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Rey Santodomingo, CFA
Director of Investment
Strategy - Tax Managed
Equities

Jennifer Sireklove, CFA
Investment Strategist

ESTIMATING TAX ALPHA IN DIFFERENT MARKET ENVIRONMENTS Federal Rates

Parametric's Tax-Managed Core (TMC) strategy offers investors a customized, tax-efficient investment experience that can be used as a building block for a diversified portfolio. However, the value of tax-management, or tax alpha, can vary depending on market conditions. In this brief, we use simulated results to explore the impact of market return, security volatility and tax rates on tax-management. Generally, we find that tax alpha is higher when market returns are lower, and when security volatility is higher. Although none of us can predict the future, understanding some of the key drivers of tax alpha can better help investors to frame realistic expectations for their tax-managed portfolios.

►► TAX-MANAGED CORE OVERVIEW

Tax-Managed Core accounts are customized for clients at the outset. Clients can track a variety of index benchmarks or even further tailor their exposure to reduce concentration risk, implement socially responsible investing, express environmental and governance factor views, or apply a risk factor tilt. Parametric's goal is to track each client specified index within a certain range on a pre-tax basis, while providing a superior after-tax return. This is done by systematically harvesting losses and deferring gains over the course of the year, which defers taxes and allows more funds to remain invested in the portfolio, enhancing the potential value of compounded growth.

In order to quantify the value of this active tax-management, we measure ourselves against the after-tax return that could have been obtained by a passive investment in the index and remove the impact of any pre-tax excess return. We term this tax alpha because it isolates the value-add of tax management. Our definition of tax alpha is shown below:

$$\text{Tax Alpha} = \text{After-Tax Excess Return} - \text{Pre-Tax Excess Return}$$

$$\text{After-Tax Excess Return} = \text{After-Tax Portfolio Return} - \text{After-Tax Benchmark Return}$$

$$\text{Pre-Tax Excess Return} = \text{Pre-Tax Portfolio Return} - \text{Pre-Tax Benchmark Return}$$

We systematically monitor each portfolio to maximize opportunities for tax management. These opportunities will be more plentiful under certain market conditions. Over the decades that Parametric has been managing such portfolios, we have accumulated extensive performance data which can give some sense of how tax alpha shifts over time. However, realized client tax alpha depends on specific inception date, cash flows and other idiosyncrasies which make it difficult to generalize the results. By using simulations, we can attempt to more cleanly estimate the key drivers of tax alpha by varying certain parameters while holding others constant.

►► SIMULATION METHODOLOGY AND KEY ASSUMPTIONS

In order to explore the influence of certain market conditions on tax alpha, we simulate after-tax results by randomly generating security returns for a portfolio of stocks and applying our tax management program over a period of ten years. Security returns are drawn from a normal distribution with a mean equivalent to a given expected market return and some assumed level of standard deviation. More details on the simulated returns can be found in the Appendix.

After-tax returns reflect all realized taxes in the period and are presented here, based on the highest marginal federal tax rate. We assume that all dividends are qualified, but realized gains can be taxed as long-term or short-term, depending on the holding period.

Figure 1:

	Federal Tax Rate
Qualified Dividends	23.8%
Long-term Gains	23.8%
Short-term Gains	43.4%

Source: Parametric as of 6/30/2014. The 23.8% federal tax rate includes the highest long-term capital gains tax rate of 20% plus the 3.8% net investment income tax. The 43.4% federal tax rate includes the highest U.S. federal marginal income tax rate of 39.6% plus the 3.8% net investment income tax.

¹Tax-managed portfolios exhibit some performance variation, or tracking error, relative to the benchmark. In order to harvest losses and defer gains, some positions are held over- or under-weight relative to the benchmark. The over- and under-weights result in tracking error. In some periods, the tracking error results in positive excess return, and in others, negative. Over longer periods, we expect the cumulative excess return to be zero.

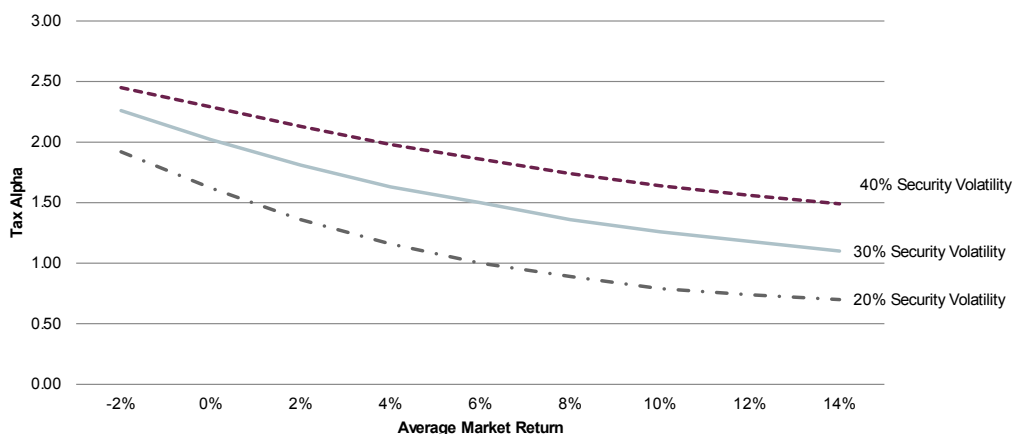
The simulation produces both pre and post-tax returns for the portfolio and the benchmark. Tax alpha is computed using the formula outlined above. The stream of after-tax returns generated by actively harvesting losses and deferring gains on individual securities in the simulated portfolio is compared against the after-tax returns that would have been achieved by a passive investment in the same portfolio with no tax management.

► SIMULATION RESULTS

Our simulated results indicate the potential for an annualized tax alpha in the range of 0.7% to 2.5%, depending on market conditions. In particular, tax alpha is usually higher during periods with lower market return and higher security volatility levels. This makes sense because as average market returns increase and the variation in security returns around the average return decrease, both the frequency and magnitude of loss harvesting and gain deferral opportunities are diminished. However, within the range of market conditions we studied, the tax alpha in our simulated scenarios was always positive and was quite meaningful even in periods of strong market performance and moderate volatility, particularly in the presence of high tax rates.

Of course, the experience of any one scenario will always be different than the mean shown and there is a great deal of variability among the scenarios but we have endeavored to be conservative in estimating the harvesting opportunities. Although a scenario in which the market consistently rises 14% or falls 2% annually over ten years is fairly unrealistic, the intent is to provide upper and lower bounds to estimated tax alpha rather than depict the most likely investment experience. The chart below summarizes the results.

Figure 2: Average Tax Alpha



Source: Parametric as of 5/30/2014. Simulated/hypothetical performance is for illustrative purposes only, does not represent actual returns of any investor, and may not be relied upon for investment decisions. The deduction of fees and expenses would negatively impact the results shown. All investments are subject to potential loss of principal. Please refer to the Disclosures for additional information.

In this chart, we see that tax alpha is highest in the lowest market return scenarios and is decreasing with higher market return. Additionally, the lower the security volatility, the lower the tax alpha for every market return scenario. The relationship is such that an increase in security volatility could theoretically compensate for an increase in market return. However, in actuality, security volatility tends to spike up during periods of lower, rather than higher, market return. The other observation of note is that even in sustained high market return and low volatility environments, tax management still appears to be able to add value of approximately 70bps each year.

►► CONCLUSION

In this brief, we used simulated security returns in order to estimate the value of tax management under different market conditions. Generally, tax alpha is highest during high volatility, low return environments. During periods of higher market returns and lower security volatility, we expect lower tax alpha. Through our simulations, we find that in varied market environments disciplined, year-round tax management can help improve relative after-tax returns.

Although any investor's actual experience depends on a number of factors, including, but not limited to, their particular cash flows and the market conditions during the time of investment, we hope this information can help investors to understand in general, the potential outcomes of active tax management.

►► APPENDIX

Simulated portfolio returns methodology

Summary Table:

Portfolio	Each portfolio consists of 500 securities with an initial weight distribution comparable to that of a U.S. large capitalization index
Total Market Return	-2% to 14% annually (in increments of 2 percentage points); 2% attributed to dividend return and the remainder to price return
Security Volatility	20%, 30%, 40%
Number of Simulations	1,000 for each market scenario. There are 27 market scenarios defined by 9 different expected market returns and 3 different assumed security volatilities.
Length of Simulation	Ten years of monthly returns
Loss Harvesting Frequency	Quarterly
Turnover	4% annually

Simulation Steps:

1. Define each market environment by an expected market total return and level of security volatility. With 9 market return levels and 3 security volatility levels, there are 27 possible market environments.
2. For each environment, generate 10 years of monthly returns for 1,000 portfolios of 500 securities each. Draw each security's monthly return from a normal distribution with a mean and standard deviation equal to the monthly expected market price return and assumed security volatility, respectively.
3. Each year, 4% turnover is applied to a random portion of the portfolio in order to mimic the typical turnover found in a large-cap index. (Turnover forces us to buy or sell securities that might otherwise not have met our tax-management criteria, creating somewhat more realistic realized gains and losses.
4. Loss harvest the drifted portfolio four times a year. After-tax return incorporates taxes on any realized gains or losses and dividends received.

Appendix Table: 1

Initial Portfolio Value: \$100

Ave. Standard Deviation of stocks: 20%

Universe Turnover: 4%

Short-term tax rate: 43.4%, Long-term: 23.8%, Dividend: 23.8%

After-tax Alpha = Portfolio after-tax return – Benchmark after-tax return

Pre-tax Alpha = Portfolio pre-tax return – Benchmark pre-tax return

Tax Alpha = After-tax Alpha – Pre-tax Alpha

Net gains = (Short-term Gains – Short-term Losses) + (Long-term Gains – Long-term Losses)

RETURN	-2%	0%	2%	4%	6%	8%	10%	12%	14%
After-tax Alpha %	1.92	1.61	1.36	1.16	1	0.89	0.8	0.74	0.7
Pre-tax Alpha %	0	-0.01	0	0	0	0	0.01	0	0
Tax Alpha %	1.92	1.62	1.36	1.16	1	0.89	0.79	0.74	0.7
Tracking Error %	0.49	0.46	0.43	0.4	0.37	0.34	0.32	0.3	0.28
After-tax Return %	-0.36	1.31	3.05	4.85	6.7	8.6	10.53	12.5	14.49
After-tax Benchmark %	-2.28	-0.3	1.69	3.69	5.7	7.71	9.73	11.76	13.79
Pre-tax Return %	-2.11	-0.04	2.05	4.13	6.22	8.3	10.39	12.47	14.56
Pre-tax Benchmark %	-2.11	-0.03	2.05	4.13	6.22	8.3	10.38	12.47	14.56
AFTER-TAX ALPHA %									
Year 1	4.32	4.01	3.71	3.43	3.17	2.93	2.7	2.5	2.29
2	2.68	2.34	2.03	1.76	1.52	1.32	1.13	0.99	0.86
3	2.21	1.86	1.56	1.31	1.1	0.92	0.78	0.66	0.58
4	1.86	1.53	1.25	1.02	0.84	0.7	0.6	0.52	0.48
5	1.67	1.34	1.08	0.88	0.72	0.61	0.53	0.48	0.45
6	1.55	1.23	0.98	0.79	0.65	0.57	0.5	0.47	0.47
7	1.39	1.09	0.85	0.68	0.58	0.49	0.46	0.45	0.46
8	1.25	0.97	0.76	0.61	0.51	0.46	0.44	0.44	0.46
9	1.19	0.91	0.72	0.57	0.49	0.45	0.44	0.45	0.47
10	1.09	0.85	0.66	0.53	0.47	0.44	0.44	0.46	0.49
NET GAINS \$									
Year 1	-10.22	-9.41	-8.66	-7.94	-7.29	-6.67	-6.1	-5.57	-5.09
2	-7.18	-6.35	-5.56	-4.84	-4.2	-3.6	-3.06	-2.6	-2.19
3	-6.19	-5.38	-4.63	-3.93	-3.3	-2.74	-2.25	-1.82	-1.46
4	-5.48	-4.71	-3.99	-3.33	-2.72	-2.19	-1.76	-1.36	-1.05
5	-4.97	-4.27	-3.57	-2.96	-2.39	-1.89	-1.46	-1.14	-0.88
6	-4.65	-3.96	-3.33	-2.71	-2.16	-1.69	-1.3	-0.99	-0.78
7	-4.33	-3.7	-3.09	-2.5	-1.99	-1.54	-1.2	-0.94	-0.73
8	-4.04	-3.47	-2.87	-2.32	-1.85	-1.43	-1.12	-0.89	-0.73
9	-3.83	-3.31	-2.78	-2.27	-1.79	-1.41	-1.12	-0.9	-0.75
10	-3.64	-3.17	-2.68	-2.18	-1.74	-1.38	-1.12	-0.91	-0.81
PORTFOLIO VALUE \$									
Year 1	97.92	99.97	101.99	104.02	106.05	108.09	110.11	112.14	114.16
2	95.89	99.92	104.02	108.2	112.46	116.82	121.23	125.75	130.33
3	93.93	99.89	106.1	112.57	119.28	126.27	133.5	141.02	148.8
4	91.97	99.84	108.2	117.09	126.5	136.48	147	158.15	169.9
5	90.09	99.81	110.37	121.81	134.17	147.54	161.89	177.38	194
6	88.25	99.8	112.6	126.75	142.33	159.51	178.3	198.97	221.54
7	86.43	99.77	114.84	131.85	150.96	172.41	196.34	223.14	252.96
8	84.63	99.72	117.13	137.15	160.11	186.37	216.21	250.24	288.81
9	82.9	99.69	119.47	142.68	169.81	201.45	238.1	280.65	329.76
10	81.19	99.66	121.86	148.43	180.11	217.78	262.22	314.79	376.53
COST BASIS / MKT. VALUE									
Year 1	0.95	0.94	0.93	0.92	0.91	0.91	0.9	0.89	0.88
2	0.91	0.89	0.88	0.86	0.84	0.82	0.8	0.79	0.77
3	0.88	0.86	0.83	0.81	0.78	0.76	0.73	0.71	0.68
4	0.86	0.83	0.8	0.77	0.73	0.7	0.67	0.64	0.61
5	0.84	0.8	0.77	0.73	0.69	0.65	0.62	0.58	0.55
6	0.83	0.78	0.74	0.7	0.66	0.61	0.57	0.53	0.49
7	0.81	0.77	0.72	0.67	0.62	0.58	0.53	0.49	0.45
8	0.8	0.75	0.7	0.65	0.6	0.54	0.5	0.45	0.41
9	0.79	0.74	0.68	0.63	0.57	0.52	0.46	0.42	0.37
10	0.78	0.73	0.67	0.61	0.55	0.49	0.44	0.39	0.34

Simulated results above are hypothetical and do not reflect the deduction of management fees. Please refer to the Disclosures on page 8.

Appendix Table: 2

Initial Portfolio Value: \$100

Ave. Standard Deviation of stocks: 30%

Universe Turnover: 4%

Short-term tax rate: 43.4%, Long-term: 23.8%, Dividend: 23.8%

After-tax Alpha = Portfolio after-tax return – Benchmark after-tax return

Pre-tax Alpha = Portfolio pre-tax return – Benchmark pre-tax return

Tax Alpha = After-tax Alpha – Pre-tax Alpha

Net gains = (Short-term Gains – Short-term Losses) + (Long-term Gains – Long-term Losses)

RETURN	-2%	0%	2%	4%	6%	8%	10%	12%	14%
After-tax Alpha %	2.25	2.01	1.8	1.63	1.49	1.36	1.26	1.18	1.1
Pre-tax Alpha %	-0.01	-0.01	-0.01	0	-0.01	0	0	0	0
Tax Alpha %	2.26	2.02	1.81	1.63	1.5	1.36	1.26	1.18	1.1
Tracking Error %	0.68	0.65	0.61	0.59	0.56	0.53	0.51	0.49	0.47
After-tax Return %	0.16	1.89	3.66	5.48	7.33	9.21	11.12	13.06	15.01
After-tax Benchmark %	-2.09	-0.12	1.86	3.85	5.84	7.85	9.86	11.88	13.91
Pre-tax Return %	-2.12	-0.04	2.04	4.13	6.21	8.3	10.38	12.47	14.56
Pre-tax Benchmark %	-2.11	-0.03	2.05	4.13	6.22	8.3	10.38	12.47	14.56
AFTER-TAX ALPHA %									
Year 1	6.26	5.97	5.7	5.43	5.18	4.95	4.71	4.5	4.28
2	3.52	3.21	2.94	2.68	2.45	2.24	2.04	1.85	1.68
3	2.69	2.4	2.13	1.89	1.7	1.51	1.34	1.2	1.08
4	2.1	1.83	1.6	1.4	1.25	1.09	0.97	0.87	0.79
5	1.8	1.56	1.33	1.16	1	0.89	0.79	0.72	0.65
6	1.6	1.39	1.17	1.01	0.88	0.77	0.69	0.65	0.62
7	1.35	1.13	0.95	0.82	0.72	0.64	0.59	0.56	0.54
8	1.18	1	0.83	0.73	0.64	0.57	0.53	0.52	0.5
9	1.1	0.91	0.76	0.66	0.58	0.53	0.49	0.48	0.49
10	0.94	0.81	0.7	0.61	0.55	0.5	0.49	0.49	0.49
NET GAINS \$									
Year 1	-14.74	-13.97	-13.24	-12.53	-11.86	-11.23	-10.63	-10.04	-9.49
2	-9.63	-8.93	-8.25	-7.59	-6.96	-6.38	-5.83	-5.31	-4.82
3	-7.81	-7.2	-6.57	-6	-5.45	-4.91	-4.42	-3.96	-3.52
4	-6.54	-5.99	-5.45	-4.94	-4.42	-3.95	-3.52	-3.09	-2.7
5	-5.78	-5.28	-4.77	-4.28	-3.81	-3.38	-2.95	-2.57	-2.25
6	-5.24	-4.79	-4.34	-3.88	-3.45	-3.03	-2.66	-2.28	-2
7	-4.78	-4.37	-3.97	-3.56	-3.16	-2.76	-2.4	-2.1	-1.8
8	-4.4	-4.07	-3.68	-3.3	-2.93	-2.59	-2.25	-1.98	-1.73
9	-4.16	-3.88	-3.59	-3.24	-2.86	-2.53	-2.19	-1.93	-1.68
10	-3.93	-3.73	-3.47	-3.16	-2.83	-2.52	-2.24	-1.98	-1.77
PORTFOLIO VALUE \$									
Year 1	97.92	99.96	101.98	104.01	106.04	108.08	110.09	112.14	114.16
2	95.88	99.9	103.99	108.18	112.44	116.8	121.22	125.73	130.31
3	93.91	99.87	106.07	112.54	119.26	126.26	133.48	141	148.79
4	91.94	99.81	108.17	117.04	126.48	136.46	146.97	158.12	169.88
5	90.06	99.79	110.32	121.77	134.16	147.5	161.86	177.35	193.97
6	88.23	99.81	112.56	126.71	142.33	159.47	178.28	198.97	221.54
7	86.4	99.77	114.78	131.8	150.94	172.37	196.33	223.14	252.94
8	84.61	99.74	117.07	137.12	160.1	186.3	216.19	250.26	288.8
9	82.89	99.71	119.4	142.62	169.8	201.38	238.06	280.67	329.76
10	81.16	99.67	121.78	148.38	180.09	217.67	262.18	314.8	376.54
COST BASIS / MKT. VALUE									
Year 1	0.91	0.9	0.89	0.89	0.88	0.87	0.86	0.86	0.85
2	0.84	0.83	0.81	0.8	0.78	0.76	0.75	0.73	0.72
3	0.79	0.77	0.75	0.73	0.7	0.68	0.66	0.64	0.62
4	0.76	0.73	0.7	0.67	0.65	0.62	0.59	0.57	0.55
5	0.73	0.69	0.66	0.63	0.6	0.57	0.54	0.51	0.48
6	0.7	0.67	0.63	0.59	0.56	0.52	0.49	0.46	0.43
7	0.68	0.64	0.6	0.56	0.52	0.49	0.45	0.42	0.39
8	0.66	0.62	0.58	0.53	0.49	0.46	0.42	0.38	0.35
9	0.65	0.6	0.55	0.51	0.47	0.43	0.39	0.35	0.32
10	0.63	0.58	0.53	0.49	0.44	0.4	0.36	0.33	0.3

Simulated results above are hypothetical and do not reflect the deduction of management fees. Please refer to the Disclosures on page 8.

Appendix Table: 3

Initial Portfolio Value: \$100

Ave. Standard Deviation of stocks: 40%

Universe Turnover: 4%

Short-term tax rate: 43.4%, Long-term: 23.8%, Dividend: 23.8%

After-tax Alpha = Portfolio after-tax return – Benchmark after-tax return

Pre-tax Alpha = Portfolio pre-tax return – Benchmark pre-tax return

Tax Alpha = After-tax Alpha – Pre-tax Alpha

Net gains = (Short-term Gains – Short-term Losses) + (Long-term Gains – Long-term Losses)

RETURN	-2%	0%	2%	4%	6%	8%	10%	12%	14%
After-tax Alpha %	2.44	2.28	2.12	1.97	1.85	1.74	1.64	1.56	1.48
Pre-tax Alpha %	-0.01	-0.01	-0.01	-0.01	-0.01	0	0	0	-0.01
Tax Alpha %	2.45	2.29	2.13	1.98	1.86	1.74	1.64	1.56	1.49
Tracking Error %	0.83	0.8	0.77	0.75	0.72	0.7	0.68	0.66	0.64
After-tax Return %	0.62	2.4	4.2	6.03	7.89	9.78	11.68	13.61	15.55
After-tax Benchmark %	-1.82	0.12	2.08	4.06	6.04	8.04	10.04	12.05	14.07
Pre-tax Return %	-2.12	-0.04	2.04	4.12	6.21	8.3	10.38	12.47	14.55
Pre-tax Benchmark %	-2.11	-0.03	2.05	4.13	6.22	8.3	10.38	12.47	14.56
AFTER-TAX ALPHA %									
Year 1	8.24	7.99	7.75	7.51	7.27	7.04	6.82	6.61	6.39
2	4.25	3.98	3.73	3.49	3.27	3.07	2.87	2.7	2.53
3	2.95	2.7	2.48	2.26	2.08	1.91	1.76	1.63	1.49
4	2.21	1.98	1.76	1.59	1.43	1.3	1.18	1.07	1
5	1.77	1.6	1.41	1.24	1.12	0.99	0.9	0.83	0.77
6	1.5	1.34	1.2	1.06	0.95	0.86	0.79	0.72	0.67
7	1.18	1.05	0.92	0.82	0.74	0.68	0.63	0.59	0.56
8	0.96	0.87	0.77	0.7	0.64	0.59	0.56	0.53	0.51
9	0.86	0.79	0.72	0.65	0.59	0.55	0.54	0.52	0.5
10	0.66	0.63	0.61	0.57	0.53	0.51	0.51	0.49	0.5
NET GAINS \$									
Year 1	-19.41	-18.67	-17.97	-17.27	-16.6	-15.95	-15.34	-14.74	-14.17
2	-11.87	-11.29	-10.7	-10.16	-9.59	-9.05	-8.53	-8.03	-7.55
3	-8.95	-8.47	-8.01	-7.52	-7.07	-6.64	-6.25	-5.82	-5.42
4	-7.33	-6.88	-6.44	-6.02	-5.6	-5.2	-4.8	-4.41	-4.05
5	-6.37	-5.97	-5.58	-5.18	-4.81	-4.39	-4.02	-3.66	-3.33
6	-5.69	-5.39	-5.05	-4.72	-4.37	-4.01	-3.65	-3.32	-2.98
7	-5.17	-4.94	-4.7	-4.39	-4.09	-3.77	-3.41	-3.07	-2.75
8	-4.68	-4.52	-4.32	-4.12	-3.85	-3.57	-3.29	-2.98	-2.68
9	-4.38	-4.31	-4.19	-4.02	-3.84	-3.61	-3.36	-3.15	-2.94
10	-4.04	-4.04	-3.98	-3.9	-3.77	-3.62	-3.47	-3.31	-3.1
PORTFOLIO VALUE \$									
Year 1	97.9	99.94	101.97	104	106.03	108.07	110.09	112.12	114.14
2	95.87	99.89	103.99	108.17	112.43	116.79	121.21	125.73	130.31
3	93.89	99.86	106.06	112.52	119.24	126.23	133.47	141	148.77
4	91.94	99.8	108.14	117.02	126.43	136.42	146.95	158.09	169.84
5	90.05	99.79	110.32	121.73	134.09	147.46	161.82	177.3	193.93
6	88.23	99.8	112.58	126.68	142.27	159.44	178.25	198.89	221.49
7	86.39	99.75	114.8	131.75	150.87	172.33	196.28	223.05	252.9
8	84.6	99.72	117.08	137.04	160	186.27	216.15	250.16	288.78
9	82.87	99.71	119.44	142.57	169.68	201.33	238.03	280.56	329.7
10	81.14	99.66	121.83	148.32	179.96	217.62	262.13	314.65	376.47
COST BASIS / MKT. VALUE									
Year 1	0.87	0.86	0.86	0.85	0.84	0.83	0.83	0.82	0.81
2	0.78	0.76	0.75	0.73	0.72	0.7	0.69	0.68	0.66
3	0.71	0.69	0.67	0.65	0.63	0.61	0.59	0.58	0.56
4	0.66	0.64	0.61	0.59	0.57	0.55	0.52	0.5	0.48
5	0.63	0.6	0.57	0.54	0.52	0.49	0.47	0.44	0.42
6	0.59	0.56	0.53	0.5	0.47	0.45	0.42	0.4	0.37
7	0.56	0.53	0.5	0.47	0.44	0.41	0.38	0.36	0.33
8	0.54	0.5	0.47	0.44	0.41	0.38	0.35	0.33	0.3
9	0.52	0.48	0.45	0.41	0.38	0.35	0.32	0.3	0.27
10	0.5	0.46	0.42	0.39	0.36	0.33	0.3	0.27	0.25

Simulated results above are hypothetical and do not reflect the deduction of management fees. Please refer to the Disclosures on page 8.

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Parametric, headquartered in Seattle, WA, is a leading global asset management firm, providing investment strategies and implementation services to institutions and individual investors around the world. Parametric offers a variety of rules-based, risk-controlled investment strategies, including alpha-seeking equity, alternative and options strategies, as well as implementation services, including customized equity, traditional overlay and centralized portfolio management. Parametric is a majority-owned subsidiary of Eaton Vance Corp. and offers these capabilities through investment centers in Seattle, WA, Minneapolis, MN and Westport, CT (home to Parametric subsidiary Parametric Risk Advisors LLC, an SEC-registered investment adviser).

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When calculating after-tax returns, Parametric applies the highest U.S. federal tax rates. For short-term gains, Parametric applies the highest U.S. federal marginal income tax rate of 39.6% plus the 3.8% net investment income tax, for a combined rate of 43.4%. For long-term gains, Parametric applies the highest U.S. capital gains tax rate of 20% plus the 3.8% net investment income tax, for a combined rate of 23.8%. These assumed tax rates are applied to both net realized gains and losses in the portfolio. Applying the highest rate may cause the after-tax performance shown to be different than an investor's actual experience. Investors' actual tax rates, the presence of current or future capital loss carry forwards, and other investor tax circumstances will cause an investor's actual after-tax performance to be over or under Parametric's estimates presented here. In periods when net realized losses exceed net realized gains, applying the highest tax rates to our calculations illustrates the highest after-tax return that could be expected of the portfolio, and assumes the maximum potential tax benefit was derived. Actual client after-tax returns will vary. As with all after-tax performance, the after-tax performance reported here is an estimate. In particular, it has been assumed that the investor has, or will have sufficient capital gains from sources outside of this portfolio to fully offset any net capital losses realized, and any resulting tax benefit has been included in Parametric's computation of after-tax performance.

Parametric is located at 1918 8th Avenue, Suite 3100, Seattle, WA 98101. For more information regarding Parametric and its investment strategies, or to request a copy of Parametric's Form ADV, please contact us at 206.694.5575 or visit our website, www.parametricportfolio.com.