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Blackrock iShares 1-3-Year Treasury ETF	SHY	1.07%	1.22%	0.8
Blackrock iShares 3-7-Year Treasury ETF	IEI	2.89%	3.64%	0.7
Blackrock iShares 7-10-Year Treasury ETF	IEF	4.08%	6.47%	0.6
Blackrock iShares 10-20-Year Treasury ETF	TLH	4.95%	8.83%	0.5
Blackrock iShares 20+-Year Treasury ETF	TLT	6.46%	13.84%	0.4

Name	Ticker	Mean	Volatility	Sharpe
		Excess Return	volucincy	Ratio
Blackrock iShares Core US Aggregate Bond ETF	AGG	3.10%	3.82%	0.8
PIMCO Total Return Active ETF	BOND	3.25%	3.34%	0.9
Blackrock iShares iBoxx High Yield Corp. Bond ETF	HYG	5.00%	11.50%	0.4
State Street SPDR S&P 500 ETF	SPY	8.01%	14.66%	0.5

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	1-3 YR	3-7 YR	7-10 YR	10-20 YR	20+ YR	AGG	PIMCO	HYG
3-7 YR	0.89							
7-10 YR	0.73	0.93						
10-20 YR	0.60	0.83	0.97					
20+ YR	0.52	0.74	0.90	0.96				
AGG	0.55	0.72	0.84	0.83	0.78			
PIMCO	0.65	0.80	0.83	0.81	0.78	0.88		
HYG	-0.18	-0.13	-0.06	-0.06	-0.09	0.39	0.37	
SPY	-0.35	-0.33	-0.29	-0.26	-0.31	0.05	0.00	0.7





Class Problems
<ol> <li>Consider a portfolio with weights 50% in SHY and 50% in SPY. Based on the summary statistics above,         <ul> <li>a) What is the expected portfolio excess return?</li> <li>0.5 x 1.07% + 0.5 x 8.01% = 4.54%</li> </ul> </li> </ol>
b) What is the variance of the portfolio excess return? $0.25x(1.22\%)^2 + 0.25x(14.66\%)^2 + 2x0.25x1.22\%x14.66\%x(-0.35)$ = 0.0050
c) What is the volatility of the portfolio excess return? $\sqrt{0.0051} = 7.14\%$
d) What is the portfolio Sharpe Ratio? 4.54%/7.14% = 0.64
<ul> <li>2. Consider a portfolio with weights 600% in SHY and -500% in riskless 1-month T-bills. (Hint: the excess return of 1-mo. T-bills is zero.)</li> <li>a) What is the expected portfolio excess return?</li> <li>6 x 1.07% + -5 x 0 = 6.42%</li> <li>b) What is the portfolio volatility?</li> </ul>
c) What is the portfolio Volume $\sqrt{(36 \times (1.22\%)^2)} = 6 \times 1.22\% = 7.32\%$ c) What is the portfolio Sharpe Ratio? 6.40%/7.32% = 0.87