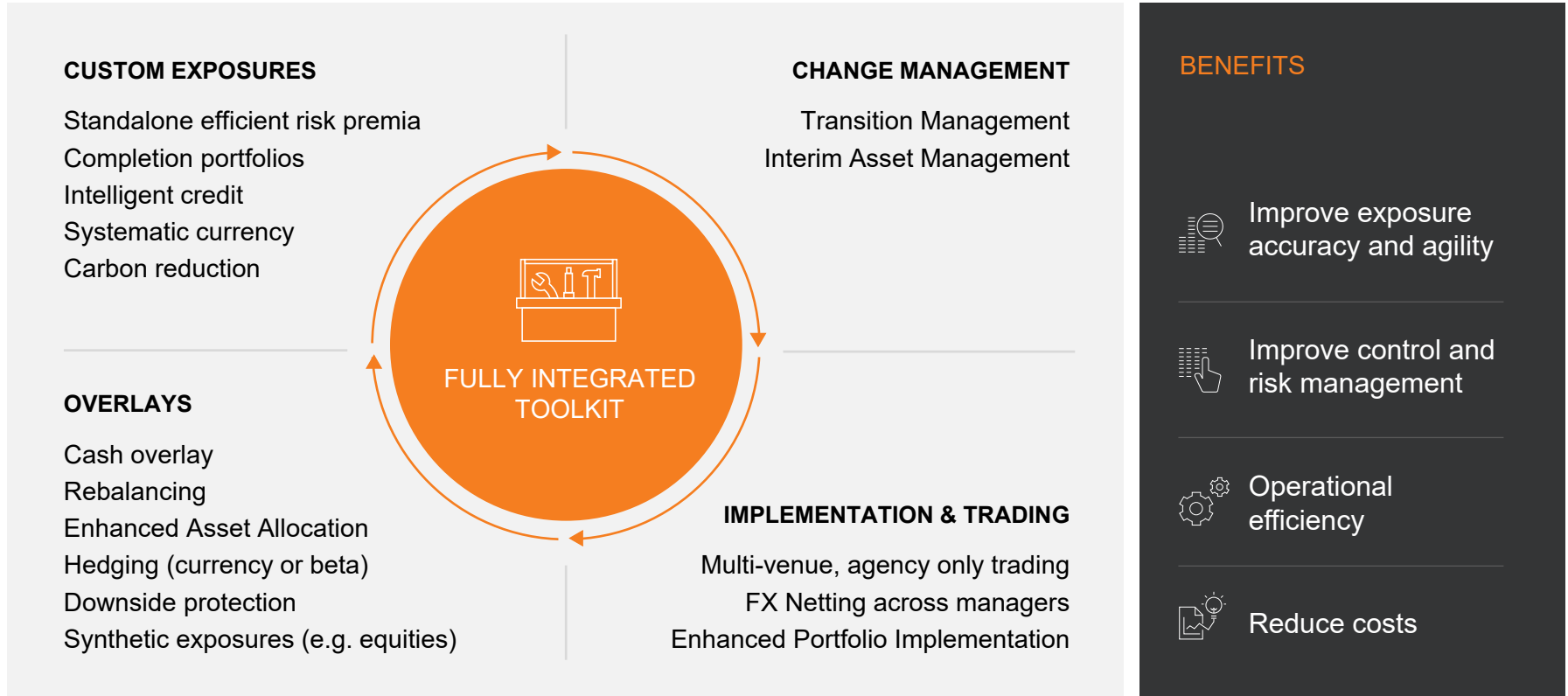
EMBRACE
THE POSS/BLE®

AGENDA

Russell Investments	03
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Customized portfolio solutions

Capabilities



\$69b

Managed in Overlay Services globally

\$51b

in Foreign Exchange

\$2.3t

Traded in 2023

\$89b

Transitioned in 2023

90+

in our CPS & trading team

As of March 31, 2024.

Russell Investments Implementation Services, LLC

Significant scale and resources, available as an extension of your team



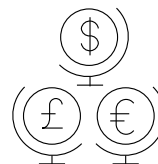
90+

investment professionals located globally



35 years

experience in implementation services



\$69.1 billion USD

managed in overlay services globally



100+ markets

available to trade in



24 hour

trading capability



\$2.3 trillion USD

traded in 2023

\$89 billion USD

assets transitioned in 2023 across 99 events

\$707 billion USD

foreign exchange traded in 2023

European Pensions

AWARDS 2023

WINNER

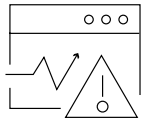
Factor Investing Offering of the Year



Source: Russell Investments. As of March 31, 2024, unless otherwise noted.
Past performance is no guarantee of future results.

WHY USE AN OVERLAY?

Why use an Overlay?



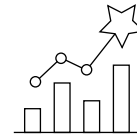
RISK REDUCTION

Unintended exposures add risk, disciplined rebalancing can reduce this risk by approximately 75%¹



COST REDUCTION

Costs to trade futures is approximately 25%² of the cost to trade physical securities



RETURN ENHANCEMENT

Cash reduces long-term performance, overlays allow for market risk premium or beta to be matched with derivatives



SIMPLIFICATION

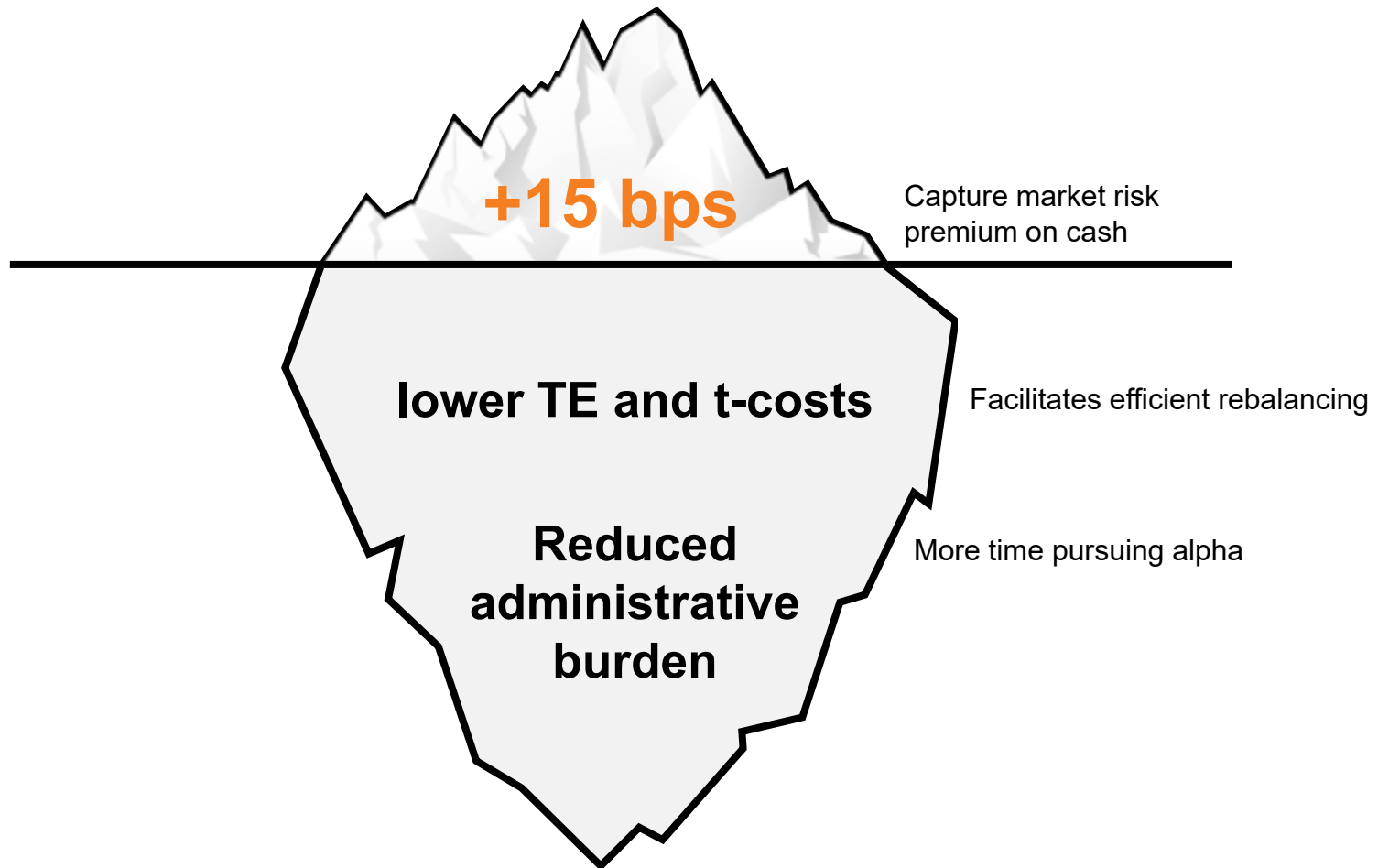
Overlays make running multi-manager portfolios easier and more efficient

¹Source: Russell Investments; Average annual tracking error calculated over Russell Investments' U.S. Overlay client universe from 1 Jan 2010 – 31 December 2023 is 73%

²Source: Russell Investments as of December 2022; S&P 500 physical trade cost is 5 bps; Costs of futures trading is 0.6 bps. MSCI World trading cost comparison of 10 bps vs 2 bps

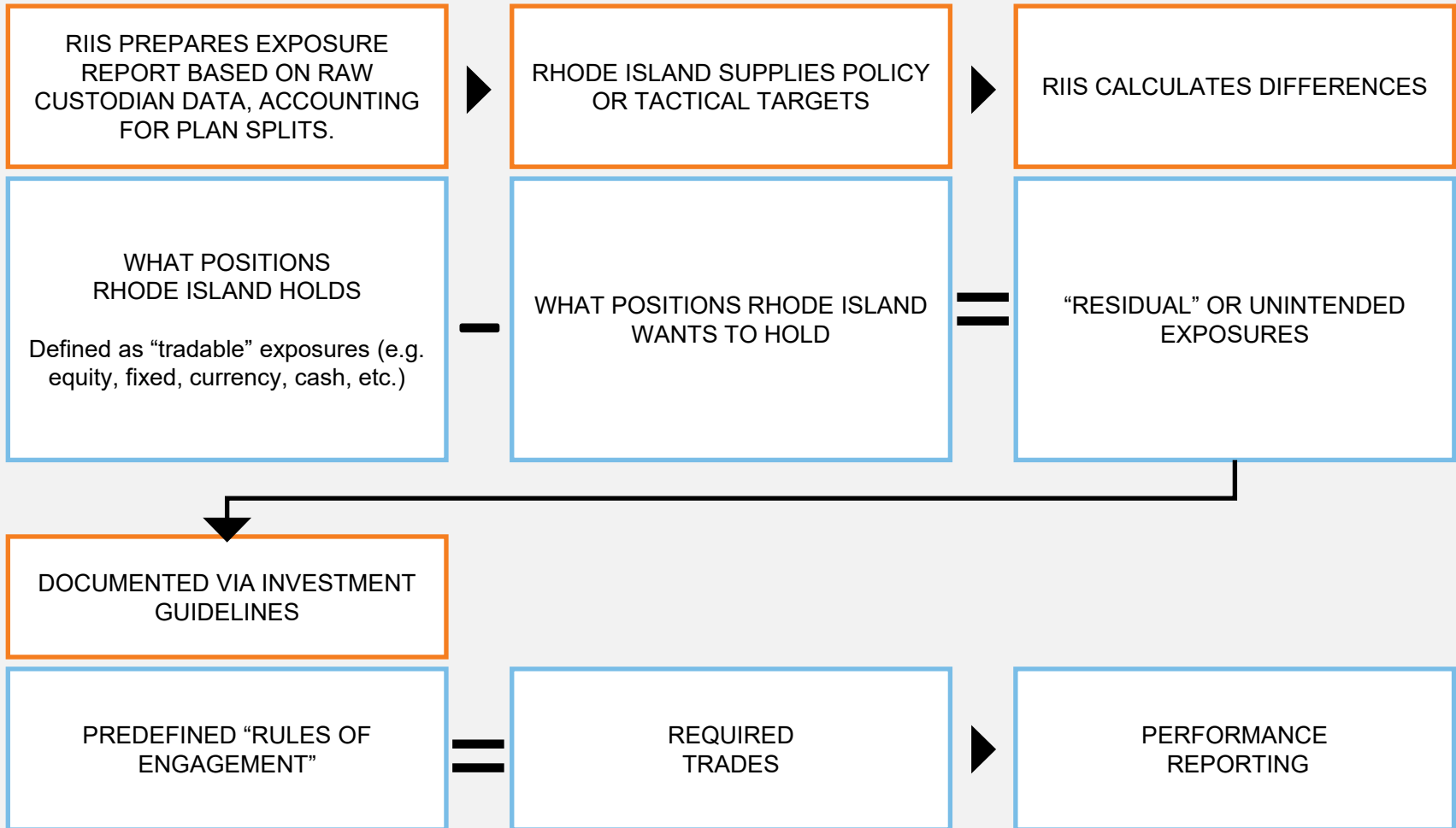
Potential advantages of an overlay

Beyond capturing market risk premium



HOW IT WORKS

Investment process



For illustrative purposes only.

Key investment guidelines

1. Overlay between 95-100% of ERSRI's total cash exposure daily
 - Consists of cash accounts plus idle cash in other accounts identified by ERSRI staff
2. No leverage (i.e., the net exposure of the Overlay does not exceed cash available)
 - Monitored daily. And annually by external SOC1 auditors
3. Maintain asset class exposures within predefined rebalance ranges (e.g., +/- 2%)
 - Monitored daily. And annually by external SOC1 auditors

Reporting: Daily Asset Summary report (emailed weekly). Monthly Performance report sent to the ERSRI staff and NEPC

Daily Asset Summary report

Rhode Island - Rhode Island

Asset Summary

Balance Date: 4/30/2024



Asset Class	Physical Exposure		Synthetic Exposure		Net Position		Overlay Target		Policy Target	
Total Market Value	11,034.1	100.0%	0.0	0.0%	11,034.1	100.0%	11,034.1	100.0%	11,034.1	100.00%
Cash	110.8	1.0%	-107.4	-1.0%	3.4	0.0%	2.8	0.0%	0.0	0.00%
Cash	110.8	1.0%	-107.4	-1.0%	3.4	0.0%	2.8	0.0%	0.0	0.00%
Equity	6,180.7	56.0%	-114.8	-1.0%	6,065.9	55.0%	6,071.3	55.0%	6,068.7	55.00%
Global Equity	4,059.4	36.8%	-114.8	-1.0%	3,944.6	35.7%	3,950.1	35.8%	4,413.6	40.00%
Opportunistic Credit	104.6	0.9%	0.0	0.0%	104.6	0.9%	104.6	0.9%	0.0	0.00%
Private Equity	1,764.3	16.0%	0.0	0.0%	1,764.3	16.0%	1,764.3	16.0%	1,379.3	12.50%
Real Estate (Non-Core)	252.3	2.3%	0.0	0.0%	252.3	2.3%	252.3	2.3%	275.9	2.50%
Fixed	3,425.4	31.0%	222.2	2.0%	3,647.6	33.1%	3,642.8	33.0%	3,641.2	33.00%
Absolute Return - Fixed	808.1	7.3%	0.0	0.0%	808.1	7.3%	808.1	7.3%	717.2	6.50%
Fixed Income	585.7	5.3%	222.2	2.0%	807.9	7.3%	803.1	7.3%	717.2	6.50%
Long Duration	512.0	4.6%	0.0	0.0%	512.0	4.6%	512.0	4.6%	551.7	5.00%
Private Real Assets Ex-RE	451.5	4.1%	0.0	0.0%	451.5	4.1%	451.5	4.1%	441.4	4.00%
Real Estate (Core)	363.7	3.3%	0.0	0.0%	363.7	3.3%	363.7	3.3%	441.4	4.00%
Systematic Trend-Following	519.5	4.7%	0.0	0.0%	519.5	4.7%	519.5	4.7%	551.7	5.00%
Tactical Cash	184.9	1.7%	0.0	0.0%	184.9	1.7%	184.9	1.7%	220.7	2.00%
Other	1,317.2	11.9%	0.0	0.0%	1,317.2	11.9%	1,317.2	11.9%	1,324.1	12.00%
CLO	262.4	2.4%	0.0	0.0%	262.4	2.4%	262.4	2.4%	220.7	2.00%
Equity Options	193.9	1.8%	0.0	0.0%	193.9	1.8%	193.9	1.8%	220.7	2.00%
Liquid Credit	459.9	4.2%	0.0	0.0%	459.9	4.2%	459.9	4.2%	551.7	5.00%
Other Related	52.8	0.5%	0.0	0.0%	52.8	0.5%	52.8	0.5%	0.0	0.00%
Private Credit	348.2	3.2%	0.0	0.0%	348.2	3.2%	348.2	3.2%	331.0	3.00%

Includes daily download of all manager NAV and Cash balances from the custodian

Suite of data validations reviewed daily. Adjustments for split accounts, stale values, mis-booked cash flows, real-time activity provided by staff, etc.

Overlay program holds highly liquid financial futures contracts to complete the portfolio

Net position keeps the portfolio very close to target allocations

Data is historical and is not an indication of future performance.

RESULTS

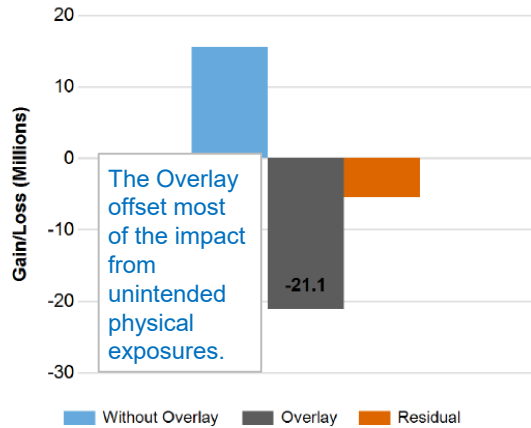
Overlay Highlights

Rhode Island

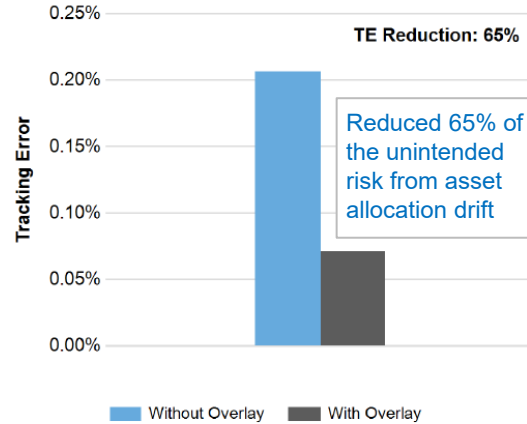
02-Jan-2023 to 29-Dec-2023



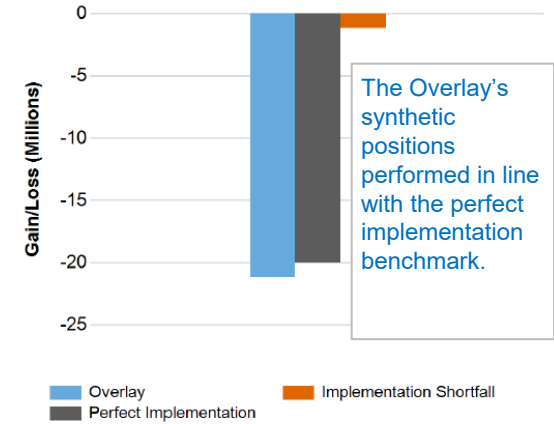
Performance Impact vs. Target



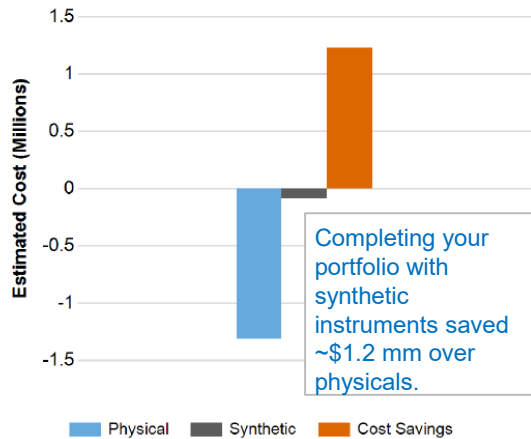
Tracking Error Impact



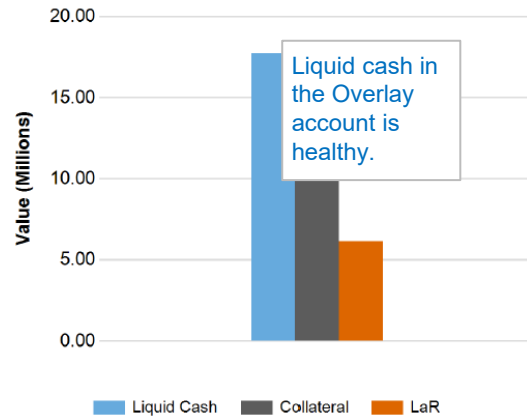
Performance vs. Perfect Implementation



Transaction Cost Savings

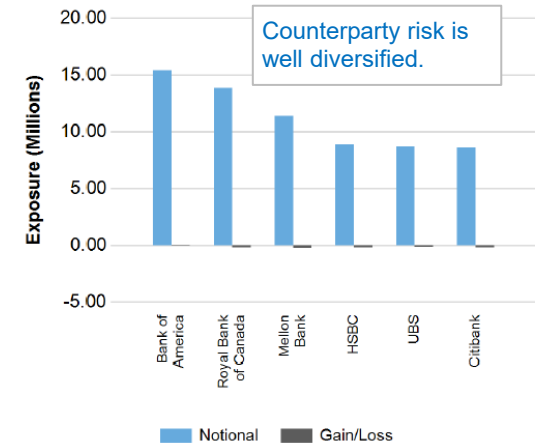


Liquidity at Risk (LaR)*



*Assumes 3 day returns over 5 years at 95% probability

Counterparty Exposure

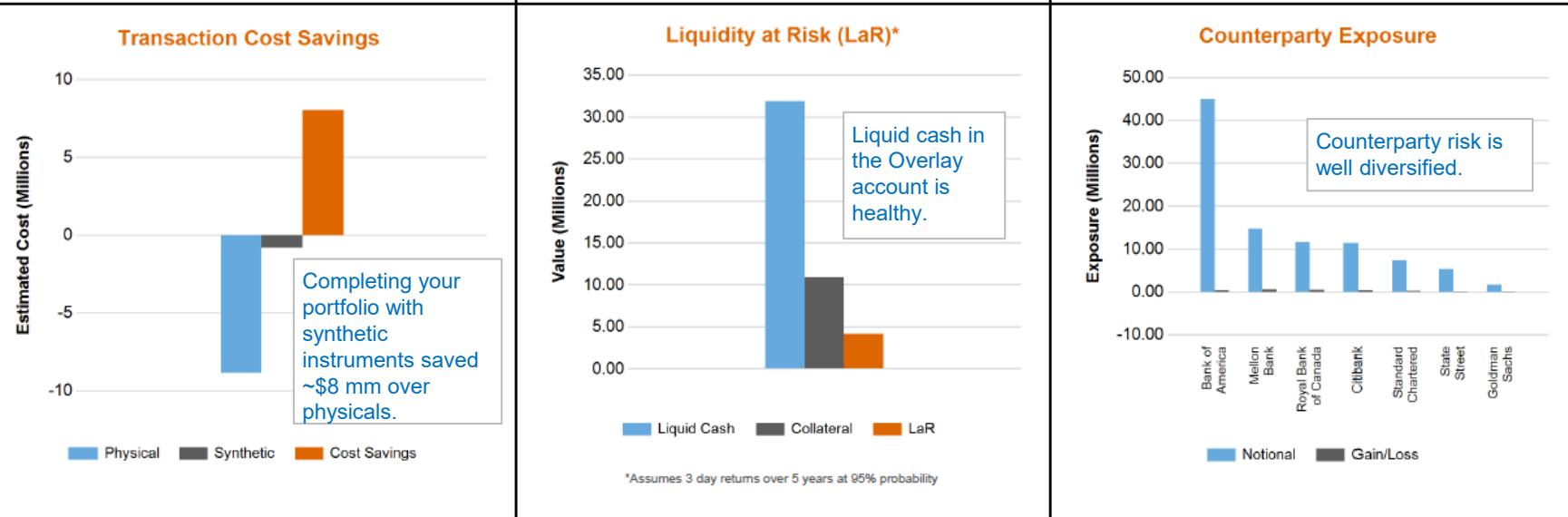
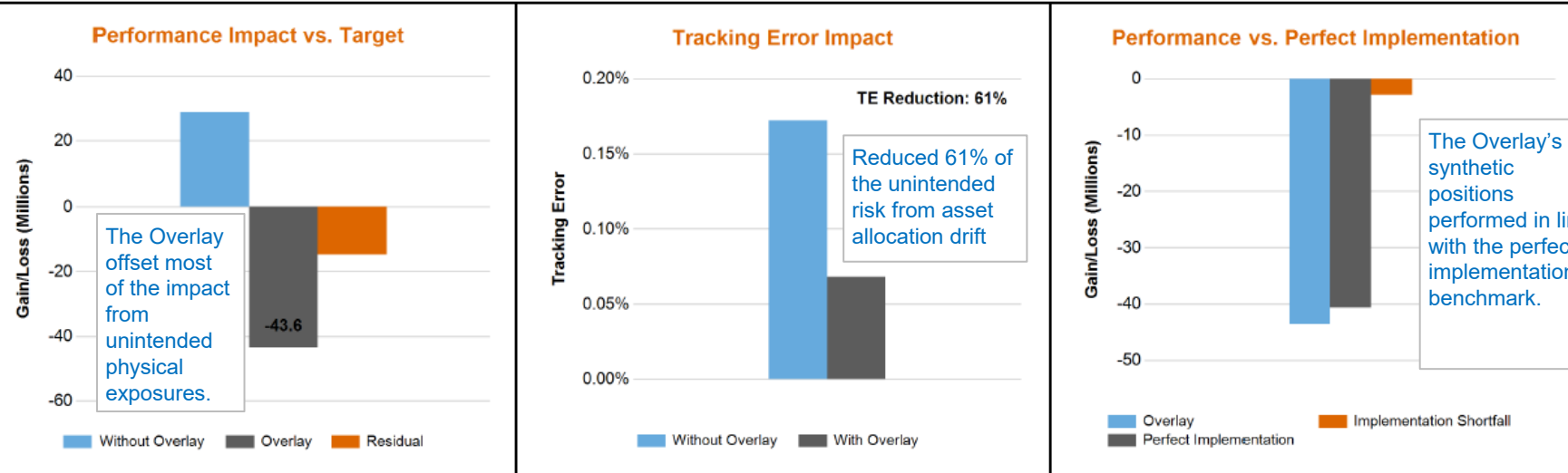


Perfect Implementation assumes no transaction costs and returns equal to physical benchmark(s) less the base currency cash rate (daily calculated). All trades are benchmarked versus the prior day close except in cases where the desired trade timing is specified (e.g., the market close).

Overlay Highlights

Rhode Island - Rhode Island

01-May-2021 to 30-Apr-2024



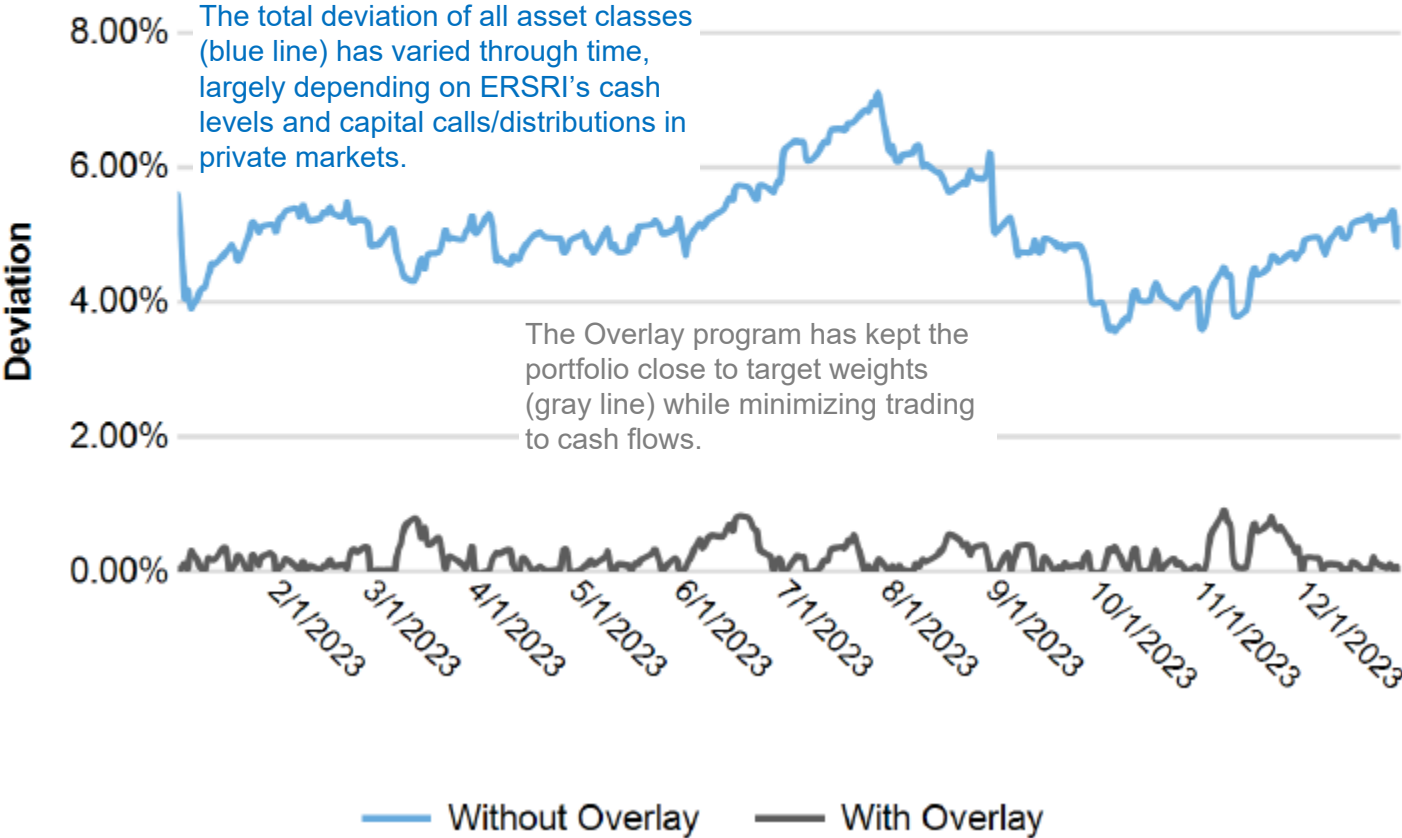
Perfect Implementation assumes no transaction costs and returns equal to physical benchmark(s) less the base currency cash rate (daily calculated). All trades are benchmarked versus the prior day close except in cases where the desired trade timing is specified (e.g., the market close).

Rhode Island

02-Jan-2023 to 29-Dec-2023

Total Fund Risk Management

Total Asset Class Deviation from Target



Transaction Cost Savings

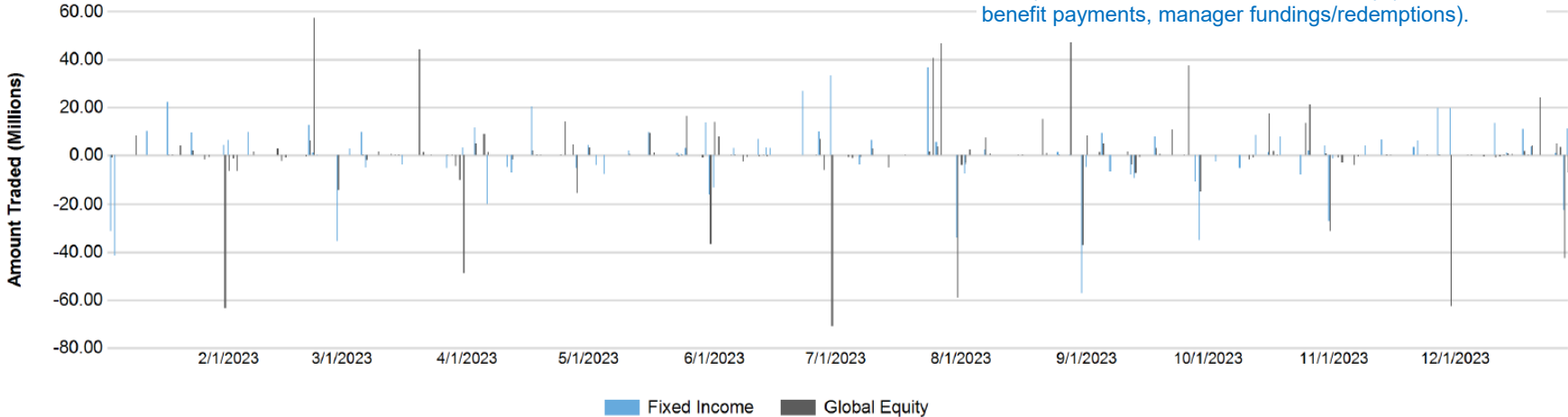
Rhode Island



02-Jan-2023 to 29-Dec-2023

Notional Traded

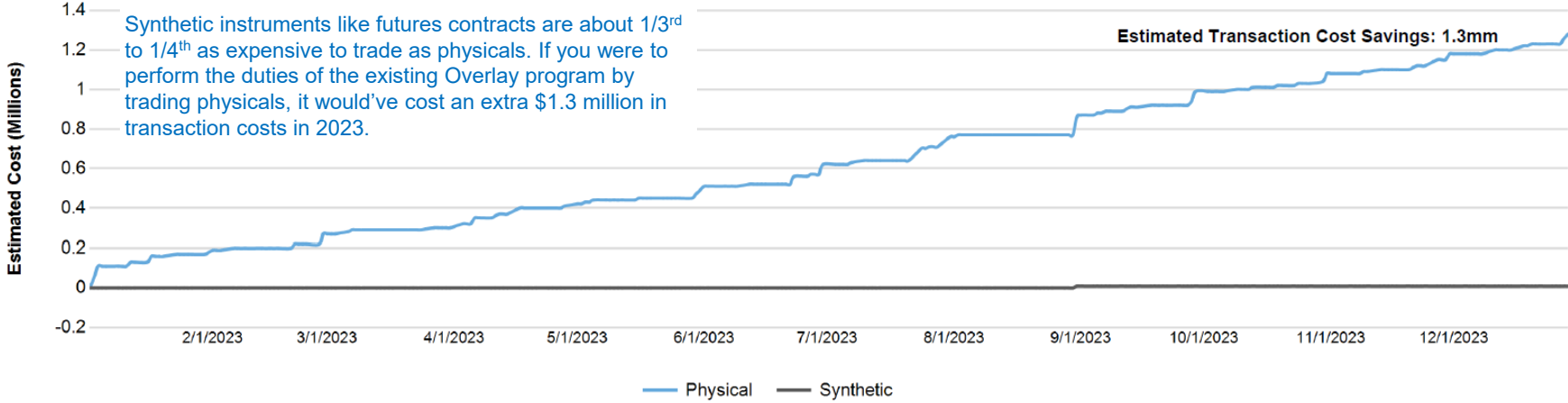
The Overlay program trades a few times each month, mostly to offset ERSRI's cash flow activity (capital calls, benefit payments, manager fundings/redemptions).



Estimated Transaction Costs

Synthetic instruments like futures contracts are about 1/3rd to 1/4th as expensive to trade as physicals. If you were to perform the duties of the existing Overlay program by trading physicals, it would've cost an extra \$1.3 million in transaction costs in 2023.

Estimated Transaction Cost Savings: 1.3mm



OVERLAY TOOLBOX

What is a futures contract?

- A futures contract is an obligation to buy/sell some asset at some date in the future
 - Futures were first traded on the CBOT in the 1860s
- The underlying asset could be anything—corn, oil, exposure to an equity index, Treasuries, or other financial products
- Underlying a financial futures contract is a set of financial assets (e.g., S&P 500 Index)
 - Virtually all financial futures contracts are closed or rolled prior to expiration

Aren't derivatives risky?

- Generally, cash overlaid with futures should not be any more risky than holding the physical exposure

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Example of a financial futures contract

Long the June S&P 500 “e-mini” futures contract

- Contract (plus cash) represents “synthetic” exposure to the S&P 500 Index
 - Futures + Cash (SOFR) should provide a similar return pattern to investing in the S&P 500 Index via physical securities
- The notional value is equal to the contract multiplier x price
 - Each contract = \$260,000 (50 * \$5200¹)
 - \$100M of exposure would require 383 contracts
- Contract expires on the third Friday of December²
 - Let contract expire (i.e., settle with cash)
 - Enter into an offsetting trade
 - Roll into the next contract (e.g., from Jun '24 to Sep '24)

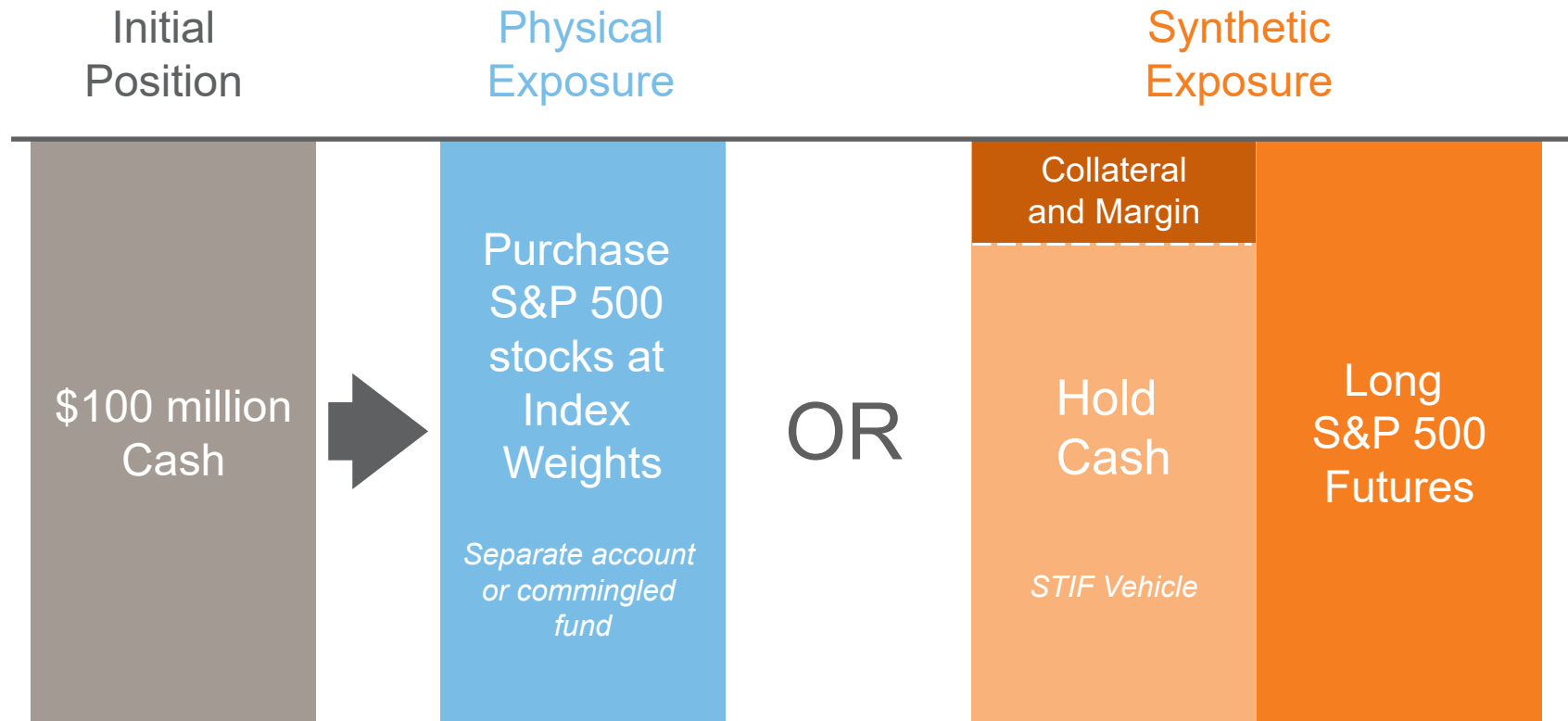
¹ Price indicated for illustrative purposes only

² In the US, expiration is at the open of the third Friday of March, June, September, and December

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Example

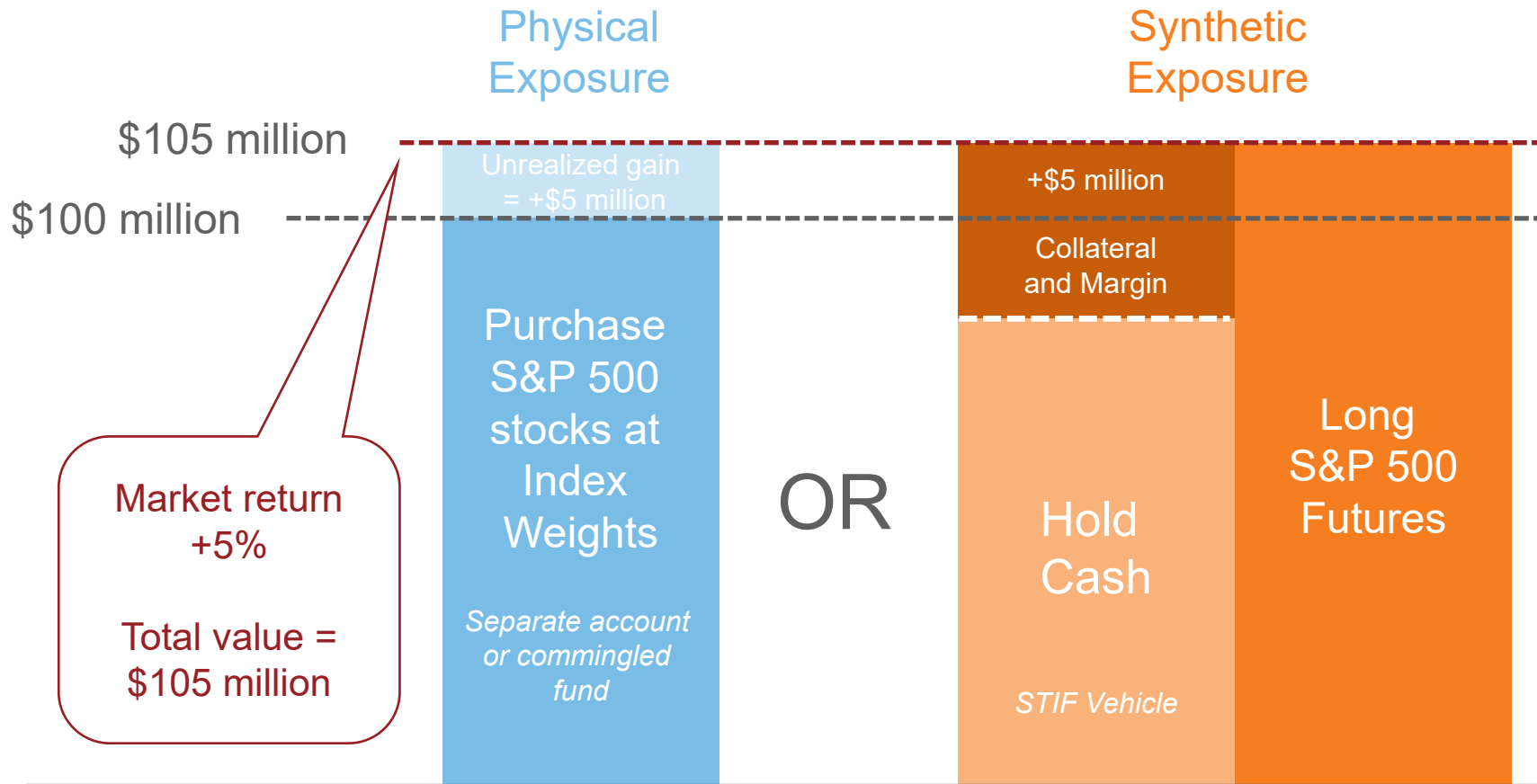
Physicals vs Futures – Day 0



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Example

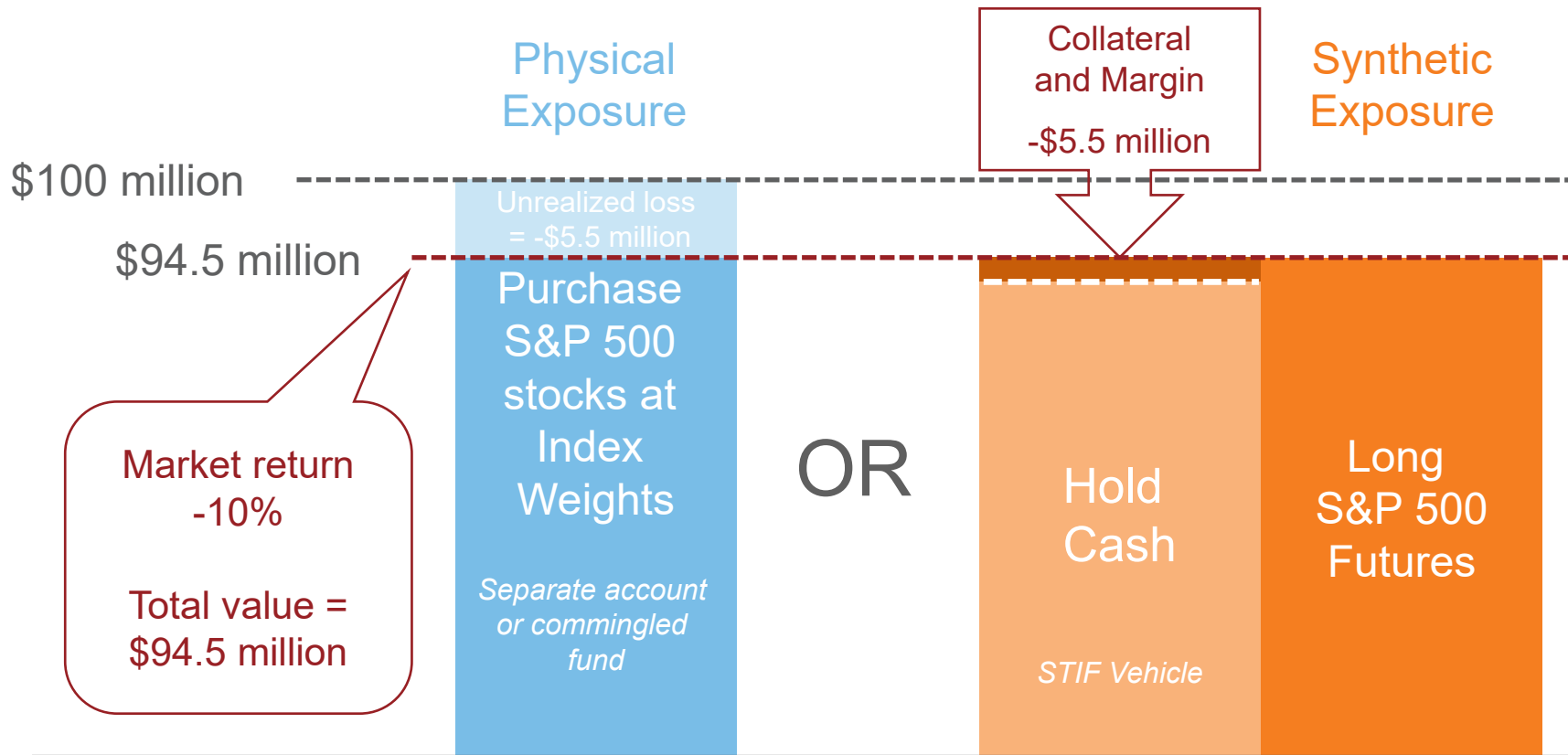
Physicals vs Futures – Day 1: +5% market rally



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For illustrative purposes only.

Example

Physicals vs Futures – Day 2: -10% market selloff



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Arbitrage

What makes it all work

Arbitrage forces pricing efficiency

S&P 500	FUTURES	CASH
Total Return	~ Return	+ Return
10%	6.5%	+ 3.5%

If this relationship gets out of balance, arbitrageurs will sell the “expensive” side and buy the “cheap” side

The more liquid the underlying asset, the tighter the tracking between the two positions

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Reasons to use futures

- Efficient use of cash
 - Futures are partially funded instruments (collateral needs are only 5-20%)
- Cost effective to trade (much cheaper than trading physicals)
- Highly liquid
- Trading flexibility—many futures have nearly 24/6 trading availability
- Lower credit risk than OTC products
- Standardized products, collateralization terms, exchanges/clearinghouse involvement
- Daily mark to market

Full Overlay toolbox review

Financial futures

Total return swaps

Tactical trading

OTC options

Currency forwards



Transition management

CDX

Interim portfolio management

ETFs

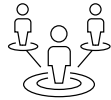
Client-directed physicals

APPENDIX

Overlay Services overview

A deep and experienced Team

TEAM



16 Overlay services team members²

17 Average years PM experience²

7 CFA Charterholders²

23 Traders specialized by asset class²

EXPERTISE¹



EXPERIENCE



\$1.2t Derivatives traded in 2023

\$104b Third party derivatives exposure

\$850m Average derivatives position per client

80/140 Multi-Asset Overlay clients/mandates

All figures as of 31 December 2023 unless otherwise noted.

¹As of February 1, 2024

A large and diverse representative client list.

Managing exposure for a global client base

U.S. PUBLIC FUNDS

Ohio Police & Fire
Ohio SERS
Oregon PERS
Rhode Island ERS
San Bernardino County ERS
South Carolina Retirement System
Wyoming Retirement System

U.S. CORPORATE

AT&T
Campbell Soup Company
Kaiser Permanente
Pacific Gas & Electric
Reynolds American
Shell Oil Company
Southern California Edison

U.S. OTHER

Kaiser Financial Investments
Nuclear Electric Insurance Ltd.

UK / EMEA

Caisse Centrale de Réassurance
IBM Netherlands
IBM UK
Nationwide Pension Fund

ASIA/JAPAN

Astellas Penson Fund
Japan Corporate Pension Funds
Mazda Pension Fund
Mitsubishi Electric Pension Fund

80

clients

\$798b

AUM

58

Americas

8

Australasia

14

EMEA

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As of Dec 31, 2023.

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Date of first use: May 2024
RIIS-04571



THANK YOU!

ANY QUESTIONS?