# GREENSTAR

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#### **Recommended Asset Allocation**

-2021-01-21

FRONTIER CURVE OPTIMAL PORTFOLIO ANALYSIS

MONTE CARLO SIMULATION OF RETURNS

CORRELATION MATRIX

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#### 1 Statistical Terminology & Asset Class Descriptions

**Expected Return** - Of an investing strategy is the amount of money you are expected to get back from your investment. For example, if 90 dollars is invested for 1 year with an expected return of 100 dollars, then in the average case the investment will yield back 100 dollars.

 $\bf Risk$ - Or standard deviation of an investing strategy is a measure of how much the return of an investment strategy will vary from it's expected return. For example, an investment strategy with an expected return of 20% and a risk of 8% will yield 112% to 128% return with a probability of 68.2%, and 104% to 136% return with a probability of 94.4%

The 18 Asset Classes:

Index	Description
BIL	Currencies, Foreign Currencies.
GSG	Basic goods used in commerce.
GVI	Govt. bonds that mature in 5-10 years.
HYG	Lower credit rating higher return bonds.
IYR	Land and buildings.
JEDAX	Bonds issued by emerging countries.
JKD	Undervalued stocks from big companies.
LQD	Bonds issued by a corporation.
MDY	Stocks from mid sized companies.
MUB	Bonds Issued by local government.
PIGLX	Bonds issued in other countries.
VEMAX	Stocks from emerging Mkt. countries.
VFINX	New and innovative companies.
VGTSX	Stocks not traded in U.S.A. exchanges.
VIGRX	Fastly growing stocks from big companies.
VISVX	Undervalued stocks from small companies.
VUSTX	Govt. bonds mature in more than 10 years.
^RUT	Fastly growing stocks from small companies.
	BIL GSG GVI HYG IYR JEDAX JKD LQD MDY MUB PIGLX VEMAX VFINX VGTSX VIGRX VISVX VUSTX

#### 2 Investment Profile

#### **General Information**

Name:

Birthday:

Time Frame:

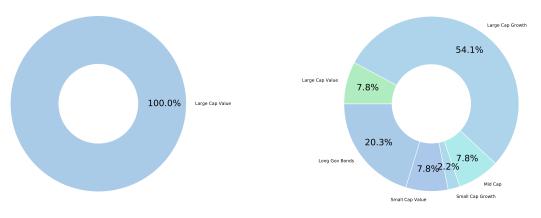
Available Funds: \$200

Preferred Risk :  $\pm$  12.33% Yearly

#### Recommended Asset Classes:

Asset Class	Index	Description
Large Cap Value	JKD	Undervalued stocks from big companies.
Mid Cap	MDY	Stocks from mid sized companies.
Large Cap Growth	VIGRX	Fastly growing stocks from big companies.
Small Cap Value	VISVX	Undervalued stocks from small companies.
Long Gov Bonds	VUSTX	Govt. bonds mature in more than 10 years.
Small Cap Growth	^RUT	Fastly growing stocks from small companies.

# 3 Prescribed Allocation Changes



(a) Current Portfolio

(b) New Portfolio

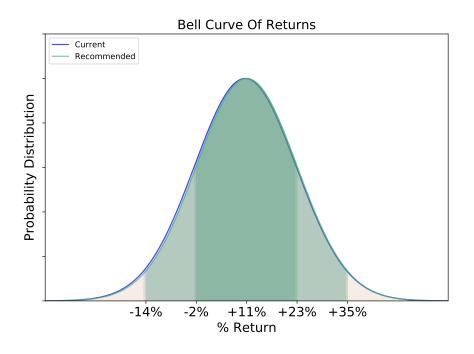
Asset Class	Current	Suggested	Change
Cash	\$0	\$0	\$0
Commodities	\$0	\$0	\$0
Intermediate Gov Bonds	\$0	\$0	\$0
High Yield Bonds	\$0	\$0	\$0
Real Estate	\$0	\$0	\$0
Emerging Mkt Debt	\$0	\$0	\$0
Large Cap Value	\$200	\$15	(\$185)
Corporate Bonds	\$0	\$0	\$0
Mid Cap	\$0	\$15	\$15
Municipal Bonds	\$0	\$0	\$0
Foreign Bonds	\$0	\$0	\$0
Emerging Mkt Stock	\$0	\$0	\$0
International Stock	\$0	\$0	\$0
Large Cap Growth	\$0	\$108	\$108
Small Cap Value	\$0	\$15	\$15
Long Gov Bonds	\$0	\$40	\$40
Small Cap Growth	\$0	\$4	\$4

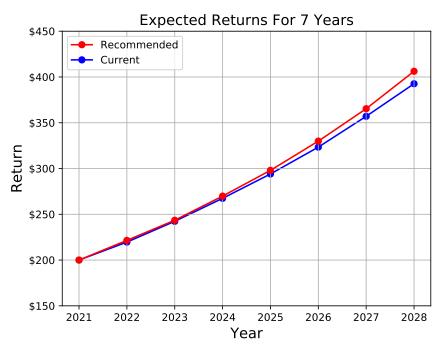
# 4 Performance Improvements Of Prescribed Portfolio

Below are 7 year simulation results of your current investing strategy versus the investment strategy prescribed in this report.

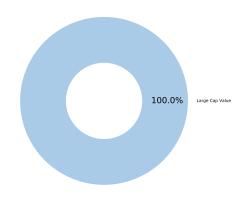
Change In Expected Return : 0.36%

Change in Risk: (0.09%)

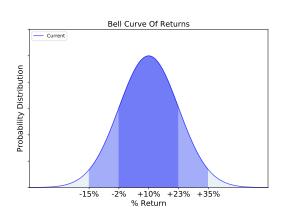


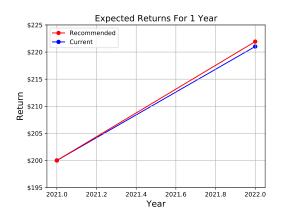


# 5 Current Portfolio Overview - Statistical Analysis

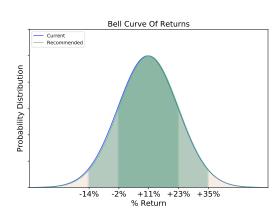


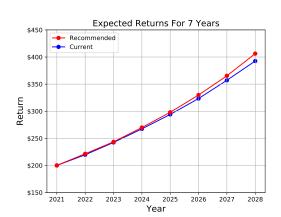
Portfolio Breakdown





(a) Current Portfolio 1 Year Projections





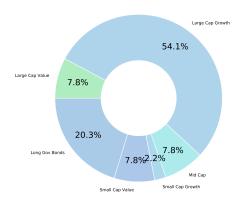
(b) Current Portfolio 7 Year Projections

1 Year Risk (Std Deviation %) :  $\pm$  12.42%

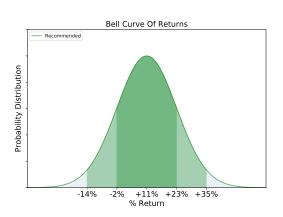
7 Year Expected Return (\$): \$192 96.31%

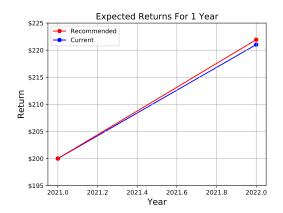
7 Year Risk (Std Deviation %):  $\pm 1.18\%$ 

# 6 Prescribed Portfolio Overview - Statistical Analysis

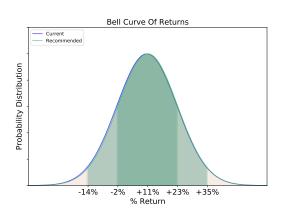


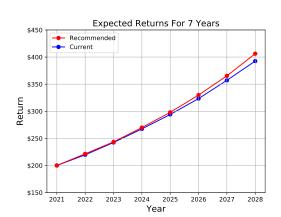
Portfolio Breakdown





(a) Prescribed Portfolio 1 Year Projections





(b) Prescribed Portfolio 7 Year Projections

1 Year Expected Return (\$): \$21 \quad 10.74\%

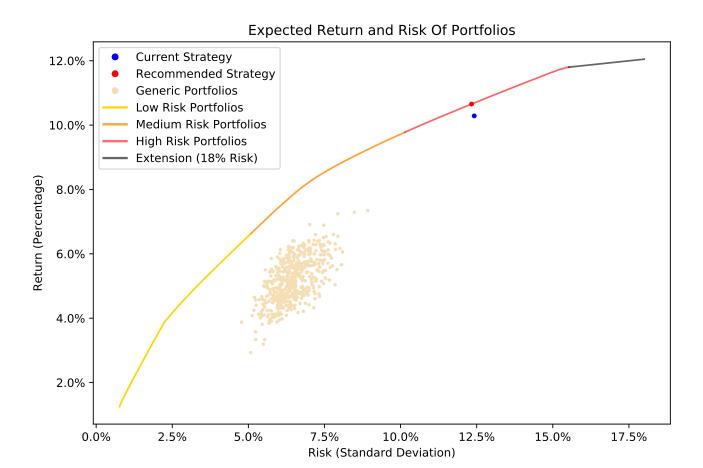
1 Year Risk (Std Deviation %):  $\pm$  12.33%

7 Year Expected Return (\$): \$206 103.12%

7 Year Risk (Std Deviation %):  $\pm 1.18\%$ 

#### 7 Frontier Curve

In 1990, Harry Markowitz won a nobel prize for his contributions to portfolio balancing theory. Markowitz discovered that given assets to buy from and funds to buy with, all of the optimal portfolios formed on a curved line called the "Frontier Curve."



Risk (Std. Deviation):  $\pm$  12.33% Expected Return (%): 10.65% Adjustment of Risk (%): (0.09%) Change in Return (%): 0.36%

# 8 Correlation Matrix

GSG -0.54 GVI 0.72 HYG 0.65	1.0															
0.72	1.0	0.72	0.65	0.65	0.59	0.75	0.74	0.65	0.7	0.56	0.53	0.57	0.83	0.57	0.76	0.61
0.72		8.0-	-0.72	-0.68	29.0-	-0.72	-0.77	-0.72	-0.81	-0.68	-0.32	-0.47	-0.7	-0.71	-0.78	-0.68
0.65	-0.8	1.0	96.0	0.91	0.94	0.91	0.99	6.0	0.98	0.95	0.69	0.78	0.91	0.87	0.97	0.87
	-0.72	96.0	1.0	26.0	0.99	0.95	26.0	26.0	26.0	96.0	0.79	6.0	0.91	0.95	0.89	96.0
IYR 0.65	-0.68	0.91	0.97	1.0	96.0	96.0	0.94	26.0	0.95	0.89	0.76	6.0	0.92	96.0	0.89	96.0
JEDAX 0.59	-0.67	0.94	0.99	96.0	1.0	0.91	96.0	0.94	96.0	0.97	0.81	0.89	0.87	0.93	0.88	0.93
JKD 0.75	-0.72	0.91	0.95	96.0	0.91	1.0	0.95	96.0	0.94	0.85	0.75	0.91	0.99	0.95	6.0	0.97
LQD 0.74	-0.77	66.0	0.97	0.94	96.0	0.95	1.0	0.93	0.99	0.94	0.73	0.84	0.94	6.0	26.0	0.91
MDY 0.65	-0.72	6.0	0.97	0.97	0.94	86.0	0.93	1.0	0.94	0.88	0.77	0.93	0.94	0.99	0.86	0.99
MUB 0.7	-0.81	86.0	0.97	0.95	96.0	0.94	0.99	0.94	1.0	0.94	0.69	0.81	0.92	0.91	96.0	0.91
PIGLX 0.56	-0.68	0.95	96.0	0.89	0.97	0.85	0.94	0.88	0.94	1.0	0.78	0.82	0.82	0.87	0.86	0.87
VEMAX 0.53	-0.32	69.0	0.79	92.0	0.81	0.75	0.73	0.77	69.0	0.78	1.0	0.92	0.75	0.75	9.0	0.79
VGTSX 0.57	-0.47	0.78	6.0	6.0	0.89	0.91	0.84	0.93	0.81	0.82	0.92	1.0	0.88	0.92	0.72	0.94
VIGRX 0.83	-0.7	0.91	0.91	0.92	0.87	0.99	0.94	0.94	0.92	0.82	0.75	0.88	1.0	6.0	0.92	0.92
VISVX 0.57	-0.71	0.87	0.95	96.0	0.93	0.95	6.0	0.99	0.91	0.87	0.75	0.92	6.0	1.0	0.81	0.99
VUSTX 0.76	-0.78	26.0	0.89	0.89	0.88	6.0	26.0	98.0	96.0	98.0	9.0	0.72	0.92	0.81	1.0	0.82
$^{\circ}\mathrm{RUT}$ 0.61	-0.68	0.87	96.0	96.0	0.93	76.0	0.91	0.99	0.91	0.87	0.79	0.94	0.92	0.99	0.82	1.0

Above is the Semantic Correlation Matrix of the selected Asset Classes. It shows how each asset class is correlated to one another

9 Risk & Return Rankings

17%	13%	13%	12%	12%	11%	10%	%6	8%	8%	%2	%9	2%	2%	3%	2%	%0
VIGRX	MDY	VISVX	JKD	${^{}}\mathrm{RUT}$	$_{ m IYR}$	VEMAX	VUSTX	VGTSX	GSG	JEDAX	HYG	PIGLX	LQD	MUB	GVI	BIL

Above is the ranking of the selected asset classes by risk

VIGRX	12%
MDY	10%
JKD	10%
VISVX	%6
$^{\circ}\mathrm{RUT}$	%8
VUSTX	%2
$\Gamma$	%9
$_{ m IYR}$	%9
PIGLX	2%
JEDAX	2%
HYG	2%
MUB	4%
VEMAX	3%
VGTSX	3%
GVI	3%
BIL	%0
CSG	(10%)

Above is the ranking of the selected asset classes by return

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