BUSINESS CHALLENGE #1

Challenge and Methodology

Challenge

Give investment recommendations for clients basis the Wells Fargo database

Methodology

A

Understand
different **customer profile**

B

Analyze
customer **investment mix**

C

Evaluate portfolio
return, risk and efficiency

D

Recommend
efficiency driven mix

HNW clients have been chosen as the customer segment for analysis

Client Type	Number of Clients	% of Total Holdings	Holding per Customer
HNW	13	33.5%	5,780,202
Affluent	50	64.5%	2,889,978
Others	6	2.0%	733,232
Total	**69**	**100.0%**	3,246,970

A

Maximum
holding per customer

B

Essential to provide
best possible return

C

Wells Fargo earns
better commission

Source: Wells Fargo database

All HNW customers have invested heavily in equities (>65%)

client_id	total_holdings	client_type	equity_mix	portfolio_return_percent	portfolio_risk_percent	sharpe_ratio
114	5173491	HNW	72	14.56	16.97	0.86
117	5206392	HNW	66	8.96	17.08	0.52
785	5363778	HNW	74	27.12	14.86	1.83
800	5420191	HNW	73	13.02	15.8	0.82
681	5434138	HNW	70	12.2	15.5	0.79
121	5535371	HNW	73	13.3	16.22	0.82
141	5684272	HNW	67	11.41	17.37	0.66
720	5722124	HNW	69	11.6	16.91	0.69
123	5728465	HNW	79	21.71	18	1.21
32	5871001	HNW	66	8.37	13.69	0.61
77	6513105	HNW	66	13.28	15.29	0.87
19	6629249	HNW	74	11.5	17.03	0.68
197	6861049	HNW	70	14.13	15.21	0.93

With equities volatile in the current uncertain macro-economic environment, we suggest to
Diversify portfolio and eliminate exposure on non-performing securities

Source: Wells Fargo database

The portfolio for 117

117 has the lowest sharpe ratio indicating that the portfolio is not as efficient, and we are suggesting rebalancing it.

client_id	total_holdings	client_type	equity_mix	portfolio_return_%	portfolio_risk_%	sharpe_ratio
117	5,206,392	HNW	66	8.96	17.08	0.52

major_asset_class	portfolio_mix	asset_ret	asset_risk	sharpe_ratio	Securities with <1 sharpe ratio
alternatives	8%	11.7%	0.09	1.54	68%
commodities	8%	20.0%	0.37	1.12	95%
equity	66%	10.8%	0.31	0.49	72%
fixed_income	18%	-3.1%	0.06	-0.83	79%

78%
of portfolio holdings

A

78% holding
in inefficient securities

B

Equities & fixed income
are underperforming

Source: Wells Fargo database

Rebalancing the portfolio

A

Identify
top performing securities

B

Retain
performing securities in portfolio

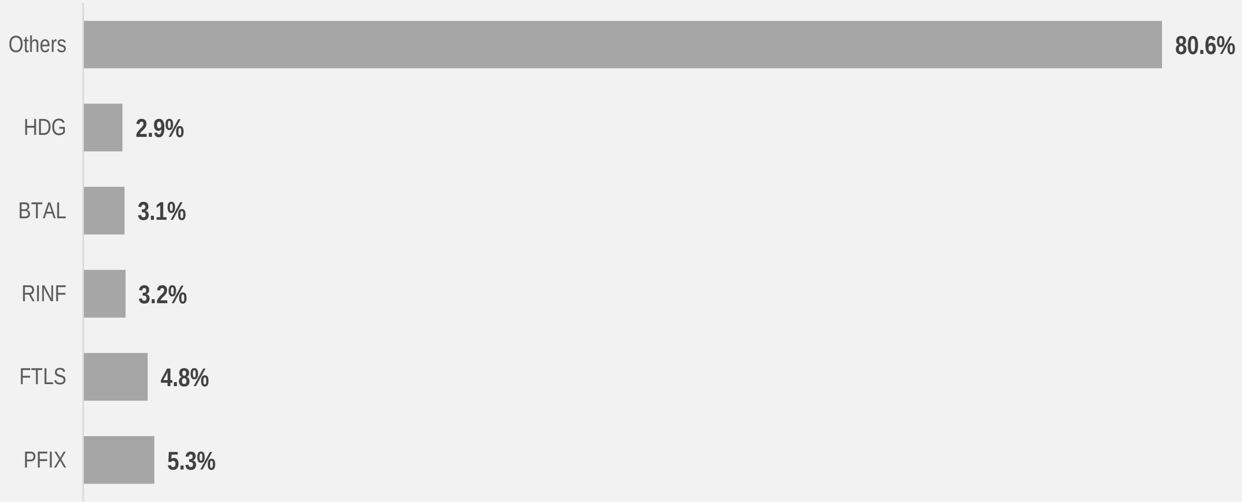
C

Replace
In-efficient securities

Source: Wells Fargo database

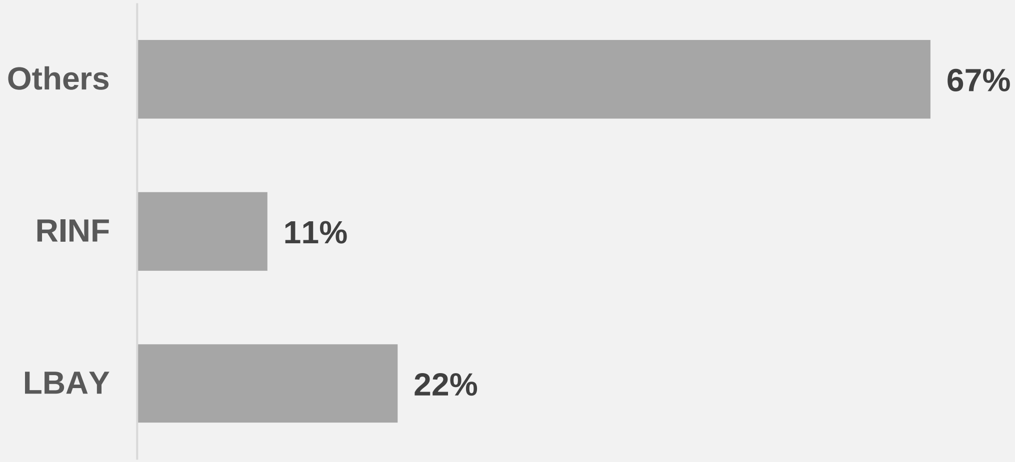
Rebalancing Alternatives

Current



Current Return: 11.70%
Current Risk: 0.09
Sharpe Ratio: 1.54

Recommended Allocation

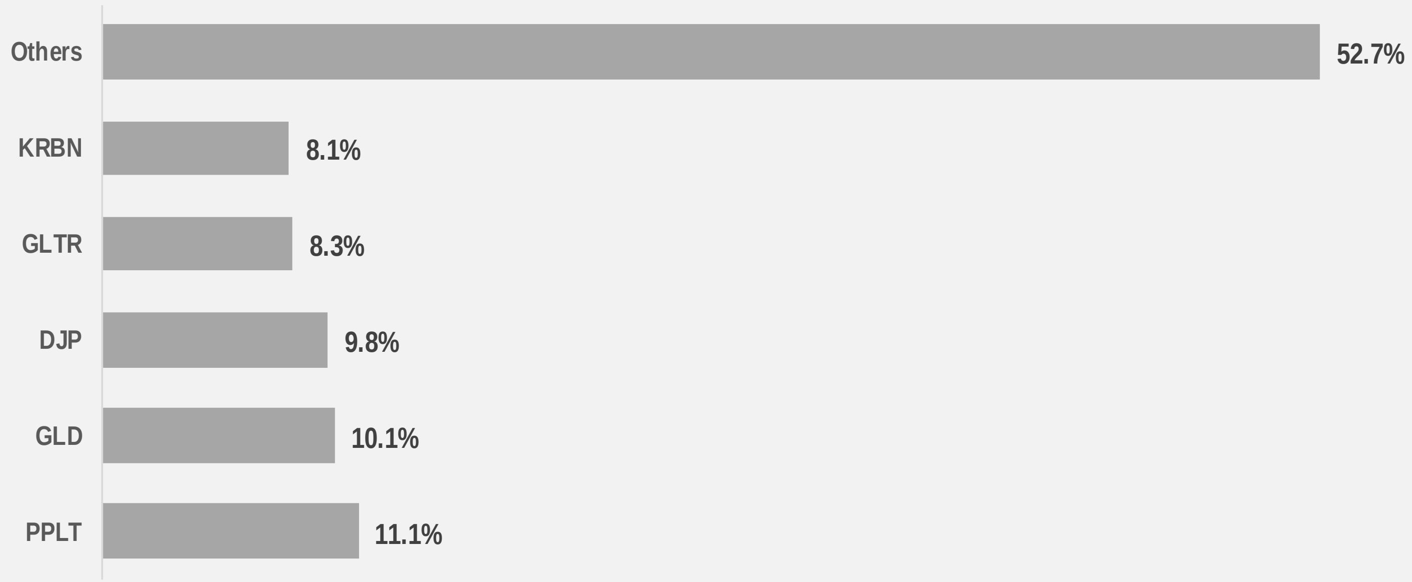


Revised Return: 16.59%
Revised Risk: 0.06
Sharpe Ratio: 2.96

Source: Wells Fargo database

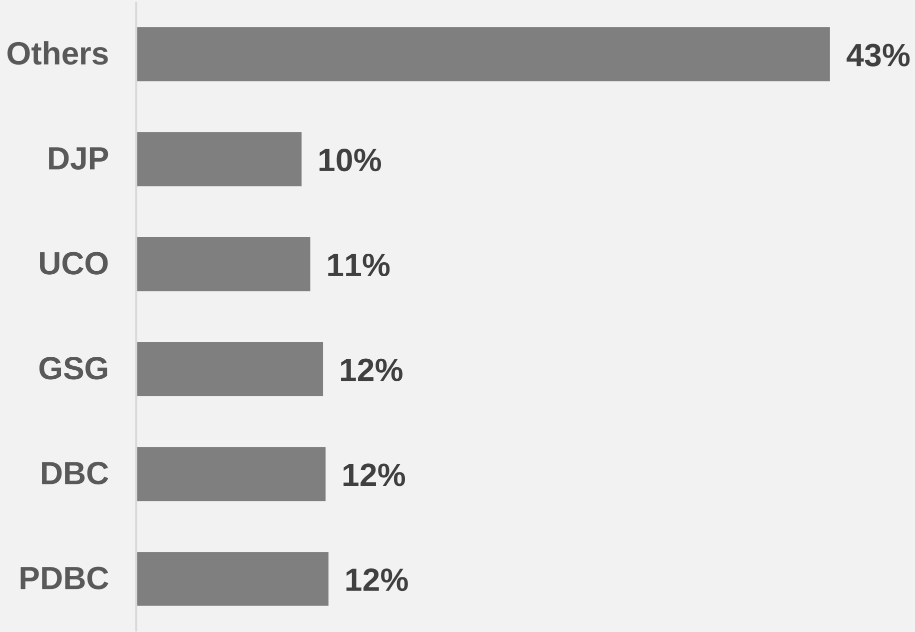
Rebalancing Commodities

Current



Current Return: 20.0%
Current Risk: 0.37
Sharpe Ratio: 1.12

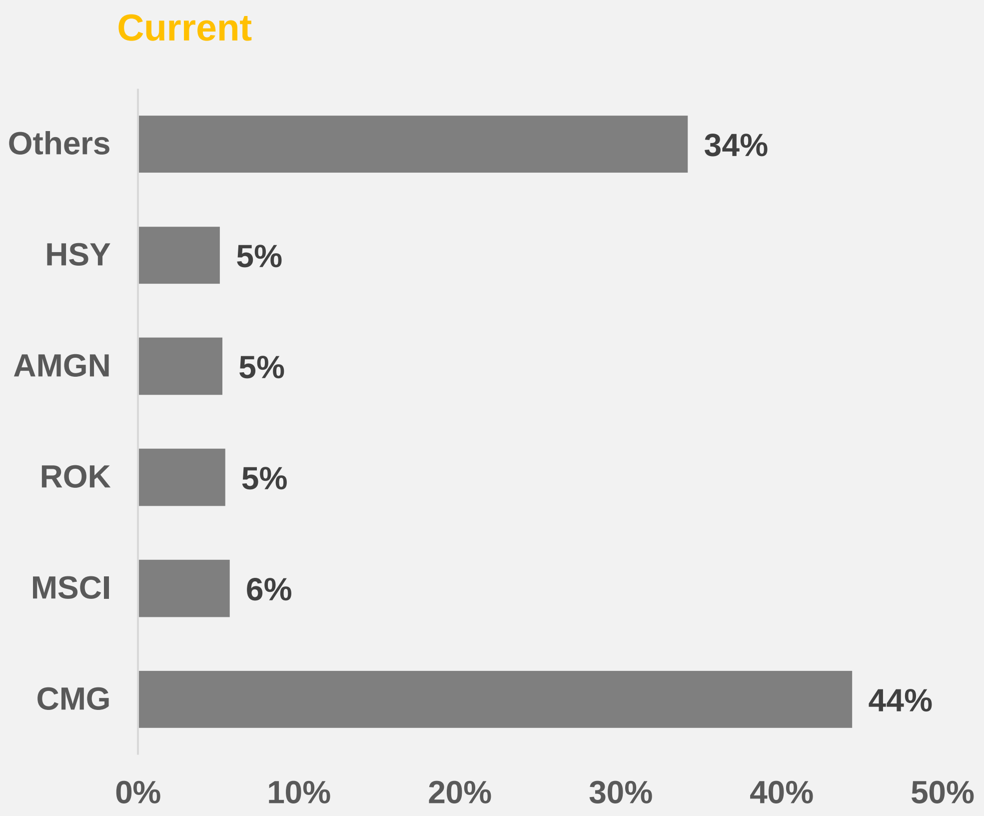
Recommended Allocation



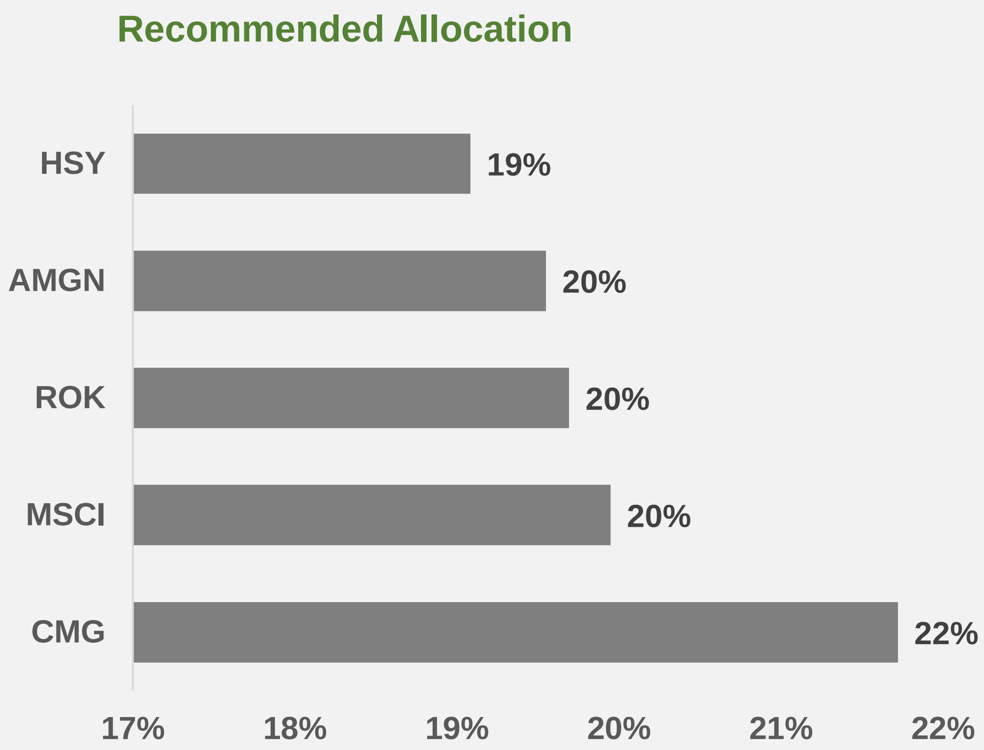
Revised Return: 57%
Revised Risk: 0.17
Sharpe Ratio: 3.35

Source: Wells Fargo database

Rebalancing Equity



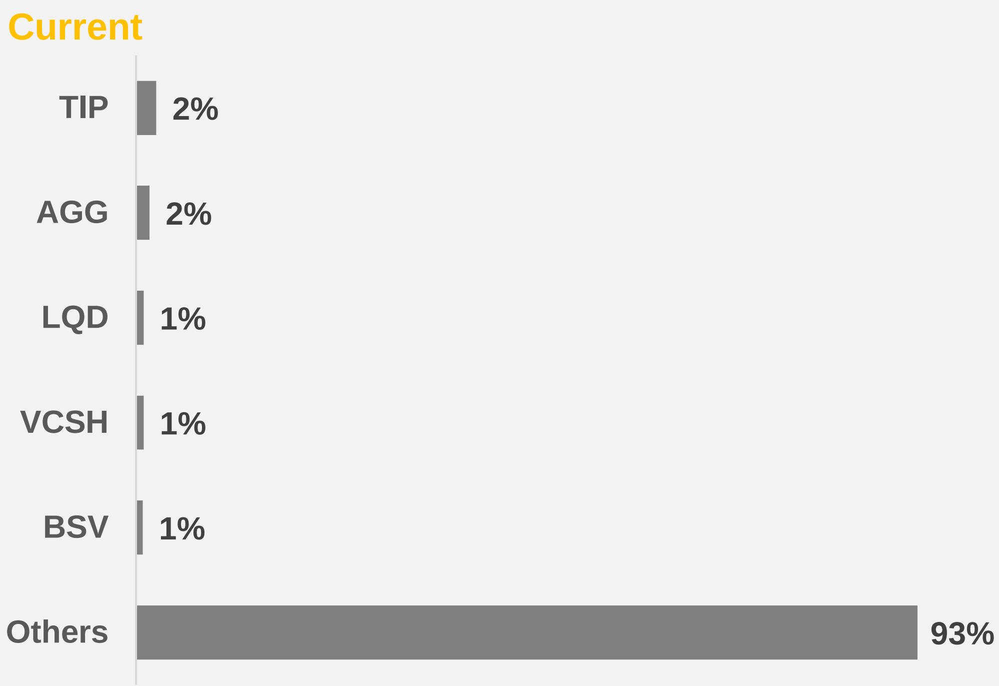
Current Return: 10.80%
Current Risk: 0.31
Sharpe Ratio: 0.49

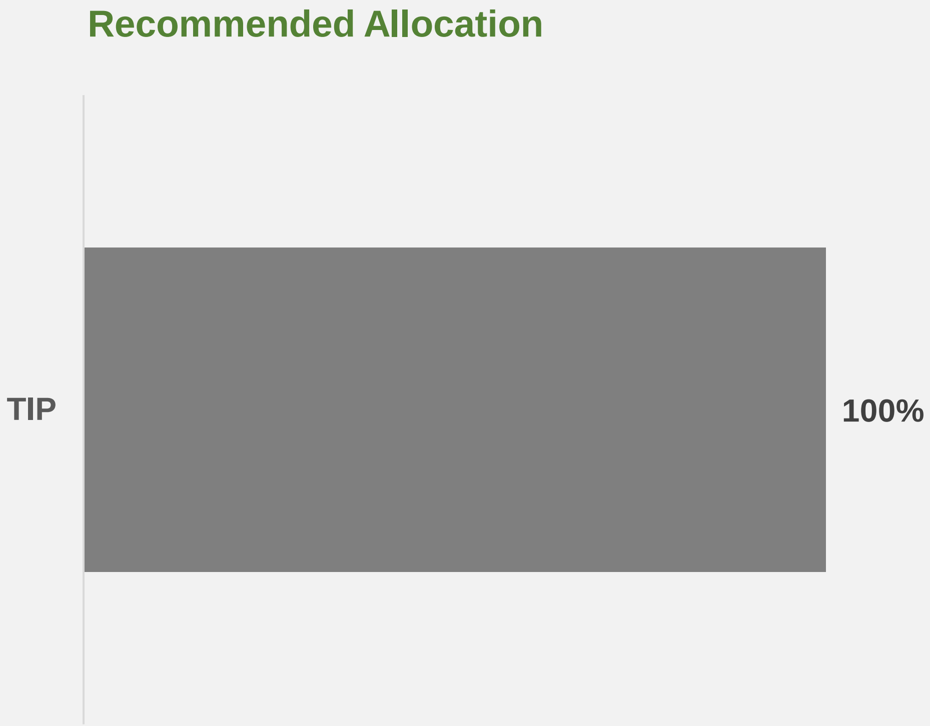


Revised Return: 39%
Revised Risk: 0.09
Sharpe Ratio: 4.31

Source: Wells Fargo database

Rebalancing Fixed Income





Current Return: -3.10%
Current Risk: 0.06
Sharpe Ratio: -0.83

Revised Return: 2%
Revised Risk: 0.05
Sharpe Ratio: 0.4

Source: Wells Fargo database

Revised returns, risk and sharpe ratio

Current

major_asset_class	portfolio_mix	asset_ret	asset_risk	sharpe_ratio
alternatives	8%	11.7%	0.09	1.54
commodities	8%	20.0%	0.37	1.12
equity	66%	10.8%	0.31	0.49
fixed_income	18%	-3.1%	0.06	-0.83

Recommended

major_asset_class	portfolio_mix	asset_ret	asset_risk	sharpe_ratio
alternatives	8%	16.6%	0.06	2.96
commodities	8%	57%	0.17	3.35
equity	66%	39%	0.09	4.31
fixed_income	18%	2%	0.05	0.4

Portfolio returns, risk and sharpe ratio

Current

client_id	total_holdings	client_type	portfolio_return_%	portfolio_risk_%	sharpe_ratio
117	5,206,392	HNW	8.96	17.08	0.52

Recommended

client_id	total_holdings	client_type	portfolio_return_%	portfolio_risk_%	sharpe_ratio
117	5,206,392	HNW	**32**	**8.7**	**3.69**

Thank You