The Application of the Further Enhanced Permanent Portfolio in the Long Term Investment and Retirement Scheme

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In our previous related research on permanent portfolio (PP), the permanent portfolio was proven to significantly outperform an all-stocks portfolio based on the Hong Kong Hang Seng Index over the last 20 years since 1996. In a further attempt, we try to fine-tune the performance of our enhanced permanent portfolio (further enhanced PP) by varying the proportion of the REITs component. The findings indicated that both the cumulative total return and compounded annual growth rate (CAGR) of the further-enhanced portfolio would be improved with the increase in the proportion of the REITs component by considering the changes in Sharpe Ratio. We confirm the belief that this simple asset-allocation approach to investment can be broadly and usefully applied to any sustainable investment management of a long-term nature as well as investment for retirement purposes.

Keywords: Permanent Portfolio, Enhanced Permanent Portfolio, Risk-Adjusted Returns, Re-Balancing, Retirement Acheme, Asset-Allocation, Financial Management, REITs.

INTRODUCTION

In the first paper -A Portfolio for All Seasons: Does it make sense? (Wong & Li, 2015) of this series of paper on the permanent portfolio; it was setup to consist of four components in equal proportions including cash, long-term bonds, gold, and equity, The result was that the permanent portfolio (Rowland & Lawson, 2012) can perform according to the implication of the name, by providing excellent risk-adjusted return when it was under different market fluctuations over a long period of time., after adjusting with the risk and volatility (Anderson, Marshall, & Miao, 2014).

In the second paper of the series "Can we make the permanent portfolio better by rebalancing more frequently or by changing the rebalancing day?"(Wong & Li, 2017) the result was that the performance of the permanent portfolio would not be improved by either increasing the frequency of the rebalancing (quarterly and monthly) or by changing the day of rebalancing changing from end of each calendar or year to the other dates (e.g. 15th of the month used in that paper) to a significant degree. The slightly negative

results suggested that we should follow the original procedures for keeping the performance of the permanent portfolio.

In the third paper of this series, "The application of permanent portfolio in financial management and retirement scheme" (Li & Wong, 2018) , we used another approach and attempted to replace the least performed component in our permanent portfolio with a long-term growing asset, the VNQ (The MSCI global REITS index ETF) by rebalancing it with the same proportions as the four equally weighted components. The results were very encouraging with performance much better than the original PP and without increasing the volatility; actually the advantages of rebalancing was not affected (Dichtl, Drobetz, & Wambach, 2014).

This paper builds on the portfolio with REITs component and aims to do investigation on performance of the enhanced portfolio by varying the proportions of the REIT component.

As in previous papers, to avoid the geopolitical risk and the influence of local markets, the real estate component of our portfolio is represented by the global REIT fund- the Vanguard REIT ETF (Stock code: VNQ) which aims to keep track of the MSCI World REITs Index, which consists mainly of large and mid-cap equity REITS across 23 developed markets (Li & Wong, 2018).

In the following discussion; we would demonstrate the impact of adjusting the proportions of the REITs. Ideally, this should be of important significance and application to fund managers, particularly those who control the asset allocation of retirement schemes (Benartzi & Thaler, 2001; Morales, Fuentes, Searle, & Stewart, 2017).

DATA AND METHODOLOGY

Data

With the same approach employed in previous papers, the cash component was replaced by the VNQ, the ETF on the MSCI global REITS index. Since the ETF was only available from 2004 onwards, the rebalancing would be done by buying and selling of units of VNQ ETF with other components, but by using the index directly as proxy assuming we could buy and sell the same ETF for the period before 2004.

Following our third paper the data on the other components in the PP model were prepared as follows: "*For the stocks component, we would track the adjusted closing index of the Hong Kong Hang Seng Index, taking into account the impact of dividends, on the last trading day of each month, quarter and year. For gold, being an international commodity, we track the price in the US market. For the bonds component, which as stated in our previous study, the bond component has to be long-term bonds with 20 or more years of maturity. As the bond market in Hong Kong is not that developed, we do not have an alternative and therefore can only use the US Government 30-year Treasury Bonds Total Return Index in our study. For the gold and the bonds component, they are tracked the same way as in our previous paper*s." (Li & Wong, 2018). The only difference again was that the cash component was replaced by the REITs.

Methodology

The methodology and workings of the original and enhanced PP from our first to third papers was also summarized here as the background information and procedures on the rebalancing: *"The original permanent portfolio was made up of, namely, gold, bonds, stocks and cash with each component weighted 25%. The permanent portfolio was rebalanced (which refers to the disposal of the component exceeding 25% and the purchasing of the component which drops below 25% to make each component to be 25% again) annually at the end of each year. The permanent portfolio using this rebalancing strategy provided a much better risk-adjusted return and was confirmed by our two papers and by papers of some other authors (Anderson, Marshall, & Miao, 2014). While the permanent portfolio performs well and the rebalancing strategy works, we are still finding ways to improve it, both in terms of reducing risk and improving the return. We feel that holding 25% of the portfolio in cash or time deposits is too conservative and could undermine the performance of the portfolio unnecessarily…….we propose to invest in real estate investment trust (REITS) which are traded in stock exchange and hence provide liquidity and can keep track of the movements of real estate returns with reasonable accuracy (Ling, Naranjo, & Scheick,*

2016)." (Li & Wong, 2018). We will follow the same procedures of rebalancing but adjusting the proportions of the REITS component and keeping the other three companies in equal weights.

In this paper, we will use the performance of the original PP and the enhanced PP as the reference for comparison with the new further-enhanced PP performance. To study for the changes in performance, the weights of the REIT component were varied in the PP to study how the return and risk were correlated. As in previous studies, rebalancing is done on annual basis, in principle on the last trading day of the calendar year.

As explained in our last paper, because the closing values could only be ascertained after the end of the trading day and it may affect the accuracy of the closing values that were supposed to be used. Again, we consider these inaccuracies will have only minimal effects over long periods of time. We also consider transaction costs that would be incurred during the rebalancing process; we based the transaction costs on the most cost-efficient platform available.

All data, except for those in relation to the performance of the MPF schemes, were collected from Thomson Reuter DataStream.

PERFORMANCE AND ANALYSIS OF THE FURTHER ENHANCED PP

The performance of the original PP and enhanced PP model were reproduced in Appendix tables A1 and A2 for comparison with the new further-enhanced PP model in Appendix table A3 of this paper. The results of the previous papers were reproduced as follows: "*Referring to the original performance data in Table A1 and A2 of the Appendix, we observe that with the replacement of the cash component by REITs, the overall performance of the portfolio was greatly improved. Over the study period from 1996 to 2016, the return of the enhanced PP (the one with the REITs) was 338.7%, which compared with the 214.8% of the original PP"(Li & Wong, 2017).*

Measured in compound annual growth rate (CAGR), it was 7.3% for the enhanced PP and 5.6% for the original PP. Since the volatility of the REITs component is higher than the cash component, the Sharpe ratio was used to see whether the increased return was accompanied by a disproportionate increase in overall volatility to the portfolio. The result was negative, and the Sharpe ratio actually increased from 0.35 to 0.47, indicating that the increased return was not accompanied by a corresponding increase in volatility. To reinstate the result of the enhanced PP, it had outperformed the original PP without sacrificing the volatility.

In this paper, we tried to improve the enhanced PP return with different weights of the REITs component. Referring to the performance data in Table A3 in Appendix, the weights of the REITs were varied from 25% to 100% in the annual rebalancing of the PP while keeping the other three components in equal proportions. Except for the extreme portfolio which contains 100% of REITs investment for control purpose, the 20 years cumulative total return of the further-enhanced PP was improved with the increase in the REITs proportion, from 338.5% with 25% weight to 414.81% with 80% weight. The CAGR also improved from 7.3% (25% weight) to 8.12% (80% weight). The Sharpe ratio reached its peak of 0.47 with 30% of the REITs component, gradually declined to 0.273 with 100% REITs portfolio.

Further analysis between the REITs component and other three components, we found a stable correlation relationship between REITs and these components with various proportion of REITs component inside the enhanced PP. The correlation coefficient value between REITs-stock; REITs-bond and REITs-Gold are 0.5, (0.25) and (0.15) respectively. This revealed a relatively independent relationship between asset classes to maximize the diversification effect in our permanent portfolio (Anderson et al., 2014).

The details of the returns of the further-enhanced permanent portfolio with different weights of REITs component were provided in Appendix Table A3, while summaried returns were provided in Table 1 below.

TABLE 1
SUMMARY OF RETURNS OF THE FURTHER ENHENCED PERMANENT PORTFOLIO WITH WEIGHT OF REIT COMPONENT (ANNUAL REBALANCE ON 31 DECEMBER EACH YEAR, 1996-2016)

% REIT in Enhanced PP	Total cumulative return (1996-2016)	% change with original PP	CAGR	% change with original PP	Sharpe ratio	% change with original PP	Max. yearly draw-back %	Year of max. draw-back	Loss in Previous year?	Draw-back % in previous year
0%	214.83%	n.a.	5.61%	n.a.	0.347	n.a.	-9.94%	2013	N	
25%	338.75%	57.7%	7.30%	30.0%	0.468	34.8%	-11.35%	2008	N	
30%	349.80%	62.8%	7.42%	32.2%	0.470	35.2%	-13.36%	2008	N	
35%	360.46%	67.8%	7.54%	34.4%	0.466	34.2%	-15.38%	2008	N	
40%	370.33%	72.4%	7.65%	36.3%	0.458	31.9%	-17.39%	2008	N	
50%	387.64%	80.4%	7.84%	39.6%	0.433	24.6%	-21.42%	2008	N	
60%	401.19%	86.7%	7.98%	42.1%	0.401	15.5%	-25.44%	2008	Y	-1.32%
70%	410.45%	91.1%	8.07%	43.8%	0.368	5.8%	-29.47%	2008	Y	-6.04%
80%	414.81%	93.1%	8.12%	44.6%	0.335	-3.7%	-33.49%	2008	Y	-10.76%
90%	414.00%	92.7%	8.11%	44.4%	0.303	-12.8%	-37.50%	2008	Y	-15.47%
100%	408.14%	90.0%	8.05%	43.4%	0.273	-21.4%	-41.51%	2008	Y	-20.17%

In addition, by comparing the maximum drawback during the 20-year investment horizon, the original PP has a better performance than the enhanced PPs. As shown in Table 1, the original PP has a maximum drawback of -9.94% in 2013, for further-enhanced PPs, the maximum drawback ranged from -13.36% (30% REITs component) to -41.51 (100% REITs component).

From Table 1, we noticed that except for the initial 25% REITs component portfolio, the maximum drawback mostly occurred in 2008 for our enhanced PPs. For the original PP which includes cash component instead of the REITs, it successfully survived in 2008 with a marginally negative return of -0.12% (in Appendix table A3). Referring to Table 1, the maximum drawback of the original PP happened in 2013 with a negative return of -9.94%, which is the lowest among all enhanced permanent portfolios in our study. This reminds us the merit of cash in facing systematic risk and its liquid and low risk nature in asset allocation and portfolio management. As mentioned in previous paragraphs, real estate has a long–term proven history in its performance. However, it is not risk-free and contains systematic risk which leads to negative returns when facing adverse situation such as the financial crisis in 2008.

In the following ; we selected the further-enhanced PP using 30% REITs (at this level, we have the highest Sharpe ratio) for comparsion with the average MPF returns in Hong Kong.

TABLE 2
RETURN OF INDIVIDUAL COMPONENT AND THE FURTHER ENHANCED PP REPLACING T-BILL WITH MSCI REIT INDEX (REBALANCING ANNUALLY ON 31 DECEMBER EACH YEAR, 2001-2016) COMPARED WITH AVERAGE RETURNS OF MPF

30% on REITs, others equally weighted							
For the year ended	**HSI**	**30yrs bonds**	**Gold**	**MSCI REIT index**	**Portfolio annual return**		**Average MPF Return in HK**
12/31/2001	-24.50%	3.45%	1.41%	12.83%	-0.75%		-4.90%
12/31/2002	-18.21%	16.74%	23.96%	3.64%	6.31%		-9.25%
12/31/2003	34.92%	1.01%	21.74%	36.74%	24.45%		13.83%
12/31/2004	13.15%	9.19%	4.97%	31.49%	15.79%		9.03%
12/31/2005	4.54%	8.72%	17.12%	8.86%	9.73%		10.40%
12/31/2006	34.20%	-1.46%	23.92%	30.20%	22.26%		12.38%
12/31/2007	39.31%	10.33%	31.59%	-20.17%	12.87%		6.48%
12/31/2008	-48.27%	41.19%	3.41%	-41.51%	-13.36%		-18.30%
12/31/2009	52.02%	-25.55%	27.63%	20.97%	18.80%		16.10%
12/31/2010	5.32%	5.26%	27.74%	23.53%	15.92%		14.05%
12/31/2011	-19.97%	29.86%	11.65%	4.71%	6.41%		-2.03%
12/31/2012	22.91%	2.26%	5.68%	13.56%	11.23%		3.40%
12/31/2013	2.87%	-14.89%	-27.79%	-1.39%	-9.73%		1.63%
12/31/2014	1.28%	29.68%	-0.19%	25.28%	14.75%		4.81%
12/31/2015	-7.16%	-3.25%	-11.42%	-1.51%	-5.56%		-4.55%
12/31/2016	0.39%	0.88%	8.43%	4.22%	3.52%		5.23%
Total returns	46%	149%	322%	214%	230%		65.90%
CAGR	2.38%	5.87%	9.42%	7.40%	7.75%		3.21%
Sharpe Ratio	0.02	0.24	0.47	0.28	0.53		0.17

Table 2 tried to compare the performance of the further-enhanced PP (30% REITs and other components equally weighted) with the average returns from the Hong Kong MPF schemes. As explained in the previous third paper, the MPF was only brought into existence from December of 2000, our study would start from this date to December 2016, representing a study period of 16 years.

As expected, referring to Table 2, the MPF schemes' performance was no better than the further-enhanced PP. During the study period, the average MPF schemes brought in a total return of 65.9%, or a compound annual growth rate of 3.21%, which compared with the respective returns of 230% and 7.75% of the further-enhanced PP. During the 16 years, the Sharpe ratio of the further-enhanced PP was 0.53, which was significantly above the same ratio of the MPF schemes average of 0.17. Also, worth pointing out is that in the year 2008, the average MPF schemes showed a loss of 18.3%, while further-enhanced PP showed a smaller loss of 13.4% in that year. This is undesirable as MPF schemes are meant for retirement savings.

To give a better illustration of actual mechanism of the retirement scheme, the dollar cost averaging (on a yearly basis, it could be revised later a monthly DCA basis) using our enhanced PP will be studied in future for a better comparison.

CONCLUSION

The results of this study confirmed our hypothesis that the replacement of the cash component with REITs would improve the performance of the portfolio without adversely affecting the stability of the portfolio significantly. Further, as we are studying the application of this portfolio to long-term investment for retirement purposes, significant drawback in portfolio value, or prolonged period (of say, two years in a row) of drawback in portfolio is not acceptable. The performance indicated that it would be best to cap the REIT component at 30%, where the maximum yearly drawback is 15%, and there would be no two consecutive years in which the portfolio is having a drawback during our study period. Particular attention is drawn to the year of 2007 and 2008, the REITs dropped a total of over 60%, which is unacceptable for any long-term and retirement-oriented investments.

Finally, the returns and stability of the further-enhanced permanent portfolio is much better than the average MPF schemes in Hong Kong. The related regulatory authority and MPF service providers should consider adopting this approach and maybe offer a Permanent Portfolio Fund for the investors who just prefer a simple, no-hassle, stable, and yet satisfactory return while accumulating their funds for retirement purposes.

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APPENDIX

TABLE A1
RETURN OF INDIVIDUAL COMPONENT AND THE PP
(REBALANCING ANNUALLY ON 31 DECEMBER EACH YEAR, 1996-2016)

Original PP with T-bill

For the year ended	HSI	30 yrs bonds	Gold	T-bill	Portfolio annual return
12/31/1996	33.53%	-4.84%	-4.43%	5.18%	7.35%
12/31/1997	-20.29%	15.41%	-21.74%	5.51%	-5.31%
12/31/1998	-6.29%	16.70%	-0.61%	5.51%	3.80%
12/31/1999	68.80%	-14.98%	1.18%	4.53%	14.85%
12/31/2000	-11.00%	20.55%	-6.26%	5.98%	2.26%
12/31/2001	-24.50%	3.45%	1.41%	5.41%	-3.59%
12/31/2002	-18.21%	16.74%	23.96%	2.17%	6.15%
12/31/2003	34.92%	1.01%	21.74%	1.32%	14.73%
12/31/2004	13.15%	9.19%	4.97%	1.26%	7.12%
12/31/2005	4.54%	8.72%	17.12%	2.75%	8.27%
12/31/2006	34.20%	-1.46%	23.92%	4.38%	15.25%
12/31/2007	39.31%	10.33%	31.59%	5.00%	21.54%
12/31/2008	-48.27%	41.19%	3.41%	3.34%	-0.12%
12/31/2009	52.02%	-25.55%	27.63%	0.35%	13.53%
12/31/2010	5.32%	5.26%	27.74%	0.44%	9.63%
12/31/2011	-19.97%	29.86%	11.65%	0.27%	5.42%
12/31/2012	22.91%	2.26%	5.68%	0.11%	7.71%
12/31/2013	2.87%	-14.89%	-27.79%	0.14%	-9.94%
12/31/2014	1.28%	29.68%	-0.19%	0.12%	7.71%
12/31/2015	-7.16%	-3.25%	-11.42%	0.22%	-5.43%
12/31/2016	0.39%	0.88%	8.43%	0.61%	2.57%

Total returns	118%	227%	198%	71%	214.8%
CAGR	3.79%	5.81%	5.33%	2.58%	5.61%
Sharpe Ratio	0.04	0.17	0.16	-	0.35
	Correlation	**HSI**	**Bond**	**GOLD**	
	Bond	**(0.747)**			
	GOLD	**0.301**	**(0.025)**		
	T-bill	**(0.358)**	**0.507**	**(0.420)**	

TABLE A2
RETURN OF INDIVIDUAL COMPONENT AND THE ENHENCED PP-REPLACING T-BILL WITH MSCI REIT INDEX (REBALANCING ANNUALLY ON 31 DECEMBER EACH YEAR, 1996-2016)

Enhanced PP with REITs 25%

For the year ended	HSI	30yrs bonds	Gold	MSCI REIT index	Portfolio annual return
12/31/1996	33.53%	-4.84%	-4.43%	35.89%	15.02%
12/31/1997	-20.29%	15.41%	-21.74%	18.58%	-2.04%
12/31/1998	-6.29%	16.70%	-0.61%	-16.90%	-1.81%
12/31/1999	68.80%	-14.98%	1.18%	-4.55%	12.57%
12/31/2000	-11.00%	20.55%	-6.26%	26.81%	7.45%
12/31/2001	-24.50%	3.45%	1.41%	12.83%	-1.75%
12/31/2002	-18.21%	16.74%	23.96%	3.64%	6.52%
12/31/2003	34.92%	1.01%	21.74%	36.74%	23.57%
12/31/2004	13.15%	9.19%	4.97%	31.49%	14.67%
12/31/2005	4.54%	8.72%	17.12%	8.86%	9.80%
12/31/2006	34.20%	-1.46%	23.92%	30.20%	21.69%
12/31/2007	39.31%	10.33%	31.59%	-20.17%	15.23%
12/31/2008	-48.27%	41.19%	3.41%	-41.51%	-11.35%
12/31/2009	52.02%	-25.55%	27.63%	20.97%	18.65%
12/31/2010	5.32%	5.26%	27.74%	23.53%	15.38%
12/31/2011	-19.97%	29.86%	11.65%	4.71%	6.53%
12/31/2012	22.91%	2.26%	5.68%	13.56%	11.07%
12/31/2013	2.87%	-14.89%	-27.79%	-1.39%	-10.32%
12/31/2014	1.28%	29.68%	-0.19%	25.28%	13.99%
12/31/2015	-7.16%	-3.25%	-11.42%	-1.51%	-5.86%
12/31/2016	0.39%	0.88%	8.43%	4.22%	3.47%

Total returns	118%	227%	198%	408%	338.5%
CAGR	3.79%	5.81%	5.33%	8.05%	7.30%
Sharpe Ratio	0.04	0.20	0.17	0.27	0.47
	Correlation	**HSI**	**Bond**	**GOLD**	
	Bond	**(0.785)**			
	GOLD	**0.084**	**0.125**		
	REITS	**0.563**	**(0.249)**	**(0.150)**	

TABLE A3
RETURN OF INDIVIDUAL COMPONENT AND THE FURTHER-ENHANCED PP (REPLACING T-BILL WITH DIFFERENT WEIGHTS OF MSCI REIT INDEX) - REBALANCING ANNUALLY ON 31 DECEMBER EACH YEAR, 1996-2016)

					Changing the % on REITs, others equally weighted -Portfolio annual return								
For the year ended	HS I	30yrs bonds	Gold	MSCI REIT index	30%	35%	40%	50%	60%	70%	80%	90%	100%
12/31/1996	33.53%	-4.84%	-4.43%	35.89%	16.42%	17.81%	19.19%	21.97%	24.75%	27.54%	30.29%	33.03%	35.89%
12/31/1997	-20.29%	15.41%	-21.74%	18.58%	-0.67%	0.71%	2.08%	4.83%	7.58%	10.33%	13.05%	15.76%	18.58%
12/31/1998	-6.29%	16.70%	-0.61%	-16.90%	-2.82%	-3.83%	-4.84%	-6.86%	-8.88%	-10.89%	-12.90%	-14.90%	-16.90%
12/31/1999	68.80%	-14.98%	1.18%	-4.55%	11.42%	10.27%	9.13%	6.84%	4.55%	2.27%	-0.01%	-2.28%	-4.55%
12/31/2000	-11.00%	20.55%	-6.26%	26.81%	8.74%	10.03%	11.32%	13.90%	16.48%	19.06%	21.64%	24.22%	26.81%
12/31/2001	-24.50%	3.45%	1.41%	12.83%	-0.77%	0.20%	1.17%	3.11%	5.05%	6.99%	8.93%	10.88%	12.83%
12/31/2002	-18.21%	16.74%	23.96%	3.64%	6.32%	6.13%	5.94%	5.55%	5.17%	4.78%	4.40%	4.02%	3.64%
12/31/2003	34.92%	1.01%	21.74%	36.74%	24.45%	25.32%	26.20%	27.95%	29.70%	31.46%	33.21%	34.98%	36.74%
12/31/2004	13.15%	9.19%	4.97%	31.49%	15.79%	16.91%	18.03%	20.27%	22.51%	24.76%	27.00%	29.24%	31.49%
12/31/2005	4.54%	8.72%	17.12%	8.86%	9.73%	9.67%	9.60%	9.48%	9.35%	9.22%	9.10%	8.98%	8.86%
12/31/2006	34.20%	-1.46%	23.92%	30.20%	22.26%	22.82%	23.39%	24.52%	25.65%	26.78%	27.92%	29.05%	30.20%
12/31/2007	39.31%	10.33%	31.59%	-20.17%	12.87%	10.50%	8.14%	3.41%	-1.32%	-6.04%	-10.76%	-15.47%	-20.17%
12/31/2008	-48.27%	41.19%	3.41%	-41.51%	-13.36%	-15.38%	-17.39%	-21.42%	-25.44%	-29.47%	-33.49%	-37.50%	-41.51%
12/31/2009	52.02%	-25.55%	27.63%	20.97%	18.80%	18.96%	19.11%	19.41%	19.72%	20.02%	20.33%	20.65%	20.97%
12/31/2010	5.32%	5.26%	27.74%	23.53%	15.92%	16.46%	17.00%	18.09%	19.17%	20.25%	21.34%	22.43%	23.53%
12/31/2011	-19.97%	29.86%	11.65%	4.71%	6.41%	6.28%	6.16%	5.92%	5.68%	5.43%	5.19%	4.95%	4.71%
12/31/2012	22.91%	2.26%	5.68%	13.56%	11.23%	11.40%	11.57%	11.90%	12.23%	12.56%	12.89%	13.22%	13.56%
12/31/2013	2.87%	-14.89%	-27.79%	-1.39%	-9.73%	-9.13%	-8.54%	-7.35%	-6.16%	-4.97%	-3.77%	-2.58%	-1.39%
12/31/2014	1.28%	29.68%	-0.19%	25.28%	14.75%	15.50%	16.25%	17.76%	19.26%	20.76%	22.27%	23.77%	25.28%
12/31/2015	-7.16%	-3.25%	-11.42%	-1.51%	-5.56%	-5.27%	-4.98%	-4.40%	-3.82%	-3.24%	-2.66%	-2.09%	-1.51%
12/31/2016	0.39%	0.88%	8.43%	4.22%	3.52%	3.57%	3.62%	3.72%	3.82%	3.92%	4.02%	4.12%	4.22%
Total returns	118%	227%	198%	408%	349.8%	360.5%	370%	388%	401.2%	410%	414.8%	414.0%	408%
CAGR	3.79%	5.81%	5.33%	8.05%	7.42%	7.54%	7.65%	7.84%	7.98%	8.07%	**8.12%**	8.11%	8.05%
Sharpe Ratio	0.04	0.20	0.17	0.27	0.47	**0.47**	0.46	0.43	0.40	0.37	0.33	0.30	0.27