ASSET ALLOCATION DISCUSSION

Fresno County ERA

December 4, 2013

WURTS ASSOCIATES

SEATTLE | 206.622.3700
LOS ANGELES | 310.297.1777
www.wurts.com

EXECUTIVE SUMMARY

- At the October 16, 2013 Retreat, the Board gave further consideration to the asset liability study, deciding to pursue a more risk-diversified portfolio with a dedicated tail risk-strategy.

- The objective today is to review specific portfolio mixes in order to arrive at an allocation that meets the following objectives:

  1) Reduces the portion of total risk coming from equities (i.e. more risk-diversified)
  2) Achieves a similar expected return as the mixes that were reviewed in the asset-liability study
  3) It is critical that the Trustees have a firm understanding and high level of comfort with whatever mix is ultimately decided.

- The mixes under consideration move progressively further away from the current mix and closer to the risk-diversified portfolio that was presented previously.

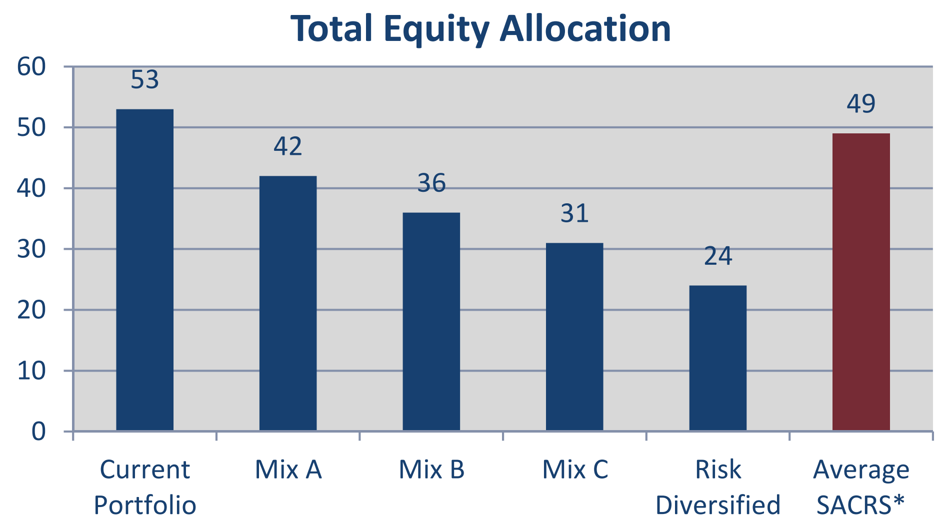
- It will be up to the Trustees to decide how much "peer risk" they are willing to take on, the primary trade-off being a better reduction in equity risk.

- What follows is several different analyses aimed at highlighting the relative differences amongst the mixes through various lenses.

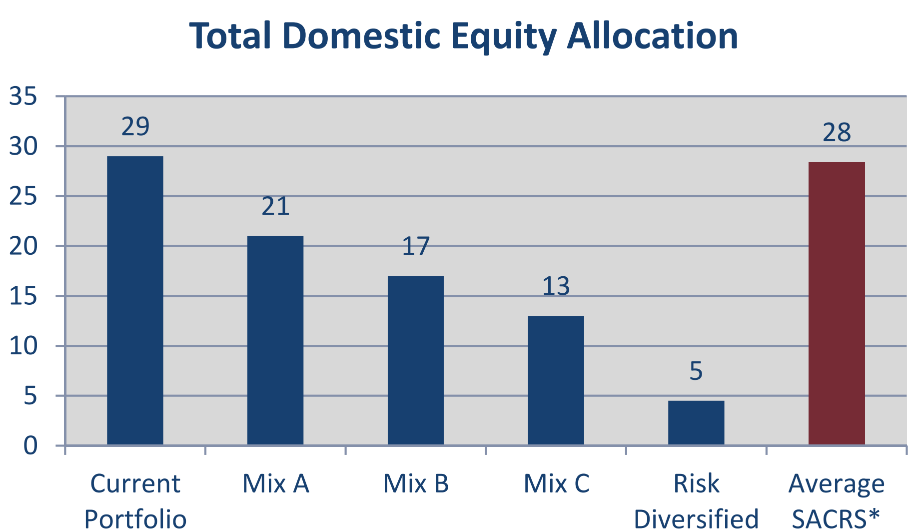
ASSET ALLOCATIONS

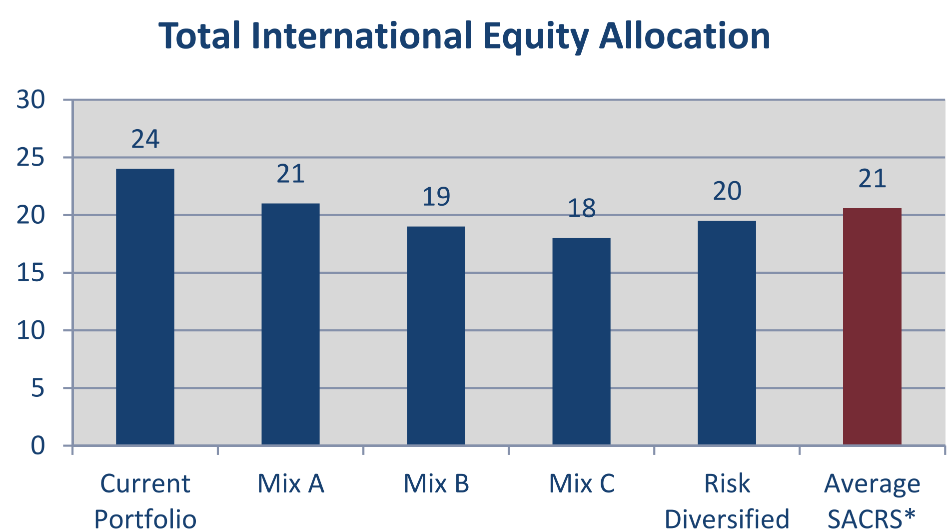
	Current Portfolio	Mix A	Mix B	Mix C	Risk Diversified	CMA's (10 Yr)
Large Cap US Equity	24	17	14	10	4.5	*6.3*
Small/Mid Cap US Equity	5	4	3	3		*6.9*
Total Domestic Equity	***29***	***21***	***17***	***13***	***4.5***	
International Large	15	11	9	7	4.5	*8.0*
International Small	4	3	3	3		*8.3*
Emerging Markets	5	7	7	8	15	*9.6*
Total Int'l Equity	***24***	***21***	***19***	***18***	***19.5***	
Total Equity	***53***	***42***	***36***	***31***	***24***	
US Core Fixed Income	19					*2.0*
US Credit Fixed Income		8	5			*3.0*
High Yield Fixed Income		4	5	5	5	*4.9*
Bank Loans		4	5	6	5	*4.1*
Global Sovereign		5	7	8	10	*2.2*
Emerging Market Debt Local	3	4	5	8	10	*5.7*
TIPS	4	3	4	4	5	*2.2*
Total Fixed Income	***26***	***28***	***31***	***31***	***35***	
Commodities	4	3	3	3	5	*4.3*
Real Estate	6	5	5	5	5	*5.6*
Infrastructure		3	3	3		*5.6*
Total Real Assets	***10***	***11***	***11***	***11***	***10***	
Liquid Alts/HFoF	4	6	8	11	15	*5.4*
Private Equity/VC	7	6	6	6	6	*9.9*
Private Credit - Mezzanine		4	5	5	5	*5.9*
Private Credit - Distressed		3	3	5	5	*6.0*
Total Non-Public Investments	***11***	***19***	***22***	***27***	***31***	
Total Allocation	**100**	**100**	**100**	**100**	**100**	

EQUITY ALLOCATIONS



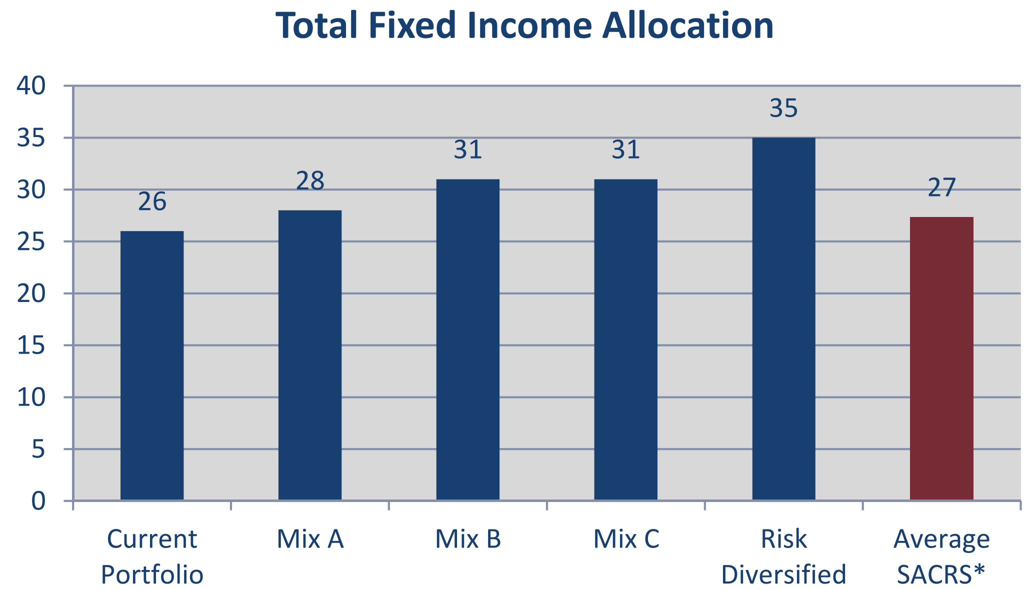
- The equity allocation is reduced under all scenarios.
- Most of that reduction is coming from domestic equities.





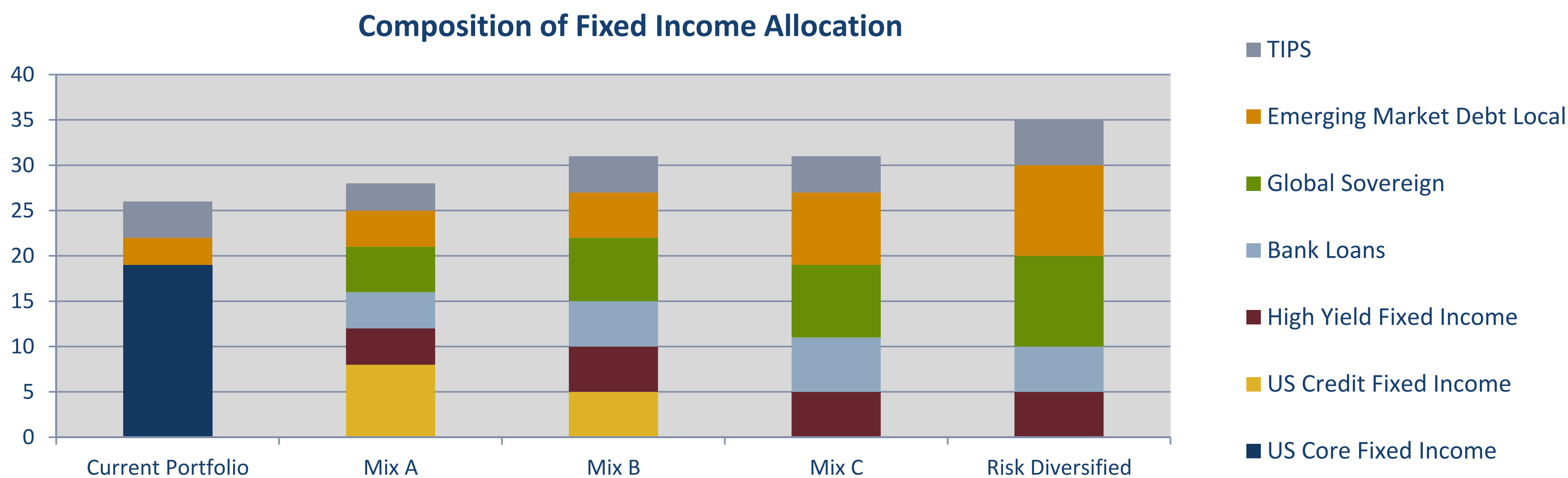
* SACRS data obtained from RV Kuhns Public Fund Universe Analysis, as of 6/30/12.

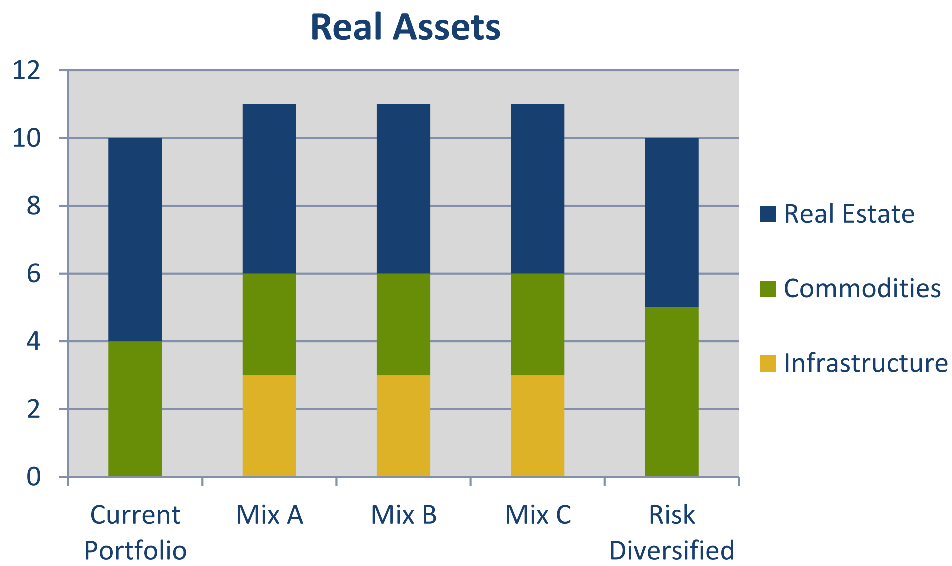
FIXED INCOME ALLOCATIONS



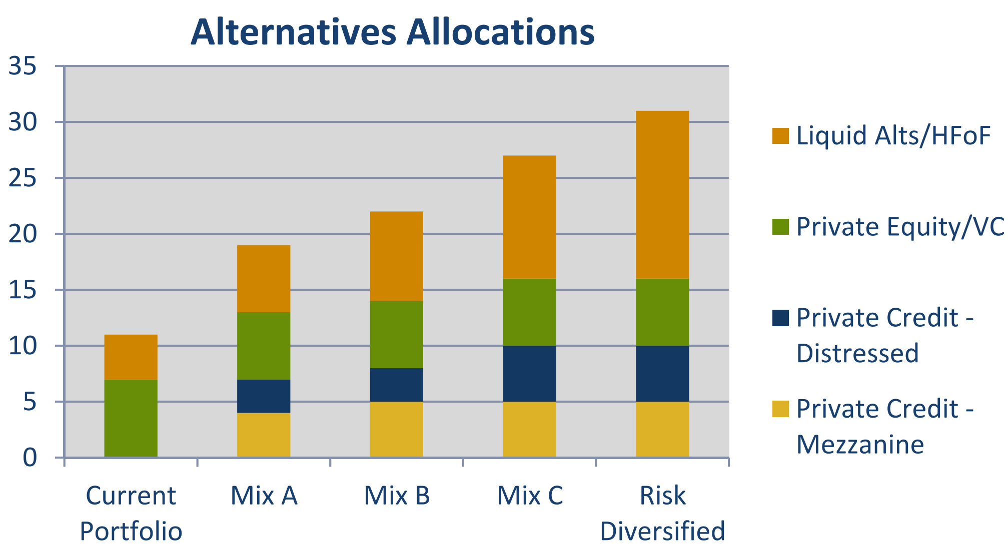
- While the total allocation to fixed income is similar to the median SACRS allocations, the composition is very different.

- Median SACRS fixed income allocations are 1.5% global, 1.8% International, and 23.98% U.S. fixed, of which a large portion is likely core bond strategies.



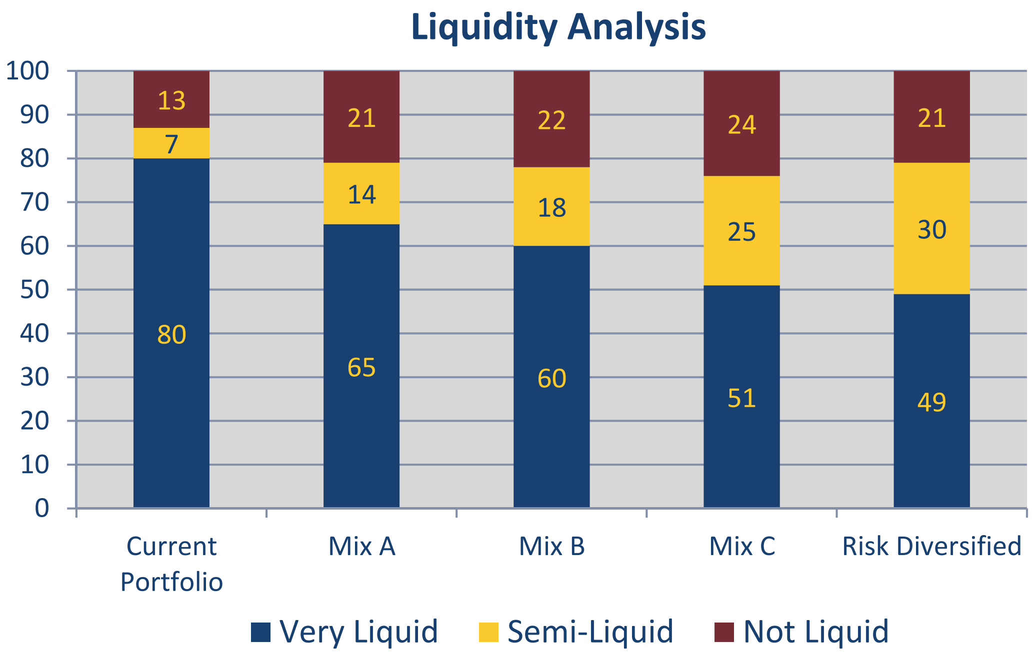


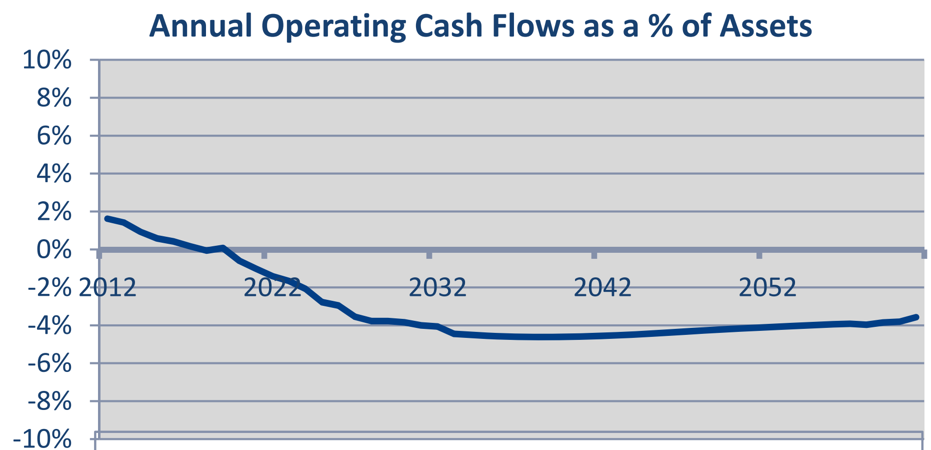
- Within the real assets allocation, Mix A-C introduce a 3% allocation to infrastructure.



- The allocation to alternatives increases significantly.
- As part of the PE allocation, the current portfolio has ~2.5% in private credit strategies.

LIQUIDITY CONSIDERATIONS





Net cash flows (employer/employee contributions less benefit payments) were forecasted to remain positive until 2020, after which the annual outflows never exceed 5%.

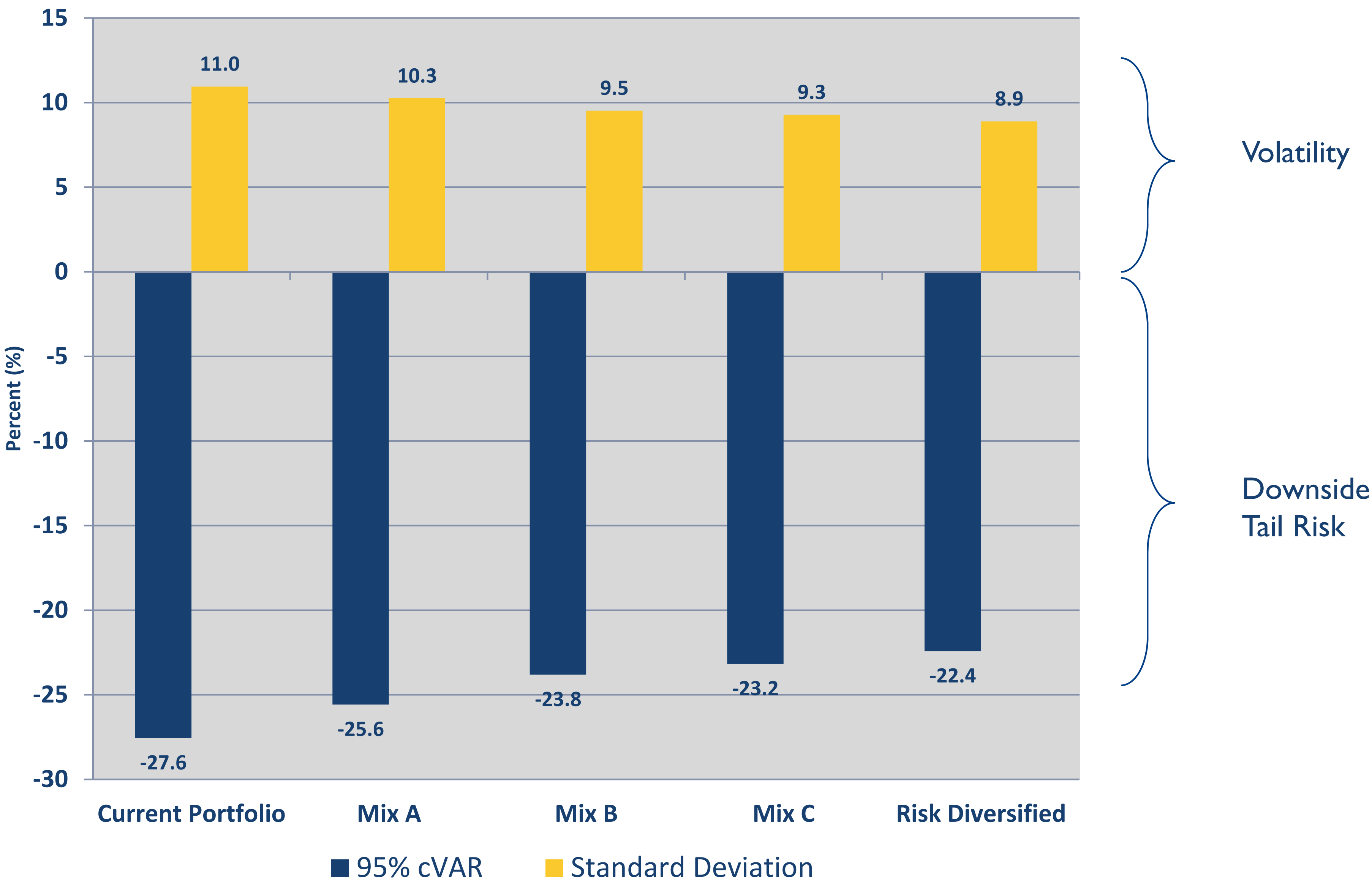
Classification*	Explanation	Asset Classes
Very Liquid	Assets that trade on highly liquid public exchanges.	Domestic, international, EM stocks, domestic and global bonds, commodities
Semi Liquid	Assets that could likely be fully liquidated between several weeks and one year from request.	Bank loans, emerging markets debt, liquid alternatives/HFoF
Not Liquid	Assets that generally have multiple-year lock-up periods	Private equity, mezzanine & distressed debt, infrastructure, real estate

*The above classifications are broad generalizations. Liquidity is driven by market conditions (which can fluctuate significantly) and investment vehicles used. Certain asset classes classified above as not liquid can be accessed through open-ended fund structures whereby assets can generally be liquidated within one year.

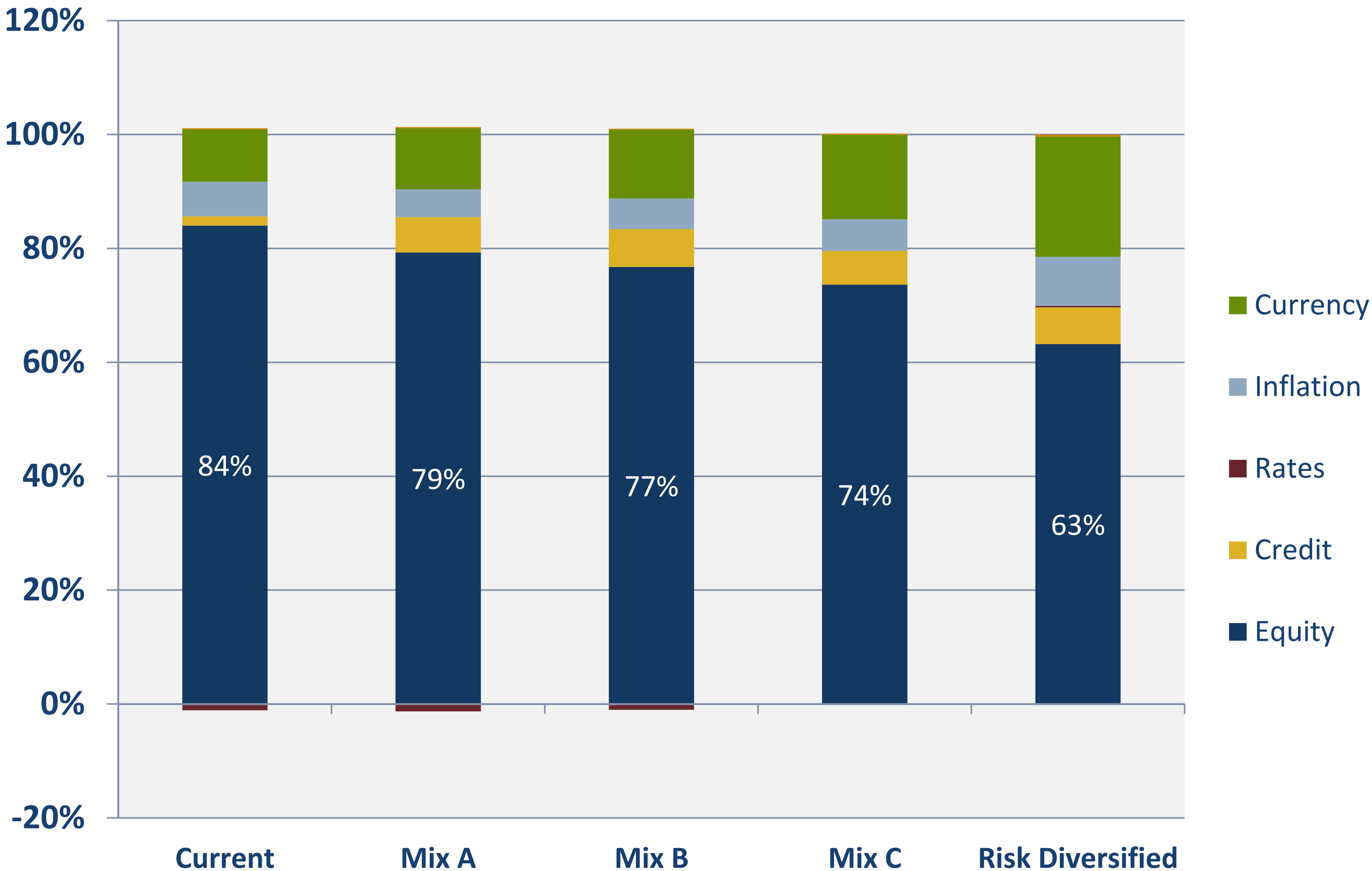
	Current Portfolio	Mix A	Mix B	Mix C	Risk Diversified
Mean Variance Optimizer Analysis					
Forecast 10 Year Return	***6.5***	***6.6***	***6.5***	***6.5***	***6.5***
Standard Deviation	11.0	10.3	9.5	9.3	8.9
95% cVAR	*27.6*	*25.6*	*23.8*	*23.2*	*22.4*
Sharpe Ratio	0.44	0.48	0.50	0.52	0.53
Wurts Economic Scenario Analysis					
10 Year Return Forecast					
Stagflation	4.0	4.1	4.1	4.2	4.3
Weak Economy	3.3	3.5	3.5	3.5	3.6
Average Economy	***5.2***	***5.2***	***5.0***	***5.0***	***5.0***
Strong	7.3	7.1	6.8	6.8	6.5
Range of Scenario Forecast	*4.0*	*3.6*	*3.4*	*3.2*	*2.9*
Economic Shock (1 year)	*-34.5*	*-34.9*	*-33.4*	*-33.0*	*-30.3*

- Volatility (as measured by standard deviation or the range of scenario forecasts) decreases as you progress from the current portfolio to risk-diversified portfolio.
- There are multiple ways to measure tail risk. One of those is **"conditional value at risk"** – this measure takes the weighted average loss that can be expected under a tail event (defined here as the worst 5% of all possible outcomes).
- This will be the starting point for what the tail-risk hedging manager attempts to mitigate.

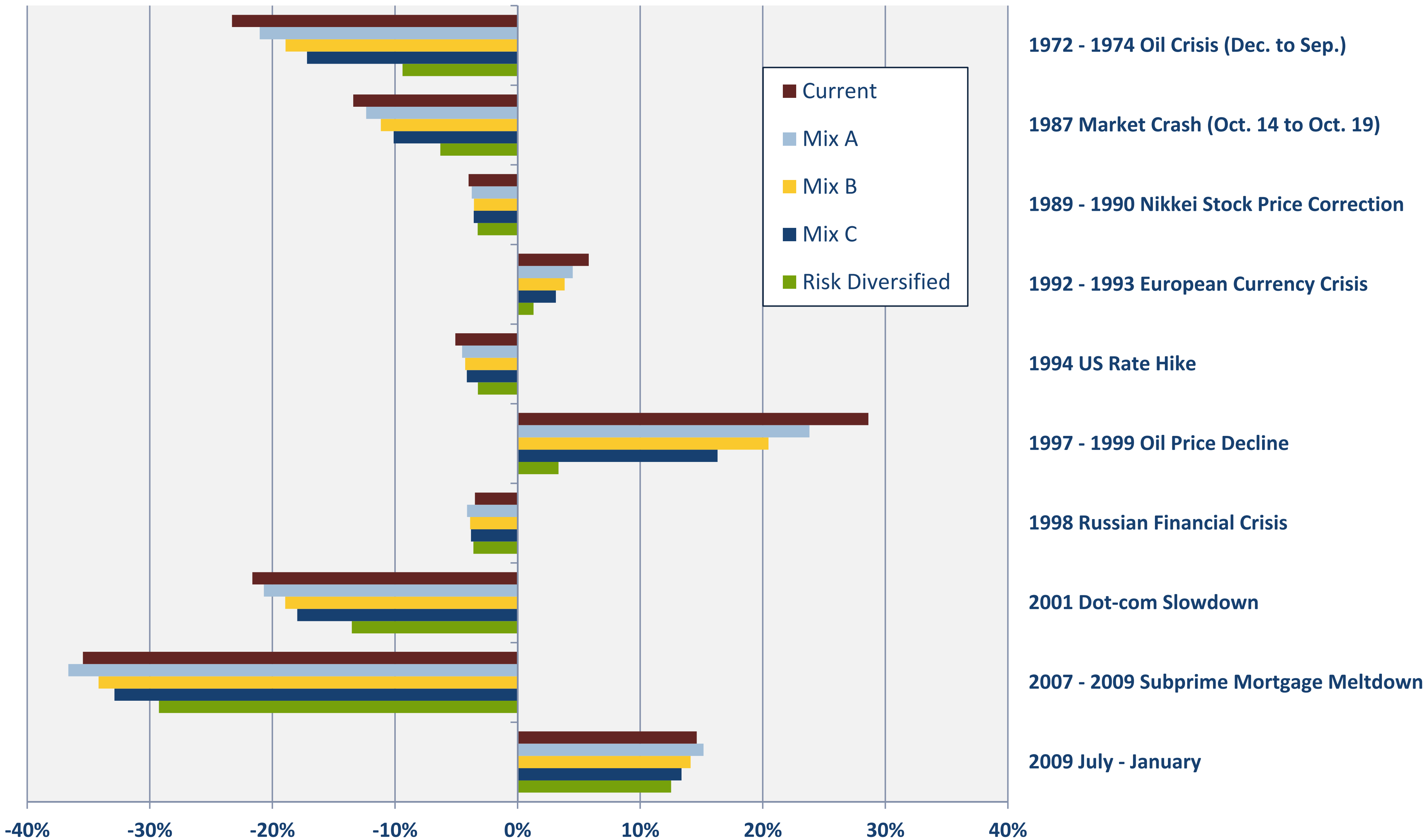
VOLATILITY & TAIL RISK



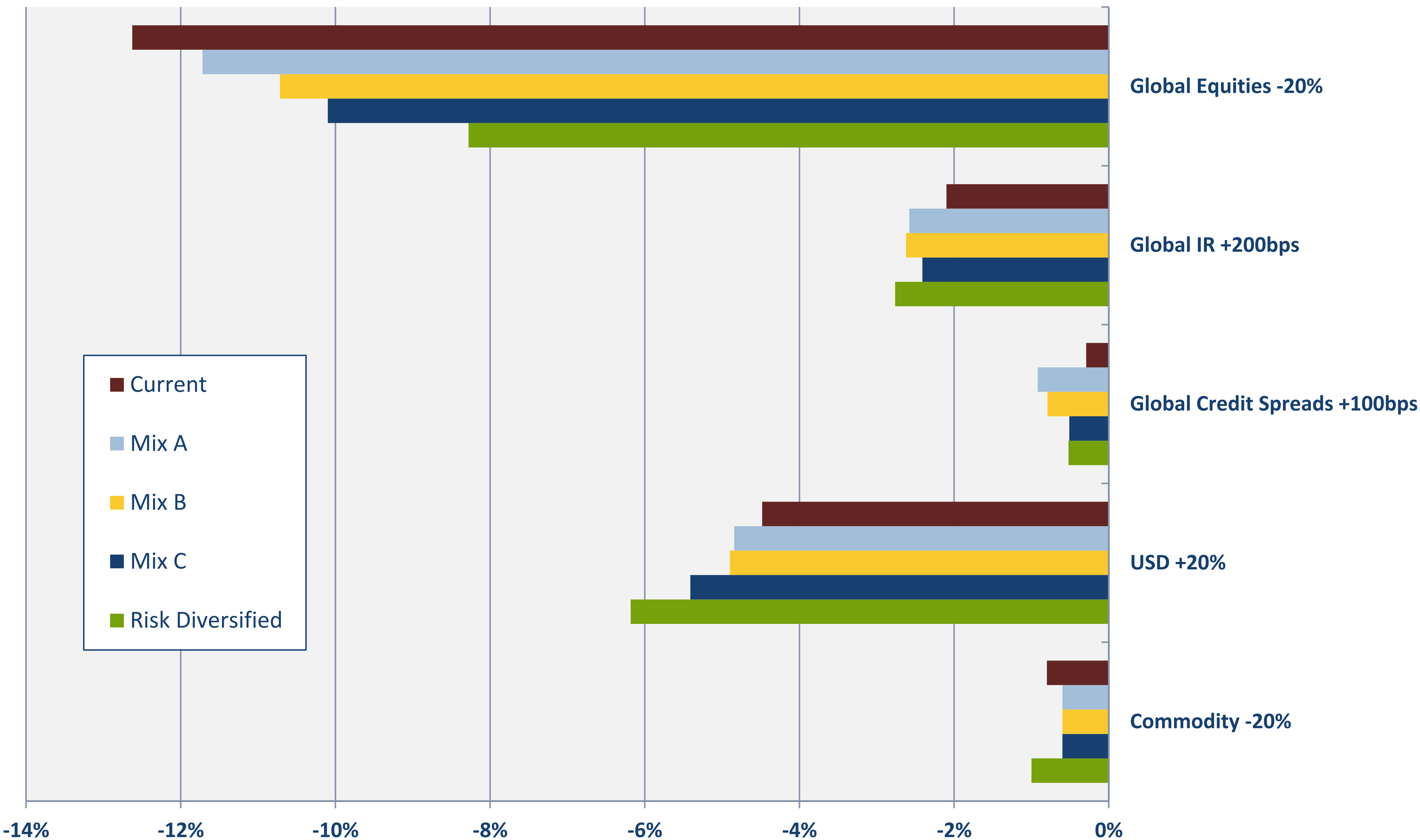
RISK DECOMPOSITION



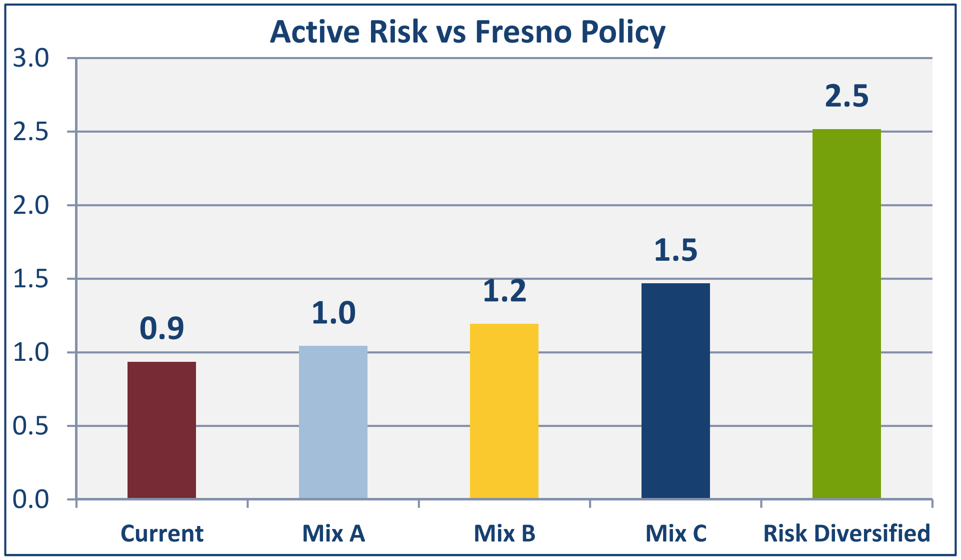
SCENARIO ANALYSIS

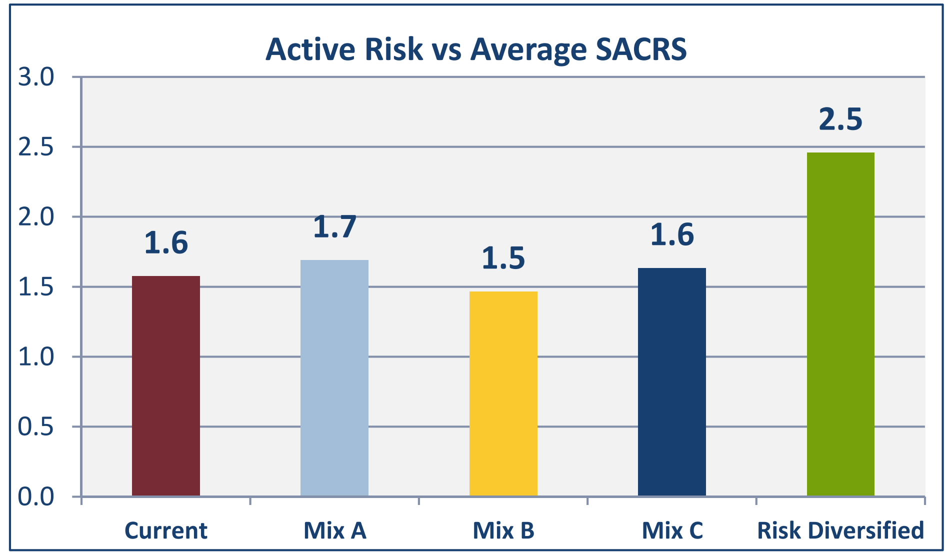


STRESS TESTS

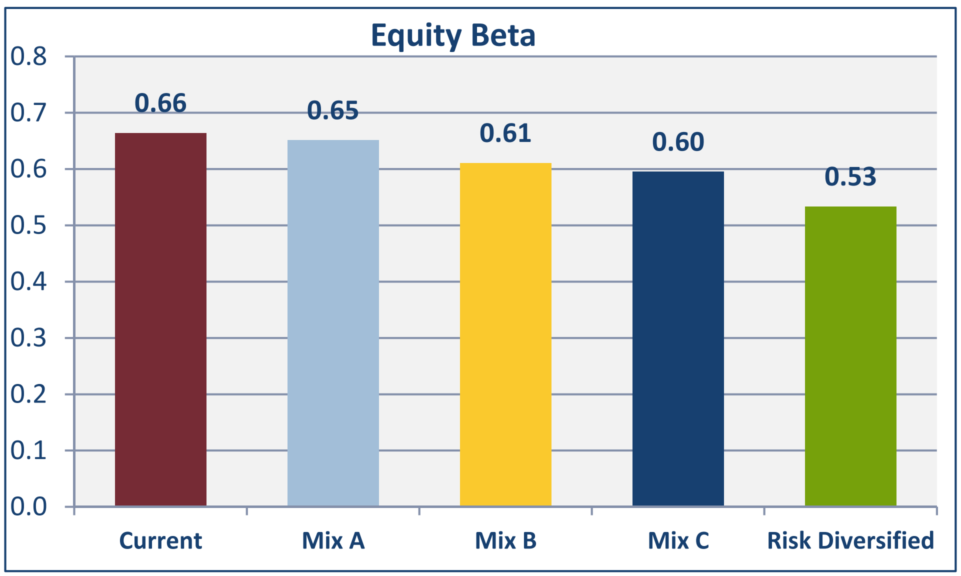


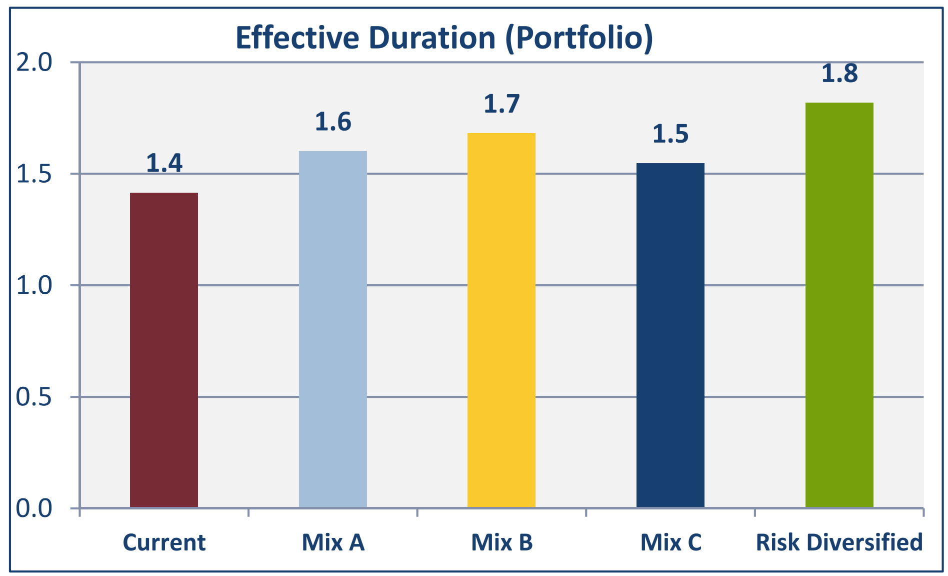
OTHER RISK MEASURES





Active Risk: *(annualized tracking error) a measure of how closely each portfolio tracks the benchmark (defined above as either the current Fresno Policy or the Median SACRS allocation.*





Equity Beta: *a measure describing the sensitivity of portfolio returns with returns of the equity market.*

Effective Duration: *a measure describing the percent change in price for a given change in yields.*