



Western
UNIVERSITY • CANADA

Diversified Equity Fund Review

October 5, 2012

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Agenda

- Goal
- Strategy
- Decisions
 - Select investment strategies
 - Asset mix
 - Currency hedging
 - Small cap VS Large cap
 - Active VS Passive
 - Canadian equity component
- Simulations
- Timeline

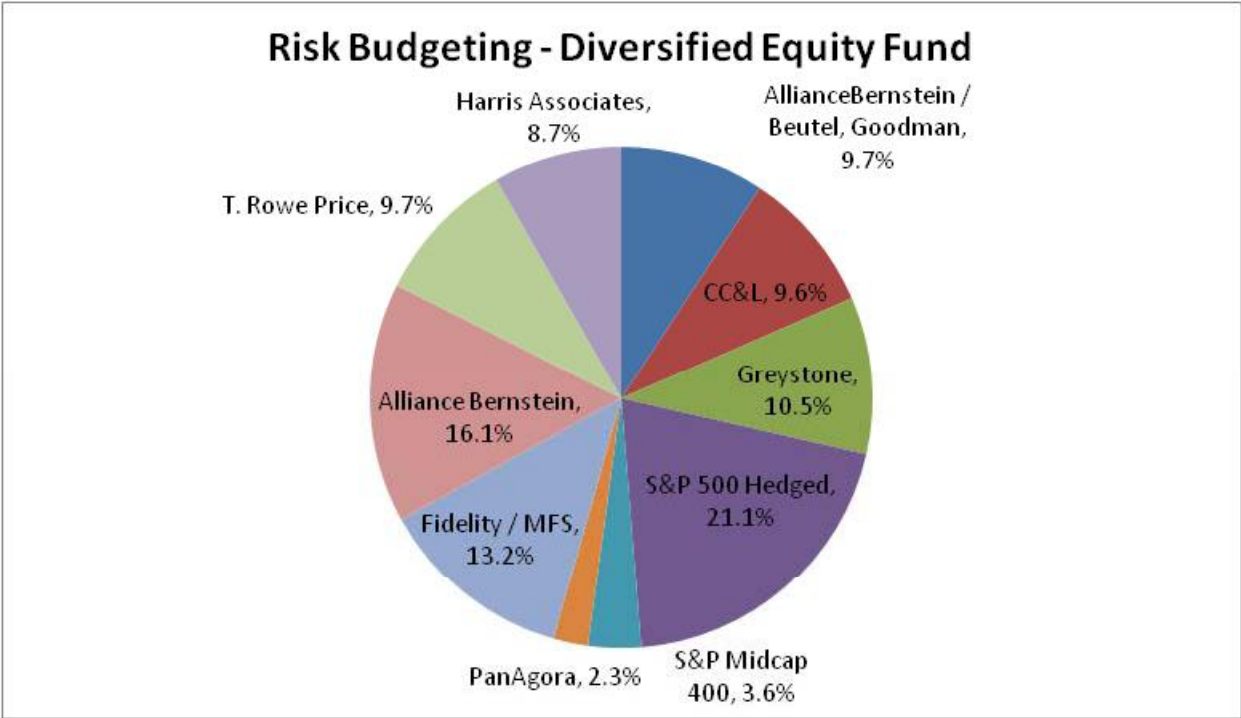
Goal

- Optimize the Diversified Equity Fund by increasing its expected return and/or reducing its volatility.

Diversified Equity Fund Performance

	Annualized Returns as of August 31, 2012					
	1-Yr	2-Yr	3-Yr	4-Yr	5-Yr	10-Yr
Diversified Equity Fund	3.52%	4.78%	3.71%	-1.74%	-3.48%	4.28%
Benchmark	4.56%	6.44%	5.34%	-0.36%	-2.24%	4.02%
Value Added	-1.04%	-1.66%	-1.63%	-1.38%	-1.24%	0.27%
	Volatility as of August 31, 2012					
	1-Yr	2-Yr	3-Yr	4-Yr	5-Yr	10-Yr
Diversified Equity Fund	14.32%	12.71%	12.39%	16.81%	15.77%	13.23%
Benchmark	12.97%	11.67%	11.61%	16.28%	15.31%	12.80%
Difference	1.35%	1.04%	0.78%	0.54%	0.46%	0.43%

Risk Attribution



Strategy

1. Capture sources of additional return
2. Add diversifiers to the portfolio to lower the risk of the portfolio

Decisions

Decisions

1. New investment strategies
2. Asset mix of the fund
3. Currency hedging strategy
4. Small cap VS large cap allocation
5. Active VS passive strategy
6. Canadian equity component

Investment Strategies

Investment Strategies

1. Capture sources of additional return
 - Global small cap equities
 - Emerging markets equities
 - Private equity
 - Active currency management
 - Global tactical asset allocation
2. Add diversifiers to the portfolio to lower the risk of the portfolio
 - Low volatility equity strategies
 - Commodities
 - Market neutral strategies
 - Long/short equities
 - Real estate
 - Infrastructure

Pros & Cons

Strategy	Pros	Cons
Global small cap equities	<ul style="list-style-type: none"> •Higher expected return than large cap stocks •Lower correlation with large cap stocks •Greater potential for active management 	<ul style="list-style-type: none"> •Higher volatility •Less liquid •Higher investment management fees •Higher transaction costs •Current valuation levels less attractive
Emerging markets equities	<ul style="list-style-type: none"> •Emerging markets are a source of growth for the global economy •Market capitalization of emerging markets is growing •Likely flow of investments may grow opportunity and liquidity •Diversifier to developed markets •Potential for higher returns •Attractive investment opportunities for companies located therein •Attractive demographics •Emergence of middle class •Enormous pool of cheap labour •Stronger fiscal positions 	<ul style="list-style-type: none"> •Increases portfolio risk •Lower liquidity •Higher investment management fees •Higher transaction costs •Increasing correlations with developed markets •Inconsistent legal and regulatory framework •Transparency •Stronger GDP growth does not necessarily translate into stronger stock market performance

Pros & Cons

Strategy	Pros	Cons
Low volatility equity strategies	<ul style="list-style-type: none"> •Historically higher returns and lower volatility than traditional portfolios •Low fees •Research suggest that anomaly may persist •Can be implemented in a passive way 	<ul style="list-style-type: none"> •Large tracking error •Outperformance may not re-occur in the future •Short history for products on the market •May experience extended periods of underperformance
Commodities	<ul style="list-style-type: none"> •Low correlation with traditional asset classes •Strong demand expected for natural resources and commodities •Provide an inflation hedge •Higher alpha generation potential 	<ul style="list-style-type: none"> •Commodities don't generate any income •Returns based on supply and demand; limited profit potential •Non-traditional investment •Volatile returns

Asset Mix

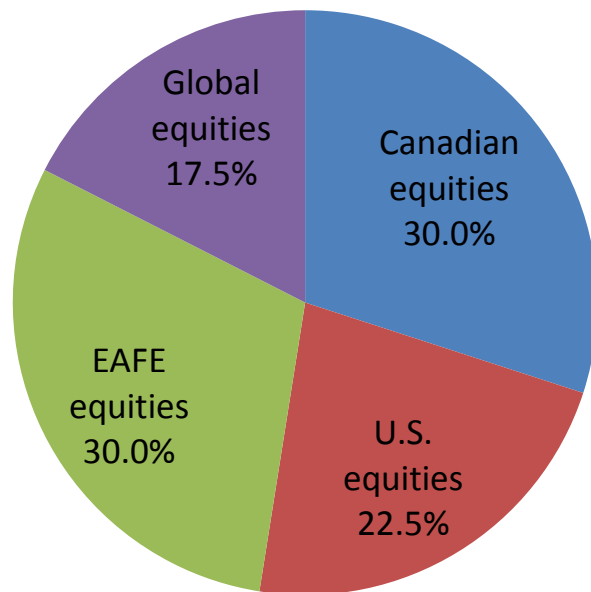
Diversified Equity Fund Composition

Investment Manager	% of the Fund	Asset Class	Manager Style
Greystone Managed Investment	10.0%	Canadian Equities	Active-Growth
Connor, Clark & Lunn Investment Management	10.0%	Canadian Equities	Active-Core
Beutel, Goodman & Company	10.0%	Canadian Equities	Active-Value
State Street Global Asset Management	17.5%	U.S. Large Cap Equities – Hedged	Passive
State Street Global Asset Management	2.5%	U.S. Mid Cap Equities	Passive
PanAgora Asset Management	2.5%	U.S. Small Cap Equities	Active-Core
Pyramis Global Advisors	15.0%	International Equities	Active-Growth
AllianceBernstein Capital Management	15.0%	International Equities	Active-Value
Harris Associates	8.75%	Global Equities	Active-Value
T. Rowe Price	8.75%	Global Equities	Active-Growth

Asset Mix Comparison

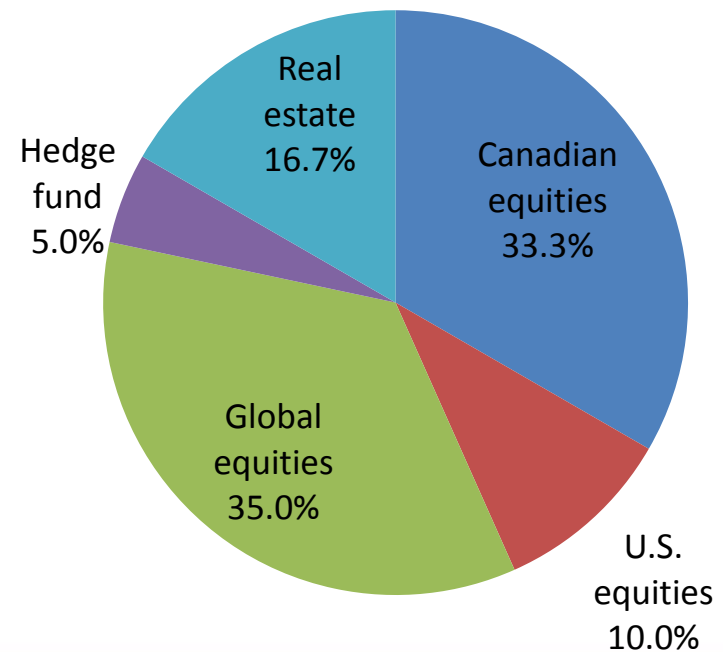
Diversified Equity Fund

Weight (%)



UBC Faculty Pension Plan Equity Portfolio

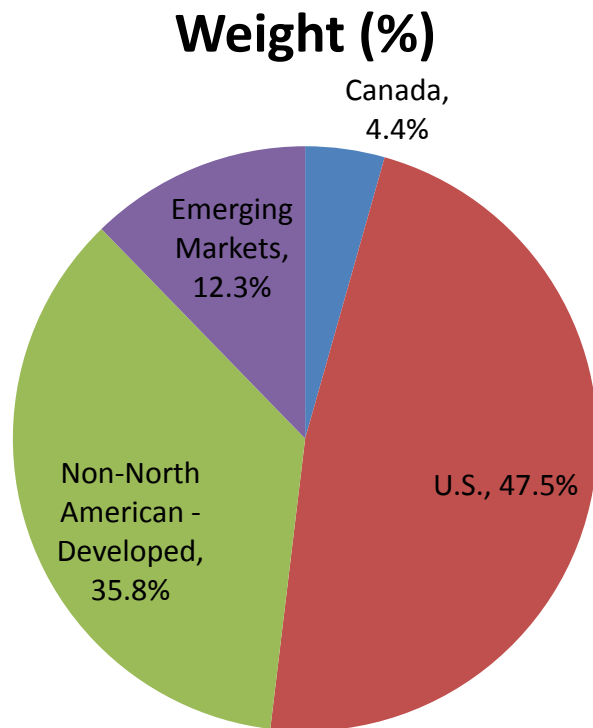
Weight (%)



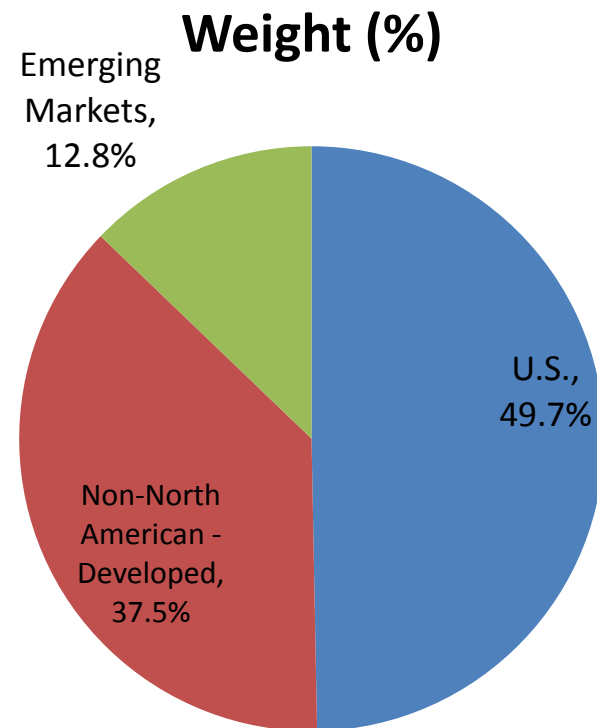
Asset Mix Comparison

As of August 31, 2012

MSCI World All-Country Index



MSCI World AC ex-Canada



Equity Funds of Funds Asset Mix

	Average	Median	Max	Min	Diversified Equity Fund
Canadian equity	44.2%	40.1%	72.2%	21.8%	30.0%
U.S. equity	13.4%	14.1%	27.8%	0.0%	17.5%
EAFE equity	12.8%	13.7%	35.6%	0.0%	30.0%
Global equity	16.3%	13.7%	64.7%	0.0%	17.5%
Emerging markets equity	3.3%	4.5%	15.0%	0.0%	0.0% ¹
Small Cap	5.8%	5.0%	23.1%	0.0%	5.0%
Real estate	2.1%	0.0%	10.5%	0.0%	0.0%
Infrastructure	1.1%	0.0%	12.5%	0.0%	0.0%
Commodity	0.9%	0.0%	9.3%	0.0%	0.0%

¹ The Diversified Equity Fund exposure to emerging markets was 4.9% as of June 30, 2012 when the emerging markets investments in the global equity and EAFE equity mandates are included.

Potential Rebalancing Guidelines

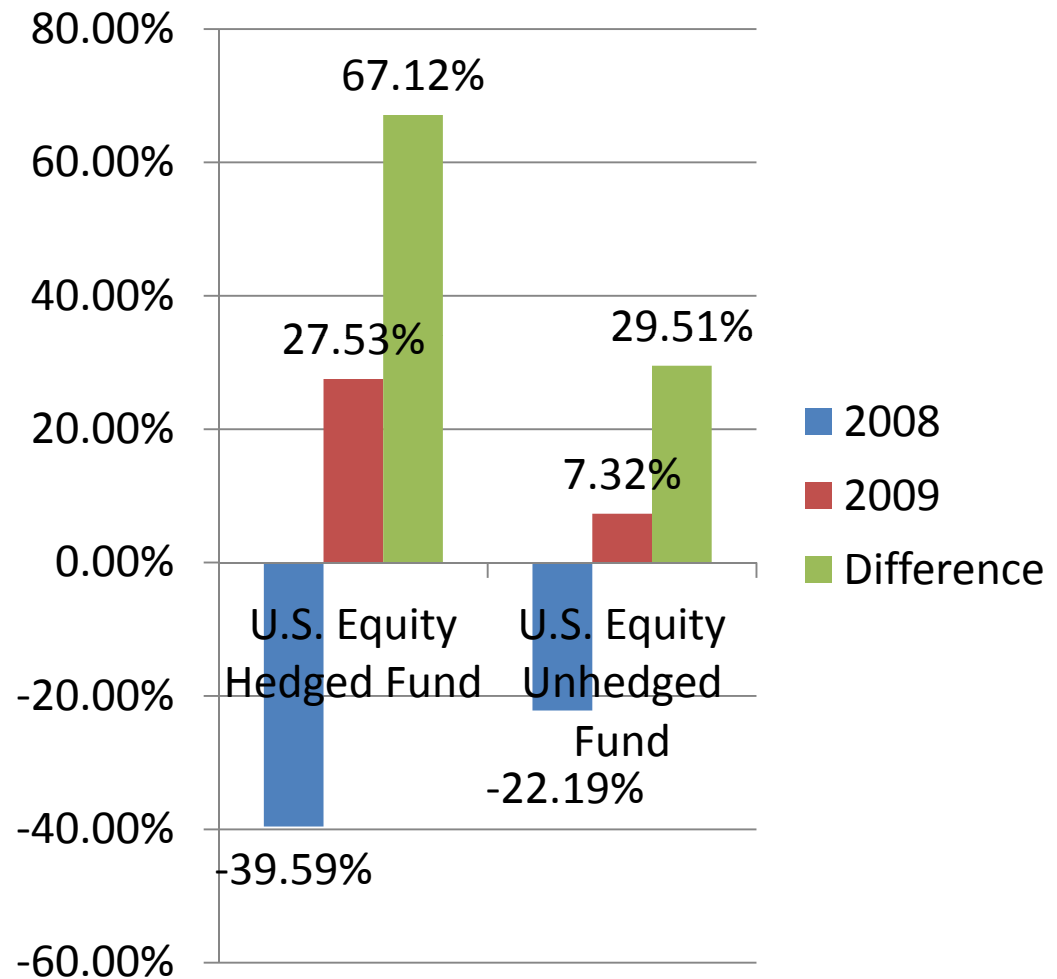
- Leave Canadian equity at 30%
- U.S. / EAFE mix should reflect world equity markets mix of 49.7% / 50.3%
- Private equity and global commodities should fit in the global equity sleeve
- Emerging markets equity is included in the total EAFE allocation
- Minimum 5% allocation to any strategy
- Maximum 10% allocation for illiquid strategies
- Focus on global equity versus U.S. / EAFE

Currency Hedging

Currency Hedging Strategy

- The U.S. equity large cap and U.S. equity mid cap strategies, which account for 20% of the Fund, are 100% currency hedged
- The U.S. equity small cap strategy, which accounts for 2.5% of the Fund, is not currency hedged
- The global and EAFE equity strategies, which account for 47.5% of the Fund in total, are not currency hedged

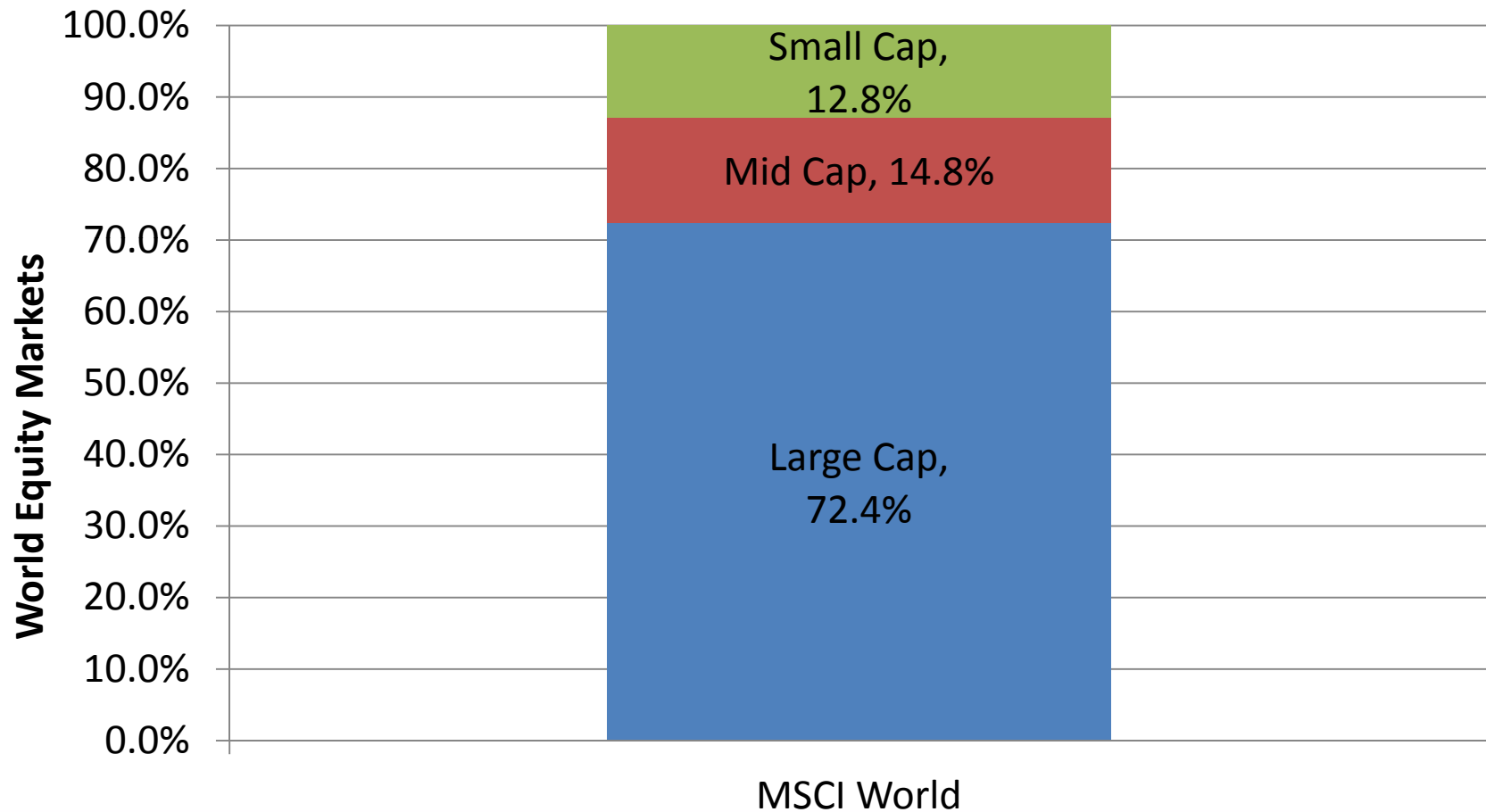
Is currency hedging reducing portfolio volatility?



Small Cap VS Large Cap

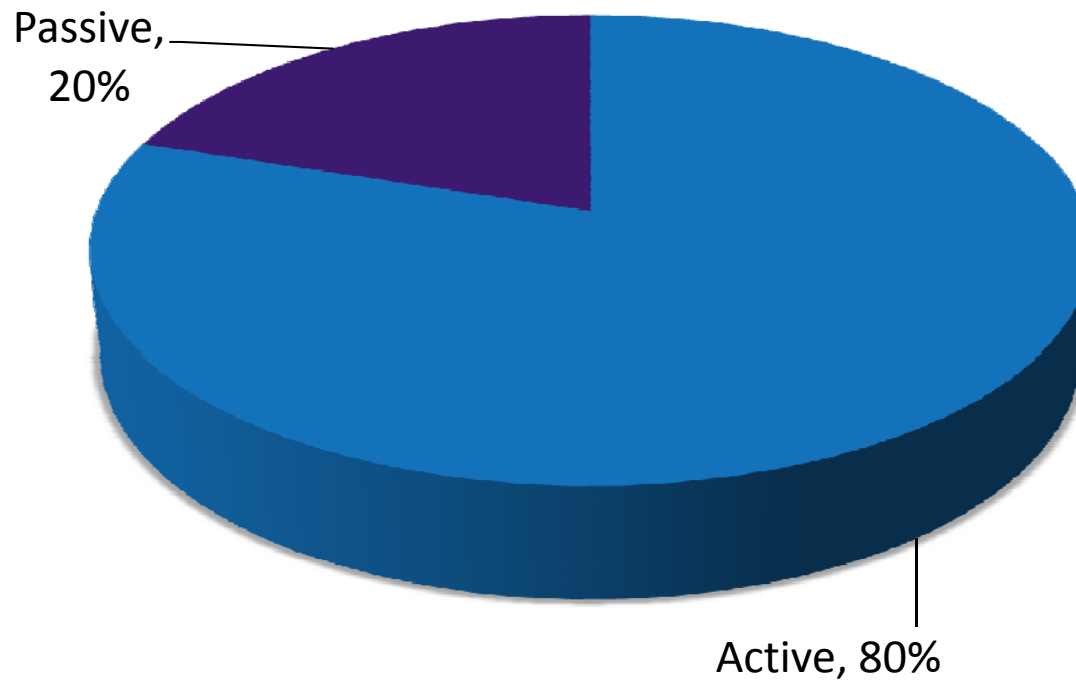
World Markets Breakdown

Source: MSCI August 2012



Active VS Passive Management

Active VS Passive Management



Canadian Equity Component

Canadian Equity

Existing Components	Potential Additions
Bottom-up core strategy (CC&L)	Low-volatility strategy
Bottom-up value strategy (Beutel, Goodman)	Small-cap strategy
Bottom-up growth strategy (Greystone)	Top-down approach

Simulations

Simulations

- Mean-variance optimization
 - 10-yr strategic returns, standard deviations and correlation coefficients provided by Russell Investments
- Historical manager returns
 - From January 2007 to August 2012
- Historical index returns
 - From January 2002 to August 2012

Potential Portfolio

- Low-volatility equity strategy for U.S. large cap equity
- 5% allocation to global small cap equity
- 5% allocation to emerging markets equity
- Reduction in EAFE equity to 16%
- Increase in global equity allocation to 24%
- Elimination of U.S. small and mid cap equity

Mean-Variance Optimization

- Initial optimization assumes that low volatility U.S. equity returns are 1% lower than regular equity
- Result is a lower expected return but lower volatility and higher Sharpe ratio
- Assuming that low volatility equity returns are the same as regular equity, the new portfolio has a higher expected return, lower volatility and higher Sharpe ratio

Portfolio	Expected Return	Volatility	Sharpe Ratio
Existing Portfolio	6.74%	18.12%	0.239
Potential Portfolio	6.64%	17.60%	0.241
Potential Portfolio (assuming same return for low volatility strategy)	6.83%	17.60%	0.252

Historical Manager Returns

- For the period January 2007 to August 2012
- Returns are gross of fees
- New strategies don't assume any value added from active management
- Substantial increase in returns, reduction in volatility and increase in Sharpe ratio

Portfolio	Expected Return	Volatility	Sharpe Ratio
Existing Portfolio	-1.47%	14.66%	-0.226
Potential Portfolio	0.55%	13.16%	-0.099

Historical Index Returns

- For the period January 2002 to August 2012
- Returns are gross of fees
- New strategies don't assume any value added from active management
- Substantial increase in returns, reduction in volatility and increase in Sharpe ratio

Portfolio	Expected Return	Volatility	Sharpe Ratio
Existing Portfolio	3.25%	12.98%	0.072
Potential Portfolio	4.12%	12.18%	0.148

Accumulated Assets

Terminal value: \$161,000

Drawdown: \$37,000

Assumptions:

Member making \$100,000 in 2012 (adjusted for inflation in previous years)

Employee contributions of 5.5%

Employer contributions of 8.5%

Terminal value: \$170,000

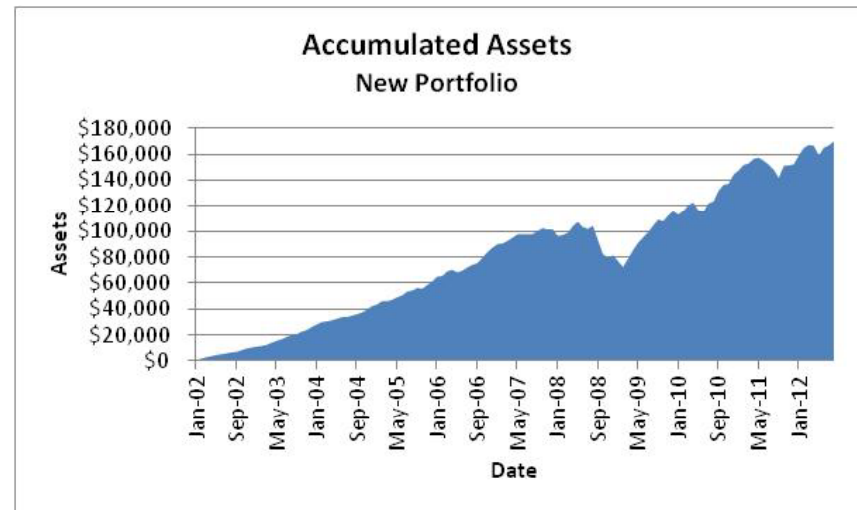
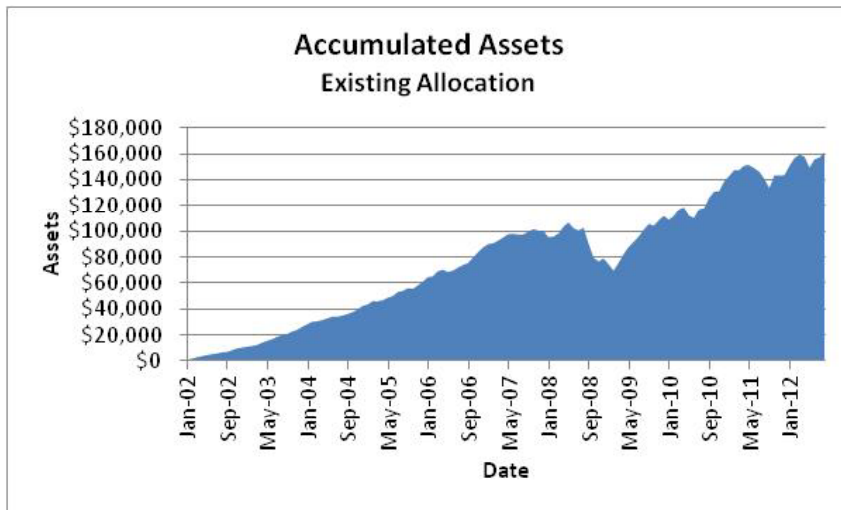
Drawdown: \$35,000

Assumptions:

Member making \$100,000 in 2012 (adjusted for inflation in previous years)

Employee contributions of 5.5%

Employer contributions of 8.5%



Potential Portfolio

Investment Manager	Existing Fund	Potential Portfolio	Asset Class	Manager Style
Greystone Managed Investment	10.0%	10.0%	Canadian Equities	Active-Growth
Connor, Clark & Lunn Investment Management	10.0%	10.0%	Canadian Equities	Active-Core
Beutel, Goodman & Company	10.0%	10.0%	Canadian Equities	Active-Value
State Street Global Asset Management	17.5%	0.0%	U.S. Large Cap Equities – Hedged	Passive
TBD	0.0%	20.0%	U.S. Large Cap Equities (Low Volatility) - Hedged	TBD
State Street Global Asset Management	2.5%	0.0%	U.S. Mid Cap Equities	Passive
PanAgora Asset Management	2.5%	0.0%	U.S. Small Cap Equities	Active-Core
Pyramis Global Advisors	15.0%	8.0%	International Equities	Active-Growth
AllianceBernstein Capital Management	15.0%	8.0%	International Equities	Active-Value
Harris Associates	8.75%	12.0%	Global Equities	Active-Value
T. Rowe Price	8.75%	12.0%	Global Equities	Active-Growth
TBD	0.0%	5.0%	Global Small Cap Equities	Active - TBD
TBD	0.0	5.0%	Emerging Markets Equities	Active - TBD

Implementation

Implementation

Tasks	Timeline
Optimize asset mix	October/November 2012
Manager search	November 2012 - January 2012
Fund approval	February 2013

Appendix

Assumptions – Mean/Variance Optimization

	Canada Equity	US Equity	EAFE Equity	Emerging Markets Equity	Global Equity	Global Small Cap	Global Commodities	Canadian Low Vol	U.S. Low Vol	Global Low Vol
10-Yr Return	6.40%	6.90%	6.80%	8.00%	7.00%	7.30%	4.30%	5.60%	6.00%	6.08%
10-Yr Volatility	18.30%	22.10%	19.90%	29.00%	20.20%	23.70%	19.40%	14.64%	17.68%	16.16%

Correlation Matrix

	Canada Equity	US Equity	EAFE Equity	Emerging Markets Equity	Global Equity	Global Small Cap	Global Commodities	Canadian Low Vol	U.S. Low Vol	Global Low Vol
Canada Equity	1.00									
US Equity	0.61	1.00								
EAFE Equity	0.72	0.76	1.00							
Emerging Markets Equity	0.61	0.74	0.74	1.00						
Global Equity	0.72	0.95	0.91	0.86	1.00					
Global Small Cap	0.72	0.95	0.91	0.86	1.00	1.00				
Global Commodities	0.36	0.53	0.42	0.52	0.54	0.54	1.00			
Canadian Low Vol	1.00	0.61	0.72	0.61	0.72	0.72	0.36	1.00		
U.S. Low Vol	0.61	1.00	0.76	0.74	0.95	0.95	0.53	0.61	1.00	
Global Low Vol	0.72	0.95	0.91	0.86	1.00	1.00	0.54	0.72	0.95	1.00

Assumptions – Historical Index Returns

(As of August 31, 2012)

	S&P/TSX	Small Cap	S&P 500 Hedged	S&P 500 Unhedged	S&P Midcap 400	Russell 2000	MSCI EAFE	Emerging Markets	MSCI World	MSCI ACWI	MSCI World Small Cap	Global Commodities	MSCI Canada Low Vol	MSCI U.S. Low Vol USD	MSCI U.S. Low Vol CAD	MSCI World Low Vol CAD	MSCI ACWI Low Vol CAD
10-Yr return	8.74%	5.46%	5.62%	1.71%	8.32%	4.12%	2.37%	10.19%	2.18%	2.75%	5.75%	0.69%	9.89%	7.13%	2.33%	3.79%	5.51%
10-Yr standard deviation	14.27%	19.22%	15.87%	12.24%	18.56%	16.62%	14.01%	18.85%	12.38%	12.63%	14.87%	14.65%	11.24%	12.00%	10.24%	9.21%	8.99%
Correlations																	
S&P/TSX	1.00	0.89	0.80	0.51	0.83	0.59	0.66	0.78	0.64	0.69	0.72	0.46	0.95	0.72	0.25	0.35	0.34
Small Cap	0.89	1.00	0.70	0.40	0.79	0.54	0.61	0.76	0.56	0.61	0.70	0.48	0.82	0.62	0.15	0.27	0.27
S&P 500 Hedged	0.80	0.70	1.00	0.76	0.94	0.75	0.77	0.74	0.81	0.84	0.80	0.14	0.72	0.94	0.48	0.49	0.47
S&P 500 Unhedged	0.51	0.40	0.76	1.00	0.68	0.86	0.82	0.62	0.94	0.93	0.83	0.08	0.47	0.72	0.86	0.82	0.82
S&P Midcap 400	0.83	0.79	0.94	0.68	1.00	0.81	0.71	0.75	0.74	0.77	0.84	0.19	0.75	0.87	0.39	0.40	0.38
Russell 2000	0.59	0.54	0.75	0.86	0.81	1.00	0.72	0.63	0.81	0.82	0.91	0.07	0.52	0.70	0.69	0.65	0.65
EAFE	0.66	0.61	0.77	0.82	0.71	0.72	1.00	0.82	0.96	0.96	0.88	0.26	0.61	0.71	0.62	0.75	0.77
Emerging Markets	0.78	0.76	0.74	0.62	0.75	0.63	0.82	1.00	0.78	0.83	0.80	0.32	0.72	0.66	0.38	0.51	0.54
MSCI World	0.64	0.56	0.81	0.94	0.74	0.81	0.96	0.78	1.00	0.99	0.90	0.21	0.59	0.74	0.75	0.80	0.81
MSCI ACWI	0.69	0.61	0.84	0.93	0.77	0.82	0.96	0.83	0.99	1.00	0.92	0.22	0.63	0.77	0.72	0.79	0.80
MSCI World Small Cap	0.72	0.70	0.80	0.83	0.84	0.91	0.88	0.80	0.90	0.92	1.00	0.22	0.66	0.73	0.62	0.69	0.69
Global Commodities	0.46	0.48	0.14	0.08	0.19	0.07	0.26	0.32	0.21	0.22	0.22	1.00	0.42	0.09	0.00	0.10	0.12
MSCI Canada Low Vol	0.95	0.82	0.72	0.47	0.75	0.52	0.61	0.72	0.59	0.63	0.66	0.42	1.00	0.71	0.29	0.41	0.39
MSCI U.S. Low Vol USD	0.72	0.62	0.94	0.72	0.87	0.70	0.71	0.66	0.74	0.77	0.73	0.09	0.71	1.00	0.60	0.58	0.54
MSCI U.S. Low Vol CAD	0.25	0.15	0.48	0.86	0.39	0.69	0.62	0.38	0.75	0.72	0.62	0.00	0.29	0.60	1.00	0.92	0.90
MSCI World Low Vol CAD	0.35	0.27	0.49	0.82	0.40	0.65	0.75	0.51	0.80	0.79	0.69	0.10	0.41	0.58	0.92	1.00	0.98
MSCI ACWI Low Vol CAD	0.34	0.27	0.47	0.82	0.38	0.65	0.77	0.54	0.81	0.80	0.69	0.12	0.39	0.54	0.90	0.98	1.00

Results – Mean/Variance Optimization

Portfolio	Expected Return	Volatility	Sharpe Ratio	Canada Equity	US Equity	EAFE Equity	Emerging Markets Equity	Global Equity	Global Small Cap	Global Commodities	Canadian Low Vol	U.S. Low Vol	Global Low Vol	Description
Existing Portfolio	6.74%	18.12%	0.239	30.0%	22.5%	30.0%	0.0%	17.5%	0.0%	0.0%	0.0%	0.0%	0.0%	Existing Diversified Equity Fund asset mix
Portfolio 1	6.76%	18.35%	0.238	30.0%	22.5%	25.0%	0.0%	17.5%	5.0%	0.0%	0.0%	0.0%	0.0%	Adding global small cap equity
Portfolio 2	6.80%	18.38%	0.239	30.0%	22.5%	25.0%	5.0%	17.5%	0.0%	0.0%	0.0%	0.0%	0.0%	Adding emerging markets equity
Portfolio 3	6.68%	17.89%	0.239	22.5%	22.5%	30.0%	0.0%	17.5%	0.0%	0.0%	7.5%	0.0%	0.0%	Adding Canadian low volatility equity
Portfolio 4	6.67%	17.77%	0.240	30.0%	22.5%	30.0%	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	7.5%	Adding Global low volatility equity
Portfolio 5	6.66%	17.72%	0.241	30.0%	15.0%	30.0%	0.0%	17.5%	0.0%	0.0%	0.0%	7.5%	0.0%	Adding U.S. equity low volatility
Portfolio 6	6.54%	17.41%	0.237	30.0%	22.5%	30.0%	0.0%	10.0%	0.0%	7.5%	0.0%	0.0%	0.0%	Adding global commodities
Portfolio 7	6.64%	17.60%	0.241	30.0%	0.0%	16.0%	5.0%	24.0%	5.0%	0.0%	0.0%	20.0%	0.0%	Reducing allocation to EAFE equity, replacing U.S. equity with U.S. low volatility equity, adding emerging markets equity, adding global small cap equity

Results – Historical Manager Returns (January 2007 – August 2012)

Portfolio	Expected Return	Volatility	Sharpe Ratio	Description
Existing Portfolio	-1.47%	14.66%	-0.226	Existing Diversified Equity Fund
Portfolio 1	-1.24%	14.26%	-0.217	Adding global small cap equity
Portfolio 2	-1.05%	14.80%	-0.196	Adding emerging markets equity
Portfolio 3	-1.29%	14.35%	-0.219	Adding Canadian low volatility equity
Portfolio 4	-1.59%	14.15%	-0.243	Adding Global low volatility equity
Portfolio 5	-1.13%	14.26%	-0.209	Adding U.S. equity low volatility
Portfolio 6	-1.42%	14.60%	-0.224	Adding global commodities
Portfolio 7	0.55%	13.16%	-0.099	Reducing allocation to EAFE equity, replacing U.S. equity with U.S. low volatility equity, adding emerging markets equity, adding global small cap equity
Portfolio 8	0.54%	13.30%	-0.099	Adding Canadian small cap equity, reducing allocation to EAFE equity, replacing U.S. equity with U.S. low volatility equity, adding emerging markets equity, adding global small cap equity

Historical Manager Returns – Performance

(As of August 31, 2012, except for calendar year results)

	Returns										
	2007-2012	5-Yr	4-Yr	3-Yr	2-Yr	1-Yr	2011	2010	2009	2008	2007
Existing Portfolio	-1.47%	-2.23%	-0.79%	4.31%	5.34%	4.12%	-7.99%	10.34%	23.55%	-31.66%	1.46%
Portfolio 1	-1.24%	-1.93%	-0.84%	4.58%	5.52%	3.65%	-7.86%	10.87%	22.93%	-30.95%	1.68%
Portfolio 2	-1.05%	-1.88%	-0.42%	4.65%	5.30%	3.95%	-8.14%	10.96%	25.40%	-32.11%	2.62%
Portfolio 3	-1.29%	-1.96%	-0.44%	4.60%	5.64%	4.30%	-6.98%	10.23%	23.20%	-31.11%	1.10%
Portfolio 4	-1.59%	-2.28%	-0.76%	4.70%	5.79%	4.59%	-6.59%	10.32%	21.28%	-31.42%	0.85%
Portfolio 5	-1.13%	-1.85%	-0.47%	4.55%	5.52%	4.32%	-7.25%	10.41%	23.00%	-30.73%	1.74%
Portfolio 6	-1.42%	-2.25%	-0.78%	4.80%	5.53%	3.69%	-7.06%	10.94%	23.38%	-32.54%	1.95%
Portfolio 7	0.55%	-0.14%	0.73%	5.56%	5.93%	4.20%	-6.01%	11.34%	24.23%	-28.15%	4.64%
Portfolio 8	0.54%	-0.11%	0.83%	5.73%	5.87%	3.84%	-6.21%	11.82%	25.08%	-28.47%	4.33%

Historical Manager Returns – Standard Deviation

(As of August 31, 2012, except for calendar year results)

	Volatility										
	2007-2012	5-Yr	4-Yr	3-Yr	2-Yr	1-Yr	2011	2010	2009	2008	2007
Existing Portfolio	14.66%	15.54%	16.75%	12.32%	12.72%	14.34%	12.50%	13.60%	17.10%	19.10%	4.99%
Portfolio 1	14.26%	15.13%	16.37%	12.02%	12.42%	14.15%	12.17%	13.33%	16.41%	18.72%	4.77%
Portfolio 2	14.80%	15.70%	16.89%	12.34%	12.74%	14.56%	12.54%	13.51%	17.09%	19.45%	5.16%
Portfolio 3	14.35%	15.21%	16.39%	11.98%	12.29%	13.83%	11.95%	13.36%	16.94%	18.64%	4.93%
Portfolio 4	14.15%	15.00%	16.07%	11.52%	11.77%	13.14%	11.53%	12.84%	16.77%	18.94%	4.94%
Portfolio 5	14.26%	15.12%	16.29%	11.85%	12.18%	13.66%	11.90%	13.16%	16.99%	18.59%	4.88%
Portfolio 6	14.60%	15.47%	16.55%	11.94%	12.15%	13.76%	11.95%	13.21%	16.85%	19.57%	5.61%
Portfolio 7	13.16%	13.97%	15.14%	10.71%	10.97%	12.52%	10.49%	12.05%	15.94%	17.13%	4.53%
Portfolio 8	13.30%	14.11%	15.30%	10.84%	11.14%	12.75%	10.67%	12.09%	15.92%	17.40%	4.63%

Historical Manager Returns – Sharpe Ratio

(As of August 31, 2012, except for calendar year results)

	Sharpe Ratio										
	2007-2012	5-Yr	4-Yr	3-Yr	2-Yr	1-Yr	2011	2010	2009	2008	2007
Existing Portfolio	-0.226	-0.240	-0.104	0.288	0.346	0.222	-0.718	0.720	1.340	-1.832	-0.595
Portfolio 1	-0.217	-0.227	-0.110	0.318	0.368	0.191	-0.727	0.775	1.359	-1.831	-0.576
Portfolio 2	-0.196	-0.216	-0.082	0.315	0.342	0.207	-0.728	0.770	1.450	-1.822	-0.351
Portfolio 3	-0.219	-0.228	-0.086	0.321	0.382	0.243	-0.667	0.725	1.332	-1.848	-0.676
Portfolio 4	-0.243	-0.253	-0.107	0.342	0.411	0.278	-0.658	0.761	1.232	-1.834	-0.724
Portfolio 5	-0.209	-0.222	-0.088	0.320	0.376	0.247	-0.693	0.749	1.318	-1.832	-0.551
Portfolio 6	-0.224	-0.243	-0.106	0.339	0.377	0.200	-0.674	0.787	1.351	-1.833	-0.441
Portfolio 7	-0.099	-0.117	-0.015	0.449	0.454	0.261	-0.668	0.895	1.481	-1.838	0.046
Portfolio 8	-0.099	-0.114	-0.009	0.458	0.442	0.228	-0.675	0.932	1.536	-1.828	-0.021

Results – Historical Index Returns (January 2002 – August 2012)

Portfolio	Expected Return	Volatility	Sharpe Ratio	Description
Existing Portfolio	3.25%	12.98%	0.072	Existing Diversified Equity Fund
Portfolio 1	3.41%	13.02%	0.084	Adding global small cap equity
Portfolio 2	3.66%	13.15%	0.102	Adding emerging markets equity
Portfolio 3	3.41%	12.74%	0.086	Adding Canadian low volatility equity
Portfolio 4	3.48%	12.57%	0.092	Adding Global low volatility equity
Portfolio 5	3.42%	12.65%	0.087	Adding U.S. equity low volatility
Portfolio 6	3.47%	12.50%	0.092	Adding global commodities
Portfolio 7	4.12%	12.18%	0.148	Reducing allocation to EAFE equity, replacing U.S. equity with U.S. low volatility equity, adding emerging markets equity, adding global small cap equity
Portfolio 8	4.08%	12.25%	0.144	Adding Canadian small cap equity, reducing allocation to EAFE equity, replacing U.S. equity with U.S. low volatility equity, adding emerging markets equity, adding global small cap equity

Historical Index Returns – Performance

(As of August 31, 2012, except for calendar year results)

	Returns																
	2002-2012	10-Yr	5-Yr	4-Yr	3-Yr	2-Yr	1-Yr	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
Existing Portfolio	3.25%	5.19%	-1.86%	-0.44%	5.33%	6.37%	4.38%	-5.74%	10.72%	21.78%	-31.34%	0.50%	20.27%	12.51%	11.80%	20.90%	-17.02%
Portfolio 1	3.41%	5.36%	-1.60%	-0.13%	5.75%	6.75%	4.65%	-5.59%	11.59%	22.33%	-31.26%	0.01%	19.77%	12.65%	12.00%	21.64%	-17.00%
Portfolio 2	3.66%	5.59%	-1.63%	-0.22%	5.54%	6.20%	4.07%	-6.08%	11.25%	23.64%	-31.99%	1.66%	20.53%	13.51%	12.07%	21.57%	-16.55%
Portfolio 3	3.41%	5.27%	-1.71%	-0.16%	5.60%	6.70%	4.76%	-4.79%	10.58%	21.11%	-30.99%	0.28%	20.31%	12.52%	12.03%	20.95%	-16.39%
Portfolio 4	3.48%	5.34%	-1.51%	-0.13%	5.62%	6.64%	4.71%	-4.75%	10.79%	20.66%	-30.29%	0.40%	20.16%	12.47%	12.18%	20.38%	-16.16%
Portfolio 5	3.42%	5.30%	-1.51%	-0.10%	5.55%	6.55%	4.56%	-4.98%	10.78%	21.34%	-30.43%	0.62%	20.10%	12.65%	11.99%	20.07%	-16.55%
Portfolio 6	3.47%	5.16%	-1.81%	-0.96%	5.14%	6.00%	2.91%	-6.32%	11.09%	20.87%	-30.69%	0.94%	18.79%	13.42%	11.44%	20.24%	-14.00%
Portfolio 7	4.12%	5.92%	-0.47%	1.03%	6.59%	7.12%	5.09%	-3.57%	11.82%	22.88%	-29.66%	1.65%	19.56%	13.77%	12.34%	19.49%	-15.61%
Portfolio 8	4.08%	5.84%	-0.49%	1.10%	6.75%	7.07%	4.81%	-3.81%	12.29%	23.59%	-30.06%	1.41%	19.40%	13.38%	12.10%	19.70%	-15.35%

Historical Index Returns – Standard Deviation

(As of August 31, 2012, except for calendar year results)

	Volatility																
	2002-2012	10-Yr	5-Yr	4-Yr	3-Yr	2-Yr	1-Yr	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
Existing Portfolio	12.98%	12.91%	15.28%	16.33%	11.61%	11.66%	12.96%	11.36%	13.26%	17.23%	19.67%	4.70%	8.94%	7.73%	7.45%	11.87%	15.40%
Portfolio 1	13.02%	12.94%	15.33%	16.39%	11.63%	11.66%	12.95%	11.44%	13.24%	17.29%	19.78%	4.86%	9.09%	7.81%	7.58%	11.81%	15.33%
Portfolio 2	13.15%	13.09%	15.47%	16.51%	11.66%	11.74%	13.23%	11.46%	13.18%	17.22%	20.07%	4.81%	9.29%	8.23%	7.56%	11.90%	15.48%
Portfolio 3	12.74%	12.66%	14.97%	15.96%	11.29%	11.28%	12.48%	10.86%	13.04%	17.01%	19.23%	4.67%	8.84%	7.61%	7.13%	11.75%	15.15%
Portfolio 4	12.57%	12.50%	14.75%	15.76%	10.99%	10.96%	12.13%	10.63%	12.60%	17.01%	19.13%	4.65%	8.83%	7.58%	7.35%	11.58%	14.85%
Portfolio 5	12.65%	12.58%	14.86%	15.87%	11.16%	11.16%	12.30%	10.81%	12.84%	17.09%	19.10%	4.65%	8.81%	7.55%	7.38%	11.75%	14.91%
Portfolio 6	12.50%	12.45%	14.89%	16.04%	11.40%	11.56%	13.02%	11.17%	13.01%	16.41%	19.31%	4.43%	8.93%	7.76%	6.89%	11.25%	14.13%
Portfolio 7	12.18%	12.10%	14.21%	15.13%	10.33%	10.18%	11.18%	9.79%	11.98%	16.63%	18.33%	4.73%	8.85%	7.71%	7.38%	11.37%	14.20%
Portfolio 8	12.25%	12.18%	14.35%	15.29%	10.45%	10.35%	11.41%	9.98%	12.02%	16.59%	18.58%	4.81%	8.82%	7.84%	7.44%	11.45%	14.07%

Historical Index Returns – Sharpe Ratio

(As of August 31, 2012, except for calendar year results)

	Sharpe Ratio																
	2002-2012	10-Yr	5-Yr	4-Yr	3-Yr	2-Yr	1-Yr	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
Existing Portfolio	0.072	0.222	-0.220	-0.086	0.394	0.465	0.265	-0.593	0.767	1.228	-1.762	-0.835	1.821	1.283	1.278	1.522	-1.271
Portfolio 1	0.084	0.234	-0.202	-0.066	0.430	0.498	0.286	-0.575	0.833	1.255	-1.749	-0.907	1.736	1.287	1.283	1.592	-1.276
Portfolio 2	0.102	0.250	-0.202	-0.071	0.411	0.448	0.237	-0.617	0.812	1.337	-1.760	-0.574	1.780	1.325	1.294	1.575	-1.234
Portfolio 3	0.086	0.233	-0.214	-0.070	0.429	0.510	0.306	-0.532	0.769	1.205	-1.785	-0.890	1.846	1.305	1.366	1.542	-1.250
Portfolio 4	0.092	0.241	-0.204	-0.070	0.443	0.519	0.311	-0.541	0.813	1.178	-1.757	-0.866	1.830	1.302	1.347	1.515	-1.261
Portfolio 5	0.087	0.237	-0.202	-0.067	0.430	0.502	0.294	-0.553	0.797	1.212	-1.767	-0.818	1.828	1.330	1.315	1.467	-1.282
Portfolio 6	0.092	0.227	-0.222	-0.120	0.385	0.437	0.152	-0.655	0.810	1.234	-1.761	-0.785	1.657	1.394	1.330	1.548	-1.172
Portfolio 7	0.148	0.297	-0.139	0.004	0.565	0.607	0.371	-0.467	0.941	1.338	-1.799	-0.588	1.760	1.448	1.363	1.465	-1.280
Portfolio 8	0.144	0.289	-0.139	0.009	0.574	0.592	0.339	-0.482	0.977	1.384	-1.797	-0.628	1.746	1.375	1.319	1.474	-1.273



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