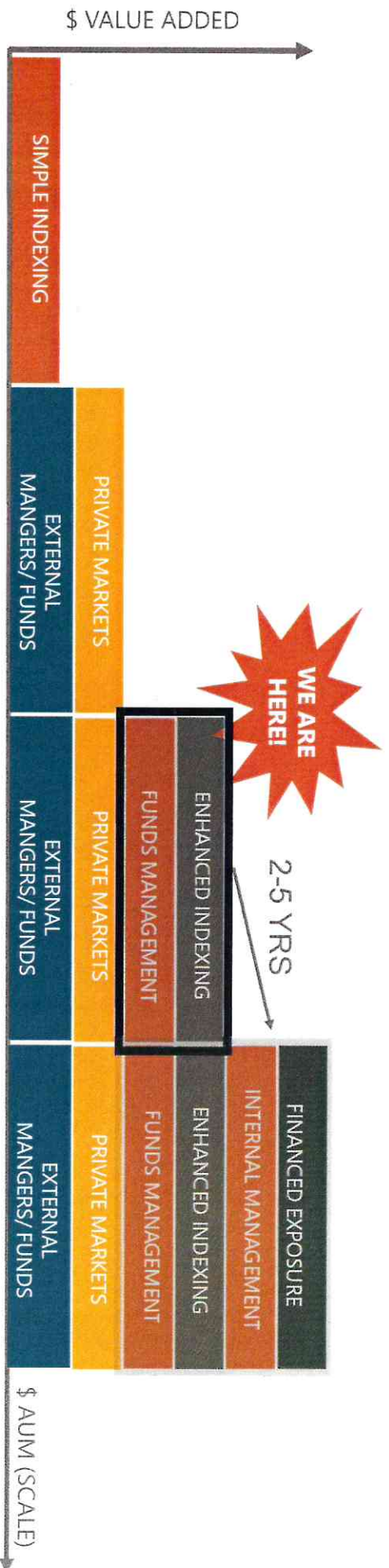


INTERNAL DIRECT INVESTMENT STRATEGY

Scott M Anderson, CFA – Chief Investment Officer
Board Training

ENHANCE CAPABILITY TO INCREASE VALUE ADDED



INITIAL OPPORTUNITY SUMMARY

OPPORTUNITY

ENHANCED INDEXING STRATEGIES

- Enhanced indexing; multi-asset capability; leverages expertise with index information; same active return for a lower active risk and cost than external managers for simple mandates

ENHANCED LIQUIDITY MANAGEMENT

- Overlay of cash generates additional return and enables more available cash
- Buying and selling of liquidity

ENHANCED REBALANCING

- Rebalancing of exposures in shorter time frames
- Rebalancing thru internal portfolios rather than managers – reducing transaction costs

EXPOSURE MANAGEMENT

- Separate manager active return from manager policy return to optimize cost and active return
- Manage exposures to manage risks and generate returns

OPTIMAL IMPLEMENTATION

- Choose optimal instrument to implement policy exposures reduces cost, increases revenues, manages risk

TALENT MANAGEMENT 1.0 (PREVIOUSLY APPROVED)

5 INVESTMENT PROFESSIONALS¹:

- 2 X SENIOR PORTFOLIO MANAGERS
- 3 X INVESTMENT ANALYSTS

+

2 X INVESTMENT OPS PROFESSIONALS

TALENT MANAGEMENT:

- ADEQUATE CLASSIFICATION OF ROLES
- INCENTIVE COMPENSATION FUNDED ON A CONTINUING BASIS (EX: OHIO, WISCONSIN, SOUTH DAKOTA, NORTH CAROLINA)

THE STRATEGY AND STRUCTURE WOULD EVOLVE
WITH THE SIZE OF THE PROGRAM

1. The cost of staff is estimated to be approximately 10% of the total net cost savings.
2. Positive Client Fund feedback.
3. Supports greater control over investment strategies.

4

EXAMPLE OF BENEFIT OF \$100 INVESTED IN THREE TYPES OF SAVINGS 1.0

Illustration

	INTERNAL INVESTMENT	EXTERNAL INVESTMENT	BENEFIT /\$100	# OF \$100	BENEFIT
DOLLARS INVESTED	100	100			
ALLOCATION RETURN	7.0	7.0			
ACTIVE RETURN	0.54	0.54			
COST/FEEES ¹	-0.10	-0.28			
TOTAL VALUE	107.44	107.26	0.18	35,000,000 ⁴	\$ 6,300,000.00
CASH INVESTED	100	100			
RETURN ²	6.0	3.5			
TOTAL VALUE	106.0	103.0	3.0	1,400,000 ⁴	\$ 4,200,000.00
REBALANCE BENEFIT ³	100.03	100	0.03	230,000,000 ⁴	\$ 6,900,000.00

1. Based on expected fees for equity 2.0. Would have ~15% index when internal program is in place (conservative).
2. Based on Callan Capital Market Assumptions. 0.6% of assets in cash, all of plan assets subject to rebalance benefits. \$355 million as of October 31, 2024.
3. Based on 23' rebalance dollar amounts plus 24' asset allocation affect of .11% per Callan report. Have taken a fraction of expected benefit (conservative)
4. Based on 15% of the fund being managed internally. The number of \$100s invested in this savings.

ESTIMATED TOTAL COSTS FOR INVESTMENTS (INCLUDES CONTINUING APPROPRIATIONS) 1.0

	CURRENT		INTERNAL INVESTMENT 1.0		TOTAL	
\$ MILLIONS/BP ¹	\$ ²	PER \$AUM	\$ ³	PER \$AUM	\$ PER \$AUM ⁴	
SALARIES/BENEFITS	1.9	0.9	1.2	0.5	3.1	1.4
OPERATING COSTS	1.0	0.4	2.0	0.9	3.0	1.3
TOTAL	2.9	1.3 BP	3.2	1.4 BP	6.1	2.7 BP
NET SAVINGS					17	8.5 BP

1. ONE BASIS POINT (BP) = 0.01%
2. INCLUDE \$1,000,000 OF CONTINUING APPROPRIATIONS
3. INCLUDE ESTIMATED \$1,500,000 OF CONTINUING APPROPRIATIONS
4. THE 2.5 BP OF TOTAL COST COMPARES TO 51 BP OF FEES TO EXTERNAL MANAGERS

TALENT MANAGEMENT 2.0 (PROPOSED NOTE 5)

5 INVESTMENT PROFESSIONALS¹:
2 X SENIOR PORTFOLIO MANAGERS
3 X INVESTMENT ANALYSTS

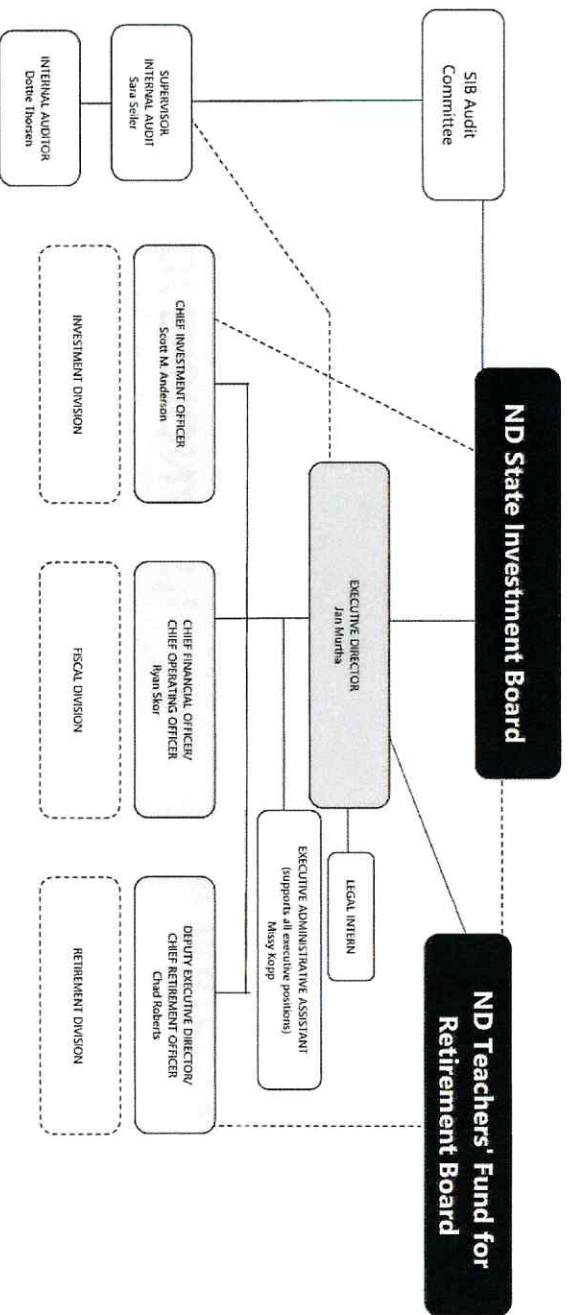
2 X INVESTMENT OPS

THE STRATEGY AND STRUCTURE WOULD EVOLVE WITH THE SIZE OF THE PROGRAM

1. The cost of staff is estimated to be approximately 15% of the total net cost savings.
2. Positive Client Fund feedback.
3. Supports greater control over investment strategies.

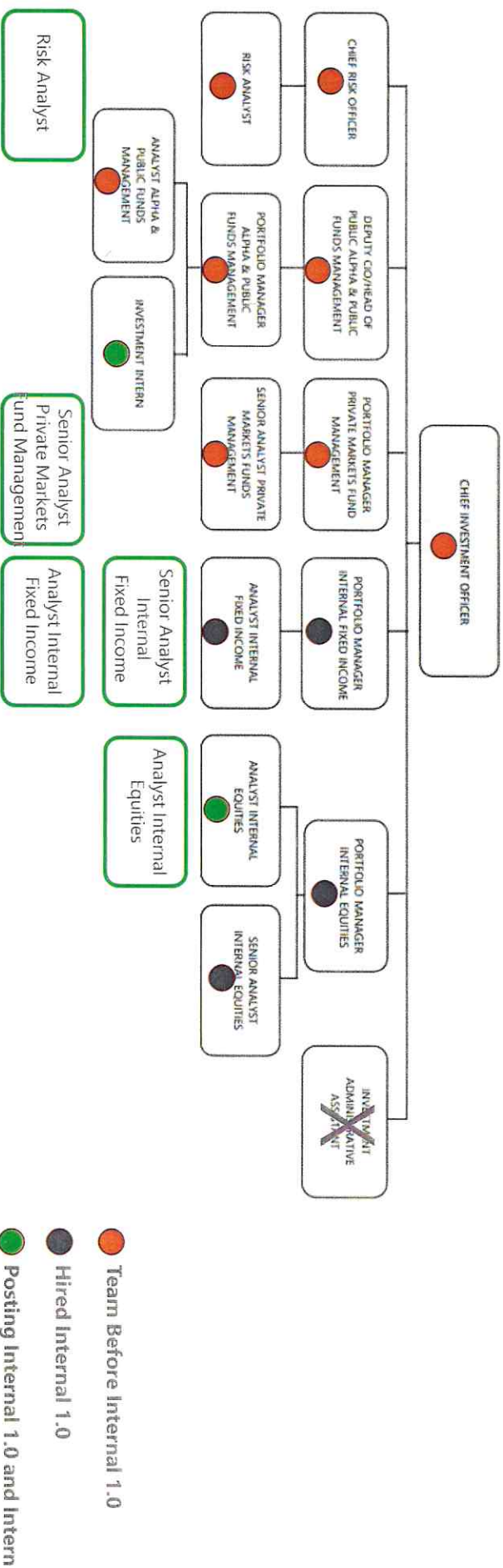
THE RIO ORGANIZATION STRUCTURE

RETIREMENT AND INVESTMENT OFFICE ORGANIZATIONAL CHART



THE INVESTMENT TEAM 1.0 AND 2.0¹

RETIREMENT AND INVESTMENT OFFICE ORGANIZATIONAL CHART - INVESTMENT



1. The average #of Investment professionals for an organization with an internal program and about \$20 billion of AUM (CEM benchmarking) – 40 vs 19; SD has 28

EXAMPLE OF BENEFIT OF \$100 INVESTED IN THREE TYPES OF SAVINGS 2.0

Illustration

	INTERNAL INVESTMENT	EXTERNAL INVESTMENT	BENEFIT /\$100	# OF \$100	BENEFIT
DOLLARS INVESTED	100	100			
ALLOCATION RETURN	7.0	7.0			
ACTIVE RETURN	0.54	0.54			
COST/FEEES ¹	-0.08	-0.35			
TOTAL VALUE	107.46	107.21	0.27	35,000,000 ³	\$ 9,750,000
Fund of Fund vs. Direct GP ²			0.06	16,070,000	\$ 1,000,000
					\$ 10,750,000

1. Based on expected fees. Would have ~15% index when internal program is in place (conservative).
2. Not included in the net benefit of the internal direct business case. Reflects savings from investing directly in GPs rather than Fund of Funds, includes new allocations to private credit and private equity in the Legacy Fund.
3. Based on 15% of the fund being managed internally. The number of \$100s invested in this savings.

EXAMPLE OF BENEFIT OF \$100 INVESTED IN THREE TYPES OF SAVINGS 2.0

	CURRENT		INTERNAL INVESTMENT 1.0		INTERNAL INVESTMENT 2.0		TOTAL	
	\$ ² MILLIONS/BP ¹	PER \$AUM	\$ ³ PER \$AUM	PER \$AUM	\$ ³ PER \$AUM	PER \$AUM	\$ PER \$AUM ⁵	PER \$AUM ⁵
SALARIES/BENEFITS	1.9	1.4	1.2	0.5	1.5	0.7	4.6	2.0
OPERATING COSTS	1.0	0.5	2.0	0.9	.1	0.1	3.1	1.3
TOTAL	2.9	1.9 BP	3.2	1.4 BP	1.6	0.8 BP	7.7	3.3 BP
NET SAVINGS			17	7.4 BP	9	4.0 BP	26	11.0 BP

1. ONE BASIS POINT (BP) = 0.01%
2. INCLUDE \$1,000,000 OF CONTINUING APPROPRIATIONS
3. INCLUDE ESTIMATED \$1,500,000 OF CONTINUING APPROPRIATIONS
4. INCLUDE ESTIMATED \$100,000 OF CONTINUING APPROPRIATIONS
5. THE 3.1 BP OF TOTAL COST COMPARES TO 51 BP OF FEES TO EXTERNAL MANAGERS

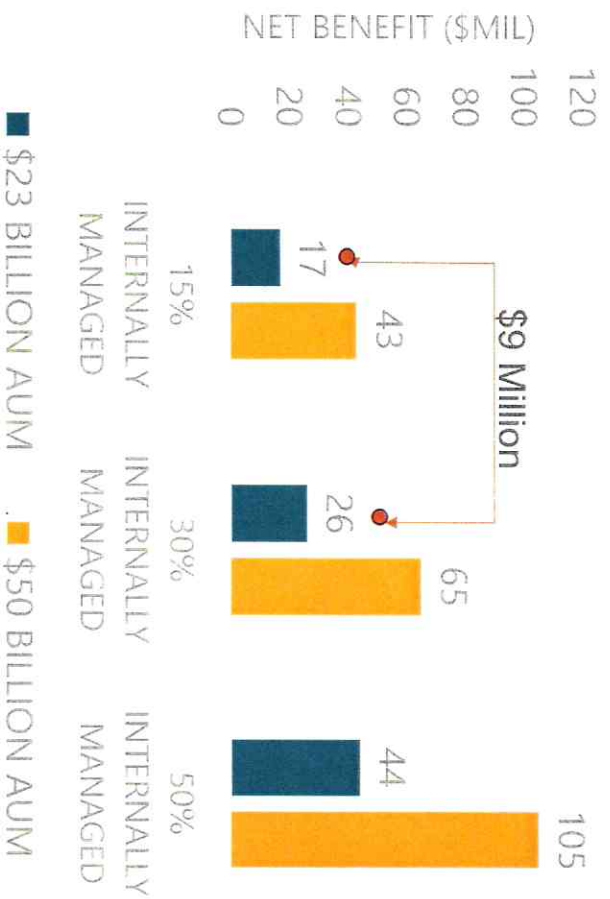
EXAMPLE OF COST AND BENEFIT ASSOCIATED WITH INCENTIVE COMPENSATION FOR 1.0 AND 2.0

\$ MILLIONS

PERFORMANCE ¹	1 BP	25 BP	50 BP
BENEFIT TO PLAN ^{2,3}	\$28,300,000	\$83,500,000	\$141,000,000
INCENTIVE 1.0	\$205,000	\$1,028,000	\$2,057,000
INCENTIVE 2.0 ⁴	\$34,250	\$171,250	\$342,500
TOTAL INCENTIVES ⁵	\$239,250	\$1,199,250	\$2,399,500
NET BENEFIT	\$28,060,750	\$82,300,750	\$138,600,500

1. Net performance of fund less benchmark after costs.
2. Assumes \$23 Billion of AUM
3. Include \$17 Million of savings 1.0 and \$9 Million savings of 2.0
4. Incremental incentive for Note 5
5. Total incentive with 1.0 and 2.0

THE BENEFIT SCALES WITH THE SIZE OF THE COMMITMENT



1. Do not include the benefit of direct to GP Private Markets strategy

ESTIMATED ANNUAL SAVINGS PER YEAR (\$23 BILLION AUM)¹

PLAN	15% OF ASSETS \$(MIL)	30% OF ASSETS \$(MIL)	50% OF ASSETS \$(MIL)
PENSION	\$6	\$9	\$16
INSURANCE	\$3	\$4	\$6
LEGACY	\$8	\$13	\$22
	Internal Investment \$17	Internal Investment \$26	
	Investment 1.0	Investment 1.0 and 2.0	

BEFORE INTERNAL 1.0

Category	Weight	Active Return		TE	IR	Fee	\$23 Billion ¹	\$50 Billion ¹
		(Net)						
Rebalance Effect (all assets)	100%	-0.02%	0.0%	0.00	0.00%	\$	-	\$
Cash Overlay	0.6%	3.00%	12.0%	0.00	0.00%	\$	-	\$
Cash	0.0%	0.00%	0.0%	0.00	0.00%			
Short Duration FI	5.0%	0.20%	0.8%	0.40	0.17%			
Internal Equity	0.0%	0.20%	0.8%	0.25	0.10%			\$
Internal FI	0.0%	0.20%	0.5%	0.25	0.10%			\$
Investment Grade FI	25.0%	0.40%	1.5%	0.27	0.28%			
Below Investment Grade	5.0%	0.40%	2.0%	0.20	1.00%			
Private Markets	16.0%	0.80%	3.0%	0.27	1.50%			
Domestic Equity	29.0%	0.60%	2.5%	0.24	0.28%			
International Equity 2.0	19.4%	0.60%	2.5%	0.24	0.28%			
Fee Difference Phase I	100.00%	0.47%	0.82%	0.57	0.51%	\$	-	\$
Total Net Value Before						\$	-	\$

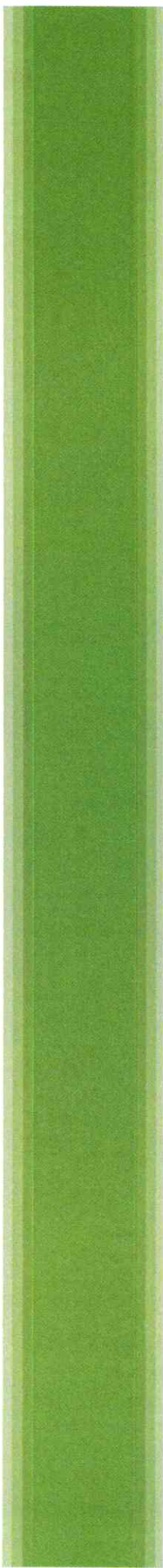
INTERNAL 1.0

Category	Weight	Active Return (Net)	TE	IR	Fee	\$23 Billion'	\$50 Billion'	
Rebalance Effect (all assets)	100%	-0.02%	0.0%	0.00	0.00%	\$	7 \$	15
Cash Overlay	0.6%	3.00%	12.0%	0.00	0.00%	\$	4 \$	9
Cash	0.0%	0.00%	0.0%	0.00	0.00%			
Short Duration FI	5.0%	0.20%	0.5%	0.40	0.17%			
Internal Equity	7.5%	0.20%	0.8%	0.25	0.10%		\$	3
Internal FI	7.5%	0.20%	0.8%	0.25	0.10%		\$	3
Investment Grade FI 1.0	17.5%	0.40%	1.5%	0.27	0.35%			
Below Investment Grade	5.0%	0.40%	2.0%	0.20	1.00%			
Private Markets	16.0%	0.80%	3.0%	0.27	1.50%			
Domestic Equity	21.5%	0.60%	2.5%	0.24	0.35%			
International Equity 2.0	19.4%	0.60%	2.5%	0.24	0.35%			
Fee Difference Phase I	100.00%	0.44%	0.69%	0.63	0.48%	\$	6 \$	14
Total Net Value Phase I						\$	17	43

INTERNAL 2.0

Category	Weight	Active Return		IR	Fee	\$23 Billion ¹	\$50 Billion ¹
		(Net)	TE				
Rebalance Effect (all assets)	100%	-0.02%	0.0%	0.00	0.00%	\$ 7	\$ 15
Cash Overlay	0.6%	3.00%	12.0%	0.00	0.00%	\$ 4	\$ 9
Cash	0.0%	0.00%	0.0%	0.00	0.00%		
Short Duration FI	2.5%	0.20%	0.5%	0.40	0.17%		
Internal Equity	15.0%	0.40%	1.6%	0.25	0.08%		\$ 4
Internal FI	15.0%	0.40%	1.6%	0.25	0.08%		\$ 4
Investment Grade FI 1.0	12.5%	0.40%	1.5%	0.27	0.28%		
Below Investment Grade	5.0%	0.40%	2.0%	0.20	1.00%		
Private Markets	16.0%	0.80%	3.0%	0.27	1.50%		
Domestic Equity	14.0%	0.60%	2.5%	0.24	0.28%		
International Equity 2.0	19.4%	0.60%	2.5%	0.24	0.28%		
Fee Difference Phase II	100.50%	0.52%	0.66%	0.79	0.44%	\$ 9	\$ 19
Total Net Value Phase I & II						\$ 26	\$ 65

APPENDIX



SEQUENCE OF CAPABILITY

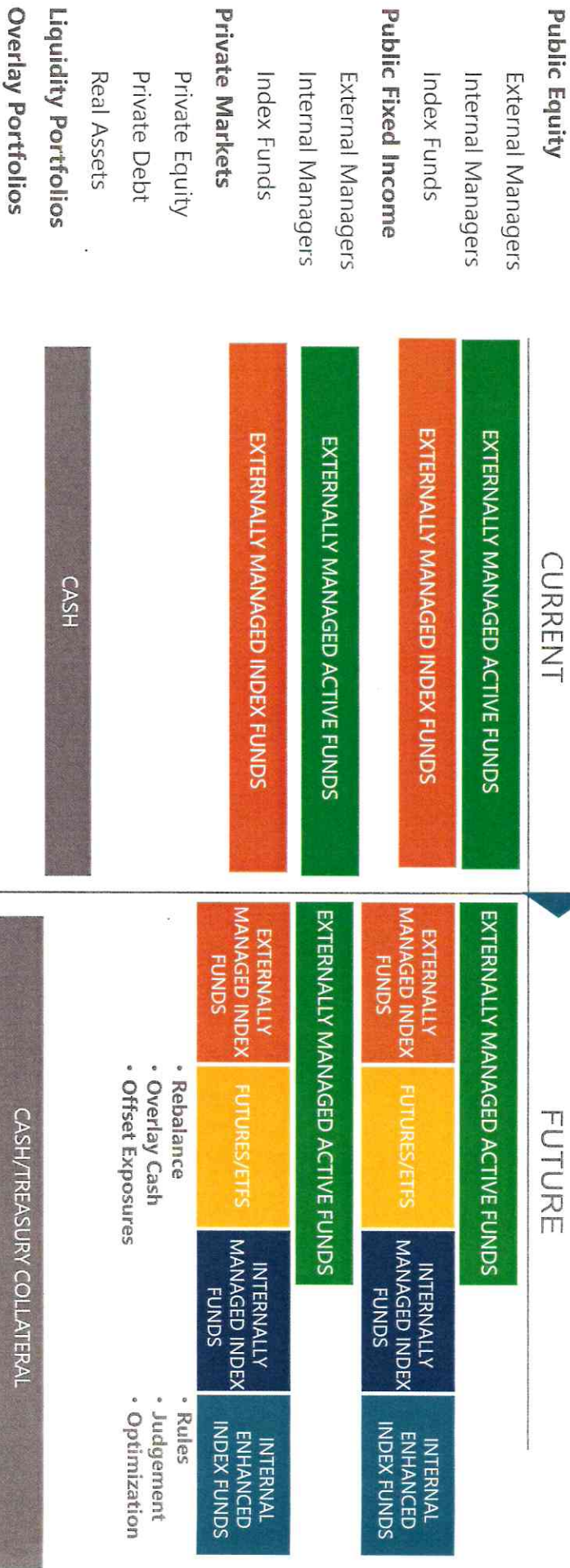
~ TWO YEARS



- Overlay cash with derivatives to reduce cash drag on performance returns and to make ample liquidity available for managing liquidity events, private market calls, cash calls, transitions and other liquidity related transactions.
 - Rebalance with derivatives to refine risk-based exposure rebalancing and lower transaction costs.
- Offset portfolio exposures to enable optimal weighting of active return and risk regardless of manager systematic exposure, increasing return and reducing risk.
 - Manage fund level exposures to fine tune aggregate risks based on market conditions.
- Create simple internal index portfolios that compliment ETFs and index funds for providing liquidity and rebalancing.
 - Risk manage indexes based on corporate events, high risk securities and index reconstitution.
 - Begin make versus buy decisions for optimal implementation.
- Enhance the indexes with simple rules and imported transactions from boutique managers.
 - As staff and research capabilities grow, add a layer of judgement.
 - Optimize the combined set of rules-based signals from internal and external managers.



OVERLAY CASH AND REBALANCE



INTEGRATED INDEX FUND MANAGEMENT

EXTERNALLY
MANAGED
PORTFOLIOS

EXTERNAL INDEX
FUNDS

FUTURES/ETFS

INTERNALLY
MANAGED INDEX
FUNDS

SIMPLE RULES
ENHANCED INDEX
FUNDS

EXTERNALLY
SOURCED RULES
ENHANCED INDEX
FUNDS





APPLY JUDGEMENT

OPTIMIZE AFTER COST RETURN/RISK AND RISK

- Optimize instrument type and manage liquidity/roll cost
- Identify physical/ETF/Future trade-offs (lending, liquidity spread, liquidity, etc.)
- Overlay cash collateral to enhance returns
- Manage optimal collateral
- Construct index to optimize cost
- Manage security lending and internal borrowing
- Construct to liquidity requirements
- Use as a platform for transitions
- Optimize with ETFs and futures indexes
- Manage cash and optimize liquidity risk
- Apply simple rules regarding what securities not to hold
- Apply simple rules to create signal driven dynamic exposures
- Apply simple rules regarding index constitution, tracking error and corporate events
- Hold manager invested assets and by agreement replicated holdings
- Receive rules from manager by agreement
- Assemble several micro strategies from boutique managers in a long/short overlay

REBALANCE

ILLUSTRATION

	WEIGHTS BEFORE REBALANCE	WEIGHTS AFTER	POLICY BENCHMARK WEIGHT
RUSSELL 1000 MANAGERS			
RUSSELL 1000 FUTURES/ETFs	17% 	20%	
MANAGER 2	10% 	10%	
MANAGER 3	4%	4%	
MANAGER 4	23%	23%	
RUSSELL 1000 WEIGHTS	54	57%	57%
RUSSELL 2000 MANAGERS			
RUSSELL 2000 FUTURES/ETFs	3% 	0%	
MANAGER 2	1% 	1%	
MANAGER 3	2%	2%	
RUSSELL 2000 WEIGHTS	6%	3%	3%

Sum of manager weights by sub-asset class equals sub-asset class weight

Reduce the number of manager rebalances, reducing cost

OFFSET EXPOSURES

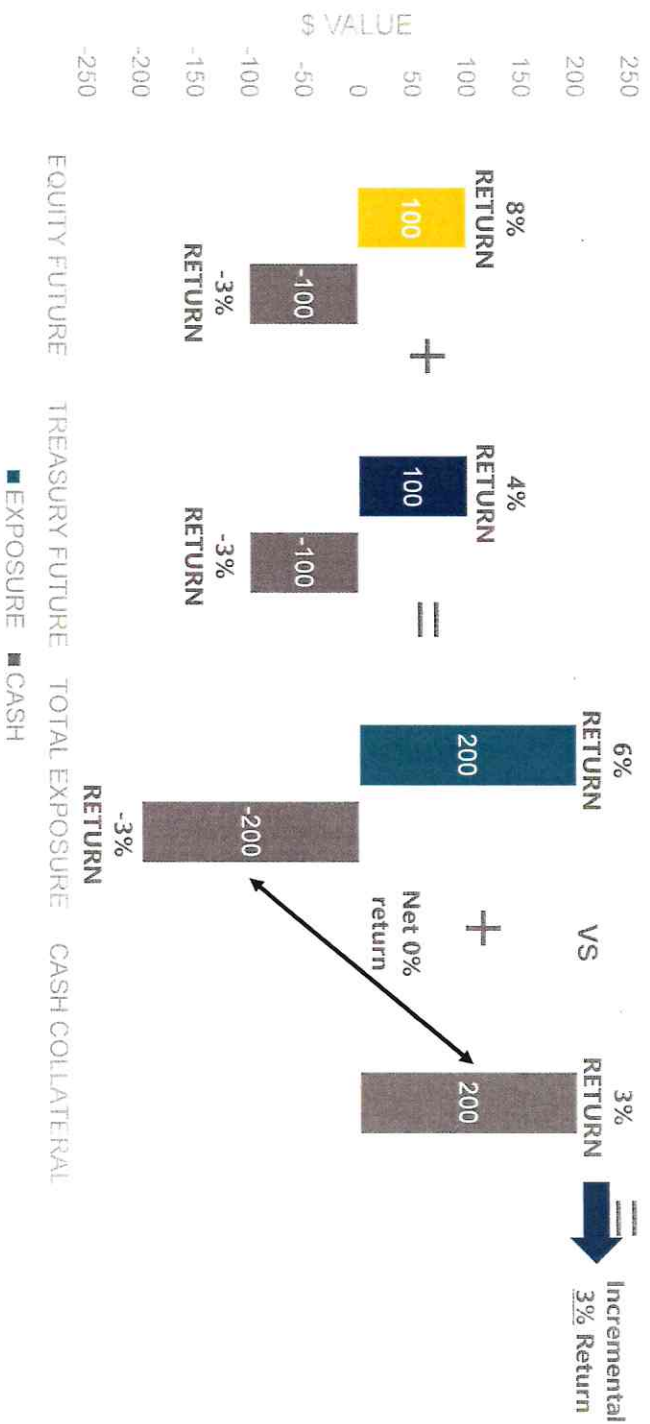
	WEIGHTS BEFORE WEIGHTS AFTER	POLICY BENCHMARK WEIGHT
RUSSELL 1000 MANAGERS		
RUSSELL 1000 FUTURES/ETFs	20%	20%
MANAGER 2	10%	10%
MANAGER 3	4%	4%
MANAGER 4	23%	23%
RUSSELL 1000 WEIGHTS	57%	57%
RUSSELL 2000 MANAGERS		
RUSSELL 2000 FUTURES/ETFs	1%	-7%
MANAGER 2	1%	5%
MANAGER 3	1%	5%
RUSSELL 2000 WEIGHTS	3%	3%
		3.0%



Allocate to the best managers with the best weighting regardless of manager benchmark/asset class universe

OVERLAY CASH WITH FUTURES

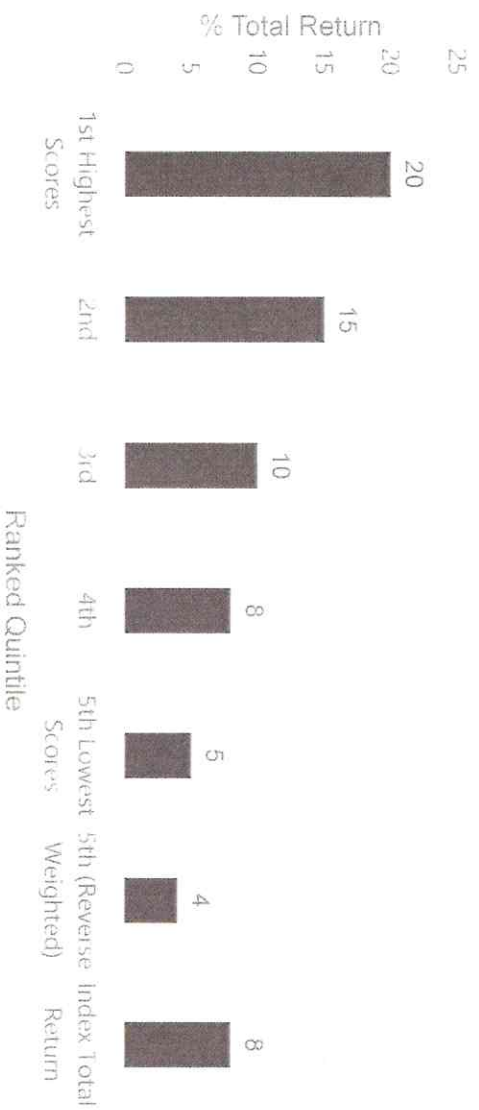
CASH OVERLAY



RULES BASED STRATEGY ILLUSTRATION

Illustration

ANNUAL RETURN
1000 Stocks in Quintiles Ranked by Weighted
Metric



STRATEGY	RETURN	NET RETURN
GO LONG 1 st Quintile	20%	12%
GO LONG 1 st Quintile/ Go Short 5 th Quintile ¹	16%	13%

1. Assumes transaction financed at a 3% cost of cash

RULES BASED STRATEGY ILLUSTRATION

METRIC per Stock	Metric Weight	Rank Stocks by Metric	Stock Weight
Metric 1	Weight 1	Stock 1	Weight 1
Metric 2	Weight 2	Stock 2	Weight 2
Metric 3	Weight 3	Stock 3	Weight 3
Metric 4	Weight 4	...	Weight n
Metric 5	Weight 5	Stock 100	Weight 100
Metric 6	Weight 6	Stock 101	Weight 101
Metric 7	Weight 7	...	Weight n
Metric 8	Weight 8	Stock 998	Weight 998
Metric 9	Weight 9	Stock 999	Weight 999
Metric 10	Weight 10	Stock 1000	Weight 1000

Long Only Portfolio Stocks

Stock	Weight
Stock 1	Weight 1
Stock 2	Weight 2
...	Weight n
Stock 100	Weight 100

Total Portfolio Weight 100%

Short Only Portfolio Stocks

Stock	Weight
Stock 901	-Weight 100
Stock 902	-Weight 99
...	-Weight n
Stock 1000	-Weight 1

Total Portfolio Weight -100%

Reversed Weighted

