Board of Retirement Regular Meeting

Sacramento County Employees' Retirement System

Agenda Item 12

MEETING DATE: **January 17, 2018**

SUBJECT: **Proposed Structure and Implementation Plan for the Domestic and International Equity Asset Classes**

SUBMITTED FOR: ___ Consent __X__ Deliberation and Action ___ Receive and File

RECOMMENDATION

Staff and Verus recommend that the Board:

1) Approve the proposed structural changes to the Domestic Equity asset class, which include:
   - **a.** Eliminating the domestic equity allocation to REITs; and
   - **b.** Adjusting the target allocation to small cap equities to comprise 10% of the Domestic Equity portfolio; and
   - **c.** Consolidating the large cap active allocation and adjust the target to 36%.
2) Approve the proposed structural changes to the International Equity asset class, which include:
   - **a.** Eliminating the international equity allocation to REITs; and
   - **b.** Eliminating the allocation to Emerging Markets Small Cap.
3) Authorize Verus and Staff to develop an implementation plan for the new Domestic Equity and International Equity structures, and to begin executing that plan, with recommended action items to be presented to the Board at upcoming Board meetings.

PURPOSE

- To conform SCERS' Domestic and International Equity asset classes to the strategic asset allocation adopted by SCERS' Board in January 2017.

BACKGROUND

Please note that the requested action is to approve the equity structure for the Domestic and International Equity asset classes, and not the specific managers that will populate that structure. This latter decision will require additional analysis, including potentially conducting at least one manager search. It will also be necessary to determine when and how possible changes in the manager roster will be made and/or changes in the allocations to managers will be implemented. Accordingly, a second request of SCERS' Board at the January meeting will be to authorize Verus and Staff to develop an overall implementation plan for the new equity structure and to begin taking steps to execute that plan (e.g. initiation of manager searches where needed).

By taking this two-step approach, the Board can focus on the optimal structure instead of the individual managers that might have a place in that structure. With the structure established, the Board can then focus on the optimal managers to carry out the individual assignments called for by the structure. Identifying the right manager to carry out a given assignment may result in changes to the current manager roster and require conducting a manager search. Decisions will then have to be made regarding the time and manner in which to best make those transitions.

The proposed authorization to develop the implementation plan contemplates that Verus and Staff will identify and take the steps necessary to develop recommendations for specific action and bring those recommendations forward for Board action when it is opportune.

Accordingly, if the Board authorizes Verus and Staff to develop and begin execution of the manager structure implementation plan, it is anticipated that Verus and Staff will begin presenting the Board with recommended action items (and the basis for the recommended action) beginning at the February Board meeting. It is further anticipated that this implementation process will continue for three to four months.

The current manager roster will be the starting point for consideration of the specific managers who will populate the structure for the Domestic and International Equity asset classes. While Verus and Staff do not anticipate many additions to the existing roster of investment managers, the specific assignments under the new equity structure for the Domestic and International Equity asset classes may necessitate consideration of managers beyond the current roster. Potential changes to the management roster will follow the process approved by the Board, as identified within SCERS' Master Investment Policy Statement. Pursuant to that process, Verus and Staff will establish a pool of manager candidates, identify and interview a short list of finalists, and then present a recommended manager to the Board for approval. This recommendation would also come with a proposed plan for transitioning assets to the manager, if necessary.

REVIEW OF CURRENT EQUITY STRUCTURE

The Board approved a revised strategic asset allocation ('SAA') for SCERS in January 2017. Public Equities comprise a 41% target allocation in the strategic asset allocation, which was reduced from a 45% target in SCERS' prior asset allocation, and resides within the Growth asset category. Public Equities is comprised of two components, the Domestic (U.S.) and International Equity asset classes. The target allocation for the Domestic Equity asset class is 21% (reduced from 22.5%), while the target allocation for the International Equity asset class is 20% (reduced from 22.5%). The overall changes to SCERS' strategic asset allocation are detailed below, including those of SCERS' public equities:

Asset Category	Asset Class	Prior Target Allocation	Target Allocation	Change
Growth		63.0%	59.0%	-4.0%
	Domestic Equity	22.5%	21.0%	-1.5%
	International Equity	22.5%	20.0%	-2.5%
	Private Equity	10.0%	9.0%	-1.0%
	Public Credit	2.0%	2.0%	0.0%
	Private Credit	0.0%	4.0%	4.0%
	Growth Absolute Return	6.0%	3.0%	-3.0%
Diversifying		22.0%	25.0%	3.0%
	Core/Core Plus Fixed Income	15.0%	10.0%	-5.0%
	US Treasury	0.0%	5.0%	5.0%
	Global Fixed Income	3.0%	3.0%	0.0%
	Diversifying Absolute Return	4.0%	7.0%	3.0%
Real Return		15.0%	16.0%	1.0%
	Real Estate	7.0%	7.0%	0.0%
	Real Assets	6.0%	7.0%	1.0%
	Commodities	2.0%	2.0%	0.0%
	TIPS	0.0%	0.0%	0.0%
Opportunities		0.0%	0.0%	0.0%
		100.0%	100.0%	

Since the new strategic asset allocation was adopted in January 2017, the equity markets have had extremely strong performance. Calendar year to date through November 2017, SCERS' Domestic Equity portfolio increased 18% and the International Equity portfolio has increased over 25%. The strong equity market performance has increased the weight of equities in the portfolio as follows:

	Current Allocation	Target Allocation	Overweight vs. Policy
Domestic Equity	24.7%	21.0%	3.7%
International Equity	24.8%	20.0%	4.8%
Total Equity Portfolio	49.5%	41.0%	8.5%

It should be noted that SCERS utilizes its Overlay Program across the portfolio to adjust asset class exposures in-line with policy targets. As has been communicated to the Board, currently the Overlay Program is adjusting equity exposures to the prior total public equity allocation target of 45% (22.5% Domestic Equity and 22.5% International Equity), so the over-weights of 3.7% and 4.8% shown above for Domestic and International Equities, respectively, are inflated when accounting for the rebalancing that the Overlay Program employs. The actual over-weights are 1.5% and 2.5%, respectively.

It should be noted that given the over-weights within SCERS' Domestic and International Equity portfolios described above, these portfolios will serve as the source of capital for several upcoming portfolio rebalances to align with the new strategic asset allocation. These include:

- Rebalancing SCERS' public fixed income portfolios to target;
- Rebalancing SCERS' Overlay Program to the new structure (which is being presented at the January Board meeting); and
- Funding allocations to Private Credit, Private Equity, and Diversifying Absolute Return.

Over the past several months, Staff has been working with Verus and SCERS' Overlay Program manager, State Street Global Advisors ('SSGA'), to restructure the Overlay Program in line with the new strategic asset allocation. An objective in restructuring the Overlay Program was to wait until all of the major asset classes have been restructured, policy benchmarks have been approved, and an implementation plan has been constructed within each, before converting the Overlay Program to the new strategic asset allocation. With the public equity structure being the last of the asset class restructures, and presented for approval at the January meeting, the proposed structural changes to the Overlay Program are also being presented for approval at the January meeting. Given the level of asset transitions that will need to occur within the equity asset classes and the Overlay Program to align both with the new strategic asset allocation, implementation of each will need to occur close to one another in order to efficiently transition assets within SCERS' portfolio.

Within the Domestic and International Equity asset classes, SCERS has previously established sub-asset class target allocations and ranges, diversified across geographies (domestic and international), across the market capitalization spectrum (small capitalization to large capitalization), and across investment styles (growth and value). To achieve the desired level of diversification, SCERS established the following target allocations for Domestic and International Equities in 2011, as detailed in the equity asset class investment policy statement:

Domestic Equity

Sub-Asset Class	Target Allocation	Minimum Allocation	Maximum Allocation
US Large Cap	81.0%	64.8%	97.2%
US Passive Large Cap	54.0%		
US Large Cap Value	11.0%		
US Large Cap Growth	11.0%		
US Large Cap 130/30	5.0%		
US Small Cap	14.0%	11.2%	16.8%
US Small Cap Value	7.0%		
US Small Cap Growth	7.0%		
US REITs	5.0%	4.0%	6.0%

International Equity

Sub-Asset Class	Target Allocation	Minimum Allocation	Maximum Allocation
Developed Markets Large Cap	66.0%	52.8%	79.2%
Developed Markets Large Cap Value	23.0%		
Developed Markets Large Cap Growth	23.0%		
ACWI ex-US	20.0%		
Developed Markets Small Cap	10.0%	8.0%	12.0%
Developed Markets Small Cap Value	5.0%		
Developed Markets Small Cap Growth	5.0%		
Emerging Markets	19.0%	15.2%	22.8%
Emerging Markets All Cap	16.3%		
Emerging Markets small Cap	2.7%		
International REITs	5.0%	4.0%	6.0%

An objective of the current equity restructure is to continue to preserve diversification across market capitalization and investment styles, while determining where there might be overlap and redundancies. Other objectives include identifying the primary risks that the equity portfolio is exposed to, and evaluating the tradeoff between passive and active investment strategies.

Within the current Domestic Equity portfolio, over half of the large cap segment is allocated to passive exposure. During the prior equity restructure in 2011, passive exposure within the domestic equity large cap segment was increased from 32.1% to 54%. The reasoning was that large cap domestic equities have proven to be a more efficient area to invest in historically, which has produced a lower probability of generating excess returns. In contrast, domestic small cap has proven to be a less efficient sub-asset class, and has generated a higher probability of producing excess returns. Therefore, Staff and its general investment consultant at the time, Strategic Investment Solutions (SIS) (which merged to become Verus Advisory), recommended a barbell approach, which combined an increased level of passive exposure with a lower level of high tracking (“TE”) error, benchmark agnostic, large cap active mandates and exclusive use of active mandates within domestic small cap equities. The higher TE of the active mandates are buffered by the higher passive allocation (which have near-zero TE), to arrive at a similar overall level of TE for SCERS’ Domestic Equity portfolio historically.

The International Equity asset class continued with a 100% allocation to active management in 2011, as this segment, which includes developed and emerging markets exposure, has tended to be less efficient than domestic markets and a better source of excess return generation.

EQUITY STRUCTURE AND POLICY RISK

An important objective of the current equity structure, which was established in 2011, was to minimize Style Risk versus Active Risk while maintaining an attractive level of potential Alpha generation. Style Risk was defined as risk due to structural differences between the portfolio and benchmark. An example of Style Risk would be an overweight to small cap stocks in the portfolio compared to the benchmark. Active Risk was defined as risk due to portfolio holdings being different than the benchmark, after controlling for Style Risk. The equity portfolio was constructed to minimize structural differences (growth/value and large/small cap) while allowing for Active Risk (i.e. Tracking Error) which could potentially produce higher levels of Alpha based on the skill of the active investment managers selected. At the same time, real estate investment trusts ('REITs') were added as a dedicated allocation within the equity portfolio despite not being included in the benchmark, which did increase the overall Style Risk of the portfolio.

The current approach that Verus utilized to review SCERS' equity structure and risk components takes a similar approach to the prior approach that SIS used, but with slightly different terminology for evaluating risk in the portfolio. Verus analyzes an equity portfolio structure based on the following risks:

Policy Risk (PR) = Total Plan tracking error to Policy

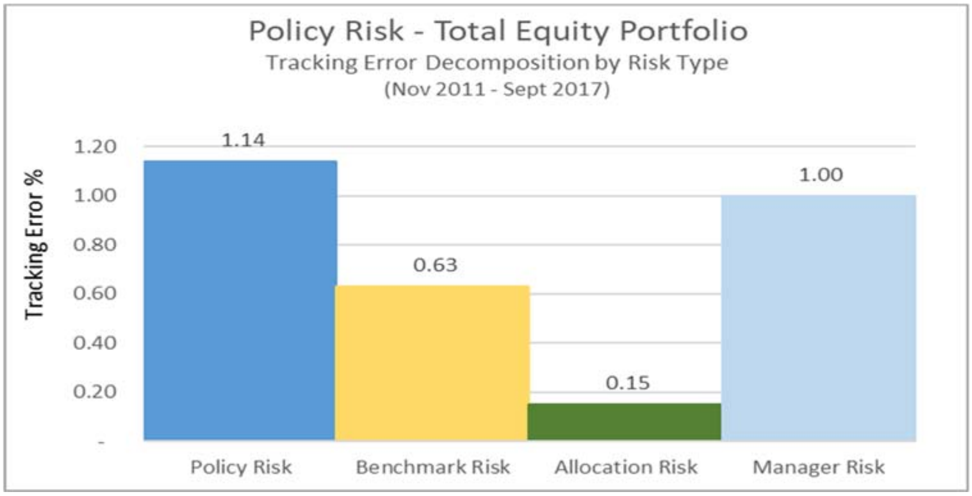
Benchmark Risk (BR) = Benchmark Policy tracking error to Policy (equity structure as designed differs from benchmark structure).

Allocation Risk (AR) = Benchmark Allocation tracking error to Benchmark Policy (allocation structure to managers differs from Benchmark Policy allocation)

Manager Risk (MR) = Fund tracking error to Benchmark Allocation (manager tracking error versus benchmark)

In this analysis, Policy Risk is an aggregation of BR, AR, and MR. The goal with evaluating equity portfolio risk along these measures is to gain a greater understanding of how the portfolio is structured and what may cause portfolio performance to deviate from the benchmark (i.e. understand portfolio tracking error). A structure that Verus recommends is to reduce Benchmark Risk and Allocation Risk to minimize uncompensated performance differences compared to the Policy Benchmark. Verus believes that Manager Risk on the other hand is ideally compensated risk in the form of Alpha generation by active managers, assuming that they outperform their benchmarks. The ideal risk profile for an equity portfolio is a structure that minimizes Benchmark Risk and Allocation Risk, and where overall Policy Risk is determined mostly by Manager Risk.

Verus performed an analysis of SCERS' total equity plan structure, including both the Domestic and International asset classes, to evaluate overall Policy Risk and the contribution from each risk component, as described above. The results of the analysis are presented below:



As the analysis shows, Manager Risk is the largest component of SCERS' total Policy Risk. However, Benchmark Risk and Allocation Risk are still significant in SCERS' current equity structure. Therefore, an objective of the proposed equity structure is to adjust the Domestic and International asset classes, to reduce Benchmark Risk and Allocation Risk and ensure that Manager Risk is the main determinant of overall Policy Risk.

REAL ESTATE INVESTMENT TRUSTS (REITs) ALLOCATION

REITs are included within both the Domestic and International Equity asset classes with a target allocation of 5% each (relative to the Domestic Equity and International Equity allocations). Historically, real estate was not a separate sector within the public equity index benchmarks, but was instead included within the financial sector. Over the last few years, REITs have begun to be reported as a separate sector within the equity indexes with unique performance return and attribution metrics. This has allowed Staff and Verus to evaluate the overall public equity portfolio exposure to real estate, both the direct allocation to REITs and the allocation to the real estate sector held by SCERS' other equity managers. The direct exposure to the real estate sector, within SCERS' Domestic and International Equity portfolios, is overweight as follows:

SCERS Equity Real Estate Exposure

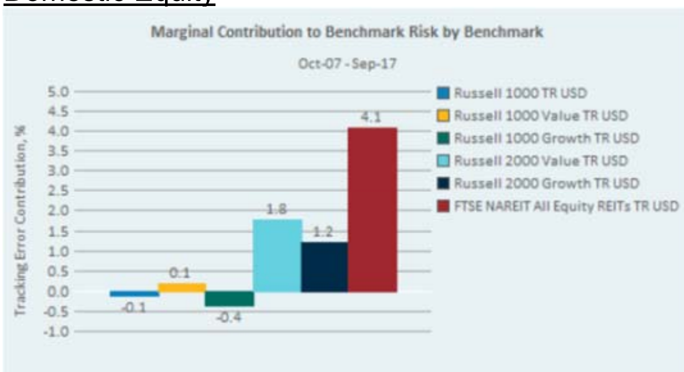
Domestic Equity Portfolio	% Domestic Portfolio	International Equity Portfolio	% Int'l Portfolio
U.S. REITs	4.5%	International REITs	3.9%
Other U.S. Managers	3.4%	Other Int'l Managers	3.2%
Domestic Equity Real Estate Exposure	7.9%	International Real Estate Exposure	7.1%
Benchmark Sector Weight (R3000)	4.0%	Benchmark Sector Weight (MSCI ACWI ex US)	3.2%
Sector Overweight vs. Benchmark	3.9%	Sector Overweight vs. Benchmark	3.9%

(as of September 30, 2017)

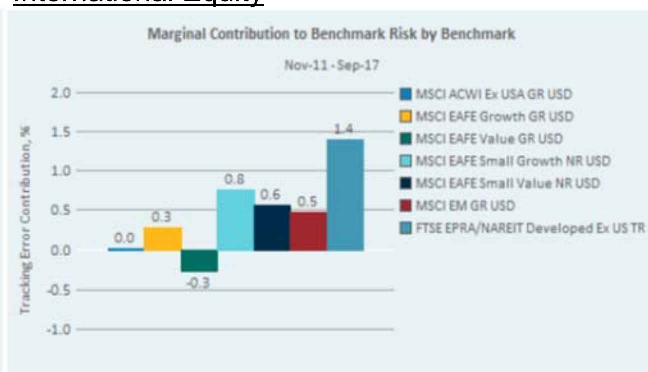
Included in the risk analysis performed by Verus, as described above, is an evaluation of the contribution to Benchmark Risk for both the Domestic and International Equity portfolios. The direct allocation to REITs within both of these portfolios, are the greatest contribution to

Benchmark Risk across SCERS' equity portfolio. The charts below show that the marginal contribution to Benchmark Risk from REITs, both in the Domestic and International Equity portfolios, is significantly greater than all other benchmark index components.

Domestic Equity



International Equity



Additionally, SCERS' private real estate portfolio within the Real Return asset category is fully developed with an actual allocation of 8.8% as of September 30, 2017 (compared to a target allocation of 7%). As background, SCERS first allocated to REITs to fill out SCERS' overall real estate exposure, as its private real estate portfolio was being built out. SCERS also holds a small additional allocation to REITs within the Real Return Overlay Program proxy while the Real Return asset category continues to be built out (due to the current under-allocation to the Real Assets asset class). The total exposure to real estate as of September 30, 2017, is ~12.6%.

SCERS Real Estate Exposure	% Total Portfolio
US Equity Real Estate Exposure	1.9%
Interational Real Estate Exposure	1.7%
Direct Real Estate Portfolio	8.8%
REIT Overlay Exposure	0.2%
Total Real Estate Exposure	12.6%

Staff and Verus recommend eliminating the equity allocation to REITs, in both the Domestic and International Equity structures. This will:

- **Assist in reducing SCERS' equity allocation to conform with the strategic asset allocation targets.**
- **Reduce the overweight exposure to the real estate sector (REITs) versus the public equity index benchmarks.**
- **Reduce Benchmark Risk as a component of SCERS' overall equity Policy Risk.**

DOMESTIC EQUITY STRUCTURE

As detailed previously, the current Domestic Equity structure has the following target allocations: (1) Large cap (81%); (2) Small cap (14%); and (3) REITs (5%). The current equity structure was designed to reduce Style Risk and avoid tilting the portfolio towards growth/value or toward a certain market capitalization. The recommendation to eliminate the REIT allocation, made in the previous section, is consistent with this approach and helps reduce Benchmark Risk (or Style Risk).

The current Policy Index benchmark for the Domestic Equity asset class is the Russell 3000 Index ('R3000'), and Staff and Verus do not recommend making any changes to the benchmark. The R3000 is roughly split 90/10 between the large and small market capitalization segments, respectively. Given SCERS' current target allocation of 14% to small cap equities and the strong market performance that this segment has experienced, SCERS' Domestic Equity portfolio has a current allocation of 16% to small cap equities, with approximately equal weight to Growth and Value styles.

Small cap equities, depending on the time period examined, have generated excess returns over large cap equities. These excess returns are due to a perceived risk premium for smaller companies based on lower liquidity and increased risk (volatility). However, it should be noted that any small cap equity excess returns have diminished over the past decade, as large cap equities have tended to outperform. Despite the excess returns that small cap equities have generated in the past, they also produce increased levels of volatility compared to large cap equities over time, so small cap stocks have provided lower risk adjusted returns as measured by the Sharpe Ratio.

Staff and Verus recommend adjusting the Domestic Equity structure to reduce the overweight to small cap equity. The recommended structure would allocate 10% to small cap equity, versus SCERS' current target weight of 14%, which is in line with the market weight of the R3000 index. SCERS currently has four small cap equity managers (two growth, two value). A reduction in the target allocation to 10%, combined with rebalancing the equity portfolio to the new strategic asset allocation, would result in a meaningful decrease in the overall allocation to the domestic small cap equity segment. Staff and Verus will perform additional analysis to determine the appropriate implementation plan, which could potentially include simplifying the manager structure and reducing the overall number of small cap equity managers.

Proposed Domestic Equity Structure

Including the recommendations made above, the proposed Domestic Equity structure is as follows:

Current Structure

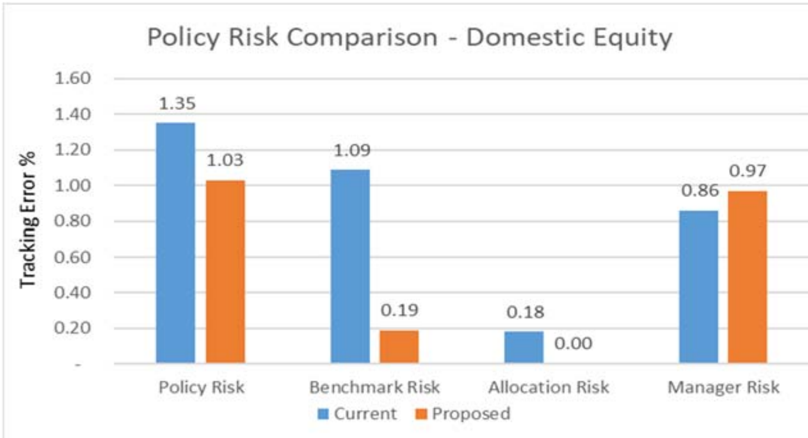
	Policy	Benchmark	Allocation	Manager
Russell 3000	100.0%			
LC Passive (R1000)		54.0%	52.0%	
AB				52.0%
LC Active (R1000)		5.0%	16.3%	
JPM 130/30				5.3%
Eagle				11.0%
LCV (R1000 V)		11.0%	5.5%	
Huber				5.5%
LCG (R1000 G)		11.0%	5.5%	
Brown				5.5%
SCV (R2000V)		7.0%	8.0%	
Dalton				3.8%
Wedge				4.2%
SCG (R2000G)		7.0%	8.2%	
UBS				3.2%
Weatherbie				5.0%
REITs (FTSE NAREIT)		5.0%	4.5%	
Centersquare				4.5%

Proposed Structure

	Policy	Benchmark	Allocation	Manager
Russell 3000	100.0%			
LC Passive (R1000)		54.0%	54.0%	
Passive Manager				54.0%
LC Active (R1000)		36.0%	36.0%	
Active Managers				36.0%
SCV (R2000V)		5.0%	5.0%	
Active Managers				5.0%
SCG (R2000G)		5.0%	5.0%	
Active Managers				5.0%

Verus performed analysis of the Policy Risk for SCERS' Domestic Equity portfolio, both as currently constructed and after applying the recommended changes. As shown below, the proposed changes significantly reduce Benchmark Risk and Allocation Risk, leaving Manager

Risk as the primary component of Policy Risk, which was an objective of the restructuring exercise. To recap, Manager Risk relates to a manager's tracking error versus its benchmark and a higher tracking error allows for the probability of earning excess returns.

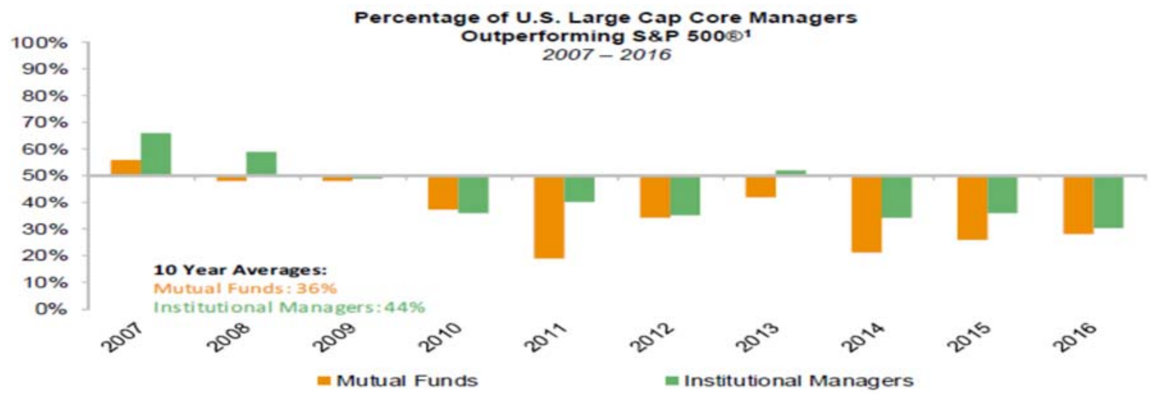


Overall, the proposed Domestic Equity portfolio continues to focus on active management in those segments that are less efficient, such as small cap equities, and to underlying strategies within the large cap segment that present opportunities for active managers to potentially generate excess returns compared to their respective benchmarks over time. The proposed structure maintains a similar target weight to passive large cap equities (54%) as the current structure, but increases the allocation to large cap active equities from 27% to 36%, with the reduction in domestic REITs and small cap equities flowing to the large cap active segment.

Though the large cap active segment has increased in the proposed structure, Staff and Verus anticipate changes within the structure, including the types of active management strategies evaluated and the existing investment manager lineup. Staff and Verus are in the process of evaluating the role of active management within the large cap domestic equity space, including SCERS' current managers, and plan to return to the Board in the next few months with specific implementation recommendations. The sections below provide additional discussion on the role of active versus passive management, and also provide initial education on potential alternative forms of active management within the large cap domestic equity space that are being evaluated by Staff and Verus.

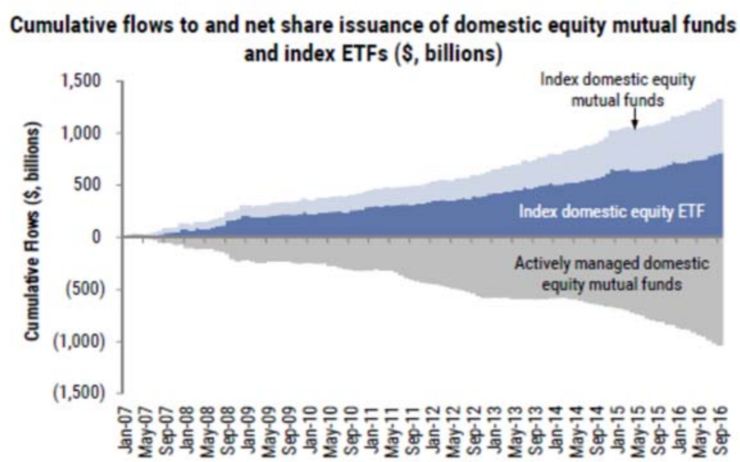
Passive vs. Active Management

SCERS' approach to determining the allocation to passive versus active managers has been based on those areas of the market that provide greater opportunity for an active manager to generate excess returns above their respective benchmark. Over time, this has resulted in an increased allocation to passive management within SCERS' large cap U.S. equity portfolio, which has proven to be a more efficient asset class where active managers had trouble generating returns above their benchmark.



In SCERS' large cap U.S. equity portfolio, the performance of the underlying active managers has been mixed. Over extended time periods (greater than 5 years), some active large cap managers have disappointed and underperformed their respective benchmarks, while other active large cap managers have generated excellent performance, and outperformed their respective benchmarks, net of fees. Given the strong performance of some of SCERS' active large cap managers, Staff and Verus do not recommend abandoning active management in the large cap segment, but rather maintaining a mix between passive and active mandates.

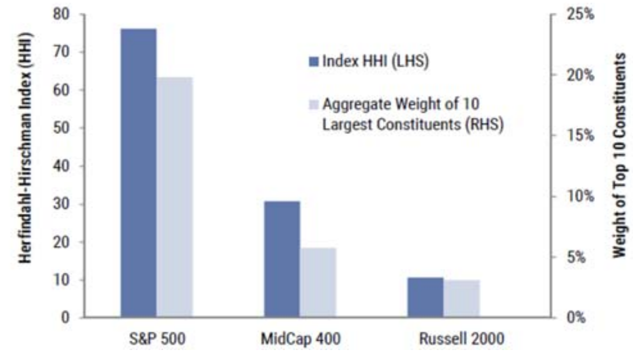
Within the U.S. equity market, and particularly within the large cap equity asset class, active managers have faced considerable headwinds from the shift to passive management. The shift has occurred during a time where strong equity market performance, particularly within the large cap growth segment, has highlighted the difficulty of generating excess returns. Over the past decade there has been a significant shift in asset flows out of actively managed funds and into passively managed index mutual funds/exchange traded funds ('ETFs').



Source: Investment Company Institute. Goldman Sachs Global Investment Research.

Traditional equity benchmarks, such as the S&P 500 or Russell 1000, are market cap weighted benchmarks, which place the greatest weighting in the index to the largest companies (as measured by a company's market capitalization). Index mutual funds and ETFs that track these traditional indices generally apply a similar methodology to mimic index performance. The combination of shifting asset flows into passively managed index products and strong equity performance of the largest market capitalization companies has created a compounding effect where the largest index components drive a significant component of market returns and index weight. The top 10 companies in the S&P 500, as of November 2017, encompass approximately 20% of total market value of the index. This is up significantly from 2014, where the top 10 companies comprised only 17.5% of the index. While the largest companies in an index typically drive market cap weighted indices, the level of concentration is unique to the large cap space.

Concentration of Index Constituents: S&P 500 vs. MidCap 400 vs. Russell 2000
Herfindahl-Hirschman Index (HHI) and Top 10 based on weights of Index constituents as of March 31, 2017



The relative lack of market breadth in the large cap equity space raises the concern that if/when equity markets decline, the concentration in a small number of large capitalization stocks, represented by traditional market cap weighted indices, could facilitate a decline in equity portfolio performance (i.e. the large cap stocks could lead the equity market decline). Additionally, following the rally in equities since the Global Financial Crisis ('GFC'), the U.S. equity market is approaching valuation levels nearing the 90th percentile across most valuation metrics, as represented by the valuation levels for the S&P 500 index in the adjacent chart. As discussed above, the combination of concerns surrounding active manager performance and asset flows into market cap weighted large cap indices has led Staff to consider alternative forms of active management within the domestic large cap segment.

S&P 500 is expensive on most valuation metrics

	Aggregate Index		Median Stock	
Metric (Aggregate index)	Current	Historical %ile	Current	Historical %ile
EV / Sales	2.4 x	96 %	2.9 x	100 %
Forward P/E	18.5 x	90	18.8 x	99
Cyclically adjusted P/E (CAPE)	27.3 x	89	NA	NA
EV / EBITDA	11.8 x	89	12.0 x	98
Cash flow yield (CFO)	7.1 %	88	7.0 %	98
P/E to growth (PEG)	1.4 x	88	1.9 x	100
Price / Book	3.3 x	88	3.5 x	99
Free cash flow yield (FCF)	4.1 %	55	4.2 %	55
Median		**89 %**		**99 %**

Alternative Active Management Strategies

Alternative approaches to investing in active managers and traditional market capitalization weighted passive indices represent a broad category that covers a wide range of investment options. Some of the commonly used terms include "smart-beta", "factor investing", or "alternative risk premia". Despite the differing terminology, some of the common features within this category include:

- Systematic exposure to market factors (risk factors) that have a documented history of providing excess returns above broad cap weighted benchmarks.
- Investment fees that are typically lower than traditional active manager fees.
- Reduced risk (depending on the strategy employed) resulting in long-term performance that can produce greater risk-adjusted returns.

The concept of factor-based investing has been part of the investing landscape for many years. At its roots, factor-investing stretches back to the 1950's with the concept of mean-variance optimization and the Capital Asset Pricing Model ('CAPM'), which introduced the concepts of equity market risk (beta) and equity risk premiums. Since that time, factor-based investing has evolved, based largely on academic research, to include hundreds of potentially investable factors. Some of the most noteworthy risk factors include valuation, company size (market cap), quality, low volatility, profitability, and momentum.
Factor based investing seeks to isolate risk factors in the market that can potentially generate excess returns compared to traditional market exposure ('beta') represented by passive investing in market cap weighted indices.

Within the category of Alternative Active strategies, in addition to factor-based investing, are equity-based strategies that focus on combining equity exposure (beta) with other investments to create asymmetric return profiles with lower risk and greater expected return. These strategies may combine equity exposure with derivatives and fixed income (Treasuries) to reduce risk and add income to traditional equity investments. Similar to the factor based investing discussed above, these strategies fall under the category of Alternative Index strategies because they are combining equity market exposure with alternative risk factors to generate positive, risk adjusted, equity like returns.

As shown previously, many active managers in the large cap U.S. equity space have struggled to generate excess returns above market benchmarks. While not isolated to this segment of the market, research (including that performed by Verus) has shown this to be the most efficient space where managers are challenged to consistently earn excess returns. The result has been a shift to passively managed investment products with low fees, but with no expectation of outperforming general index returns.

Increasing exposure to market cap weighted indices, through traditional passive management, increases concentration in large capitalization stocks (as detailed above) along with traditional equity beta exposure. Alternative index managers allow investors to gain equity market exposure through specifically identified factors with a quantifiable track record of outperformance and lower fees than traditional active management.

Staff and Verus plan to provide further education related to Alternative Active strategies at an upcoming Board meeting, and based on feedback from SCERS' Board, anticipate potentially recommending the inclusion of this type of strategy within the large cap active segment of SCERS' Domestic Equity asset class, and conducting an investment manager search accordingly.

INTERNATIONAL EQUITY STRUCTURE

SCERS' International Equity asset class is structured in a similar manner to SCERS' Domestic Equity asset class, with a focus on minimizing Benchmark Risk and Allocation Risk, while allowing for Manager Risk to dominate overall Policy Risk. However, as referenced previously, the International Equity portfolio uses only active management, with no allocation to passive management.

SCERS' International Equity portfolio has experienced more recent changes, compared to SCERS' Domestic Equity portfolio, with five out of the nine active managers (excluding REITs) being hired within the past five years. The result of these changes is a portfolio more closely aligned with Policy Risk targets compared to the Domestic Equity portfolio. The International Equity portfolio has lower levels of Benchmark Risk and Allocation Risk (versus the Domestic Equity portfolio) and greater Manager Risk.

Despite the recent International Equity structure adjustments, the current structure still has material Benchmark Risk. As discussed above, eliminating the direct allocation to REITs will help reduce Benchmark Risk.

Dedicated Emerging Market Small Cap Allocation

In 2013, the Board approved the recommendation to add a dedicated emerging markets ('EM') small cap mandate to the International Equity structure. At the time, EM small cap was viewed as a more nascent strategy within emerging markets, adding the possibility for excess returns and potential diversification benefits versus all cap emerging market strategies, given its higher allocation to domestic demand driven sectors. While the potential for these benefits still remain, the likelihood of earning differentiated returns from a dedicated EM small cap strategy has diminished.

Over the past five years, the returns from EM all cap (which includes a mix of large cap, mid cap, and small cap stocks) and EM small cap have been nearly identical, with an annualized return difference of less than 50 basis points. Additionally, the correlation between the index returns has increased from 94% to approximately 97%, highlighting that the different segments of the EM markets move in near identical direction.

Source: Yahoo Finance, five years ending 9/30/17
MSCI Emerging Markets Index (EEM), MSCI Emerging Markets Small Cap Index (EEMS)

In addition to the dedicated EM small cap allocation, SCERS has exposure to EM small cap through the existing EM all cap managers, which invest in EM across the capitalization spectrum. SCERS also has exposure to EM small cap through its ACWI ex-US manager (Lazard), which also has an all cap mandate. Maintaining a dedicated allocation to EM small cap creates a market cap bias within the portfolio.

Currently, the allocation to EM small cap strategies is approximately 2.6% of the international equity portfolio or 0.7% of the total SCERS portfolio. The allocation is split evenly between two managers. Eliminating the allocation to EM small cap has the desired effect of simplifying the portfolio and eliminating redundancies. Additionally, the EM small cap managers have the highest fee structures across the equity portfolio. Adjusting the allocation from EM small cap to EM all cap allows SCERS to gain similar market exposure with a simplified structure and lowers overall management fees.

Staff and Verus recommend eliminating the dedicated allocation to EM small cap from the International Equity structure.

Proposed International Equity Structure

As mentioned previously, the international equity structure has more recently adopted changes to its structure compared to the Domestic Equity portfolio. Therefore, the recommended structural changes are primarily related to REITs and EM small cap, as detailed above. The changes to allocation targets are designed to keep the portfolio closely aligned with the benchmark and adjust for the elimination of REITs and EM small cap segments. It is recommended that only active mandates continue to comprise the International Equity portfolio.

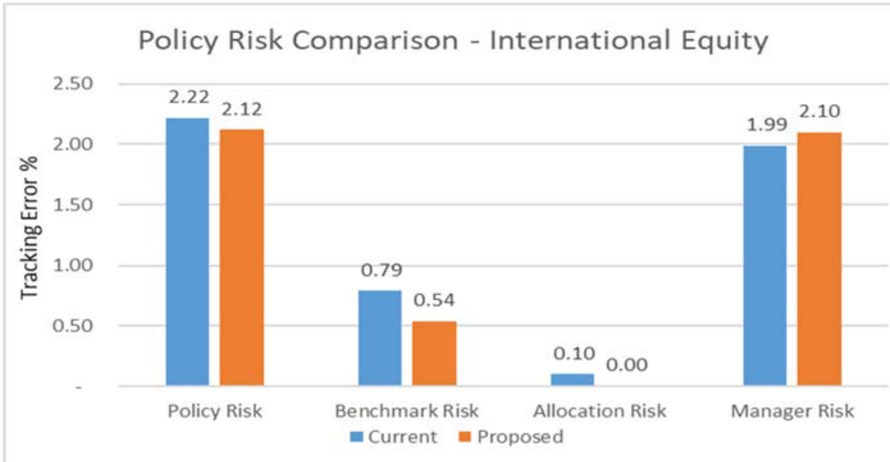
Current Structure

	Policy	Benchmark	Allocation	Manager
ACWI ex US	100.0%	20.0%	21.5%	
Lazard				21.5%
Dev Growth (EAFE G)		23.0%	21.6%	
Walter scott				21.6%
Dev Value (EAFE V)		23.0%	24.4%	
LSV				24.4%
Dev SC Growth (EAFE SC G)		5.0%	5.8%	
William Blair Developed SC				5.8%
Dev SC Value (EAFE SC V)		5.0%	4.9%	
Mondrian developed SC				4.9%
EM (MSCI EM)		19.0%	17.9%	
Baillie Gifford EM				8.4%
Modrian EM				6.9%
Mondrian EM SC				1.2%
William Blaire EM SC				1.4%
Intl Reit (FTSE NAREIT dev ex US)		5.0%	3.9%	
CBRE Clarion				3.9%

Proposed Structure

	Policy	Benchmark	Allocation	Manager
ACWI ex US IMI	100.0%	20.0%	20.0%	
Active Manager				20.0%
Dev Growth (EAFE G)		25.0%	25.0%	
Active Manager				25.0%
Dev Value (EAFE V)		25.0%	25.0%	
Active Manager				25.0%
Dev SC Growth (EAFE SC G)		5.0%	5.0%	
Active Manager				5.0%
Dev SC Value (EAFE SC V)		5.0%	5.0%	
Active Manager				5.0%
EM (MSCI EM)		20.0%	20.0%	
Active Managers				20.0%

The structural changes to the international equity portfolio have the effect of reducing Policy Risk, due to reductions in Benchmark Risk and Allocation risk, while maintaining Manager Risk as the primary source of Policy Risk (as modeled by Verus). As discussed previously, Manager Risk is viewed positively in the context of an active manager’s ability to generate excess returns above their benchmark.



SUMMARY OF EQUITY STRUCTURE RECOMMENDATIONS

As detailed throughout the report, there are several recommendations made by Staff and Verus to adjust the structure of the Domestic and International Equity asset classes. The following section summarizes the recommendations.

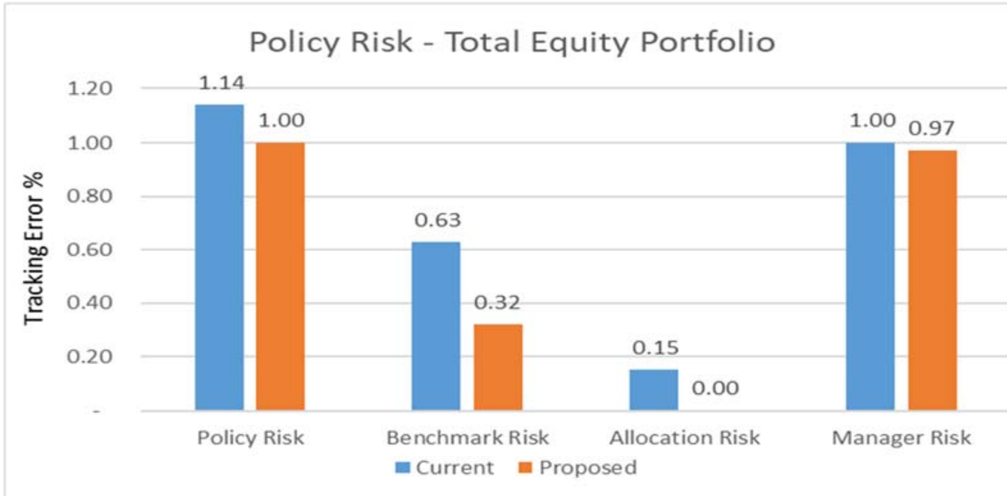
Domestic Equity Recommendations and Next Steps

- Approve the proposed structure for Domestic Equity which includes:
  - Eliminating the domestic allocation to REITs; and
  - Adjusting the target allocation to small cap equities to comprise 10% (from 14%) of the Domestic Equity portfolio; and
  - Consolidating the large cap active allocation and adjusting the target to 36% (from 27%).
- Staff and Verus will review the manager structure within the large cap and small cap active management segments and return to the Board with specific recommendations at an upcoming Board meeting.

International Equity Recommendations and Next Steps

- Approve the proposed structure for International Equity which includes:
  - Eliminating the international equity allocation to REITs; and
  - Eliminating the allocation to Emerging Markets Small Cap.
- Staff and Verus will review the existing manager structure within the International Equity portfolio and return to the Board with specific recommendations at an upcoming Board meeting.

As modeled by Verus, based on the recommended structural changes, the Policy Risk for the total equity portfolio is reduced based on a reduction to Benchmark Risk and Allocation Risk, while Manager Risk stays consistent and is the primary determinant of overall Policy Risk.



IMPLEMENTATION

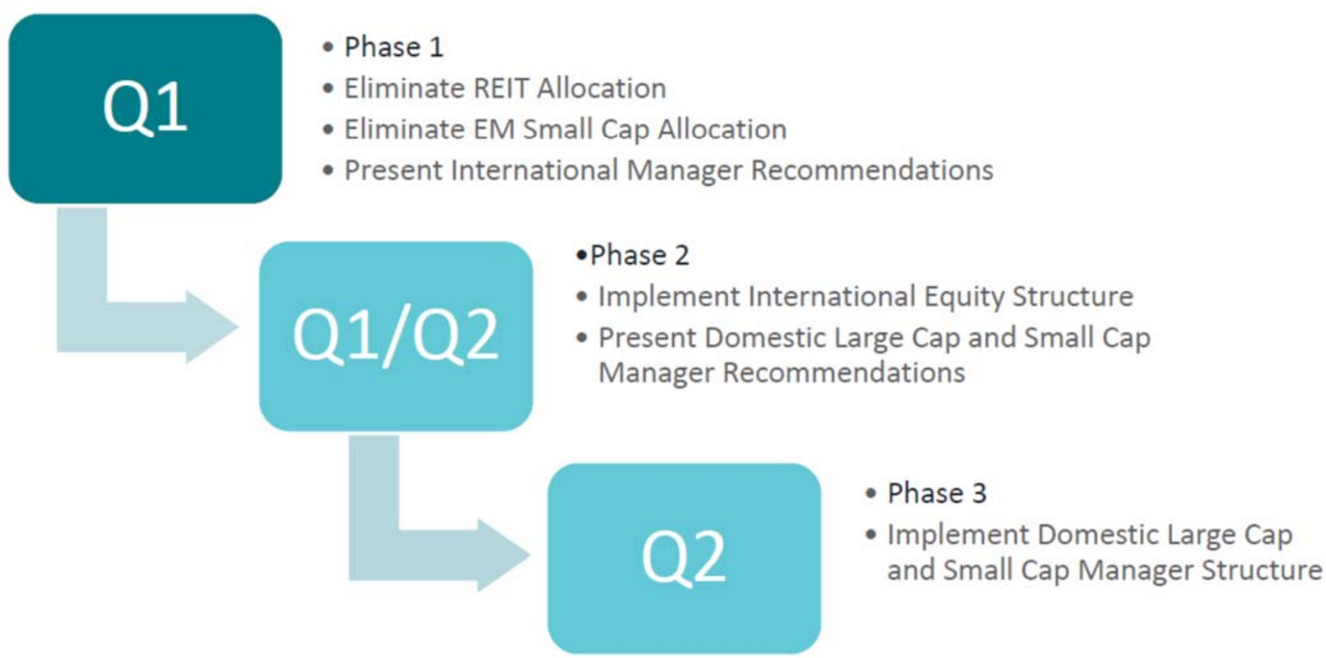
Pending the Board's approval of the changes recommended by Staff and Verus in this report, Staff and Verus will begin developing an implementation plan for the proposed changes to the Domestic and International Equity Portfolios.

Implementation Timeline

Below is the estimated timeline for implementing the recommendations. The actual timeline could vary based on:

- The cash needs of SCERS' overall portfolio.
    - As mentioned previously, given the over-weights within SCERS' Domestic and International Equity portfolios, these portfolios will serve as the source of capital for several upcoming portfolio rebalances to align with the new strategic asset allocation. These include:
        - Rebalancing SCERS' public fixed income portfolios to target.
        - Rebalancing SCERS' Overlay Program to the new structure (which is being presented at the January Board meeting).
        - Funding allocations to Private Credit, Private Equity, and Diversifying Absolute Return.
- Finalizing manager recommendations for both the Domestic and International Equity portfolios.
- The hiring of transition managers, as necessary, to implement portfolio transactions.

Implementation Timeline



ATTACHMENTS

Verus Public Equity Structure Analysis

Prepared by:

/S/

Brian Miller
Investment Officer

/S/

Steve Davis
Chief Investment Officer

Reviewed by:

/S/

Eric Stern
Chief Executive Officer

Verus

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

JANUARY 2018

Public Equity Structure Analysis

Sacramento County Employees’ Retirement System

Table of contents

Verus

VERUSINVESTMENTS.COM

SEATTLE 206-622-3700
LOS ANGELES 310-297-1777
SAN FRANCISCO 415-362-3484

Overview

Structure Overview

— As part of the ALM study SCERS adopted new targets within Equity with a 20% allocation to International and 21% to Domestic Equity

Asset Category	Asset Class	Prior Target Allocation	Target Allocation	Change
Growth		63.0%	59.0%	-4.0%
	Domestic Equity	22.5%	21.0%	-1.5%
	International Equity	22.5%	20.0%	-2.5%
	Private Equity	10.0%	9.0%	-1.0%
	Public Credit	2.0%	2.0%	0.0%
	Private Credit	0.0%	4.0%	4.0%
	Growth Absolute Return	6.0%	3.0%	-3.0%
Diversifying		22.0%	25.0%	3.0%
	Core/Core Plus Fixed Income	15.0%	10.0%	-5.0%
	US Treasury	0.0%	5.0%	5.0%
	Global Fixed Income	3.0%	3.0%	0.0%
	Diversifying Absolute Return	4.0%	7.0%	3.0%
Real Return		15.0%	16.0%	1.0%
	Real Estate	7.0%	7.0%	0.0%
	Real Assets	6.0%	7.0%	1.0%
	Commodities	2.0%	2.0%	0.0%
	TIPS	0.0%	0.0%	0.0%
Opportunities		0.0%	0.0%	0.0%
		100.0%	100.0%	

Structure Overview

— For the Public Equity structure, Verus and Staff have reviewed the following:
  - Portfolio risks within domestic and international equity portfolios
  - Role of active/passive management across the equity portfolio
  - Reviewed each of the existing managers in SCERS' Public Equity Portfolio
  - Streamlining and simplifying the portfolio by eliminating unintended risks and redundancies

Plan structure

Current Structure

US Equity	Policy	Benchmark	Allocation	Manager
Russell 3000	100%			
LC Passive (R1000)		54.0%	52.0%	
AB				52.0%
LC Active (R1000)		5.0%	16.3%	
JPM 130/30				5.3%
Eagle				11.0%
LCV (R1000 V)		11.0%	5.5%	
Huber				5.5%
LCG (R1000 G)		11.0%	5.5%	
Brown				5.5%
SCV (R2000V)		7.0%	8.0%	
Dalton				3.8%
Wedge				4.2%
SCG (R2000G)		7.0%	8.2%	
UBS				3.2%
Weatherbie				5.0%
REITs (FTSE NAREIT)		5.0%	4.5%	
Centersquare				4.5%

International	Policy	Benchmark	Allocation	Manager
ACWI ex US	100%	20.0%	21.5%	
Lazard				21.5%
Dev Growth (EAFE G)		23.0%	21.6%	
Walter scott				21.6%
Dev Value (EAFE V)		23.0%	24.4%	
LSV				24.4%
Dev SC Growth (EAFE SC G)		5.0%	5.8%	
William Blair Developed SC				5.8%
Dev SC Value (EAFE SC V)		5.0%	4.9%	
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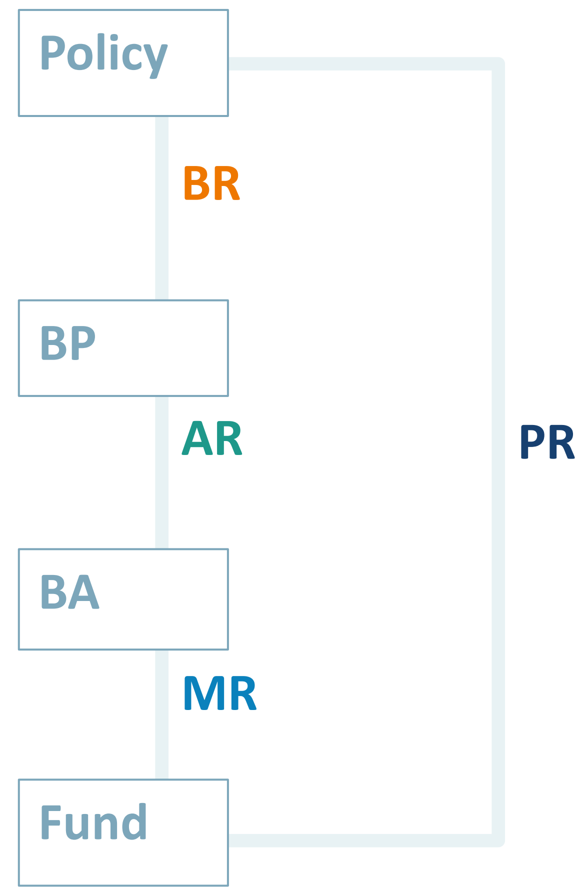
EM (MSCI EM)		19.0%	17.9%	
Baillie Gifford EM				8.4%
Mondrian EM				6.9%
Mondrian EM SC				1.2%
William Blair EM SC				1.4%
Intl REITs (FTSE NAREIT dev ex US)		5.0%	3.9%	
CBRE Clarion				3.9%

Breaking out Risks

BR + AR + MR = PR

- **Policy Risk (PR) =** Total **Fund** tracking error to **Policy.**
  - **Benchmark Risk (BR) =** Tracking error from mandate vs policy benchmarks
  - **Allocation Risk (AR) =** Tracking error from actual vs policy allocation weights
  - **Manager Risk (MR) =** Tracking error from manager vs mandate benchmark



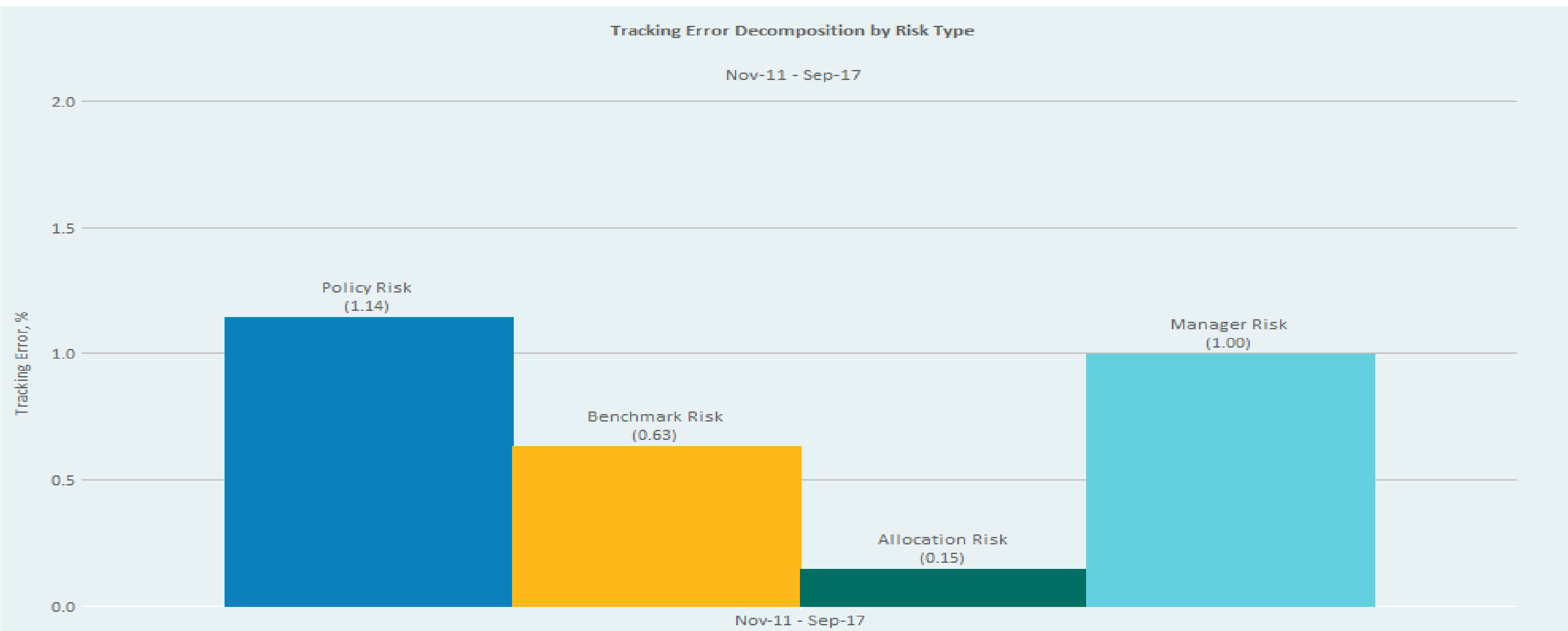
Policy risk (PR)

— Total **Fund** tracking error to **Policy**.

— The sum of **BR**, **AR**, and **MR** equals **PR**.

— The ability to understand where **PR** comes from is extremely insightful.

— The ideal risk profile is that **MR** dominates **PR**. However, in this case **BR** is material:



Domestic Equity

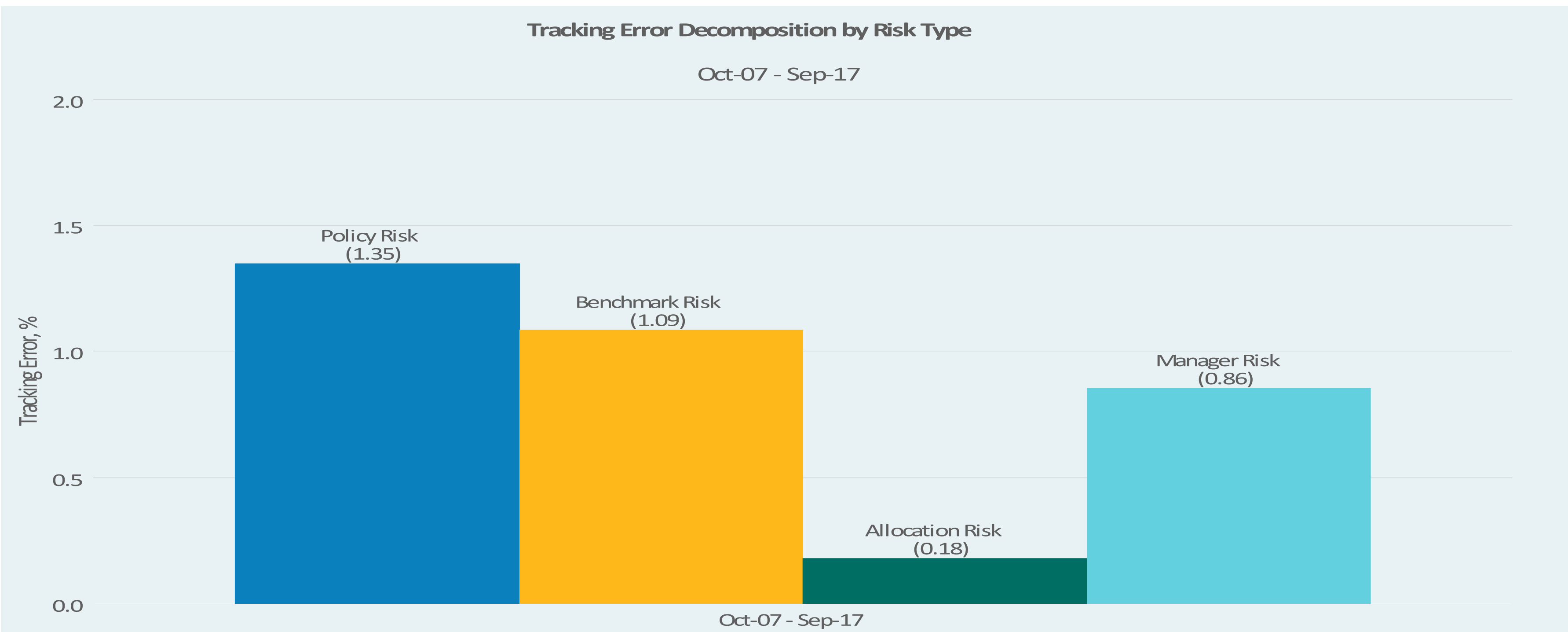
Policy risk (PR) – Domestic Equity

— Total **Fund** tracking error to **Policy**.

— The sum of **BR**, **AR**, and **MR** equals **PR**.

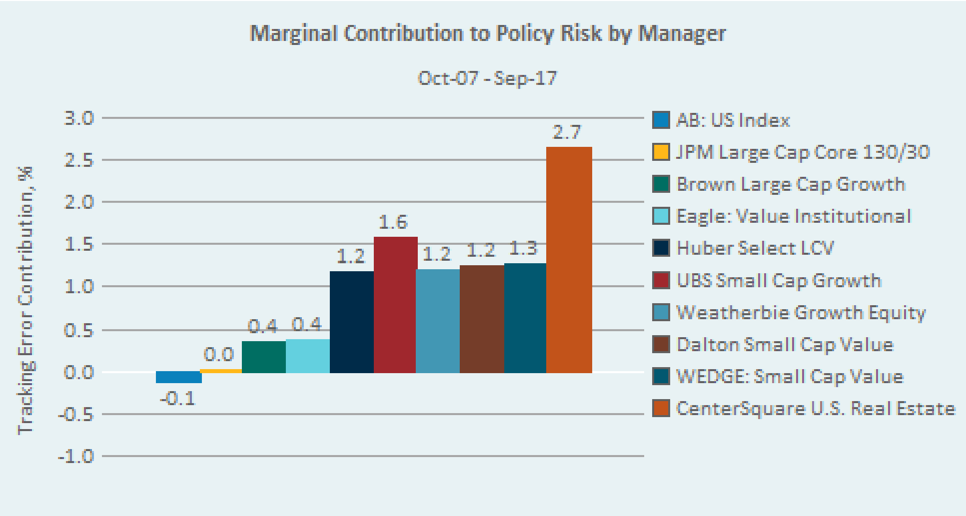
— The ability to understand where **PR** comes from is extremely insightful.

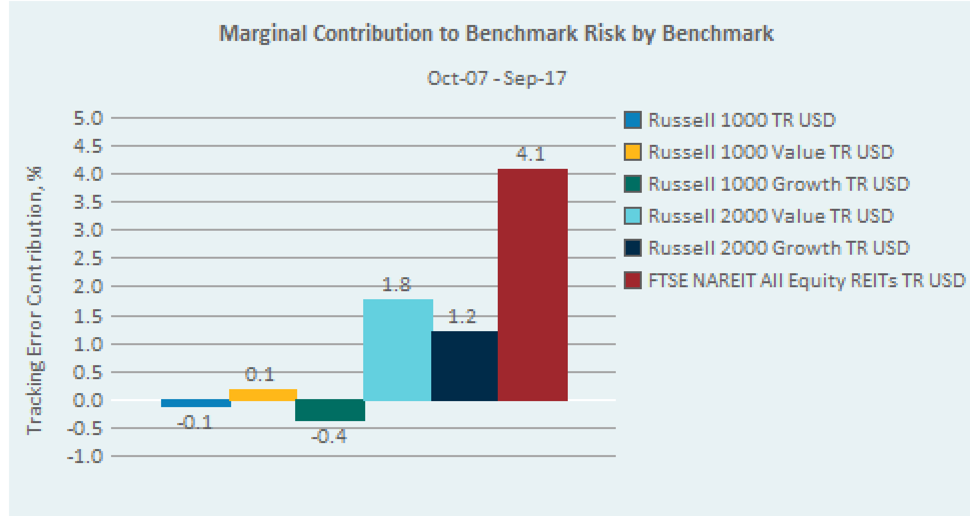
— The ideal risk profile is that **MR** dominates **PR**. However, in this case **BR** is material.

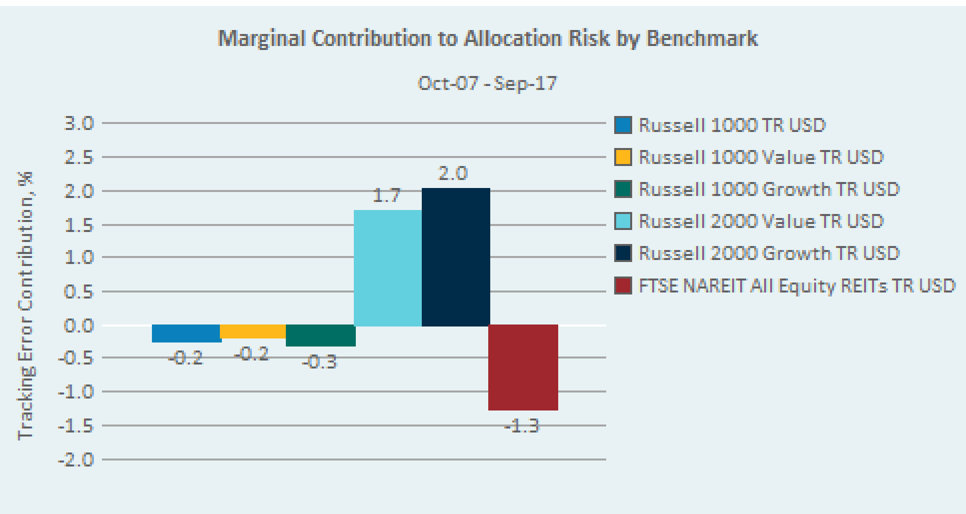


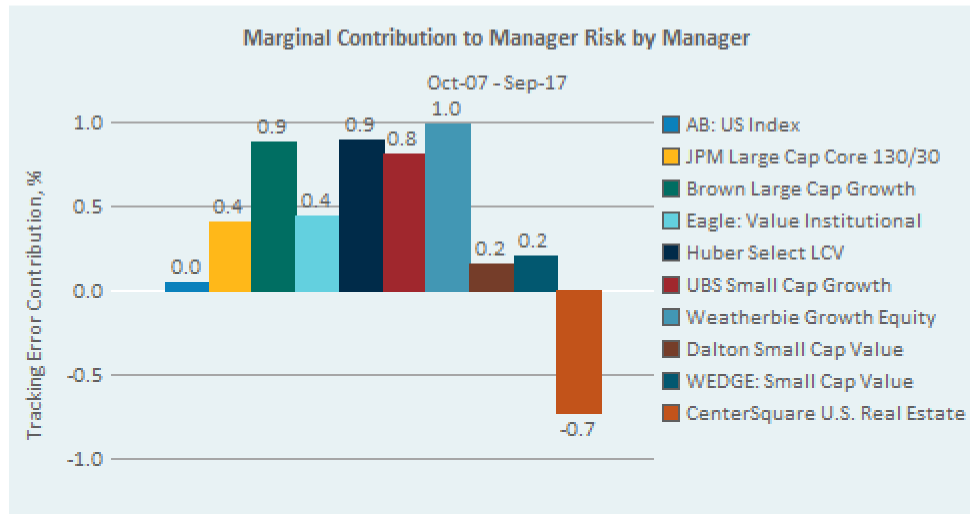
Created with MPI Analytics

Marginal Contribution

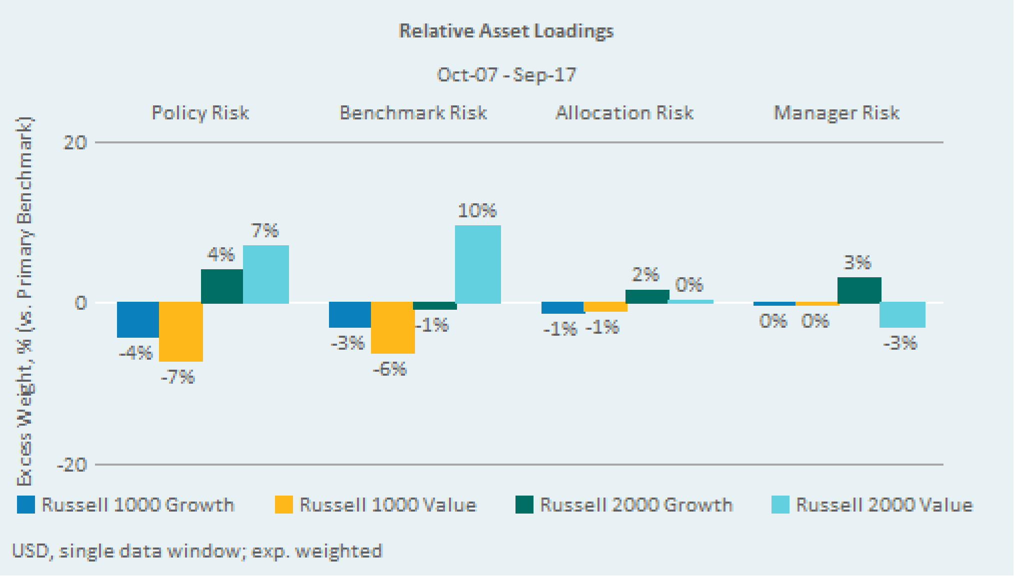


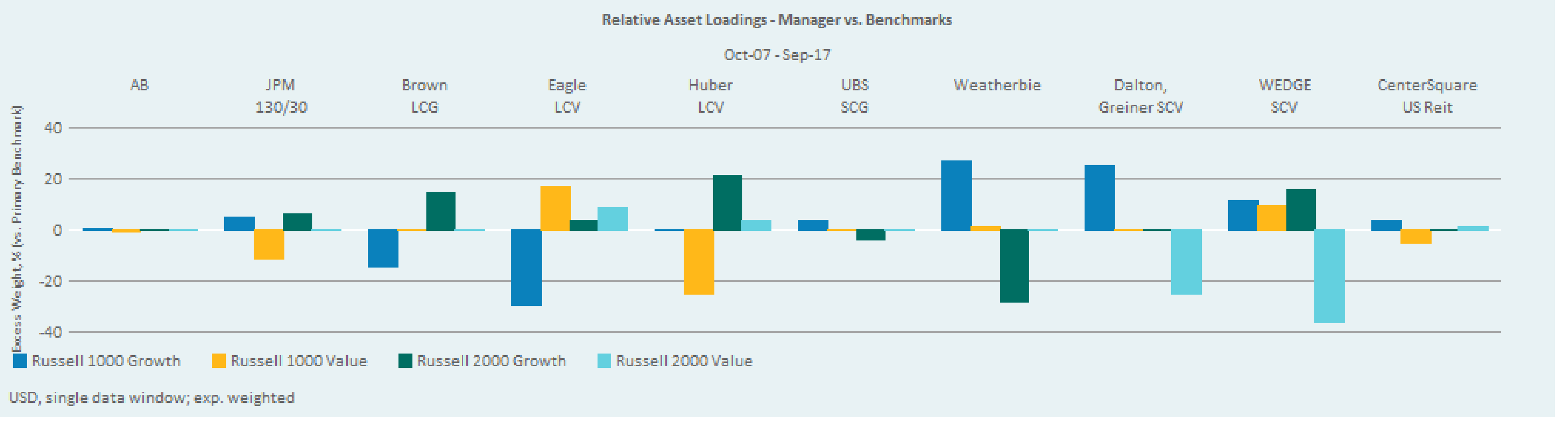




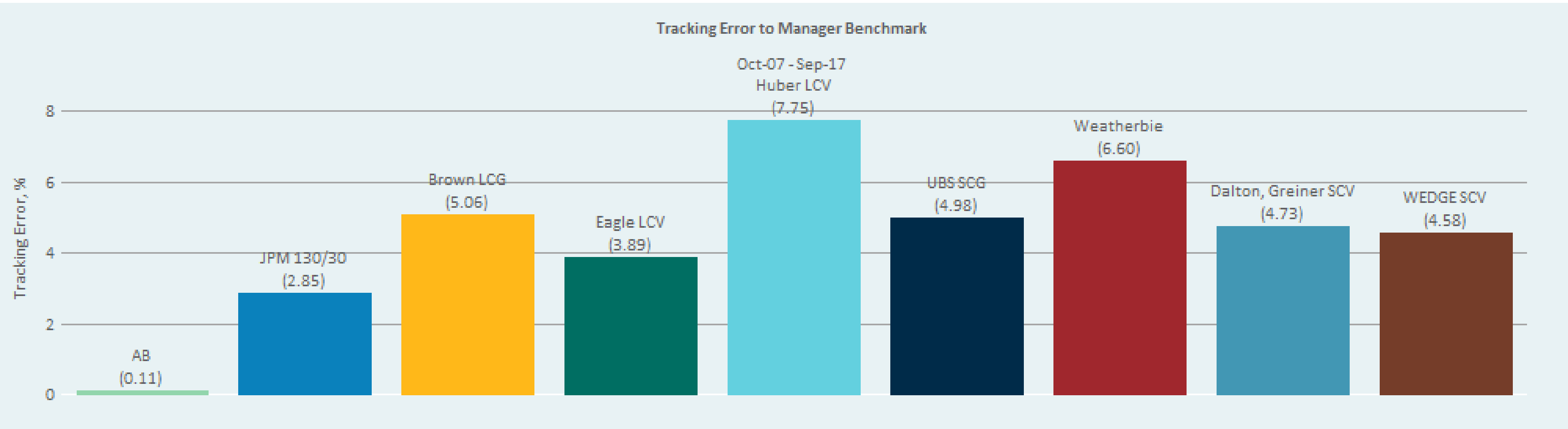


Factor Regression (relative to benchmark)





Manager Tracking Errors and Correlations



Excess Returns Correlation	AB: R1000	JPM: 130/30	Brown	Eagle	Huber	UBS	Weatherbie	Dalton	WEDGE	CenterSquare
AB: R1000	1.00	0.01	0.08	0.22	-0.38	0.12	0.10	0.54	0.34	0.08
JPM: 130/30	0.01	1.00	0.19	0.41	0.11	0.08	-0.05	-0.01	0.07	0.10
Brown	0.08	0.19	1.00	0.08	0.07	0.15	0.15	0.00	0.13	-0.14
Eagle	0.22	0.41	0.08	1.00	0.11	0.06	-0.23	0.15	0.19	0.08
Huber	-0.38	0.11	0.07	0.11	1.00	0.08	-0.08	-0.26	-0.12	0.14
UBS	0.12	0.08	0.15	0.06	0.08	1.00	0.20	0.20	-0.05	0.04
Weatherbie	0.10	-0.05	0.15	-0.23	-0.08	0.20	1.00	0.28	0.11	-0.03
Dalton	0.54	-0.01	0.00	0.15	-0.26	0.20	0.28	1.00	0.47	0.01
WEDGE	0.34	0.07	0.13	0.19	-0.12	-0.05	0.11	0.47	1.00	-0.05
CenterSquare	0.08	0.10	-0.14	0.08	0.14	0.04	-0.03	0.01	-0.05	1.00

Structure Inputs – Domestic Equity

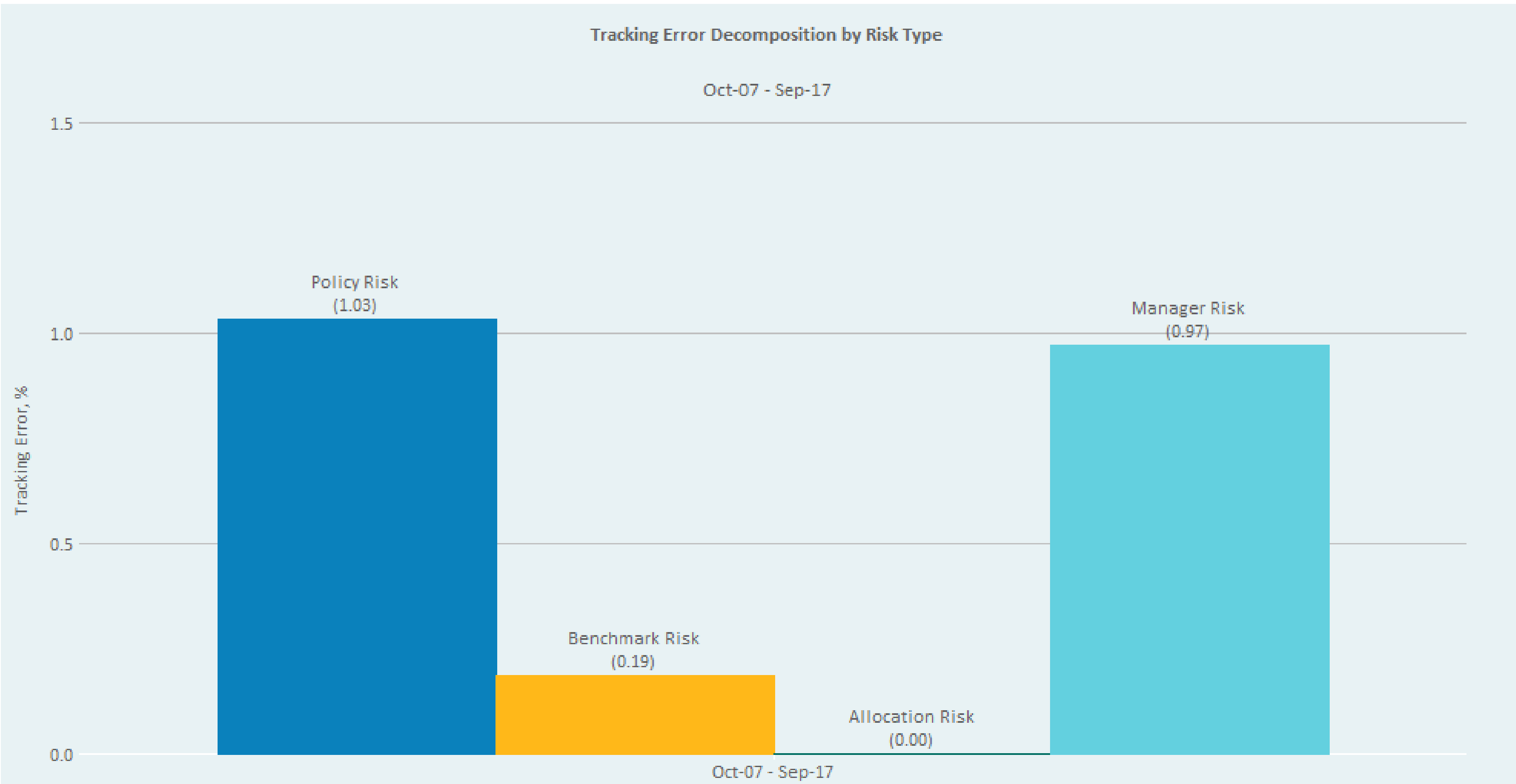
Current Structure

	Policy	Benchmark	Allocation	Manager
Russell 3000	100.0%			
LC Passive (R1000)		54.0%	52.0%	
AB				52.0%
LC Active (R1000)		5.0%	16.3%	
JPM 130/30				5.3%
Eagle				11.0%
LCV (R1000 V)		11.0%	5.5%	
Huber				5.5%
LCG (R1000 G)		11.0%	5.5%	
Brown				5.5%
SCV (R2000V)		7.0%	8.0%	
Dalton				3.8%
Wedge				4.2%
SCG (R2000G)		7.0%	8.2%	
UBS				3.2%
Weatherbie				5.0%
REITs (FTSE NAREIT)		5.0%	4.5%	
Centersquare				4.5%

Proposed Structure

	Policy	Benchmark	Allocation	Manager
Russell 3000	100.0%			
LC Passive (R1000)		54.0%	54.0%	
Passive Manager				54.0%
LC Active (R1000)		36.0%	36.0%	
Active Managers				36.0%
SCV (R2000V)		5.0%	5.0%	
Active Managers				5.0%
SCG (R2000G)		5.0%	5.0%	
Active Managers				5.0%

Policy risk (PR) Domestic Equity-Proposed



Recommendations

In order to reduce the portfolio's unintended policy risk, we recommend SCERS take the following action:

- Eliminate the dedicated REIT allocation from the structure
  - REITs are not part of the policy index, creating allocation risk for the Plan
- Currently the US equity portfolio is overweight small-cap relative to market weight (SCERS 85/15 vs. Russell 3000 90/10 large/small)
  - We recommend correcting to market weight
- *Next steps:*
  - Develop implementation plan for Domestic Equity including specific manager recommendations

International Equity

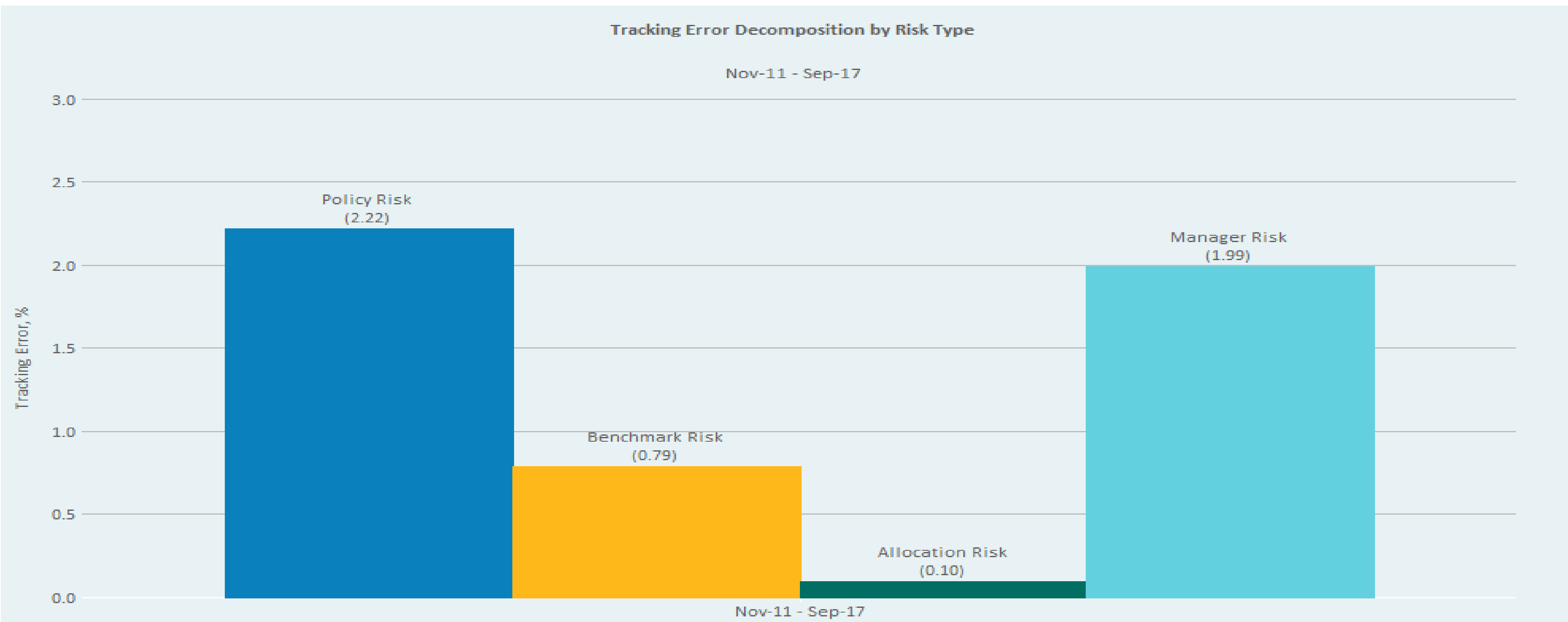
Policy risk (PR) – International Equity

— Total **Fund** tracking error to **Policy**.

— The sum of **BR**, **AR**, and **MR** equals **PR**.

— The ability to understand where **PR** comes from is extremely insightful.

— The ideal risk profile is that **MR** dominates **PR**. However, in this case **BR** is material:



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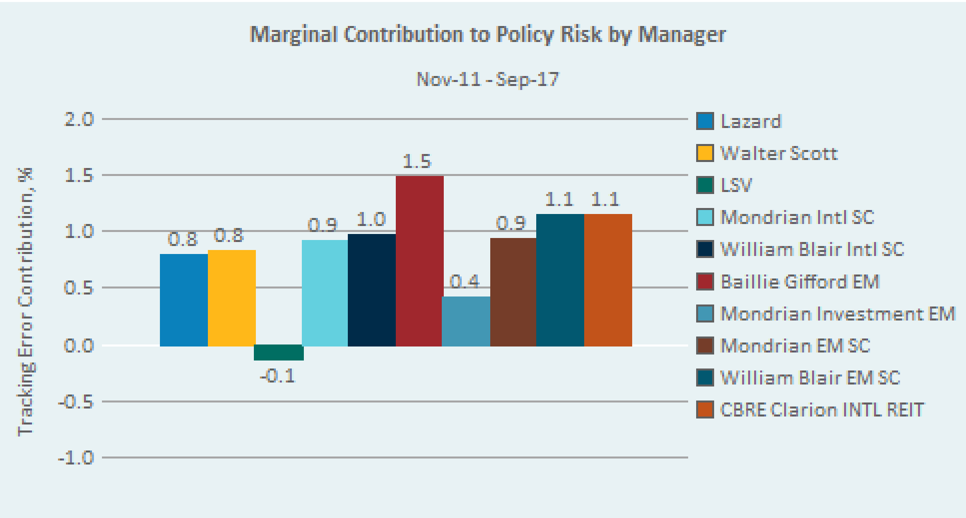

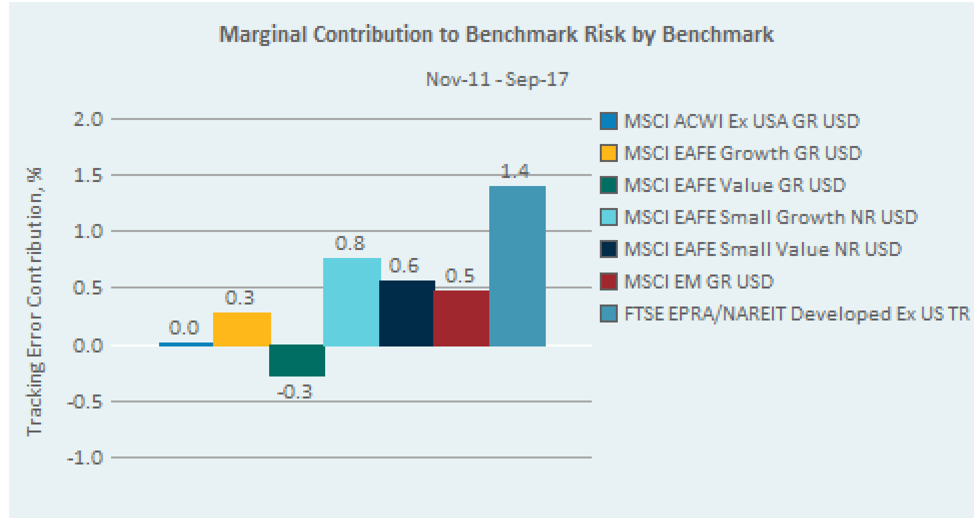

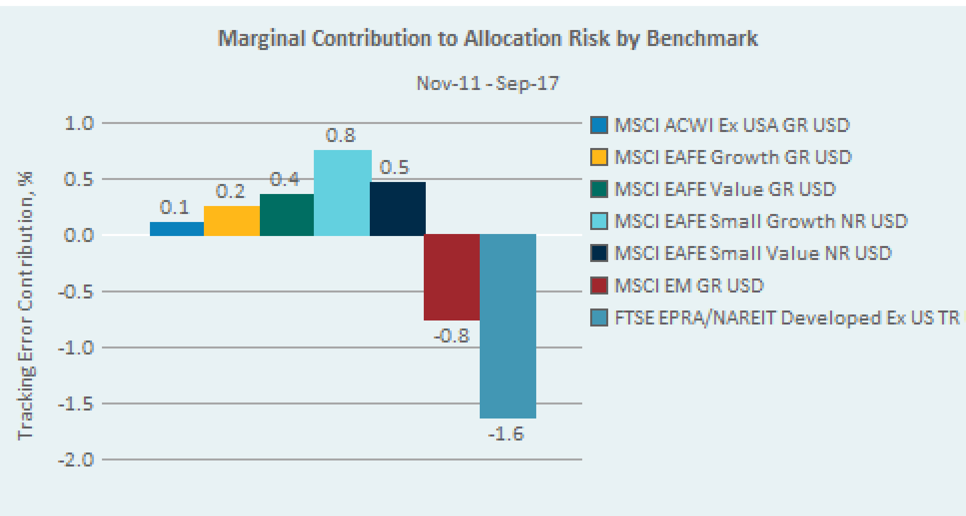

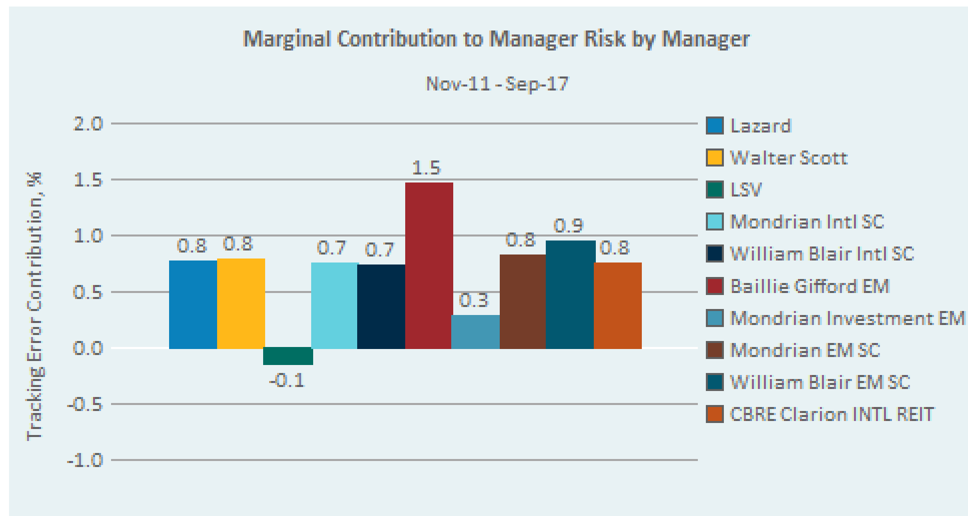

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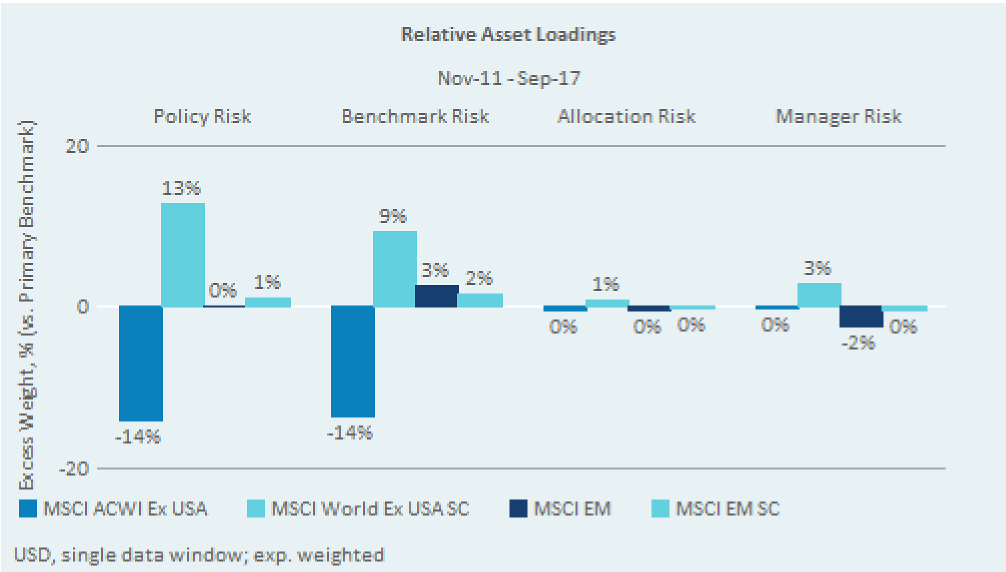

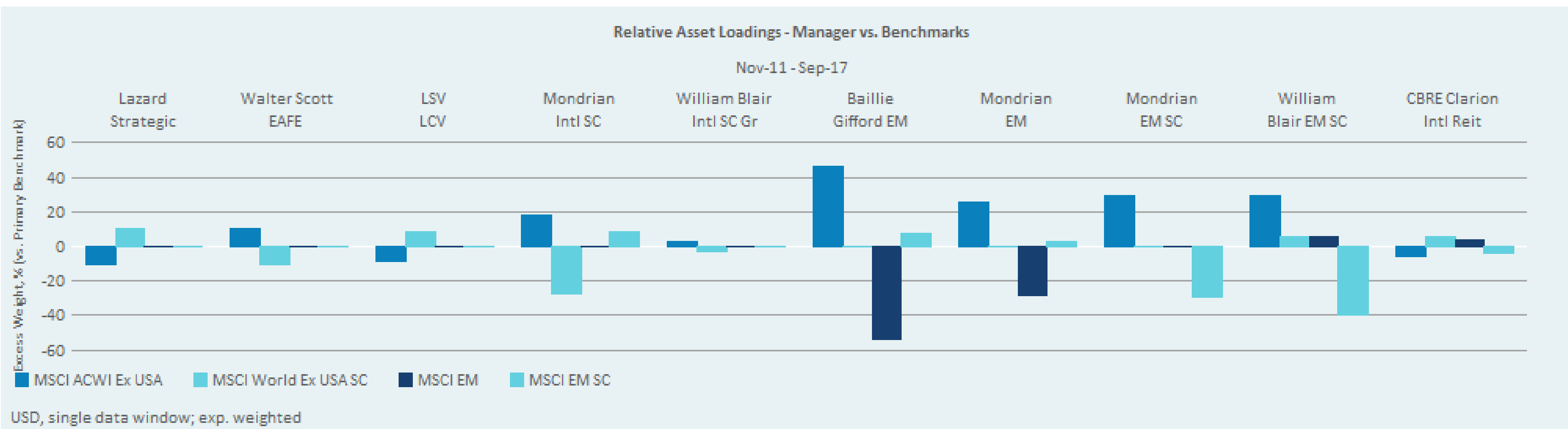

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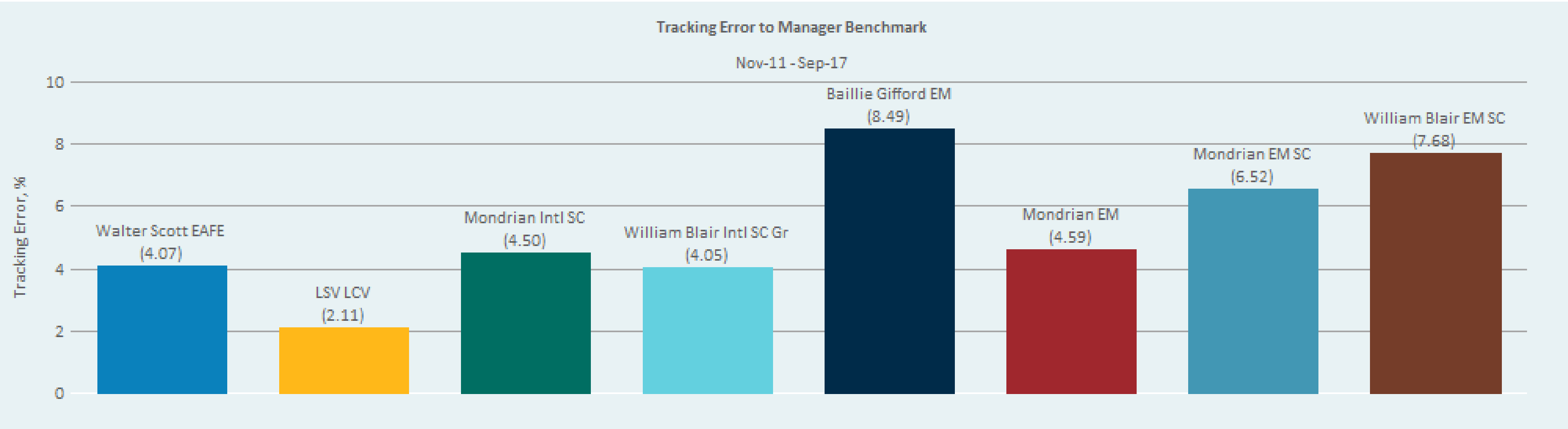

Excess Returns Correlation	Lazard	Walter Scott	LSV	Mondrian	WB SC	BG EM	Mondrian: EM	Mondrian: EM SC	WB EM SC	CBRE
Lazard	1.00	-0.35	0.10	-0.36	-0.29	-0.43	-0.10	-0.23	-0.09	0.14
Walter Scott	-0.35	1.00	-0.35	0.54	0.42	0.26	0.07	0.10	0.12	-0.11
LSV	0.10	-0.35	1.00	-0.29	-0.41	-0.47	-0.41	-0.29	-0.40	0.09
Mondrian	-0.36	0.54	-0.29	1.00	0.47	0.25	0.13	0.25	0.20	-0.27
WB SC	-0.29	0.42	-0.41	0.47	1.00	0.33	0.20	0.35	0.55	0.07
BG EM	-0.43	0.26	-0.47	0.25	0.33	1.00	0.63	0.47	0.40	-0.12
Mondrian: EM	-0.10	0.07	-0.41	0.13	0.20	0.63	1.00	0.57	0.48	-0.11
Mondrian: EM SC	-0.23	0.10	-0.29	0.25	0.35	0.47	0.57	1.00	0.68	-0.07
WB EM SC	-0.09	0.12	-0.40	0.20	0.55	0.40	0.48	0.68	1.00	0.16
CBRE	0.14	-0.11	0.09	-0.27	0.07	-0.12	-0.11	-0.07	0.16	1.00

Structure Inputs – International Equity

Current Structure

	Policy	Benchmark	Allocation	Manager
ACWI ex US	100.0%	20.0%	21.5%	
Lazard				21.5%
Dev Growth (EAFE G)		23.0%	21.6%	
Walter scott				21.6%
Dev Value (EAFE V)		23.0%	24.4%	
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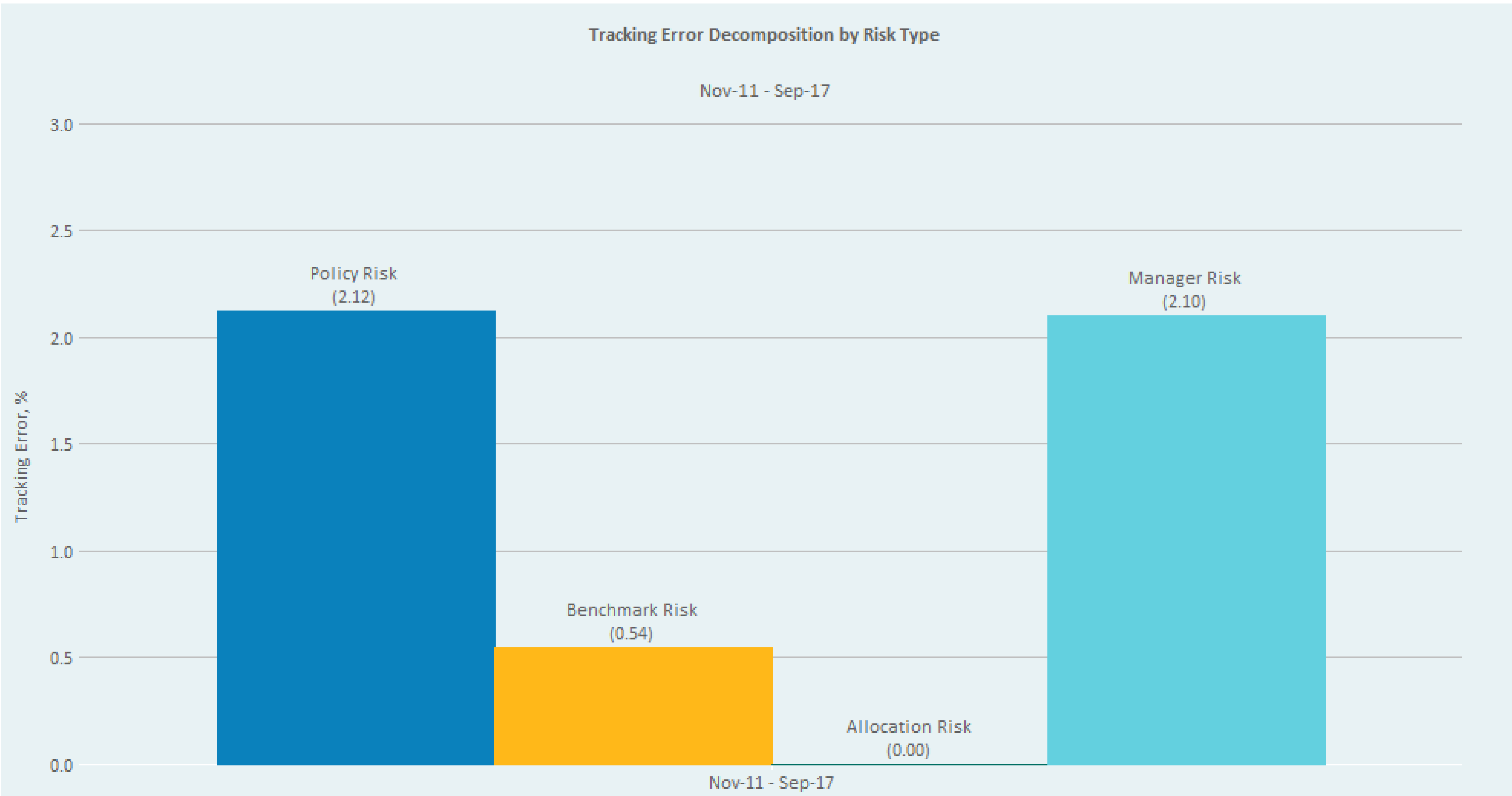
Dev SC Growth (EAFE SC G)		5.0%	5.8%	
William Blair Developed SC				5.8%
Dev SC Value (EAFE SC V)		5.0%	4.9%	
Mondrian developed SC				4.9%
EM (MSCI EM)		19.0%	17.9%	
Baillie Gifford EM				8.4%
Mondrian EM				6.9%
Mondrian EM SC				1.2%
William Blair EM SC				1.4%
Intl REITs (FTSE NAREIT dev ex US)		5.0%	3.9%	
CBRE Clarion				3.9%

Proposed Structure

	Policy	Benchmark	Allocation	Manager
ACWI ex US IMI	100.0%	20.0%	20.0%	
Active Manager				20.0%
Dev Growth (EAFE G)		25.0%	25.0%	
Active Manager				25.0%
Dev Value (EAFE V)		25.0%	25.0%	
Active Manager				25.0%
Dev SC Growth (EAFE SC G)		5.0%	5.0%	
Active Manager				5.0%
Dev SC Value (EAFE SC V)		5.0%	5.0%	
Active Manager				5.0%
EM (MSCI EM)		20.0%	20.0%	
Active Managers				20.0%

Policy risk (PR) International Equity-Proposed



Recommendations

In order to reduce the portfolio's unintended policy risk, we recommend SCERS take the following action:

— Eliminate the international REIT allocation from the structure

- REITs are not part of the policy index, creating allocation risk for the Plan

— Remove the emerging market small-cap allocation

- Current emerging market strategies are all-cap mandates and dedicated small-cap strategies create a market cap bias

— *Next steps:*

- Develop implementation plan for International Equity including specific manager recommendations

Summary of Proposed Changes for Public Equity

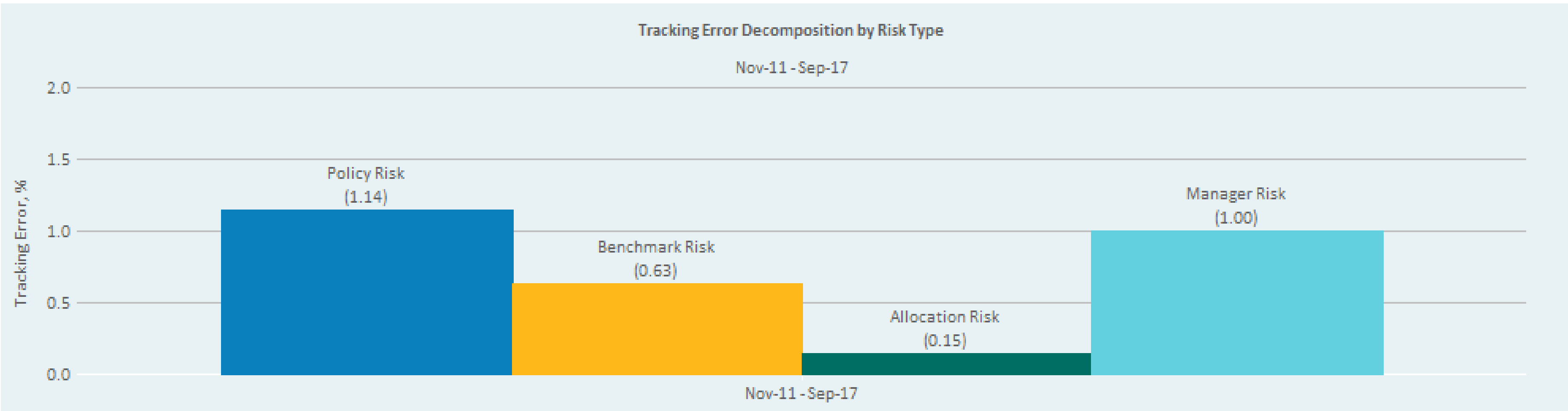
Structure Inputs – Proposed Portfolio

US Equity	Policy	Benchmark	Allocation	Manager
Russell 3000	51.2%			
LC Passive (R1000)		28.0%	28.0%	
Passive manager				28.0%
LC Active (R1000)		18.0%	18.0%	
Active Managers				18.0%
SCV (R2000V)		2.5%	2.5%	
Active Managers				2.5%
SCG (R2000G)		2.5%	2.5%	
Active Managers				2.5%

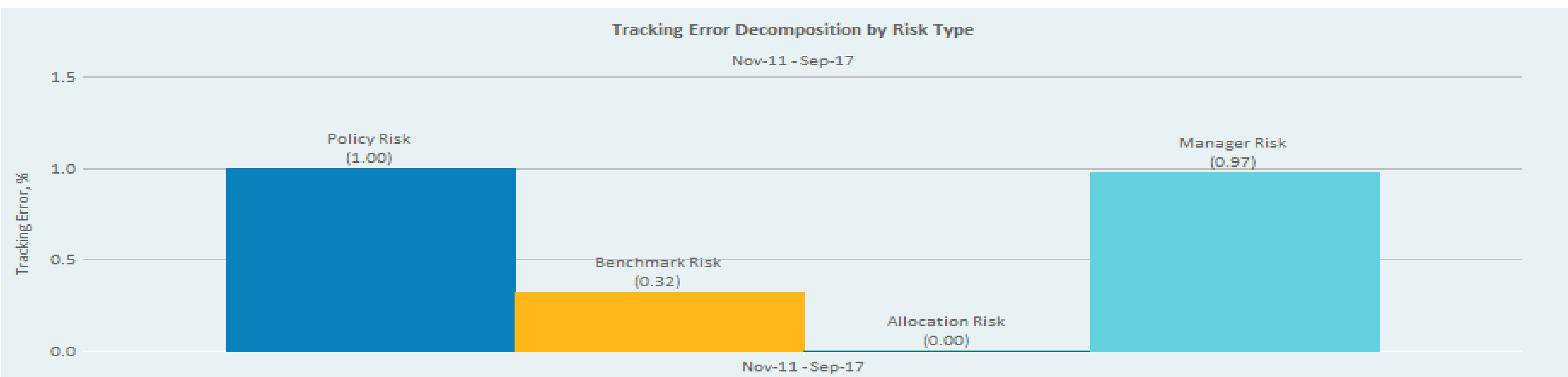
International	Policy	Benchmark	Allocation	Manager
ACWI ex US IMI	48.8%	10.0%	10.0%	
Active Manager				10.0%
Dev Growth (EAFE G)		12.0%	12.0%	
Active Manager				12.0%
Dev Value (EAFE V)		12.0%	12.0%	
Active Manager				12.0%
Dev SC Growth (EAFE SC G)		2.5%	2.5%	
Active Manager				2.5%
Dev SC Value (EAFE SC V)		2.5%	2.5%	
Active Manager				2.5%
EM (MSCI EM)		10.0%	10.0%	
Active Managers				10.0%

Policy risk (PR) Total Equity – Proposed

Current



Proposed



Summary

— Reduction in policy risk from 1.14 to 1.00

— Significant reduction in <u>uncompensated</u> benchmark risk and allocation risk

— Manager risk stays consistent; maintaining potential active management alpha

— Changes will simplify the equity portfolio and potentially reduce costs

Next steps

Implementation Timeline

Q1

- Phase 1
- Eliminate REIT Allocation
- Eliminate EM Small Cap Allocation
- Present International Manager Recommendations

Q1/Q2

- Phase 2
- Implement International Equity Structure
- Present Domestic Large Cap and Small Cap Manager Recommendations

Q2

- Phase 3
- Implement Domestic Large Cap and Small Cap Manager Structure

Alternative Active Management Strategies

SCERS currently has around half of the US Public Equity assets in a market cap-weighted passive portfolio

- Market-cap weighted indices carry their own set of unique risks due to the momentum imbedded within the structure
- While we believe the market is mostly efficient in US Large Cap equities, we are hesitant to increase SCERS exposure to additional cap-weighted equity indexing
- There are a number of alternative active management investment strategies which SCERS can allocate to that will diversify away from traditional cap-weighted passive and traditional active managers.

Alternative Active Management Strategies

— Alternative active managed strategies is a broad category covering a wide range of investment options.

— Common terminology used for these strategies include: “Smart-Beta” “Factor-Investing” “Alternative Risk Premia” “Enhanced Indexes”

— Common features often include:

- Systematic exposure to market factors
- Combination of core equity exposure with other investment products to create positively skewed return profiles
- Lower investment fees versus traditional active management