

NORTH CAROLINA
DEPARTMENT OF STATE TREASURER



Dale R. Folwell, CPA
STATE TREASURER OF NORTH CAROLINA
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INVESTMENT MANAGEMENT DIVISION

Public Equity – IAC Presentation

November 16, 2017



Public Equity Team

Rhonda M Smith

Director

15 years with IMD

25 Years Industry Experience

Norman Schizler

Portfolio Manager

10 years with IMD

20+ Years Industry Experience

Casey High

Trader/Sr. Analyst

2.9 years with IMD

7+ Years Industry Experience

Greg Taylor

Trader/Analyst

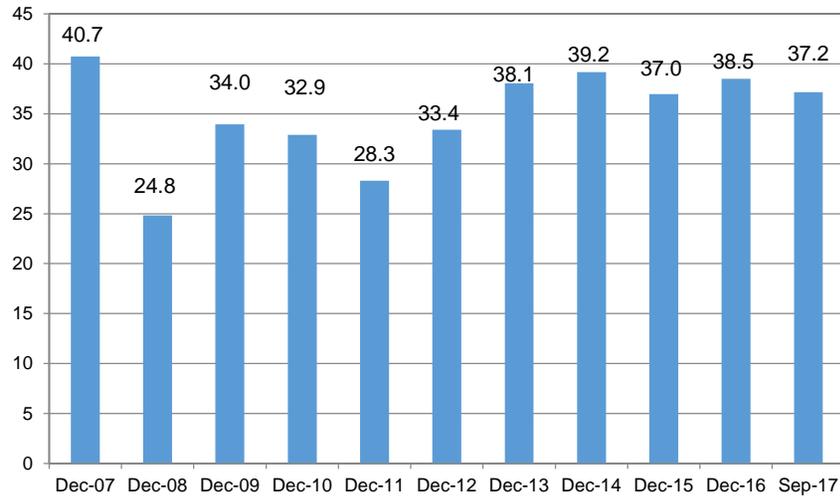
1.5 years with IMD

5+ Years Industry Experience

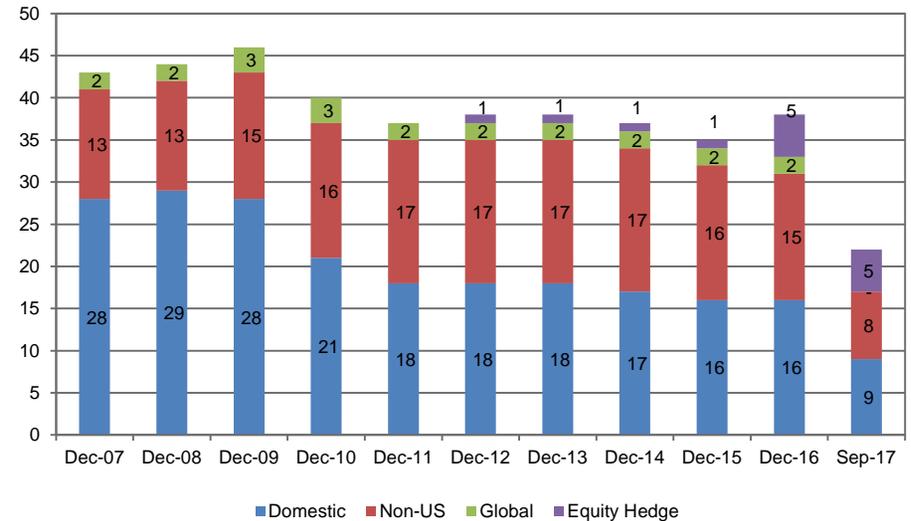


Snapshot of Total Public Equity

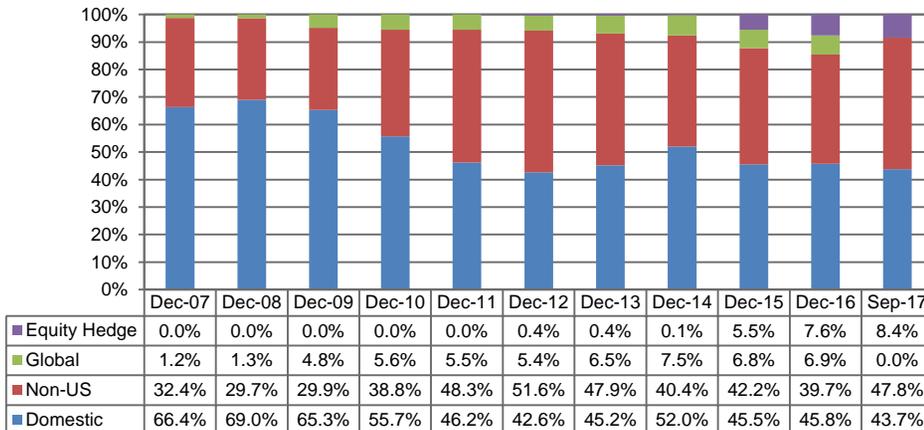
Equity Assets* (\$B)



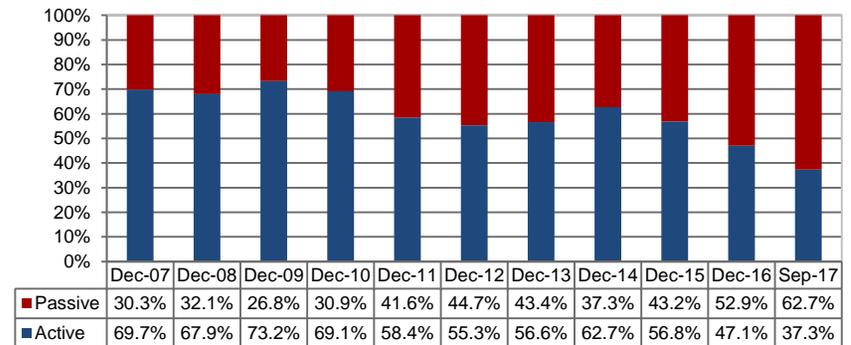
Number of Mandates*



Asset Allocation*



Active vs Passive



Excludes cash and transition
Excluded Hedged Equity until 2016



Reducing Complexity and Building Value

Mandates (Active)	Sep-16	Sep-17
US	16 (13)	9 (6)
Non-US	15 (12)	8 (6)
Global	2 (2)	N/A
Equity Hedge	5 (4)	5 (4)
Total	38 (31)	22 (16)

Actions	Est Annual Savings
13 Terminated Mandates	\$35,790,403 ¹
Consolidation of Mandates	\$3,516,962 ²
Fee Negotiations	\$8,078,584 ²
Total Savings	\$47,385,950

¹ Based on month end market values prior to termination

² Based on April 2017 month end market values



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Investment Management Division

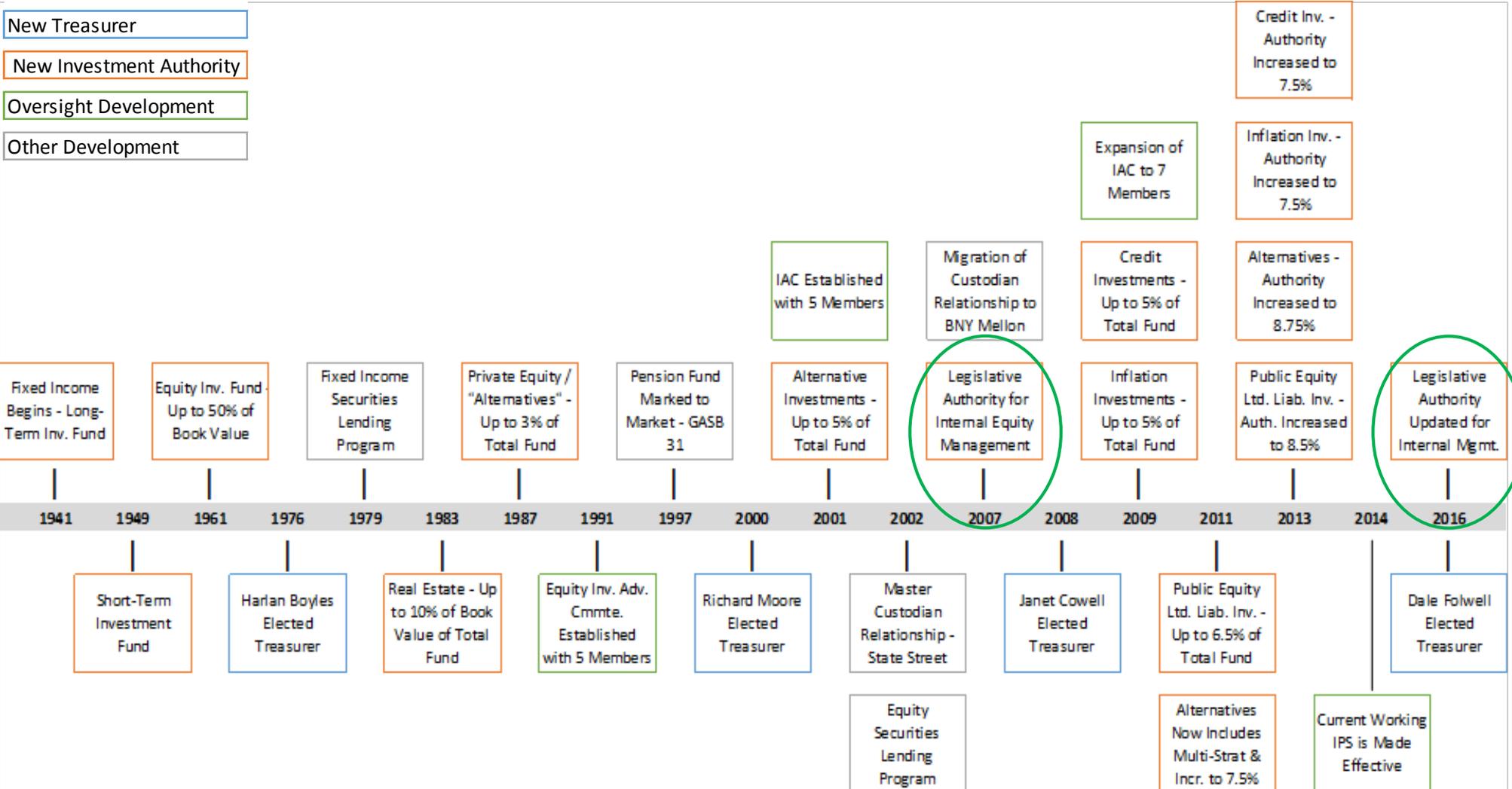
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A blue-tinted background image showing several US dollar bills, including a \$100 bill and a \$20 bill, with various numbers and patterns visible.

Public Equity Internal Index Management

Timeline of Key Dates and Actions

Key:





Why Move Passive Public Equities In-House?

Business Drivers:

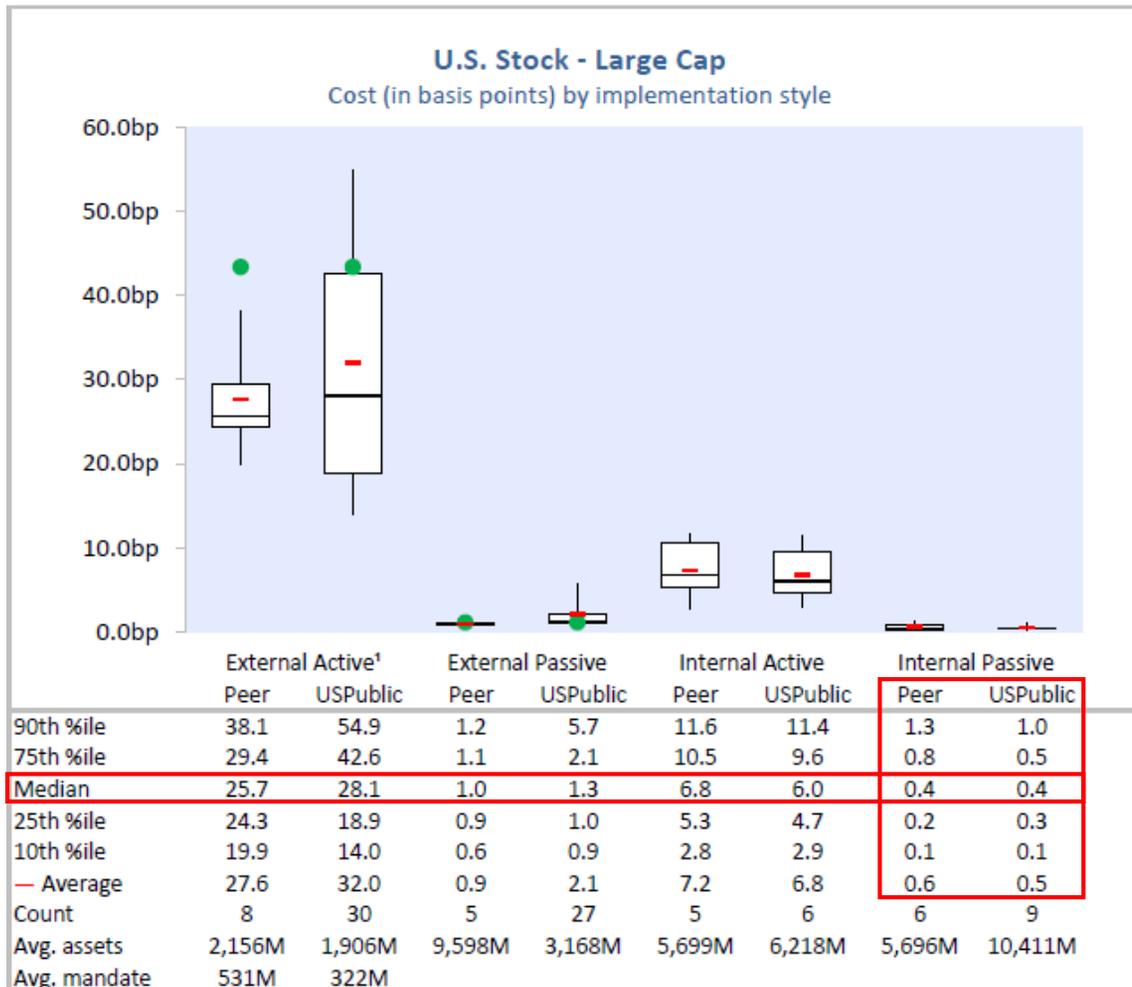
- Diminishing excess return potential within US Large Cap
- Increased control over assets and trading volumes
- Full index replication leads to reduction in costly external management
- Greater awareness of market trends and movements
- Enriched dialogue with external investment managers
- Increased investment and operational expertise of internal staff

**Note – Based on our size, NCRS is one of the few remaining states within our peer universe to begin managing equities internally.*



Internal Index Equity Management – CEM Cost Comparison

2016 CEM Benchmarking: Peer Survey Results



- CEM U.S. Public Universe = 56 U.S. Public Plans
- CEM Peer universe = **14 U.S Public Plans** with assets of \$44.1 billion - \$169.7 billion
- NCRS Investment Staff estimate total internal passive equity costs of \$161,000 (or **0.13 bps** on AUM) after the first year, placing the Plan near the 10th percentile of the CEM peer universe
- As internal assets grow, costs (bps) are expected to fall

Source: CEM Benchmarking Inc.



2016 CEM Benchmarking Peer Survey Results

Assets:

- On average, U.S. Public Peer plans are **internally managing 37.3%** of their **U.S public equity assets** in **passive** index strategies:
 - 27.7 % of average dedicated **U.S. Large Cap** assets are passively managed in-house (another 27.7% is also actively managed in-house)

Most Frequently Used Index Benchmarks:

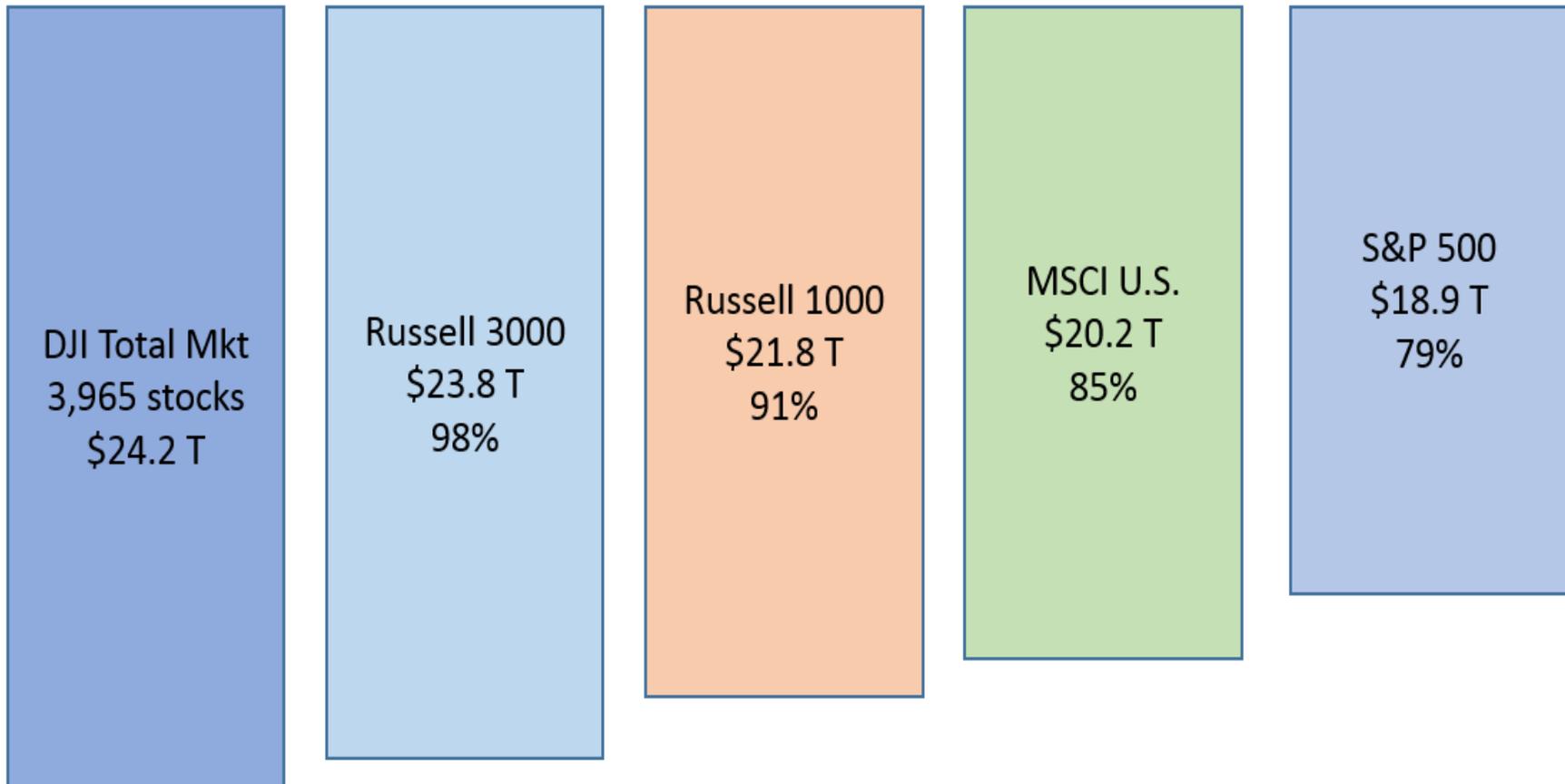
U.S. Stock – Large Cap

	Peers	U.S.
S&P 500	2	37
Russell 1000	5	26
Custom	1	8
Russell 3000		7
Other	2	20
Total	10	98

- NCRS Investment Staff made the decision to replicate the **Russell Top 200** and **Russell Mid Cap** indices for three primary reasons:
 - Russell Top 200 + Russell Mid Cap = Russell 1000
 - Russell follows a rules-based index construction methodology
 - The Plan's external U.S. Public Equity investments are benchmarked to Russell indices



Market Coverage by Benchmark Provider



Source: Piedmont Investment Advisors



Requirements for Internal Equity Management



Front Office

- Trading Technology (Order Management System)
- Portfolio Construction
- Trading and Pre-trade Compliance
- Risk Management and Portfolio Analytics



Middle Office

- Investment Book of Record (IBOR) Technology
- Corporate Action Processing
- Performance Measurement and Attribution
- Reporting and Administration



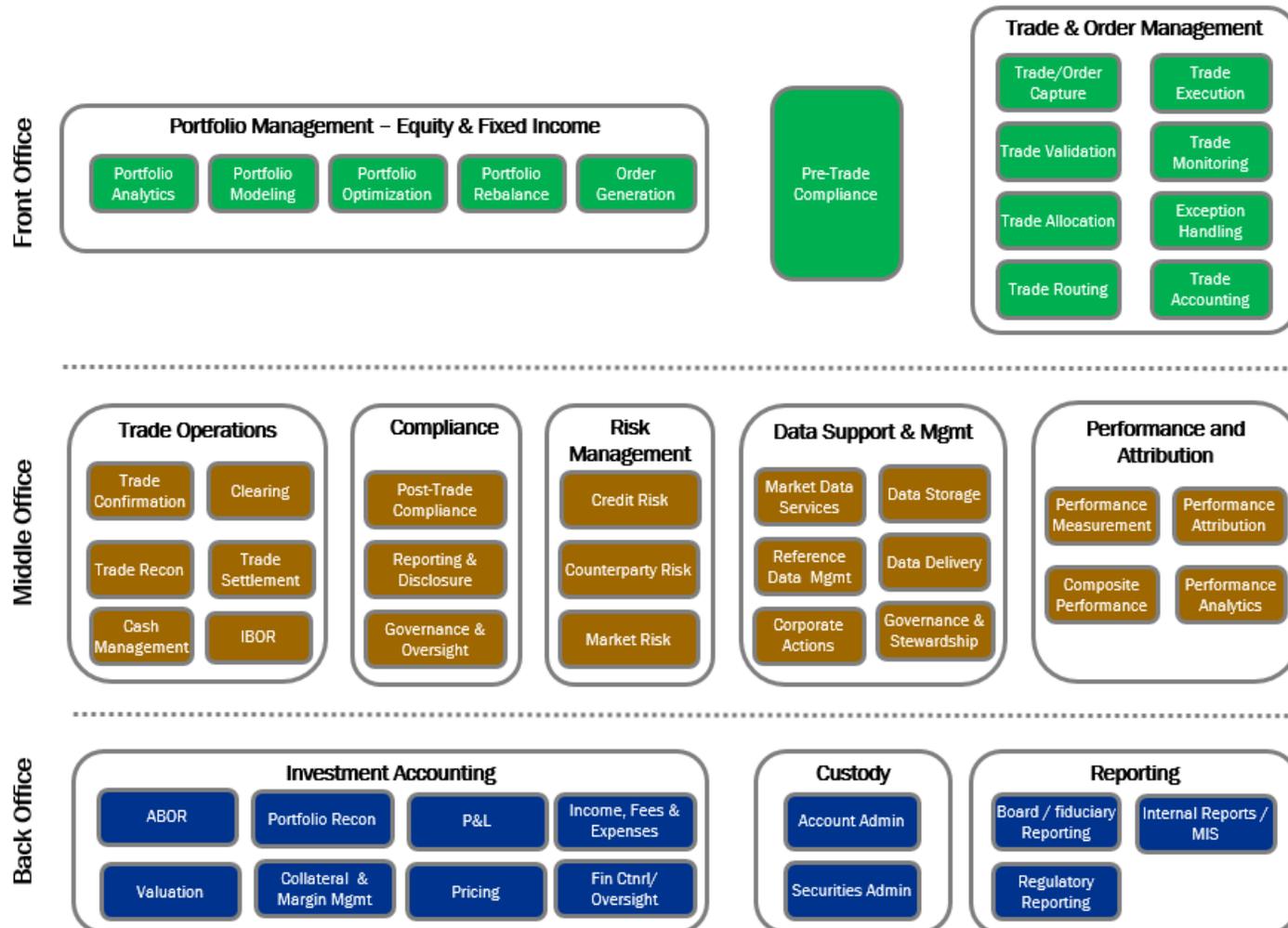
Back Office

- Accounting Book of Record (ABOR) Technology
- Investment Accounting and Reconciliation
- Trade Settlement
- Post-trade Compliance and Regulatory Reporting

Note: Fixed Income and Public Equity are both able to leverage the same Order Management System, thereby maximizing cost efficiencies



Illustration of Internal Management Support Function Model





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Legal and Compliance Oversight of Public Equity Internal Index Management



Investment Guidelines for NCRS Russell 200 and NCRS Russell Mid Cap

- North Carolina General Statute 147-69.2(e) authorizes internally managed equity investments
- NCGS 147-69.2(e)(1) requires internally managed portfolios to be subject to industry standard portfolio guidelines developed with periodic consultation by the IAC



NCRS Russell 200 Investment Guidelines

1. Country Exposure The Russell 200 Index account will be comprised of US listed securities.
2. Currency Exposure US Dollar
3. Diversification The Russell 200 Index account will seek to replicate the risk and return characteristics of the Russell 200 Index.
4. Asset Class Exposure a) The Russell 200 Index account shall be invested and reinvested primarily in a portfolio of common stock and other types of equity traded on a public securities exchange or market organized and regulated pursuant to the laws of the jurisdiction of such exchange. The criterion for the selection of investments shall be the Russell 200. The account is allowed to invest in Exchange Traded Funds (ETFs) and equity index futures; provided, however, that such ETFs and equity index futures shall be used primarily for the purpose of managing transaction or currency risks for equity investments, and not for speculation.

b) Notwithstanding anything contained herein, the Russell 200 Index account may invest through one or more short term investment funds used for cash "sweep" vehicle to manage un-invested cash (each, a "STIF Fund"). Spendable cash balances will generally not exceed 1% of the Russell 200 Index account market value. STIF Funds used for a cash "sweep" vehicle are invested primarily in short term debt securities, such as variable amount notes, commercial paper, U.S. government securities, repurchase agreements, certificates of deposit of banks and savings institutions, and other short term obligations.
5. Liquidity a) The Russell 200 Index account will not purchase illiquid securities (as defined below) outside the Benchmark, but may acquire illiquid securities as a result of corporate action or deterioration in liquidity of a formerly liquid security. The Manager will use reasonable best efforts to exit illiquid positions as soon as practicable.

b) Illiquid Securities ("Illiquid Securities") are those that cannot be easily sold or disposed of in the ordinary course of business within seven (7) business days at approximately the value at which the Russell 200 Index account has valued the instrument, or would be difficult to sell without taking a large loss.
6. Leverage Leverage is not permitted in the Russell 200 Index account.



NCRS Russell Mid Cap Investment Guidelines

1. Country Exposure The Russell Mid Cap Index account will be comprised of US listed securities.
2. Currency Exposure US Dollar
3. Diversification The Russell Mid Cap Index account will seek to replicate the risk and return characteristics of the Russell Mid Cap Index.
4. Asset Class Exposure a)The Russell Mid Cap Index account shall be invested and reinvested primarily in a portfolio of common stock and other types of equity traded on a public securities exchange or market organized and regulated pursuant to the laws of the jurisdiction of such exchange. The criterion for the selection of investments shall be the Russell Mid Cap. The account is allowed to invest in Exchange Traded Funds (ETFs) and equity index futures; provided, however, that such ETFs and equity index futures shall be used primarily for the purpose of managing transaction or currency risks for equity investments, and not for speculation.

b) Notwithstanding anything contained herein, the Russell Mid Cap Index account may invest through one or more short term investment funds used for cash "sweep" vehicle to manage un-invested cash (each, a "STIF Fund"). Spendable cash balances will generally not exceed 1% of the Russell Mid Cap Index account market value. STIF Funds used for a cash "sweep" vehicle are invested primarily in short term debt securities, such as variable amount notes, commercial paper, U.S. government securities, repurchase agreements, certificates of deposit of banks and savings institutions, and other short term obligations.
5. Liquidity a)The Russell Mid Cap Index account will not purchase illiquid securities (as defined below) outside the Benchmark, but may acquire illiquid securities as a result of corporate action or deterioration in liquidity of a formerly liquid security. The Manager will use reasonable best efforts to exit illiquid positions as soon as practicable.

b)Illiquid Securities ("Illiquid Securities") are those that cannot be easily sold or disposed of in the ordinary course of business within seven (7) business days at approximately the value at which the Russell Mid Cap Index account has valued the instrument, or would be difficult to sell without taking a large loss.
6. Leverage Leverage is not permitted in the Russell Mid Cap Index account.



Investment Parameters for NCRS Russell 200 and NCRS Russell Mid Cap

- A. The NCRS Russell 200 Account and the NCRS Russell Mid Cap Account are passive equity portfolios designed to replicate the Russell Top 200 and the Russell Mid Cap Indices as closely as possible. The strategies aim to have a tracking error of less than 1% versus their respective benchmarks.
- B. For purposes of evaluating the performance of the strategies, staff will pay particular attention to the three(3) and five (5) year time horizons.
- C. Divestment Policies: The NCRS Russell 200 and NCRS Russell Mid Cap must comply with the Department of State Treasurer's Iran Divestment Policy, Sudan Divestment Policy and Boycott Israel Divestment Policy
- D. Proxy Voting: Proxies will be voted in accordance with the Department State Treasurer Proxy Voting Guidelines
- E. Securities Lending: Securities lending will be permitted in the NCRS Russell 200 Account and the NCRS Russell Mid Cap Account
- F. See appendix for Eligible/Prohibited Investments Table



Legal Considerations

Legal Contracts:

1. FTSE/Russell contract to provide index data for the portfolios
2. SS&C contract to provide middle and back office services for internal equity trading
3. Account opening documentation for brokerage relationships

Other legal considerations:

1. Trader Insurance or Bonding
2. Delineation between legal and compliance duties



Compliance Considerations

- Personal Trading Policy
- Code of Ethics
- Document Trade Error Policy and Procedures
- Establish Brokerage Due Diligence Procedures
- Record Retention Policy
- Establish Valuation Procedures
- Review IMD and legal staff division of roles and responsibilities
- Review all other applicable internal policies and procedures



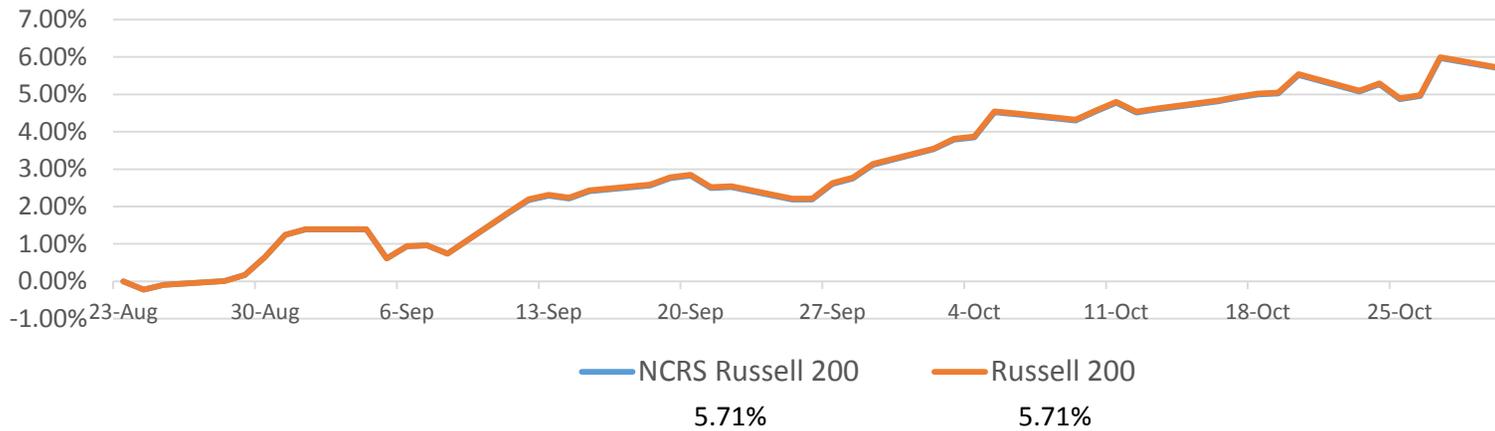
Internal Equity Initiative – To Date & Going Forward

Nov 2016 – July 2017	<ul style="list-style-type: none"> • Worked with Cutter Associates to assess current DST technology and operational infrastructure for adequacy to meet future investment needs and ensure institutional best practices. • Engaged Piedmont Investment Advisors for knowledge transfer and training over a 2-3 year period. • Engaged with peer public plans to effectively design and implement a governance model that appropriately reflects institutional legal and compliance oversight of policies and procedures. • Worked to assess and procure the appropriate vendors to provide index/benchmark measurement data and middle- and back-office support. • Evaluated and selected initial group of broker dealers for trade execution.
Aug – Nov 2017	<ul style="list-style-type: none"> • Mock testing of the “paper portfolios” began in order to refine the workflow necessary to complete the trade life cycle.
Nov. 1 st , 2017	<ul style="list-style-type: none"> • Live testing began with managing \$50 million in both the internal NCRS Russell Top 200 and NCRS Russell Mid Cap accounts. <ul style="list-style-type: none"> ○ \$50 million of securities were transferred in kind from the external Russell Top 200 account into the internal NCRS Russell Top 200 account. ○ \$50 million of Pension Cash funded the Internal NCRS Russell Mid Cap account.
Q1 2018	Transition external Russell Top 200 account assets (\$3.5 billion) in multiple tranches.
2018-2019	Transition the remainder of the external passive U.S. large cap and mid cap equity assets.
2019-	Expansion of internal capabilities beyond U.S. Passive.

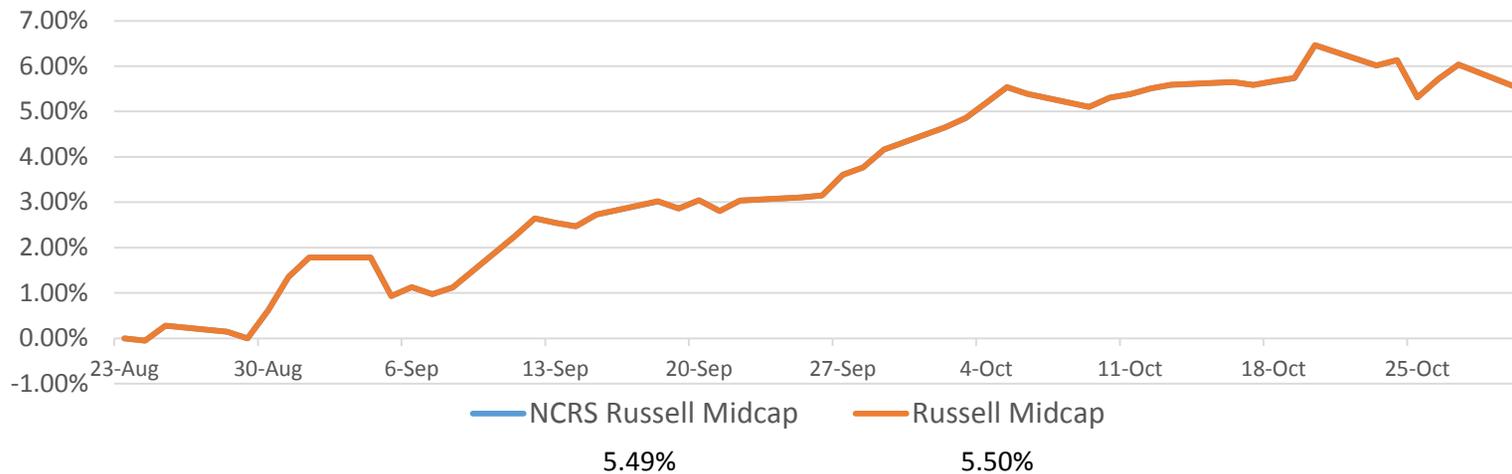


A Peek at Performance (from 8/24/17 – 10/30/17)

R200 Paper Portfolio Performance



RMC: Paper Portfolio Performance





NCRS Staff Contributors to Internal Index Initiative

Functional Area	Contributors
IMD Executive Staff	Dale R. Folwell, Chris Farr, Jeff Smith, Christopher Morris, Kevin SigRist
Project Sponsor	Rhonda M. Smith
Project Lead(s)	Casey High, Greg Taylor
Project Committee Members	Rhonda M. Smith, Casey High, Greg Taylor, Norman Schiszler, Karen Hammond-Smith
Steering Committee Members	Jeff Smith, Christopher Morris, Fran Lawrence, Bill Golden, Mary Laurie Cece, Kevin SigRist
Core Team Members	Christopher Morris, Matt Krimm, Lawrence Koffa, Joan Fontes, Mary Laurie Cece
Portfolio Management	Rhonda M. Smith, Casey High, Greg Taylor
Trading	Jeff Smith, Brett Hall
Cash Management & Reconciliation	Brett Hall, Beth Harrison
Data Mangement & Info. Technology	Lawrence Koffa, Bill Golden, Michael Costanzo, Renee Bourget
Risk Management	Christopher Morris, Matt Krimm
Investment Operations	Christopher Morris, Matt Krimm, Norman Schiszler, Chris Ward, Arlene Jones-McCalla
Porrfolio Accounting	Fran Lawrence, Joan Fontes, Malinda Peters, Monica Reid, Sharon Morgan
Risk Compliance	Chirstopher Morris, Deana Moore-Solomon
Legal & Legal Compliance	Sam Hayes, Mary Laurie Cece, Meryl Murtagh, Norman Schiszler, Angela Cooper
Procurement	Fran Lawerence, Charles Branch, Karen Hammond-Smith, Mary Laurie Cece
Process/Project Management	Karen Hammond-Smith, Kimberly Baker



Appendix

- Page(s) 24: Public Equity Performance (net of fee ending 9/30/17)
- Page(s) 25– 28: Public Equity Portfolio Positioning and Structural Analysis
- Page 29: NCRS Russell 200 & Russell Mid Cap Eligible/Prohibited Investments

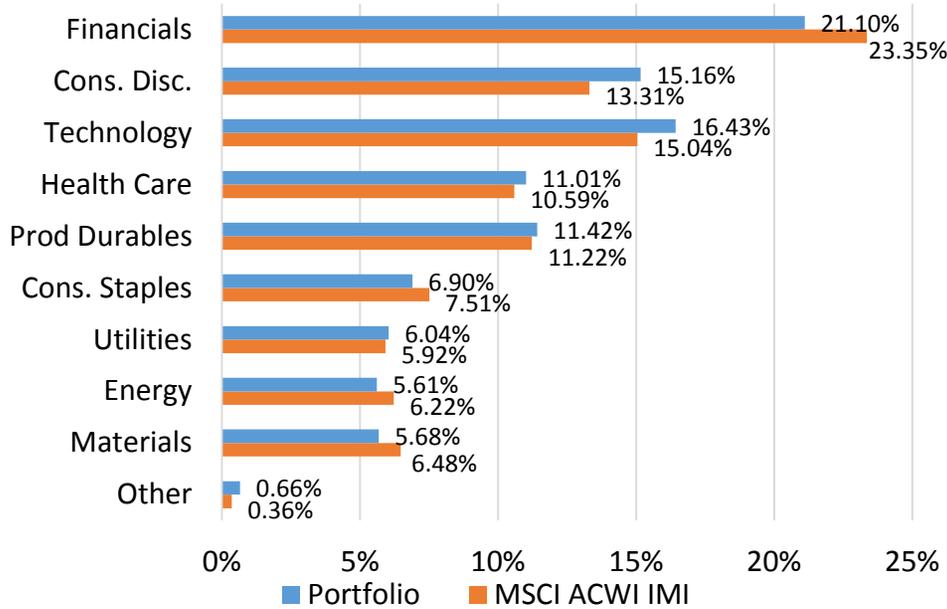


NCRS Public Equity Net Performance – September 30, 2017

	Market Value (\$MM)	3 Month	1 Year	3 Years	5 Years	10 Years	15 Years
Public Equity	\$37,156	5.72	19.01	8.00	11.13	4.88	9.00
Benchmark		5.04	17.75	7.37	10.19	4.13	8.38
Domestic Portfolio	\$16,241	4.71	18.76	10.25	14.20	7.65	10.48
Russell 3000		4.57	18.71	10.74	14.23	7.57	10.37
Non-US Portfolio	\$17,774	7.25	21.34	6.35	8.40	1.82	9.12
Custom Benchmark		6.27	19.55	5.16	7.32	0.98	8.01
Equity Hedge	\$3,136	2.51	7.98	6.27	5.40	-	-
MSCI ACWI (beta adjusted)		2.11	7.16	2.61	2.99	-	-

NCRS Public Equity Portfolio Characteristics -As of September 30, 2017

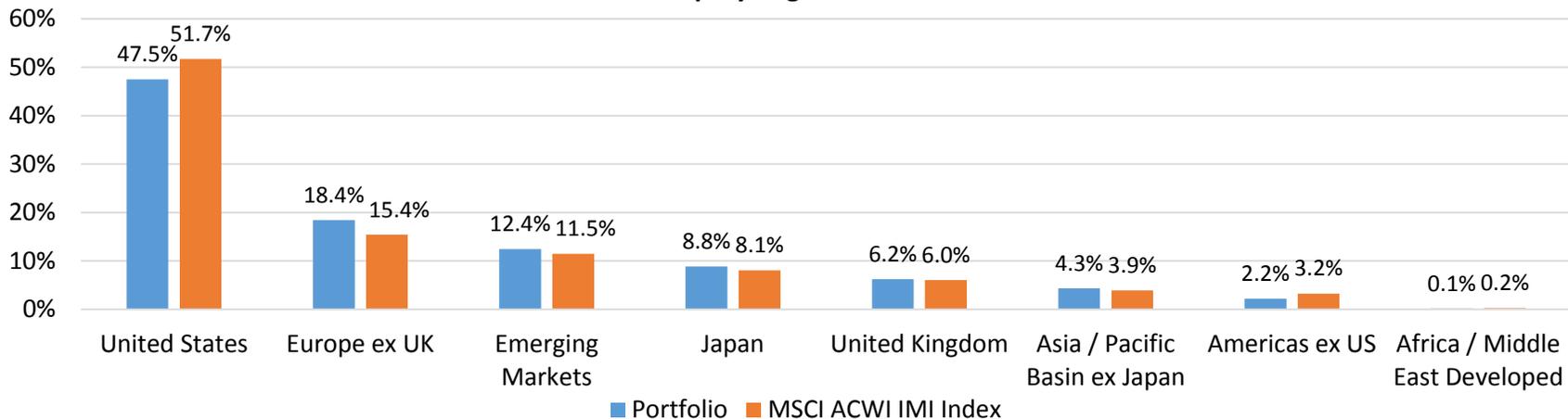
Total Equity Sector Allocation



Portfolio Characteristics

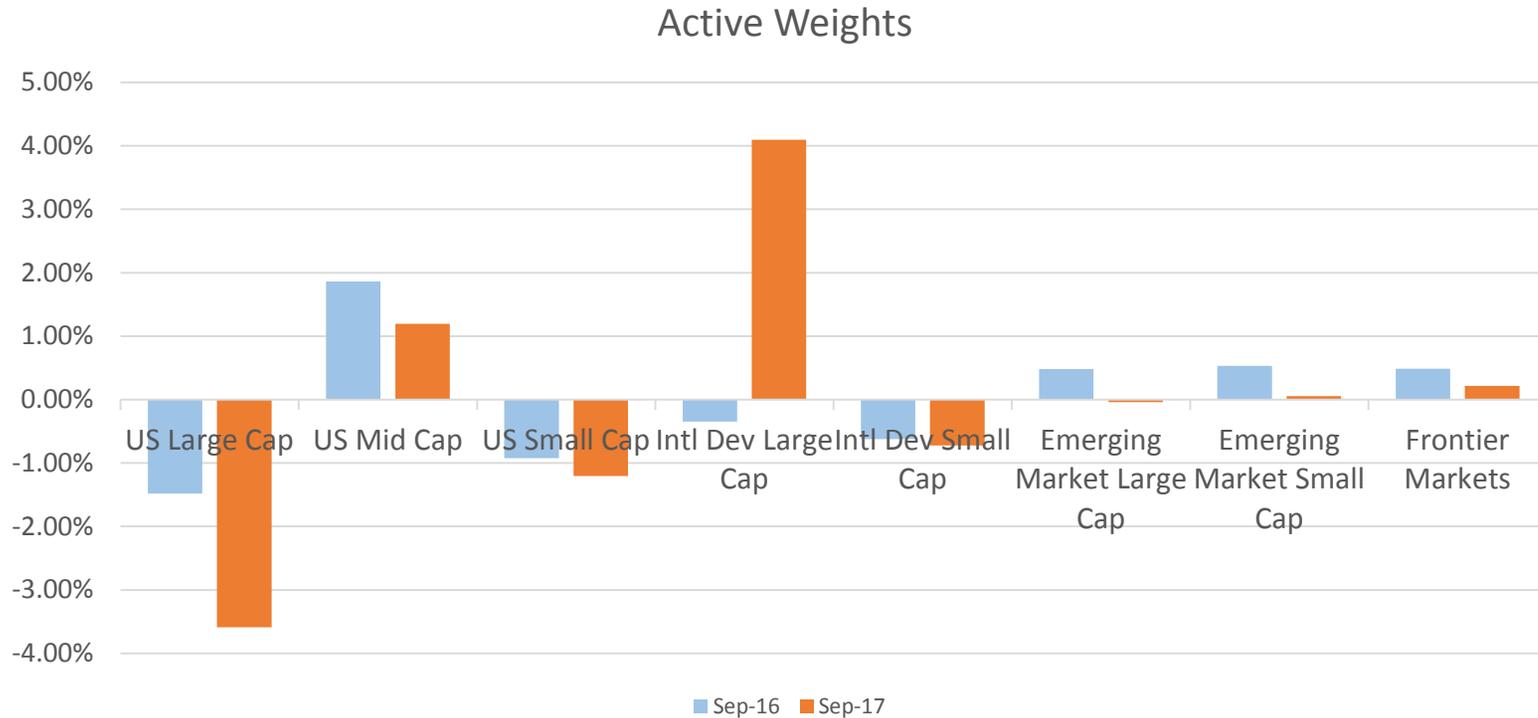
	Portfolio	MSCI ACWI IMI
Price / Earnings	21.8	20.9
Dividend Yield	2.07	2.28
Price / Book	3.24	2.90
Debt / Equity	0.90	0.96
Market Cap (\$B Weighted Median)	40.499	40.031
Return on Equity - 1 Year	15.5	15.0

Total Equity Regional Allocation





Structural Analysis



Risk Measures	Sep-16	Sep-17
Misfit Risk	0.18%	0.36%
Active Risk	0.50%	0.62%
Tracking Error	0.53%	0.72%



Active Management Allocations

Active Allocations	Sep-16 Actual	Sep-16 Transitional	Sep-16 Strategic	Sep-17 Current
U.S. Equity	37%	20% - 30%	20%	22%
Non-US Equity	57%	45% to 55%	45%	54%
Global Equity	72%	75% to 100%	75%	N/A
Equity Hedge	14%	14% to 75%	75%	20%
Total	47%	42%	39%	37%



Portfolio Structure – Going Forward

IMD will continue to evaluate the Public Equity Portfolio Structure, including:

- Identify areas where active management can add value
- Review potential benchmark and asset allocation changes
- Continue to assess potential areas for cost savings and efficiencies
- Launch internal management of passive equities and explore expansion opportunities



NCRS Russell 200 & NCRS Russell Mid Cap Eligible/Prohibited Investments

TYPE OF INVESTMENT	ELIGIBLE	PROHIBITED	COMMENTS
NON-U.S. SECURITIES:			
Common stock	X		
Stock treated as common stock		X	
Preferred stock		X	
Convertibles		X	
Rights		X	
Warrants		X	
Depository Receipts (ADRs, GDRs, IDRs)	X		
DERIVATIVES:			
	No investment, including futures, options or other derivatives, may be purchased if its return is directly or indirectly determined by an investment prohibited elsewhere in these guidelines.		
Futures	X		
Options		X	
Currency Forwards		X	
Currency Futures		X	
Currency Options		X	
COMMINGLED VEHICLES (except STIF):			
Collective Funds		X	
Commingled Trust Funds		X	
Common Trust Funds (excluding ETF's)		X	
Exchange Traded Funds	X		
Real Estate Investment Trusts (REIT's)		X	
Registered Investment Companies		X	
Country Funds		X	
MONEY MARKET SECURITIES:			
Bank Obligations		X	
Commercial Paper		X	
Master Note Agreements and Demand Notes		X	
Repurchase Agreements		X	
OTHER:			
Private Placements (excluding 144a)		X	
Rule 144a Issues		X	
Initial Public Offerings (IPO's)		X	
Other unlisted equity securities		X	
Venture capital		X	
Other direct investments		X	
Fixed income		X	
Clone Notes		X	
TRANSACTIONS:			
Borrowing money		X	
Purchasing securities on margin		X	
Selling securities short		X	
Making loans or acting as an underwriter		X	