INVESTOR REPORT

Report Date: 2021-6-1

Abstract

Investor report for the All Weather Found since 2016-4-1

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Background

We are given an investment of an initial capital: $100,000 Canadian dollars, provided on April 1st 2016, and with injections of $10,000 Canadian dollars every 6 months, starting on October 1st 2016. This report is issued on June 1st 2021.

Portfolio Description

Goals

The primary objective is to achieve a reasonable return during both bear and bull markets. The investor is identified with moderate risk tolerance and does not care about short term price fluctuation. Little liquidity is needed as there is no planned fund withdrawal. The investment horizon is 5 years plus. The investor requested to be invested in dual currency (USD and CAD) with well diversified asset class allocation and international exposures.

Portfolio Strategy

The long-only All Weather (AW) investment strategy is deemed to be most appropriate for this client. Thus, a multi-asset portfolio that invests in the four quadrants (equity and corporate bonds, government bonds, inflation linked bonds, and real estate) is constructed for the client. We will allocate 15%-30% of the total resource to each of the quadrants. We will also try to maximize the risk adjusted return by minimizing the portfolio variation within the allocation constraints. In addition, low-cost, passive investment solution that invest in EFTs will be used.

Fees

Due to the rise of ETFs, the cost of passive investing in diversified asset classes has never been lower. (For industry average comparison, please refer to *Appendix: Management fee*.) Thus we were able to achieve cost efficiency by invest only in ETFs. We assume no cost to set up the fund, and 0.5% cost of the assets exchanged on the rebalance date.

Portfolio Tracking

Portfolio set-up

The initial capital, and injections split 50/50 into USD and CAD. We invest a variety of ETFs from different asset classes. We rebalance every 6 months, which coincides with the injection schedule.

Exposures

The exposure guideline has been outlined in portfolio strategies. Currently CAD$128k equivalent are invested in USD ETF, and CAD$ 122K are invested in CAD ETF. For history of each currency account, please refer to *Appendix: currency accounts.* Please refer to *Appendix: position history* for the history of the asset exposure. The current total asset mix (in CAD) is outlined below.

$ CAD (thousand)	NMV
Portfolio	249.797
EQ	39.346
IR	146.059
CR	16.329
RE	48.062

NMV	US	CA	INT	Total
EQ	4%	3%	9%	16%
IR	31%	28%		58%
CR		7%		7%
RE	12%	7%		19%
Total	47%	45%	9%	100%

Porfolio (Thousand)	249.797
EQ	39.346
US-EQ	10.730
CA-EQ	7.039
INT-EQ	21.577
IR	146.059
US-IR	76.331
CA-IR	69.729
CR	16.329
CA-CR	16.329
RE	48.062
US-RE	29.327
CA-RE	18.735
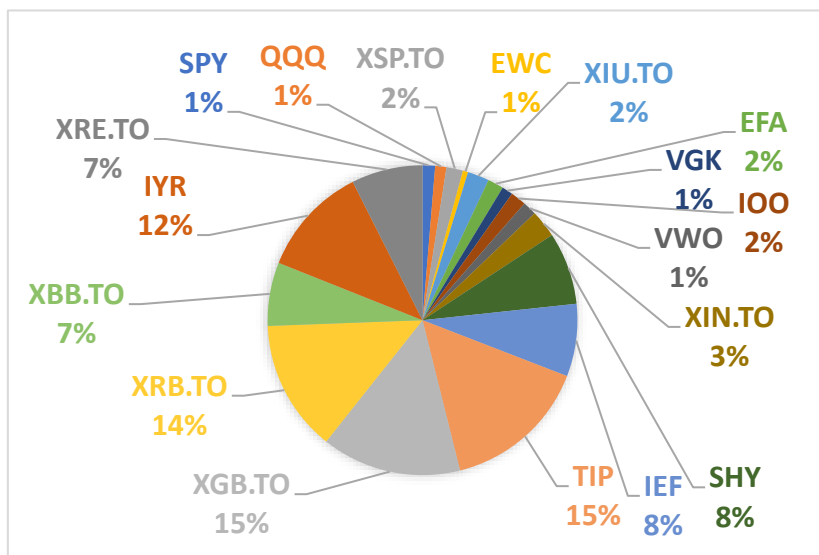
Performance

The account balance evolution is shown in the charts below with their respective currencies. The total is the combined account balance in CAD. For performance comparison and evaluation, please refer to *Benchmark and Comparison.*
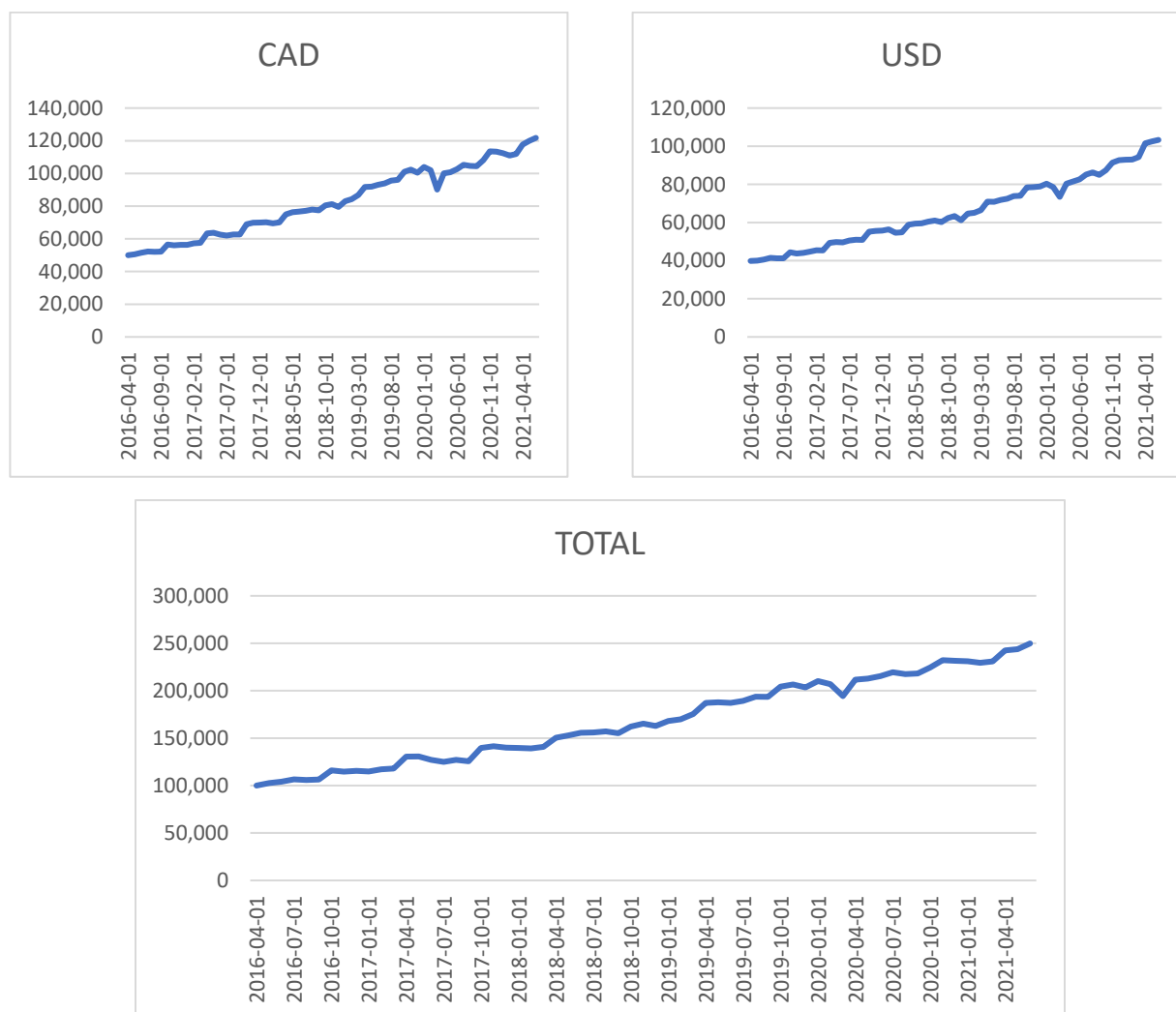
Fees

The fee is about $100-200 CAD each year, below 0.2%. This is significantly lower than the industry average. For breakdown detail, please refer to *Appendix: Fee breakdown*.

Value at Risk

The risk metric considered are standard deviation and VaR. VaR is calculated using historical method with the window period (2006-2021). Marginal VaR is based on VaR using historical method. VaR using parametric method is also calculated (in Position vs. Risk Chart) with normal distribution assumption.

$ CAD (K)	NMV	VaR	Marginal VaR
Portfolio	249.80	10.67	10.67
EQ	39.346	4.29	2.82
IR	146.06	5.74	2.93
CR	16.33	0.46	0.32
RE	48.06	4.60	4.61

Marginal VaR	US	CA	INT	Total
EQ	7%	5%	14%	26%
IR	8%	20%		27%
CR		3%		3%
RE	26%	17%		43%
Total	40%	45%	14%	100%

Portfolio (K)	249.80	10.67	10.67
EQ	39.35	4.29	2.82
US-EQ	10.73	0.95	0.75
CA-EQ	7.04	0.95	0.52
INT-EQ	21.58	2.31	1.54
IR	146.06	5.74	2.93
US-IR	76.33	5.33	0.81
CA-IR	69.73	3.06	2.12
CR	16.33	0.46	0.32
CA-CR	16.33	0.46	0.32
RE	48.06	4.60	4.61
US-RE	29.33	5.24	2.75
CA-RE	18.74	2.33	1.86

Position vs. Risk (in CAD)
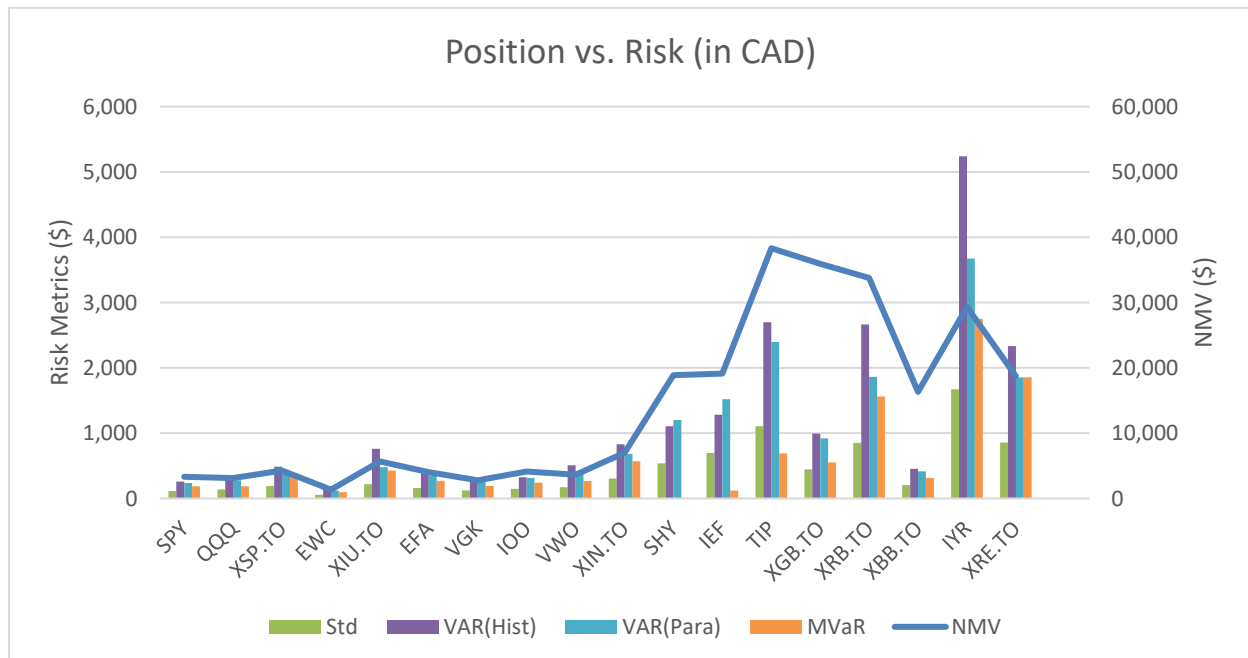
Model Risk

Our asset allocation model also heavily rely on the stability of correlation between different asset class and assumes there is no significant change during the calibration period and performing period. This can be confirmed by looking at the changes in correlation heat map.
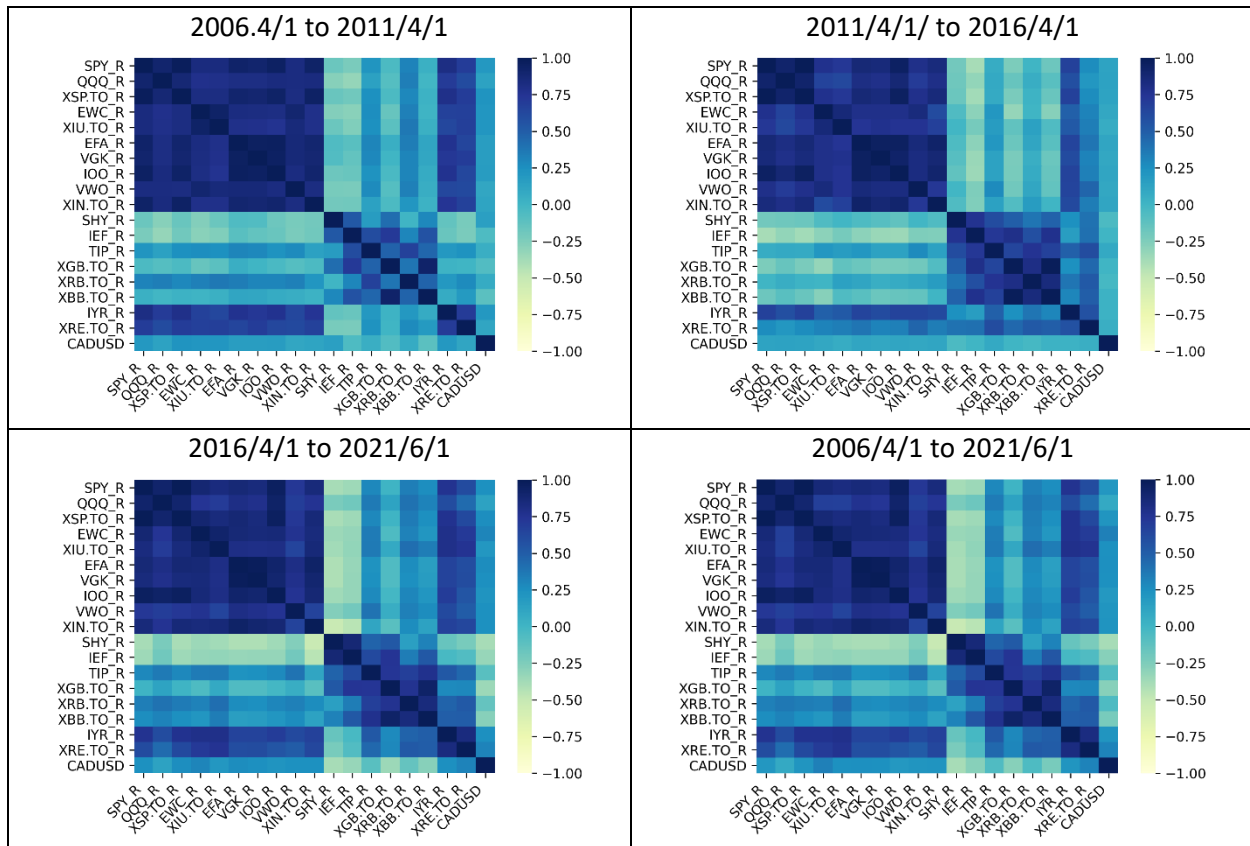
The risk model also relies on stability, however, it seems VaR99 changes quite a bit. To overcome the lookback nature of VaR, we will use scenario analysis.
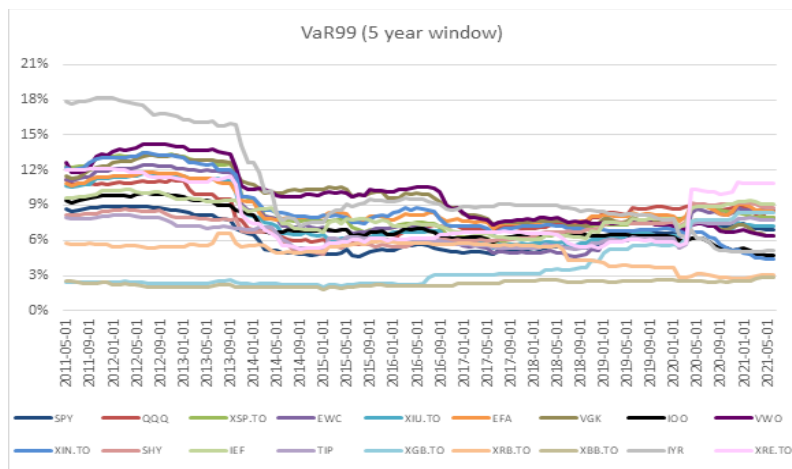
Scenario analysis

Due to the back looking nature of the VaR metric, we also considered scenario analysis. The analysis try to answer the question, if this scenario happens, what will our portfolio perform? The two types of scenarios are historical scenarios and hypothetical scenarios.

Historical scenarios

We selected 4 historical scenarios:

Scenarios	Start Date	End Date	Duration
Great Recession	December 2007	June 2009	19 months
2009-2010 Growth Scenario	March 2009	April 2010	14 months
2015-2016 Growth Scare	July 2015	January 2016	7 months
Covid-19 Period	February 2020	June 2021	17 months

And here is how our portfolio would have performed during these scenarios:
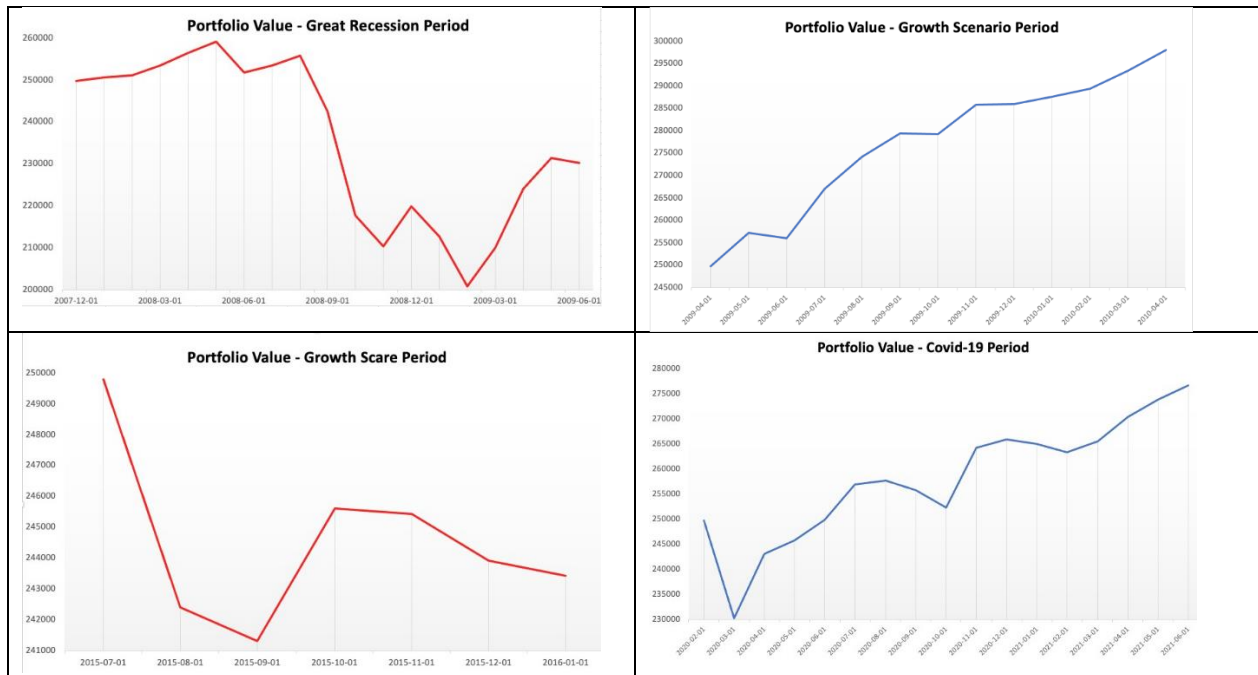
Hypothetical scenarios

Predicting economic outlooks using Vector Autoregression (VAR) model, we obtain the base case. Then we had up and down case built on top of it. Here is the summary of the forecasted outlook:

	UPSIDE	BASE	DOWNSIDE
Real GDP (%)	0.503	0.491	0.479
Inflation (%)	2	0.365	0.365
Unemployment (%)	5.987	5.987	7.718
USD/CAD FX	1.258	1.258	1.091
Market Risk Premium	1.086	1.026	0.926

Here is how our portfolio will perform in the following 4 quarters:
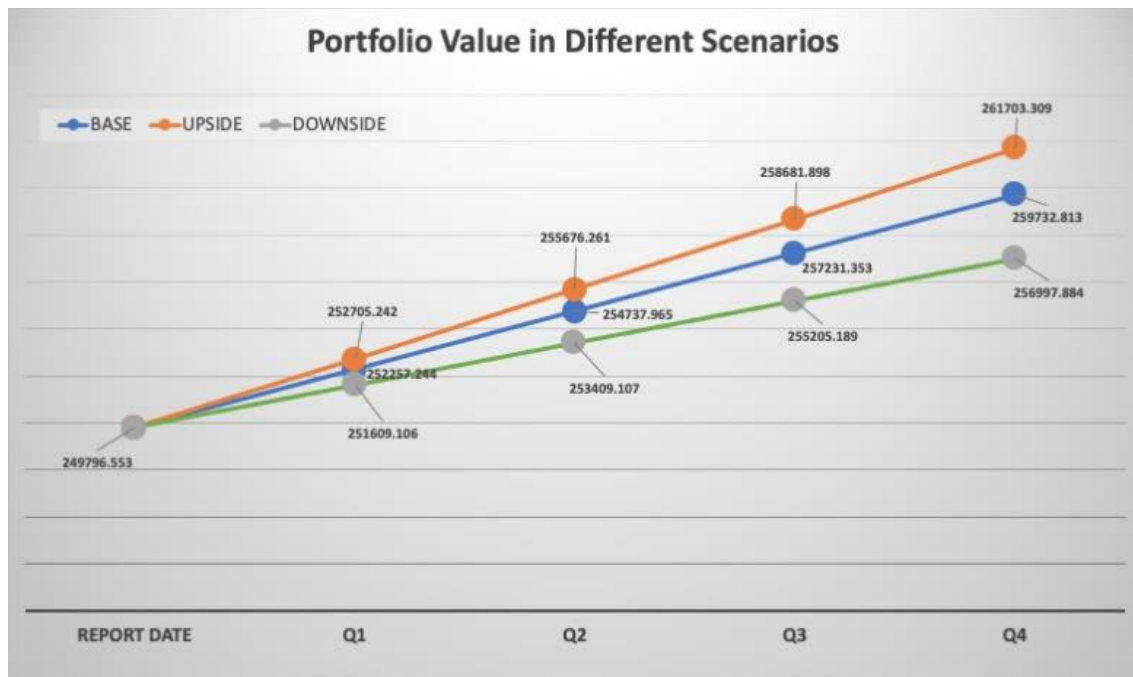
Here is the performance breakdown of each asset in the three cases:
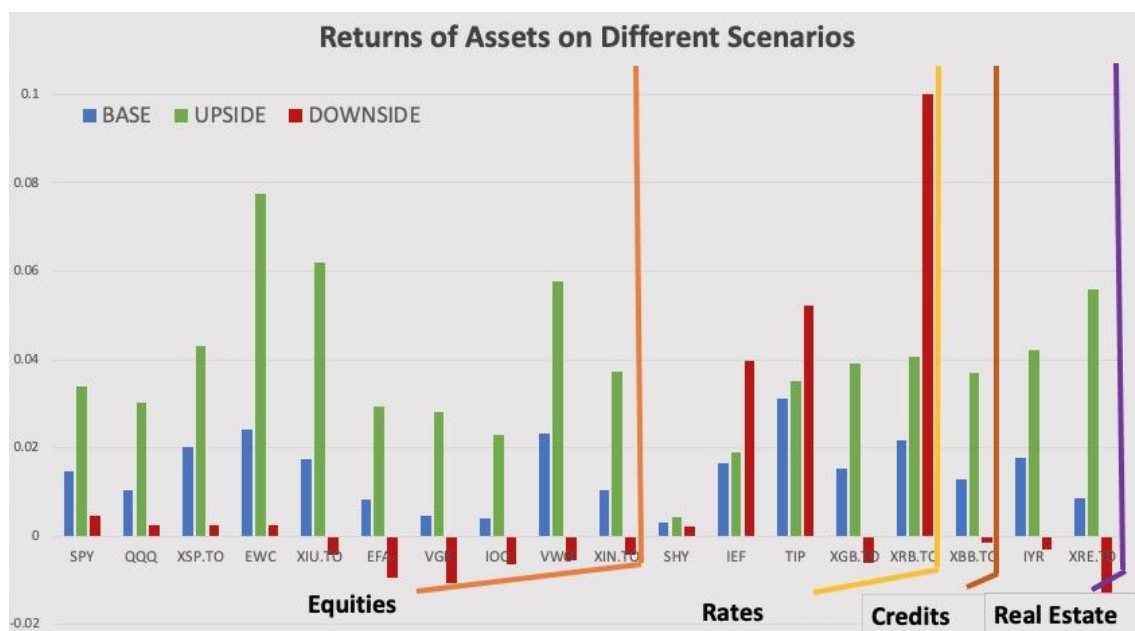
As we can see, our portfolio performs relatively well in all cases.

Benchmark and Comparison

Since fund of funds are so varied, they can be hard to track as a group and to compare. However, an index does exist. The Barclay Fund of Funds Index, sponsored by Barclay-Hedge, a provider of data on alternative investments, is a measure of the average return of all FOFs that report into the company database; it includes some 500 to 650 funds.

Performance

Performance is measured in terms of time weighted rate of return, money weighted rate of return, and Sharpe ratio. We outperformed the benchmark in both metrics. (What-if case will be discussed in *the* next section.) For detail, please refer to *Appendix: Benchmark performance.* No information of benchmark exposure available.
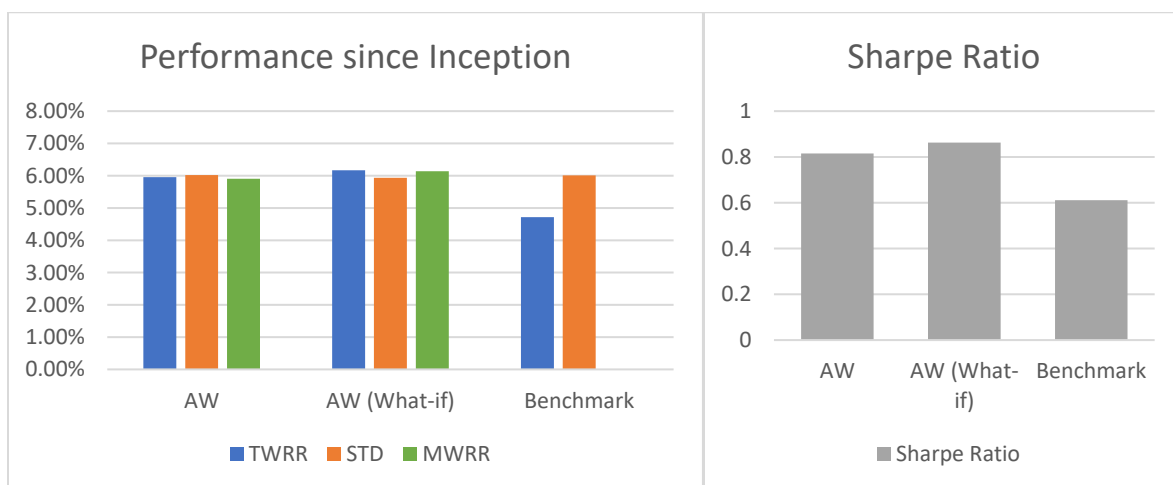
We checked the annual performance of each asset class, portfolio and the benchmark at each fiscal year end.
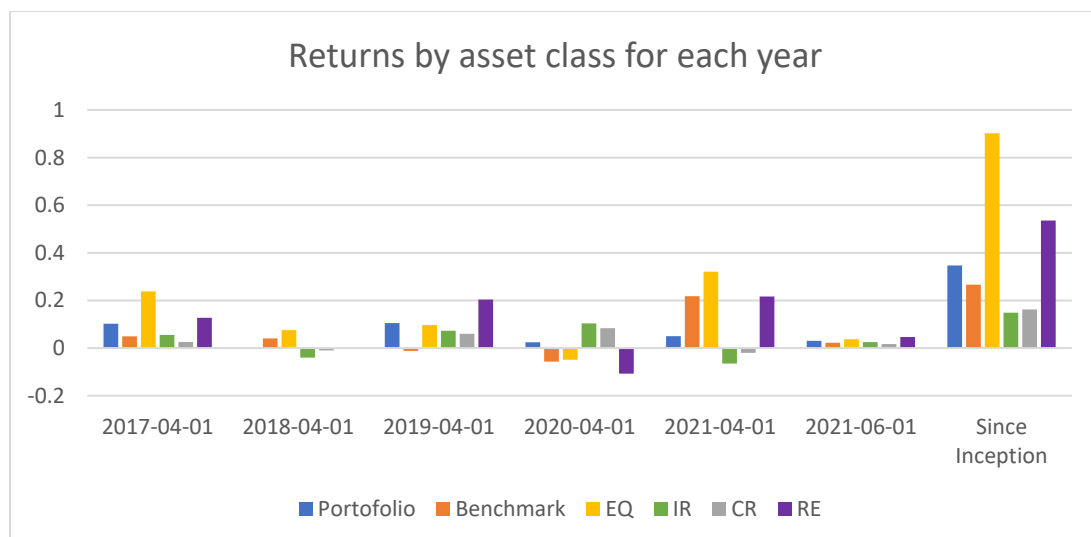
Here we compared the cumulative return and standard deviation of each asset since inception.

Performance since 2016
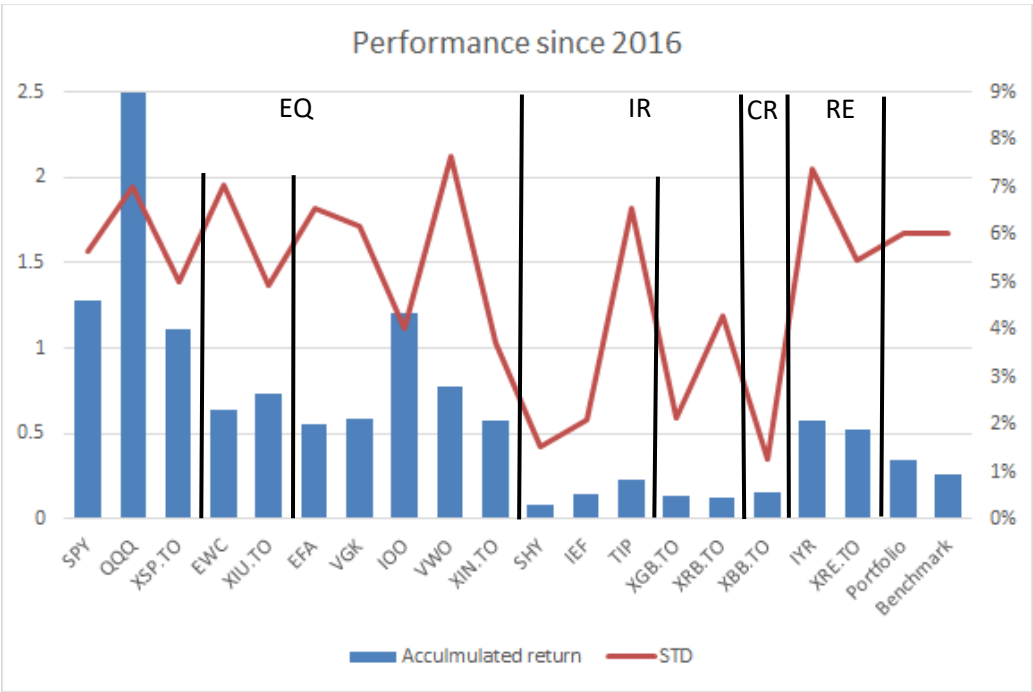
Risk

We see an over exposure in US real estate (IVR) previously. In addition, the risk is not being reasonably compensated by it's return (*Appendix: Benchmark risk*). We back tested with what-if case, where we reduced position in IYR to be no more than 15% of the $USD account. We were able to get an improved performance. The return and Sharpe ratio would have been increased and we also see a decrease in VaR. For detail, please refer to *Appendix: Benchmark Performance and Benchmark Risk.*

Position vs. Risk (Run2)
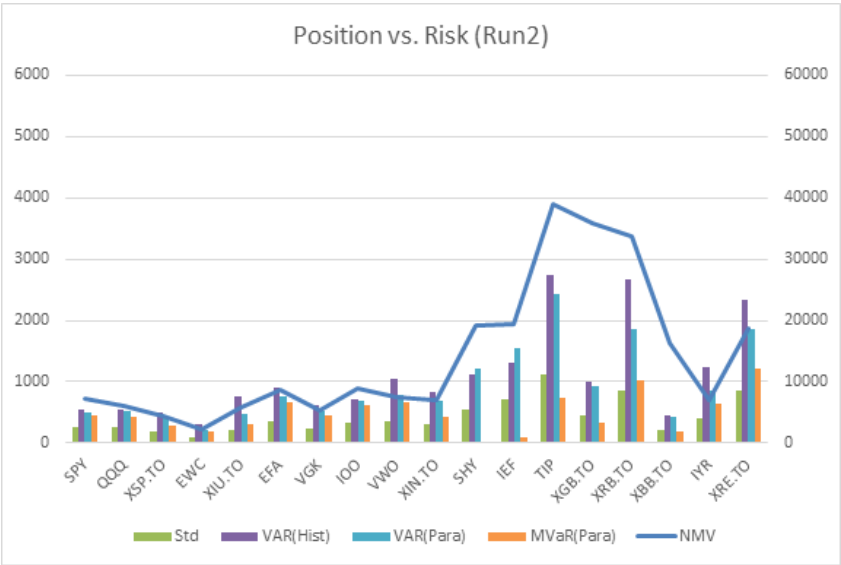
Portfolio Activity

We rebalance our portfolio every 6 months, the same date when we receive cash injection. For transaction cost detail, please refer to *Appendix: Fee breakdown.* For position history, please refer to *Appendix: Position history.* For history of number of units purchased and hold in each ETF, please refer to *Appendix: Unit history.*

Recommendations

We will recommend the investor to continue to invest with us. We will explore a broader asset universe which will allow us to explore more investment options and further to diversify our portfolio. We will further to incorporate other information such as variables that have predictability and professional judgements into our strategies. We also suggest the investor to give us more flexibility of tilting weights based on the information to further improve our performance. For example, tilting more weight to the U.S. equity class to capture a higher return by accepting more reasonable risk. We notice that the Barclay fund of funds benchmark index may be inappropriate and we will construct our own benchmark for evaluation in the future.

Appendix

Management fee comparison

- 2.5% – Average mutual fund MER
- 1% – About the cost of using a robo-advisor or Tangerine investment funds
- .50% – About the cost of using TD e-Series index funds
- .20% – About the cost of a self-directed ETF portfolio

Position history (in $CAD)

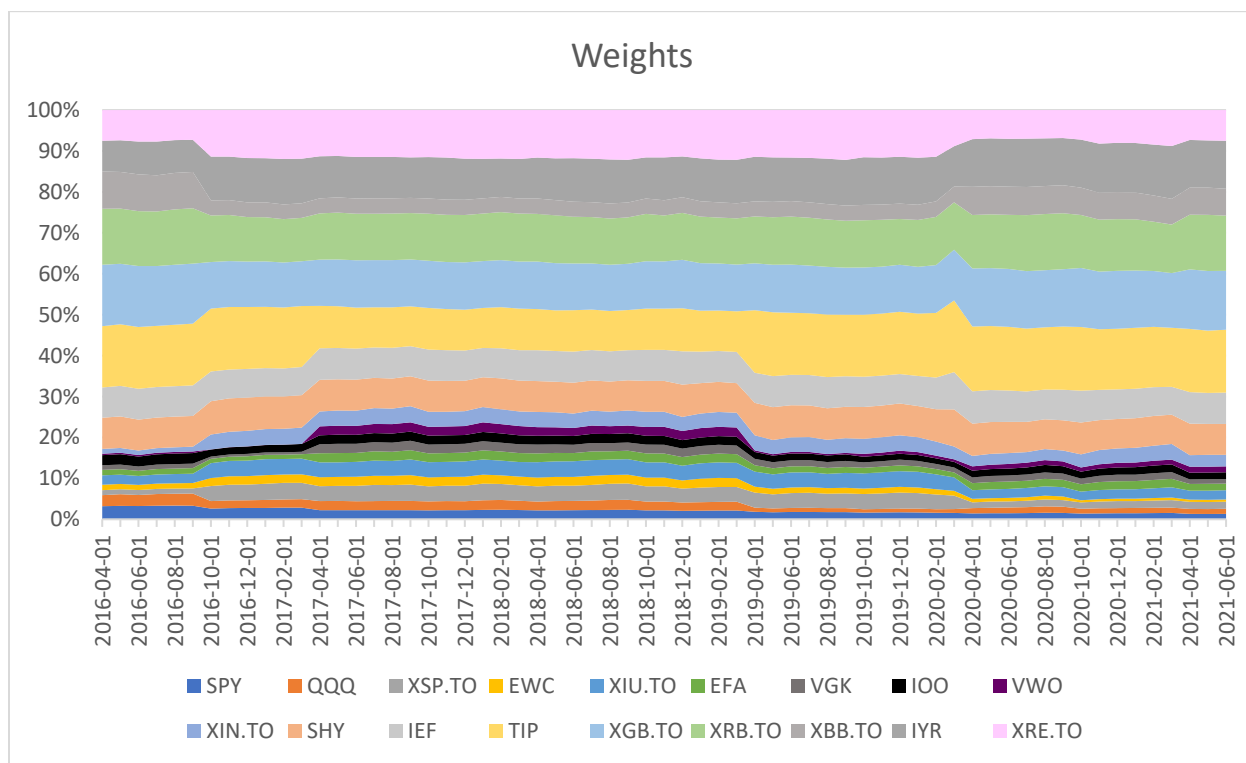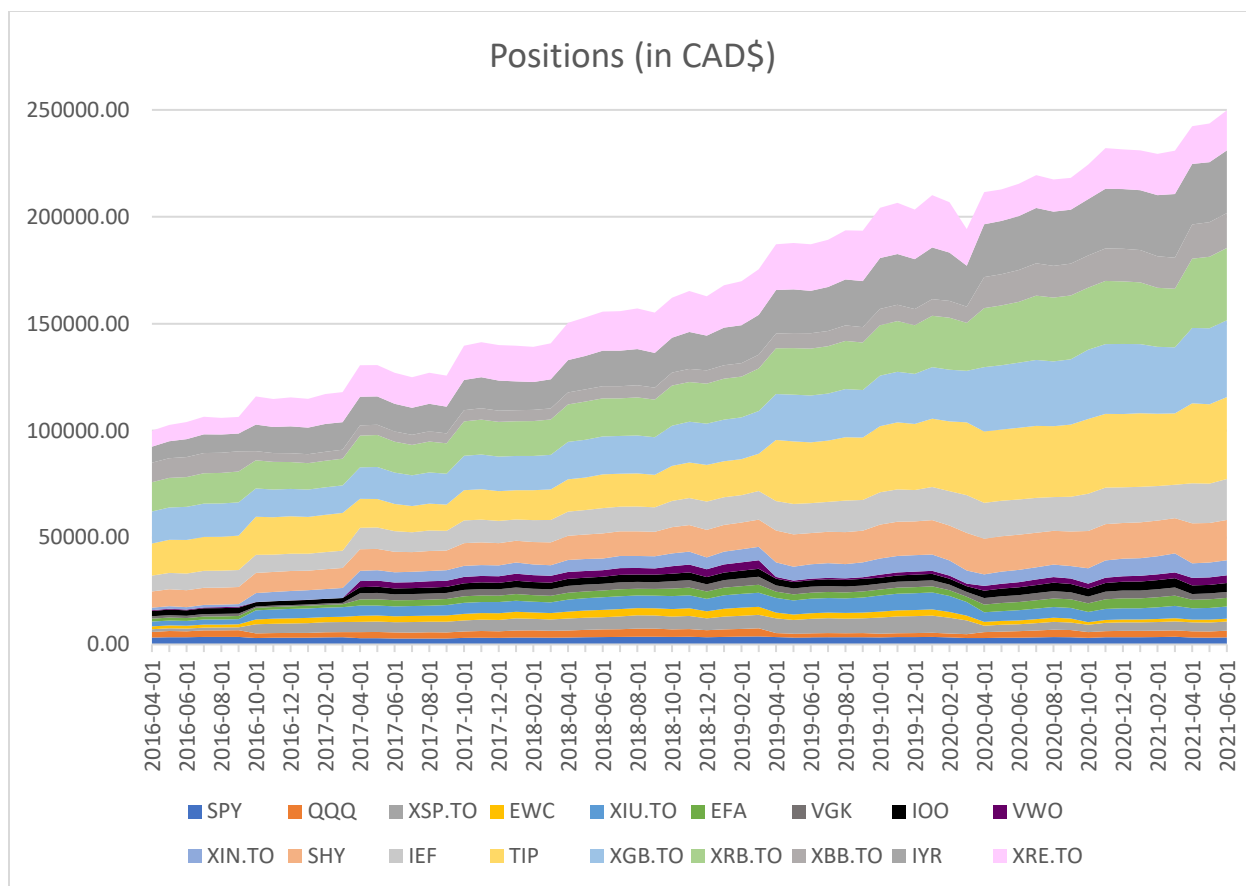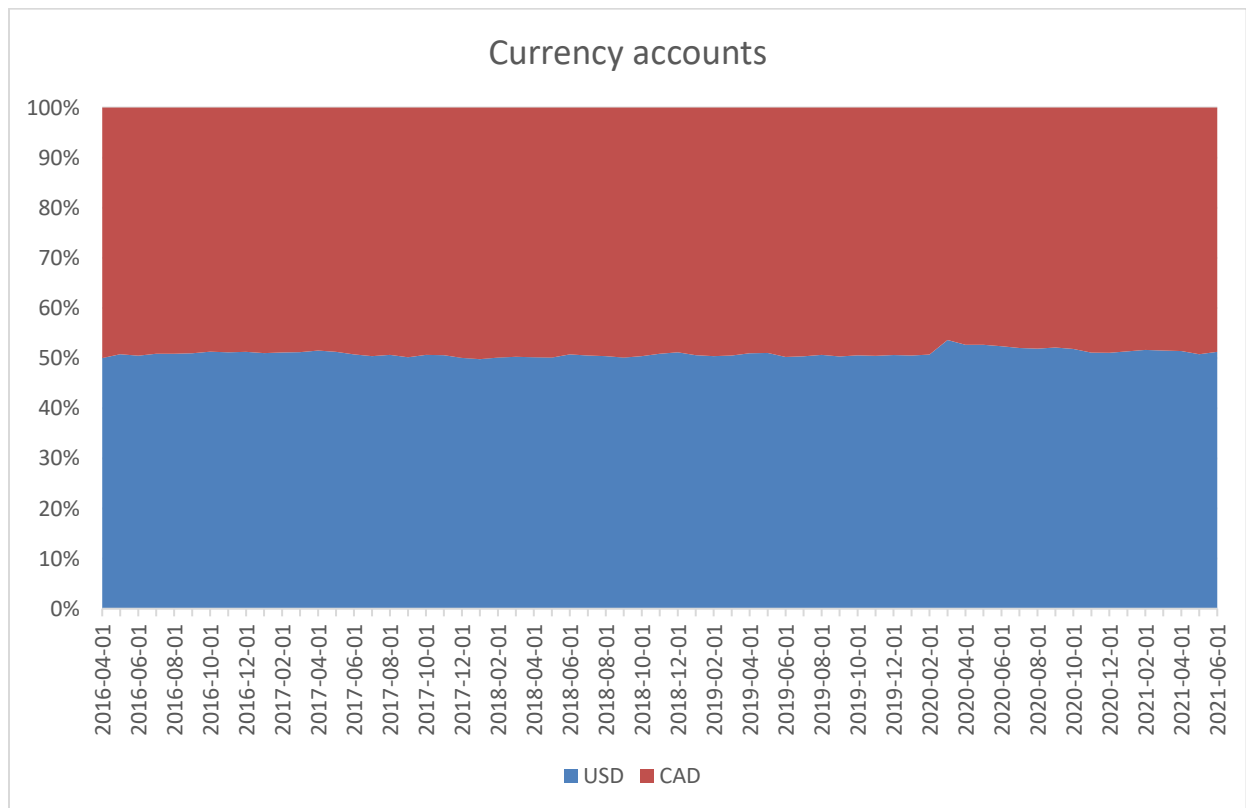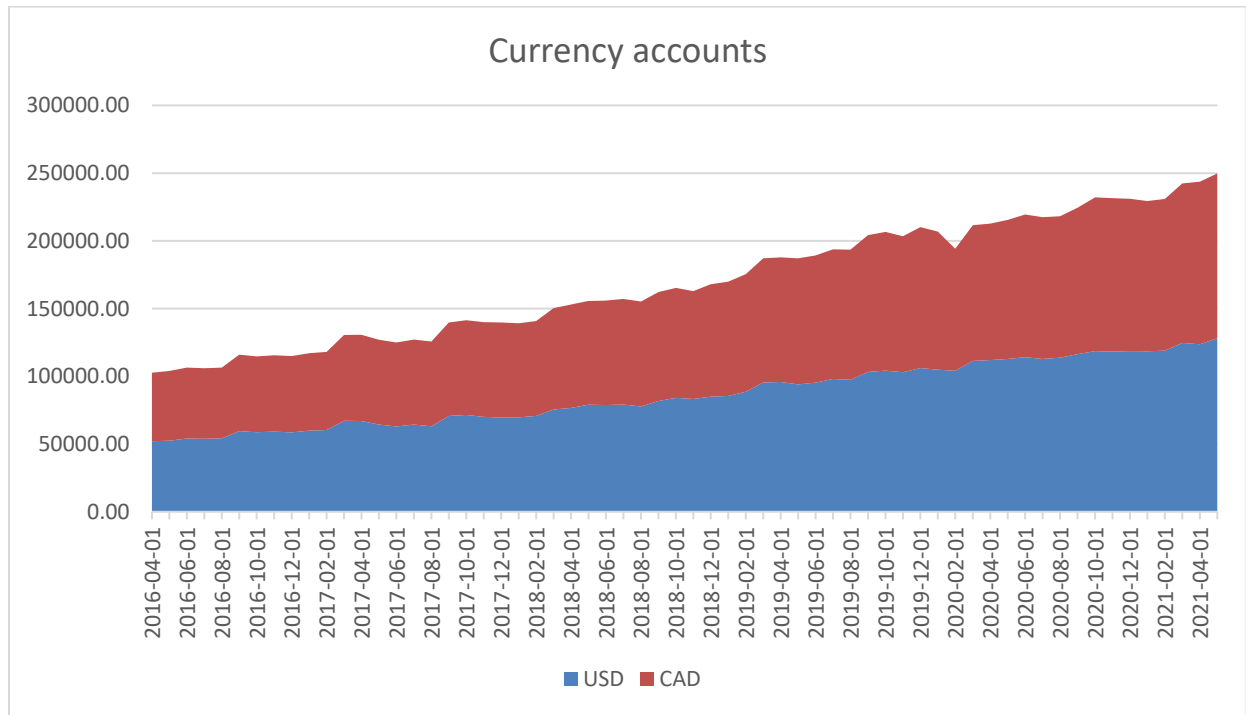| Date	SPY	QQQ	VWO	EWC	EFA	VGK	IOO	SHY	IEF	TIP	IYR	XSP.TO	XIU.TO	XIN.TO	XBB.TO	XGB.TO	XRB.TO	XRE.TO	TOTAL
2016-04-01	3202.18	2677.14	379.38	1320.11	1329.73	1125.39	2466.06	7608.68	7391.32	15000.00	7500.00	1248.51	2291.14	1162.02	9115.62	15000.00	13682.70	7500.00	100000.00
2016-05-01	3382.26	2901.90	381.27	1321.36	1379.83	1162.93	2586.68	7892.92	7669.22	15478.18	7961.20	1271.13	2311.22	1197.82	9180.21	15140.00	13859.25	7571.02	102648.39
2016-06-01	3349.60	2805.77	394.24	1312.46	1308.83	1085.08	2519.78	7877.13	7842.60	15695.43	8315.74	1260.37	2293.32	1140.52	9354.52	15465.08	13964.08	8019.21	104003.45
2016-07-01	3524.27	3044.17	421.37	1375.71	1402.57	1156.40	2682.78	7951.29	7940.60	15886.63	8783.38	1319.97	2399.11	1200.22	9430.84	15578.65	14196.54	8172.14	106466.62
2016-08-01	3535.17	3081.95	425.47	1382.13	1412.73	1166.51	2706.66	7947.17	7875.61	15869.22	8505.28	1321.56	2396.86	1216.21	9437.34	15561.73	14313.46	7775.35	105930.41
2016-09-01	3535.35	3158.15	431.05	1409.96	1438.83	1175.28	2725.04	7998.13	7933.77	16074.51	8351.41	1320.50	2444.21	1225.59	9449.55	15592.52	14402.53	7725.00	106391.36
2016-10-01	3018.81	2154.18	40.88	2291.77	1205.63	636.31	2005.45	9407.77	8441.44	17849.20	12445.90	4231.11	4236.90	4220.28	4261.53	13199.62	13180.77	13199.19	115996.75
2016-11-01	3136.84	2168.29	39.31	2356.56	1186.74	622.77	2029.61	9383.73	8101.73	17517.54	12181.70	4387.04	4308.55	4288.10	4173.71	12895.78	12929.17	13057.60	114764.78
2016-12-01	3184.01	2187.98	38.86	2370.98	1207.26	650.79	2081.56	9390.68	8085.09	17485.56	12531.01	4430.36	4414.12	4408.68	4153.79	12797.65	12569.74	13530.99	115519.10
2017-01-01	3177.93	2249.09	40.25	2426.26	1228.14	656.30	2079.71	9175.83	7922.38	17234.07	12402.63	4546.26	4464.39	4471.26	4147.27	12746.84	12397.54	13530.77	114897.48
2017-02-01	3324.12	2362.65	41.42	2397.91	1250.78	664.42	2161.25	9232.90	8019.08	17416.76	13028.77	4724.68	4439.46	4566.35	4187.43	12873.60	12444.15	13986.94	117122.68
2017-03-01	3350.44	2432.10	43.00	2441.64	1305.46	697.73	2224.57	9340.47	8115.29	17609.05	12858.08	4728.17	4517.54	4689.97	4198.23	12917.70	12480.40	14033.80	117983.66
2017-04-01	2908.54	2892.81	2866.18	2891.47	2874.50	2865.49	2887.95	10094.02	10092.92	13492.34	13423.58	4741.71	4748.38	4729.84	4772.83	14790.20	14769.67	14756.57	130599.00
2017-05-01	2911.65	2966.89	2857.37	2843.40	2938.04	2967.48	2937.41	9971.03	10045.52	13298.55	13235.81	4804.21	4656.12	4832.01	4816.69	14933.82	14992.81	14664.27	130673.08
2017-06-01	2812.60	2787.77	2762.15	2805.49	2796.98	2807.77	2792.16	9609.75	9639.71	12718.62	12917.10	4795.53	4630.31	4741.19	4756.07	14706.24	14437.97	14518.71	127036.12
2017-07-01	2766.48	2789.96	2808.19	2828.25	2798.39	2808.41	2773.13	9233.66	9280.58	12250.92	12638.70	4919.79	4634.44	4816.81	4671.57	14416.73	14210.77	14317.52	124964.30
2017-08-01	2811.51	2885.75	2930.95	2862.85	2834.39	2847.82	2826.75	9375.16	9540.78	12551.27	12892.80	4926.39	4613.79	4818.73	4734.61	14628.52	14460.40	14525.30	127068.16
2017-09-01	2803.79	2820.44	2831.94	2920.46	2850.29	2876.13	2834.20	9192.93	9238.26	12241.97	12460.09	5024.69	4812.25	4954.82	4666.65	14426.71	14222.95	14525.42	125703.97
2017-10-01	3055.94	3039.50	3015.41	3044.91	3026.98	3019.97	3037.37	10622.99	10617.10	14189.67	14130.45	5165.55	5170.91	5151.30	5193.07	16104.58	16080.26	16070.43	139736.41
2017-11-01	3158.60	3108.55	3014.11	3069.78	3056.81	3027.30	3096.48	10630.55	10618.03	14222.39	14535.52	5323.47	5170.91	5126.21	5241.06	16226.98	16329.93	16419.46	141376.14
2017-12-01	3108.44	3049.92	3040.39	3072.65	2995.94	2987.87	3027.49	10375.32	10380.24	13975.18	14039.16	5334.00	5266.41	5116.56	5223.39	16154.16	16228.72	16639.53	140015.35
2018-01-01	3239.00	3262.09	3254.62	3078.81	3120.55	3113.91	3149.32	10174.06	9998.76	13677.60	13502.90	5670.39	5187.69	5236.86	5176.86	15990.66	16219.22	16650.56	139704.54
2018-02-01	3231.29	3333.46	3188.89	2964.43	3074.40	3025.59	3123.00	10511.41	10238.11	14010.93	13048.42	5447.47	4998.19	5030.26	5179.20	15992.09	16328.16	16486.73	139212.01
2018-03-01	3163.99	3226.79	3210.34	2971.64	3081.50	3032.70	3090.02	10651.15	10469.00	14307.87	13574.22	5305.93	5022.60	4975.73	5210.49	16191.00	16498.38	16838.20	140821.57
2018-04-01	3258.43	3238.77	3211.73	3245.50	3230.03	3221.64	3240.77	11326.50	11320.36	15128.88	15066.94	5614.27	5619.45	5601.03	5645.97	17505.51	17479.32	17470.18	150425.27
2018-05-01	3351.49	3436.71	3149.52	3329.64	3181.99	3156.58	3277.87	11412.30	11477.34	15213.43	15639.52	5743.14	5764.59	5592.57	5691.37	17649.25	17849.67	18015.92	152932.91
2018-06-01	3449.94	3566.05	3063.05	3395.75	3156.81	3142.77	3327.04	11734.68	11821.89	15764.78	16570.23	5726.33	5915.46	5459.36	5727.87	17760.26	17777.06	18287.38	155646.79
2018-07-01	3532.22	3610.66	3150.68	3446.28	3254.60	3257.31	3456.04	11526.05	11559.30	15399.19	16581.43	5973.38	6000.73	5704.03	5679.94	17604.17	17643.04	18517.12	155896.17
2018-08-01	3633.18	3807.03	3008.81	3386.93	3171.55	3155.03	3503.26	11527.48	11637.47	15442.69	16920.44	6167.16	5908.15	5616.07	5729.13	17740.07	17804.23	18966.14	157124.83
2018-09-01	3618.45	3768.80	2918.35	3366.10	3184.69	3127.80	3499.19	11449.15	11433.98	15220.66	16188.77	6193.50	5874.81	5691.16	5667.71	17550.05	17577.10	18868.11	155198.38

Date																			
2018-10-01	3524.29	3501.17	3481.11	3515.28	3501.31	3494.95	3511.36	12265.00	12264.48	16383.91	16322.06	6023.72	6030.30	6014.49	6060.46	18783.35	18765.19	18752.38	162194.79
2018-11-01	3633.73	3534.76	3694.18	3575.89	3561.89	3513.94	3576.89	12461.52	12578.54	16665.78	17298.75	6137.74	6123.94	6048.42	6126.24	19031.47	18597.50	19134.36	165295.56
2018-12-01	3380.66	3303.57	3638.88	3300.22	3422.66	3408.78	3364.13	12866.70	13242.65	17153.32	16266.25	5504.70	5829.74	5571.04	6196.38	19316.67	18653.40	18442.20	162861.95
2019-01-01	3542.98	3484.02	3875.97	3654.40	3558.73	3531.17	3488.76	12482.63	12912.00	16835.56	17596.06	5990.53	6323.19	5971.68	6289.12	19511.31	19112.40	19831.03	167990.94
2019-02-01	3658.94	3589.33	3862.30	3763.62	3650.12	3643.92	3589.76	12474.50	12821.10	16811.87	17729.93	6173.27	6444.53	6172.78	6310.48	19551.61	19031.75	20574.91	169854.69
2019-03-01	3765.82	3780.64	4004.57	3792.64	3740.23	3706.84	3733.65	12745.27	13366.27	17407.38	18620.66	6284.50	6563.34	6278.23	6446.77	20029.42	19862.37	21332.59	175461.22
2019-04-01	3432.65	1920.75	758.95	2676.36	2919.66	2943.13	3158.12	14872.26	13750.30	28622.56	20353.25	6862.06	6878.10	6856.88	6928.41	21433.47	21409.50	21383.10	187160.05
2019-05-01	3230.52	1771.97	714.23	2575.36	2787.18	2790.67	2979.30	15059.21	14244.02	29267.01	20428.88	6421.84	6617.56	6512.62	7051.33	21840.24	21773.84	21725.73	187791.50
2019-06-01	3329.12	1841.69	723.65	2611.06	2797.61	2822.65	3036.71	14644.85	13959.02	28398.08	19878.66	6797.79	6810.54	6709.02	7117.03	21991.58	21929.98	21742.99	187139.90
2019-07-01	3409.71	1896.55	718.36	2624.31	2813.72	2810.05	3100.71	14697.42	14024.16	28610.55	20592.15	6945.79	6829.54	6838.02	7120.12	22014.19	22136.01	22072.99	189254.35
2019-08-01	3386.64	1879.40	702.01	2632.27	2787.58	2791.85	3065.71	14963.62	14725.96	29662.44	21515.48	6823.86	6810.20	6709.34	7266.13	22522.17	22468.62	22980.36	193693.64
2019-09-01	3407.66	1876.86	693.68	2675.78	2851.51	2821.97	3133.62	14818.24	14429.90	29140.33	21583.06	6947.89	7000.75	6950.93	7202.11	22246.34	22188.52	23574.88	193544.03
2019-10-01	3300.35	1719.69	1390.69	2750.98	2792.33	2721.33	2817.63	15890.29	15082.82	30973.11	23804.48	7550.91	7571.39	7545.18	7629.15	23590.24	23565.54	23536.36	204232.45
2019-11-01	3447.35	1804.08	1408.93	2855.03	2846.54	2778.72	2919.53	16009.77	15100.19	31361.44	23726.29	7823.37	7787.82	7724.37	7668.37	23666.59	23677.80	23953.92	206560.61
2019-12-01	3474.08	1840.44	1465.99	2834.33	2853.10	2841.76	2960.98	15755.41	14702.48	30919.00	23319.36	7960.34	7833.88	7707.98	7585.60	23371.89	22769.75	23206.44	203402.79
2020-01-01	3530.02	1922.40	1418.22	2884.22	2836.15	2801.68	3031.89	16080.89	15431.48	32002.33	24202.71	8034.53	7993.43	7647.43	7787.82	24053.28	24026.98	24439.69	210124.07
2020-02-01	3286.78	1826.07	1383.55	2711.91	2645.06	2607.43	2803.29	16376.59	16043.99	32622.55	22616.97	7387.54	7502.87	7102.00	7829.19	24225.83	24315.34	23584.81	206871.77
2020-03-01	3035.12	1793.16	1215.90	2279.58	2411.43	2291.53	2683.39	17600.61	17665.64	34053.20	19108.38	6379.33	6375.07	6099.20	7567.09	24089.36	22445.64	17159.60	194253.22
2020-04-01	3020.99	2718.31	2238.85	1755.67	3623.02	3025.11	3484.71	16707.44	16723.95	33431.39	24708.53	3040.68	4497.55	5361.12	14535.58	30033.75	27626.94	15016.87	211550.46
2020-05-01	3136.50	2871.72	2291.73	1801.53	3785.33	3172.99	3564.79	16550.93	16630.24	33314.69	24927.73	3187.34	4583.24	5640.18	14589.69	30075.41	27986.16	14686.08	212796.28
2020-06-01	3156.62	3026.32	2413.30	1842.00	3837.24	3252.98	3649.85	16443.02	16525.54	33497.40	25203.47	3225.86	4735.95	5722.95	14851.62	30479.19	28443.34	15130.59	215436.37
2020-07-01	3297.30	3196.21	2584.71	1928.45	3896.34	3334.58	3781.85	16166.28	16370.77	33664.42	25945.58	3434.04	4930.98	5664.35	15065.34	30831.97	30072.08	15321.15	219486.39
2020-08-01	3440.00	3458.12	2589.79	1977.05	3979.17	3392.16	3974.05	15763.88	15811.51	33122.03	25360.97	3660.08	5003.37	5877.06	14852.64	30352.92	29830.63	15034.02	217479.74
2020-09-01	3374.51	3333.89	2592.91	1931.33	3988.16	3343.95	3852.36	16129.63	16232.86	33762.42	25189.06	3515.19	4939.75	5829.26	14910.71	30496.92	29874.53	14907.28	218204.72
2020-10-01	3101.50	2648.46	2343.78	1193.57	4035.89	3151.89	3751.08	17422.43	17484.86	34907.29	26316.88	3496.98	4731.15	7159.69	15056.08	32429.55	29010.27	16214.78	224456.13
2020-11-01	3352.94	2872.17	2480.83	1331.25	4496.55	3576.96	4061.17	16991.03	17105.93	34472.14	27860.77	3866.48	5193.61	8026.52	15233.48	32653.26	29513.78	19013.65	232102.99
2020-12-01	3400.56	2953.80	2567.15	1331.65	4593.13	3666.45	4142.52	16689.27	16749.58	34272.82	27847.55	3979.80	5282.47	8166.43	15311.14	32723.45	29267.68	18565.22	231510.65
2021-01-01	3386.96	2972.78	2668.89	1340.33	4610.62	3686.55	4180.05	16738.84	16620.68	34474.79	27982.36	3963.69	5272.80	8243.91	15109.98	32302.21	28872.52	18624.97	231053.05
2021-02-01	3470.98	2960.14	2702.81	1404.99	4700.05	3770.61	4240.04	16674.54	16169.88	33794.06	28577.92	4071.87	5464.83	8473.82	14696.99	31287.84	27636.81	19346.66	229444.85
2021-03-01	3583.23	2979.33	2655.35	1473.33	4773.57	3843.07	4332.72	16512.53	15638.85	33393.46	29801.20	4251.41	5754.36	8903.18	14508.02	30835.12	27400.41	20270.18	230909.32
2021-04-01	3211.92	2948.29	3523.20	1278.64	3954.32	2704.00	3984.44	18718.38	18679.89	37398.27	28259.55	4174.54	5339.05	6824.87	16059.52	35316.83	32349.54	17658.42	242383.69
2021-05-01	3180.76	2865.80	3525.15	1337.81	4025.88	2778.79	3962.51	18428.46	18455.54	37108.57	28083.14	4192.16	5503.75	6980.67	16155.91	35515.72	33462.81	18123.16	243686.60
2021-06-01	3326.94	3121.92	3646.95	1351.33	4032.33	2782.14	4125.67	18881.84	19134.96	38313.73	29326.92	4281.16	5687.70	6989.97	16328.98	35942.42	33786.44	18735.16	249796.55

Positions (in CAD$)

Legend: SPY, QQQ, XSP.TO, EWC, XIU.TO, EFA, VGK, IOO, VWO, XIN.TO, SHY, IEF, TIP, XGB.TO, XRB.TO, XBB.TO, IYR, XRE.TO

Weights

Legend: SPY, QQQ, XSP.TO, EWC, XIU.TO, EFA, VGK, IOO, VWO, XIN.TO, SHY, IEF, TIP, XGB.TO, XRB.TO, XBB.TO, IYR, XRE.TO

Currency account history

Fee break down

USD account. In ($USD)

	SPY	QQQ	VWO	EWC	EFA	VGK	IOO	SHY	IEF	TIP	IYR	Tot
2016-10-01	1.9995	3.8156	1.5110	3.2696	0.8461	1.9571	2.7552	4.7429	1.8139	5.6617	16.0503	44.4229
2017-04-01	2.0755	1.2226	10.3500	1.6613	5.5301	7.7781	2.1277	1.9351	6.2564	16.7514	0.2863	55.9745
2017-10-01	0.2944	0.0628	0.0682	0.1659	0.1248	0.0864	0.0554	4.4140	4.2443	5.8033	4.4368	19.7562
2018-04-01	0.3253	0.0346	0.3972	0.8946	0.4653	0.4921	0.5311	2.9676	4.0717	3.7310	5.5602	19.4707
2018-10-01	0.3415	0.0075	2.7229	1.4030	2.0270	2.1332	0.6332	2.3879	2.6436	4.3079	0.4709	19.0787
2019-04-01	1.9754	7.8218	12.5290	4.7168	3.5579	3.5617	2.7923	7.5119	1.3592	41.1501	5.5145	92.4906
2019-10-01	0.7466	0.9198	2.5112	0.3342	0.5850	0.8540	1.5467	3.9251	2.4039	7.1959	7.2709	28.2934
2020-04-01	1.2407	2.5153	3.4411	2.6025	4.0647	2.2487	2.0528	2.0109	2.1688	2.9983	14.7175	40.0614
2020-10-01	0.6910	2.1269	1.1059	2.4842	0.7904	0.0421	0.1462	5.2099	5.8700	6.2618	6.9472	31.6755
2021-04-01	1.9045	0.4998	3.6385	0.8928	3.3527	5.0002	1.7624	10.8358	13.5602	18.5634	12.8209	72.8312
Tot	11.5945	19.0266	38.2749	18.4249	21.3439	24.1537	14.4030	45.9411	44.3920	112.4249	74.0753	424.0549

CAD account in ($CAD)

	XSP.TO	XIU.TO	XIN.TO	XBB.TO	XGB.TO	XRB.TO	XRE.TO	Tot
2016-10-01	14.7158	8.8458	14.9644	25.4351	10.9298	5.4254	28.2644	108.5806
2017-04-01	0.1500	1.0264	0.1144	2.5796	8.5165	10.4663	2.6756	25.5288
2017-10-01	0.1018	1.0543	0.1867	2.2780	7.2508	7.8849	6.2435	25.0000
2018-04-01	1.4891	2.5983	2.2205	2.3537	7.6120	5.4785	3.2478	25.0000
2018-10-01	1.3052	2.5046	3.4602	2.1768	6.8129	7.7647	0.9756	25.0000
2019-04-01	1.6558	0.3335	1.8113	2.4345	7.3567	7.5632	3.8452	25.0000
2019-10-01	2.2886	3.2245	2.4422	2.2077	6.9382	7.6145	0.2842	25.0000
2020-04-01	20.6290	12.3213	5.3591	32.9435	26.0120	20.2769	15.9230	133.4649
2020-10-01	0.3489	0.1748	7.6786	1.3951	10.9447	3.5096	8.3170	32.3688
2021-04-01	1.4445	2.7192	10.8560	7.7992	22.3406	27.6100	17.7300	90.4996
Tot	44.1288	34.8028	49.0935	81.6032	114.7141	103.5940	87.5064	515.4427

Benchmark performance

	AW	AW (run2)	Benchmark
TWRR	5.96%	6.17%	4.72%
MWRR	5.91%	6.14%	
excess mean	4.91%	5.12%	3.67%
STD	6.02%	5.94%	6.01%
Sharpe Ratio	0.815	0.86	0.61

Benchmark risk

Return vs. Risk

VaR99 (10 year window)
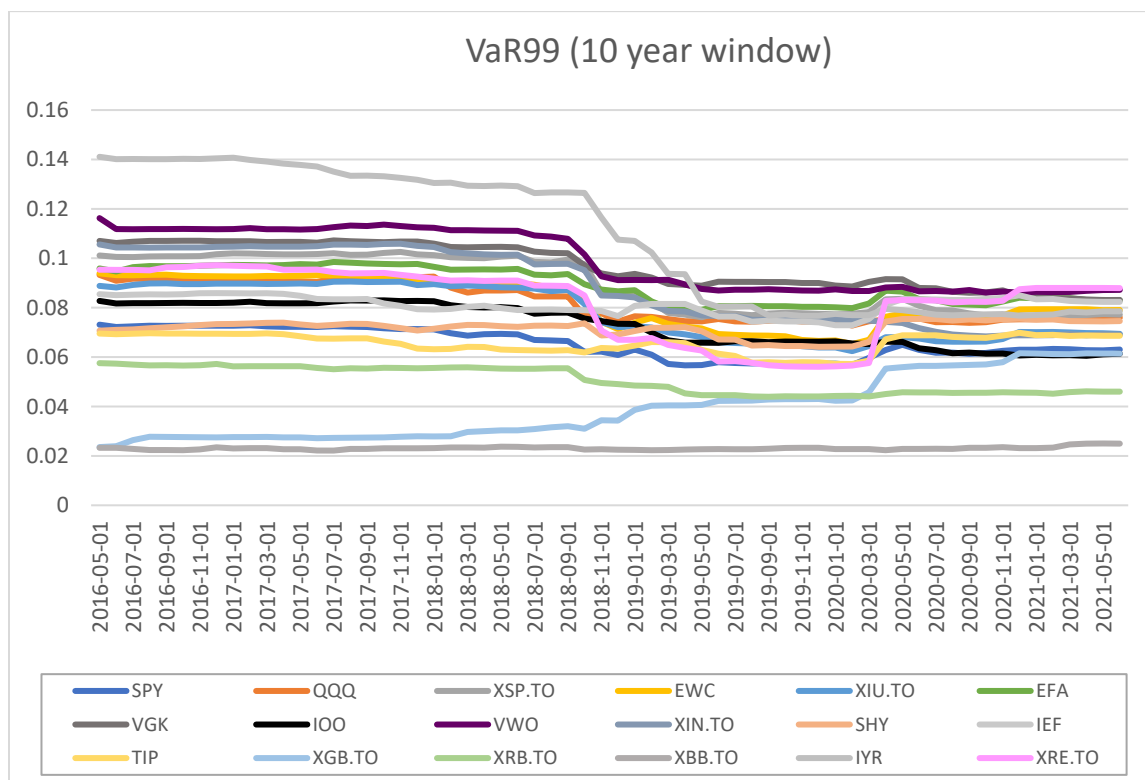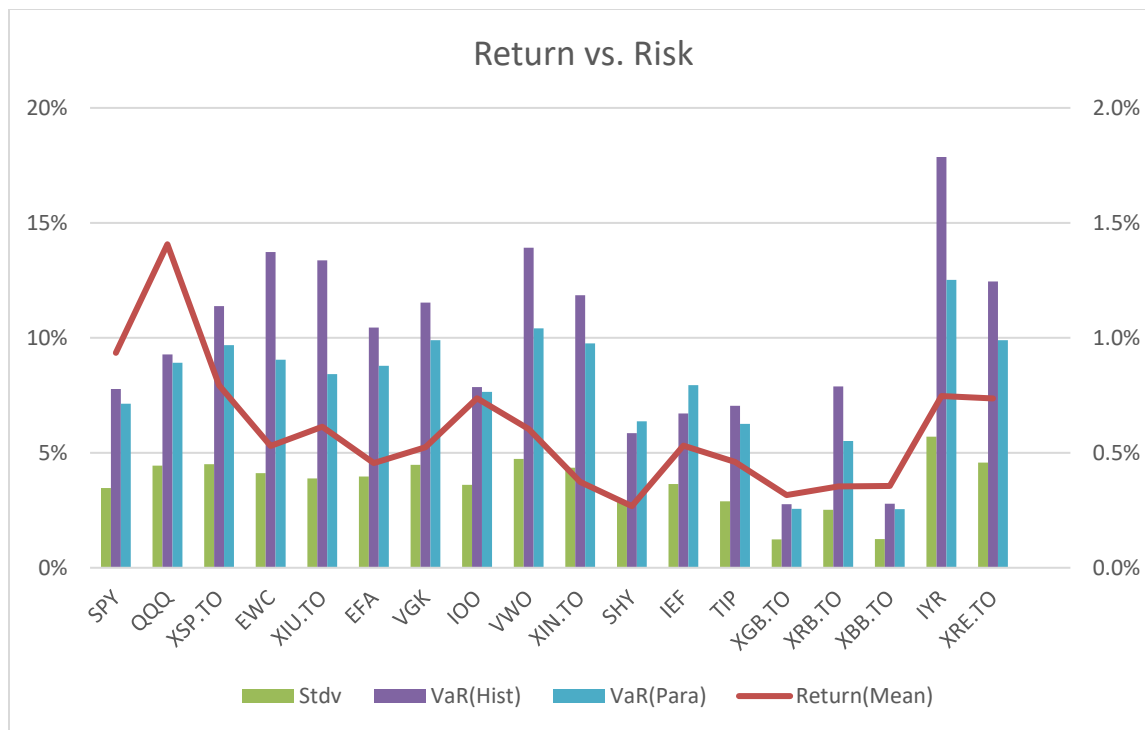
Units history

USD account

date	SPY	QQQ	VWO	EWC	EFA	VGK	IOO	SHY	IEF	TIP	IYR
2016-04-01	13.63503	21.03485	9.921933	46.40197	21.22027	21.43067	61.44545	76.08278	58.63015	116.0885	92.82064
2016-05-01	13.63503	21.03485	9.921933	46.40197	21.22027	21.43067	61.44545	76.08278	58.63015	116.0885	92.82064
2016-06-01	13.63503	21.03485	9.921933	46.40197	21.22027	21.43067	61.44545	76.08278	58.63015	116.0885	92.82064
2016-07-01	13.63503	21.03485	9.921933	46.40197	21.22027	21.43067	61.44545	76.08278	58.63015	116.0885	92.82064
2016-08-01	13.63503	21.03485	9.921933	46.40197	21.22027	21.43067	61.44545	76.08278	58.63015	116.0885	92.82064
2016-09-01	13.63503	21.03485	9.921933	46.40197	21.22027	21.43067	61.44545	76.08278	58.63015	116.0885	92.82064
2016-10-01	11.56945	14.25356	0.909536	75.01225	17.84555	11.74011	44.8755	87.86871	62.14747	126.737	141.6384
2016-11-01	11.56945	14.25356	0.909536	75.01225	17.84555	11.74011	44.8755	87.86871	62.14747	126.737	141.6384
2016-12-01	11.56945	14.25356	0.909536	75.01225	17.84555	11.74011	44.8755	87.86871	62.14747	126.737	141.6384
2017-01-01	11.56945	14.25356	0.909536	75.01225	17.84555	11.74011	44.8755	87.86871	62.14747	126.737	141.6384
2017-02-01	11.56945	14.25356	0.909536	75.01225	17.84555	11.74011	44.8755	87.86871	62.14747	126.737	141.6384
2017-03-01	11.56945	14.25356	0.909536	75.01225	17.84555	11.74011	44.8755	87.86871	62.14747	126.737	141.6384
2017-04-01	9.674424	16.09126	58.22558	88.84183	37.48355	45.09633	56.09011	92.60898	74.69991	94.58184	142.3053
2017-05-01	9.674424	16.09126	58.22558	88.84183	37.48355	45.09633	56.09011	92.60898	74.69991	94.58184	142.3053
2017-06-01	9.674424	16.09126	58.22558	88.84183	37.48355	45.09633	56.09011	92.60898	74.69991	94.58184	142.3053
2017-07-01	9.674424	16.09126	58.22558	88.84183	37.48355	45.09633	56.09011	92.60898	74.69991	94.58184	142.3053
2017-08-01	9.674424	16.09126	58.22558	88.84183	37.48355	45.09633	56.09011	92.60898	74.69991	94.58184	142.3053
2017-09-01	9.674424	16.09126	58.22558	88.84183	37.48355	45.09633	56.09011	92.60898	74.69991	94.58184	142.3053
2017-10-01	9.915885	16.00074	57.86938	90.06794	37.87049	45.41317	56.33361	103.6145	83.20088	105.6238	154.7091
2017-11-01	9.915885	16.00074	57.86938	90.06794	37.87049	45.41317	56.33361	103.6145	83.20088	105.6238	154.7091
2017-12-01	9.915885	16.00074	57.86938	90.06794	37.87049	45.41317	56.33361	103.6145	83.20088	105.6238	154.7091
2018-01-01	9.915885	16.00074	57.86938	90.06794	37.87049	45.41317	56.33361	103.6145	83.20088	105.6238	154.7091
2018-02-01	9.915885	16.00074	57.86938	90.06794	37.87049	45.41317	56.33361	103.6145	83.20088	105.6238	154.7091
2018-03-01	9.915885	16.00074	57.86938	90.06794	37.87049	45.41317	56.33361	103.6145	83.20088	105.6238	154.7091
2018-04-01	10.17336	16.03945	59.74688	96.89429	39.31169	47.25091	58.78842	111.0494	91.63421	112.7253	170.8426
2018-05-01	10.17336	16.03945	59.74688	96.89429	39.31169	47.25091	58.78842	111.0494	91.63421	112.7253	170.8426
2018-06-01	10.17336	16.03945	59.74688	96.89429	39.31169	47.25091	58.78842	111.0494	91.63421	112.7253	170.8426
2018-07-01	10.17336	16.03945	59.74688	96.89429	39.31169	47.25091	58.78842	111.0494	91.63421	112.7253	170.8426

2018-08-01	10.17336	16.03945	59.74688	96.89429	39.31169	47.25091	58.78842	111.0494	91.63421	112.7253	170.8426
2018-09-01	10.17336	16.03945	59.74688	96.89429	39.31169	47.25091	58.78842	111.0494	91.63421	112.7253	170.8426
2018-10-01	10.43542	16.0255	75.13871	108.1863	46.33281	56.23653	61.68704	116.9874	97.09364	121.0352	172.092
2018-11-01	10.43542	16.0255	75.13871	108.1863	46.33281	56.23653	61.68704	116.9874	97.09364	121.0352	172.092
2018-12-01	10.43542	16.0255	75.13871	108.1863	46.33281	56.23653	61.68704	116.9874	97.09364	121.0352	172.092
2019-01-01	10.43542	16.0255	75.13871	108.1863	46.33281	56.23653	61.68704	116.9874	97.09364	121.0352	172.092
2019-02-01	10.43542	16.0255	75.13871	108.1863	46.33281	56.23653	61.68704	116.9874	97.09364	121.0352	172.092
2019-03-01	10.43542	16.0255	75.13871	108.1863	46.33281	56.23653	61.68704	116.9874	97.09364	121.0352	172.092
2019-04-01	9.025919	7.641683	13.80318	73.31901	34.85715	42.38001	49.78024	135.1852	99.6134	196.9869	185.3647
2019-05-01	9.025919	7.641683	13.80318	73.31901	34.85715	42.38001	49.78024	135.1852	99.6134	196.9869	185.3647
2019-06-01	9.025919	7.641683	13.80318	73.31901	34.85715	42.38001	49.78024	135.1852	99.6134	196.9869	185.3647
2019-07-01	9.025919	7.641683	13.80318	73.31901	34.85715	42.38001	49.78024	135.1852	99.6134	196.9869	185.3647
2019-08-01	9.025919	7.641683	13.80318	73.31901	34.85715	42.38001	49.78024	135.1852	99.6134	196.9869	185.3647
2019-09-01	9.025919	7.641683	13.80318	73.31901	34.85715	42.38001	49.78024	135.1852	99.6134	196.9869	185.3647
2019-10-01	8.515585	6.696252	26.29677	75.7138	33.02363	39.13239	43.4799	144.5335	103.9378	209.7419	201.4976
2019-11-01	8.515585	6.696252	26.29677	75.7138	33.02363	39.13239	43.4799	144.5335	103.9378	209.7419	201.4976
2019-12-01	8.515585	6.696252	26.29677	75.7138	33.02363	39.13239	43.4799	144.5335	103.9378	209.7419	201.4976
2020-01-01	8.515585	6.696252	26.29677	75.7138	33.02363	39.13239	43.4799	144.5335	103.9378	209.7419	201.4976
2020-02-01	8.515585	6.696252	26.29677	75.7138	33.02363	39.13239	43.4799	144.5335	103.9378	209.7419	201.4976
2020-03-01	8.515585	6.696252	26.29677	75.7138	33.02363	39.13239	43.4799	144.5335	103.9378	209.7419	201.4976
2020-04-01	7.641001	9.003569	45.81304	53.62797	47.91697	49.27103	51.94522	139.795	100.2792	204.5493	241.252
2020-05-01	7.641001	9.003569	45.81304	53.62797	47.91697	49.27103	51.94522	139.795	100.2792	204.5493	241.252
2020-06-01	7.641001	9.003569	45.81304	53.62797	47.91697	49.27103	51.94522	139.795	100.2792	204.5493	241.252
2020-07-01	7.641001	9.003569	45.81304	53.62797	47.91697	49.27103	51.94522	139.795	100.2792	204.5493	241.252
2020-08-01	7.641001	9.003569	45.81304	53.62797	47.91697	49.27103	51.94522	139.795	100.2792	204.5493	241.252
2020-09-01	7.641001	9.003569	45.81304	53.62797	47.91697	49.27103	51.94522	139.795	100.2792	204.5493	241.252
2020-10-01	7.210576	7.415082	40.68608	34.49583	50.53414	49.07853	52.47069	151.831	110.081	214.7293	259.3933
2020-11-01	7.210576	7.415082	40.68608	34.49583	50.53414	49.07853	52.47069	151.831	110.081	214.7293	259.3933

date											
2020-12-01	7.210576	7.415082	40.68608	34.49583	50.53414	49.07853	52.47069	151.831	110.081	214.7293	259.3933
2021-01-01	7.210576	7.415082	40.68608	34.49583	50.53414	49.07853	52.47069	151.831	110.081	214.7293	259.3933
2021-02-01	7.210576	7.415082	40.68608	34.49583	50.53414	49.07853	52.47069	151.831	110.081	214.7293	259.3933
2021-03-01	7.210576	7.415082	40.68608	34.49583	50.53414	49.07853	52.47069	151.831	110.081	214.7293	259.3933
2021-04-01	6.290294	7.113871	54.45447	29.42953	41.80219	33.73708	47.30002	176.8382	133.8395	244.3309	233.2449
2021-05-01	6.290294	7.113871	54.45447	29.42953	41.80219	33.73708	47.30002	176.8382	133.8395	244.3309	233.2449
2021-06-01	6.290294	7.113871	54.45447	29.42953	41.80219	33.73708	47.30002	176.8382	133.8395	244.3309	233.2449

CAD account

date	XSP.TO	XIU.TO	XIN.TO	XBB.TO	XGB.TO	XRB.TO	XRE.TO
2016-04-01	57.42327	129.9239	61.81255	332.5375	767.069	595.4475	598.0397
2016-05-01	57.42327	129.9239	61.81255	332.5375	767.069	595.4475	598.0397
2016-06-01	57.42327	129.9239	61.81255	332.5375	767.069	595.4475	598.0397
2016-07-01	57.42327	129.9239	61.81255	332.5375	767.069	595.4475	598.0397
2016-08-01	57.42327	129.9239	61.81255	332.5375	767.069	595.4475	598.0397
2016-09-01	57.42327	129.9239	61.81255	332.5375	767.069	595.4475	598.0397
2016-10-01	187.4602	222.3339	211.1392	151.4544	657.0022	549.1817	1044.298
2016-11-01	187.4602	222.3339	211.1392	151.4544	657.0022	549.1817	1044.298
2016-12-01	187.4602	222.3339	211.1392	151.4544	657.0022	549.1817	1044.298
2017-01-01	187.4602	222.3339	211.1392	151.4544	657.0022	549.1817	1044.298
2017-02-01	187.4602	222.3339	211.1392	151.4544	657.0022	549.1817	1044.298
2017-03-01	187.4602	222.3339	211.1392	151.4544	657.0022	549.1817	1044.298
2017-04-01	186.2071	232.2822	210.0384	169.7332	742.1745	639.568	1083.139
2017-05-01	186.2071	232.2822	210.0384	169.7332	742.1745	639.568	1083.139
2017-06-01	186.2071	232.2822	210.0384	169.7332	742.1745	639.568	1083.139
2017-07-01	186.2071	232.2822	210.0384	169.7332	742.1745	639.568	1083.139
2017-08-01	186.2071	232.2822	210.0384	169.7332	742.1745	639.568	1083.139
2017-09-01	186.2071	232.2822	210.0384	169.7332	742.1745	639.568	1083.139
2017-10-01	186.8758	242.0657	211.495	185.9823	815.2928	708.8249	1173.93
2017-11-01	186.8758	242.0657	211.495	185.9823	815.2928	708.8249	1173.93
2017-12-01	186.8758	242.0657	211.495	185.9823	815.2928	708.8249	1173.93
2018-01-01	186.8758	242.0657	211.495	185.9823	815.2928	708.8249	1173.93
2018-02-01	186.8758	242.0657	211.495	185.9823	815.2928	708.8249	1173.93
2018-03-01	186.8758	242.0657	211.495	185.9823	815.2928	708.8249	1173.93
2018-04-01	197.2751	266.6339	229.6252	202.8254	892.6235	755.9608	1218.841
2018-05-01	197.2751	266.6339	229.6252	202.8254	892.6235	755.9608	1218.841
2018-06-01	197.2751	266.6339	229.6252	202.8254	892.6235	755.9608	1218.841
2018-07-01	197.2751	266.6339	229.6252	202.8254	892.6235	755.9608	1218.841
2018-08-01	197.2751	266.6339	229.6252	202.8254	892.6235	755.9608	1218.841

2018-09-01	197.2751	266.6339	229.6252	202.8254	892.6235	755.9608	1218.841
2018-10-01	206.1445	290.6904	259.3904	218.4502	962.1183	823.8864	1231.27
2018-11-01	206.1445	290.6904	259.3904	218.4502	962.1183	823.8864	1231.27
2018-12-01	206.1445	290.6904	259.3904	218.4502	962.1183	823.8864	1231.27
2019-01-01	206.1445	290.6904	259.3904	218.4502	962.1183	823.8864	1231.27
2019-02-01	206.1445	290.6904	259.3904	218.4502	962.1183	823.8864	1231.27
2019-03-01	206.1445	290.6904	259.3904	218.4502	962.1183	823.8864	1231.27
2019-04-01	216.5352	293.4561	273.7799	234.8933	1032.73	886.2613	1276.844
2019-05-01	216.5352	293.4561	273.7799	234.8933	1032.73	886.2613	1276.844
2019-06-01	216.5352	293.4561	273.7799	234.8933	1032.73	886.2613	1276.844
2019-07-01	216.5352	293.4561	273.7799	234.8933	1032.73	886.2613	1276.844
2019-08-01	216.5352	293.4561	273.7799	234.8933	1032.73	886.2613	1276.844
2019-09-01	216.5352	293.4561	273.7799	234.8933	1032.73	886.2613	1276.844
2019-10-01	230.4477	320.6918	292.6527	249.2574	1096.986	947.2413	1279.618
2019-11-01	230.4477	320.6918	292.6527	249.2574	1096.986	947.2413	1279.618
2019-12-01	230.4477	320.6918	292.6527	249.2574	1096.986	947.2413	1279.618
2020-01-01	230.4477	320.6918	292.6527	249.2574	1096.986	947.2413	1279.618
2020-02-01	230.4477	320.6918	292.6527	249.2574	1096.986	947.2413	1279.618
2020-03-01	230.4477	320.6918	292.6527	249.2574	1096.986	947.2413	1279.618
2020-04-01	97.72181	206.9985	243.6218	454.806	1324.679	1108.478	1054.571
2020-05-01	97.72181	206.9985	243.6218	454.806	1324.679	1108.478	1054.571
2020-06-01	97.72181	206.9985	243.6218	454.806	1324.679	1108.478	1054.571
2020-07-01	97.72181	206.9985	243.6218	454.806	1324.679	1108.478	1054.571
2020-08-01	97.72181	206.9985	243.6218	454.806	1324.679	1108.478	1054.571
2020-09-01	97.72181	206.9985	243.6218	454.806	1324.679	1108.478	1054.571
2020-10-01	99.68097	205.4189	310.0291	463.2523	1420.109	1081.975	1174.73
2020-11-01	99.68097	205.4189	310.0291	463.2523	1420.109	1081.975	1174.73
2020-12-01	99.68097	205.4189	310.0291	463.2523	1420.109	1081.975	1174.73
2021-01-01	99.68097	205.4189	310.0291	463.2523	1420.109	1081.975	1174.73
2021-02-01	99.68097	205.4189	310.0291	463.2523	1420.109	1081.975	1174.73
2021-03-01	99.68097	205.4189	310.0291	463.2523	1420.109	1081.975	1174.73
2021-04-01	93.16187	186.2989	235.0664	512.6514	1624.368	1303.474	977.6548
2021-05-01	93.16187	186.2989	235.0664	512.6514	1624.368	1303.474	977.6548
2021-06-01	93.16187	186.2989	235.0664	512.6514	1624.368	1303.474	977.6548