Detailed Project Outlines for the FTS Real Time System

Several projects, with steps toward completion, are below. These range from initial projects that can be competed in a short period of time to longer and more involved projects. The current list of projects is below, and more projects will be added over time.

- **FTS DOW School Case (DJIA Stocks) Project: How Securities Are Traded**
- **FTS DOW School Case (DJIA Stocks) Project: Technical Analysis**
- **FTS DOW School Case (DJIA Stocks) Project: Efficient Markets with Public Information**
- **FTS DOW School Case (DJIA Stocks) Project: Portfolio Diversification**
- **FTS Exchange Traded Fund Project: International Diversification**

FTS DOW School Case (DJIA Stocks) Project: How Securities Are Traded

Question: How are stocks traded in the secondary markets?

Stocks are first issued in a "Primary Market," for example through an IPO (initial public offering). Once issued, they are traded in "Secondary Markets." These include organized exchanges such as the New York Stock Exchange (NYSE) and over-the-counter (OTC) markets. In any of these markets, buyers and sellers negotiate a price through a process called *price discovery* and then trade at the negotiated price. For example, on the NASD, price discovery is initiated by dealers who post bids and offers. On the NYSE, price discovery is initiated by investors, but orders above a certain size are matched by a specialist who can also trade on their personal account. Other markets, referred to as third and fourth markets, trade exchange listed securities and are pure order driven markets, where price discovery is initiated by investors and all matching of buyers and sellers is via an electronic network.

Common to these markets are various order types. The two most popular are **market orders**, and **limit** orders. Market orders are "buy" or "sell" orders for a specified quantity at the best currently available prices (the highest current bid and the lowest current ask). In a **limit order** traders specify both the price and quantity they want to trade. A buy order is executed if the ask drops to the price, and a sell order is executed if the bid rises to the price. A variation known as a **stop order** lets traders lock in profits or limit losses on existing positions.

Two other important institutional details are known as **short sales** and **buying on margin**. Short sales allow traders to sell securities they do not currently own. To sell short, a trader is required to borrow the securities from a broker and then sell the borrowed security; when they cover their short position, the shares have to be returned. When buying on margin a trader borrows money from a broker to buy the stock. Interest is charged on the loan, and has to be repaid when the stock is sold. If the value of the stock falls sufficiently, the broker can make a margin call, which requires the trader to either deposit more money or sell the stock.

The FTS Real Time Client allows you to implement these orders using real world institutional details. Limit and stop orders are automatically monitored by the system in real time and all positions are marked-to-market twice daily; the marking to market can trigger off automatic cash transfers to cover margin calls. All the accounting is performed automatically for you and the details of this accounting are available at any time via the "Reports" menu item.

In this project you will learn how stocks are traded in the secondary markets and the details of these order types using the DJIA stocks. To keep things interesting you will first form a simple price view for three stocks in the DJIA index. A view is simply whether you expect a particular stock to increase or decline in price. You can form your view in any way, e.g. thinking about short term economic trends, looking at some price charts, or even just flipping a coin if nothing else leads to a prediction. In practice, traders use many methods to develop their views, including technical analysis, news, and fundamental analysis. In this project, it does not matter whether your view is correct.

Given your price view for the three stocks, complete the following five steps:

1. On day 1 implement the following trades for the three stocks: Cash Purchase, Margin Purchase and Short Sal, each for at least 100 shares in each stock.
2. After 5 days (or longer), close out the transactions implemented on day 1. That is, reverse your trades by conducting a Cash Sale, Margin Sale and Short Cover respectively so you are now left with no stocks either short or long.
3. Your cash account has now either increased or decreased over this time period. In this step, reconcile how the transactions above changed your total cash. Pay particular attention to interest paid on margin and short sale accounts and any margin calls.
4. Next, implement a limit order/stop order strategy. Given your price view of three stocks, implement the following three trades: Limit Cash Purchase, Limit Margin Purchase and a Limit Short Sale. After you observe your limit orders have been executed then you should also put on the following "Stop Loss" trades – Stop Cash Sale, Stop Margin Sale and Stop Short Cover. If you want to you can enter all these at the same time.
    - Note: For part 4 you should track recent price changes for the three stocks so that your limit orders are placed at prices that have a reasonable chance of being executed. Your goal for a limit order is to purchase or sell at a better price than is currently available. Your goal for a stop (loss) order is to sell or cover a previous sale at a price that is worse than the current price – hence the term "stop loss." Of course the "stop loss" may imply stopping the loss of a profit if prices have moved in your favor!
5. After you have successfully completed step 4 you have again cashed out of the three trades. Again your cash has either increased or decreased relative to what it was at the beginning of step 4. In this step you are required to reconcile how your transactions in step 4 changed your total cash.

After completing the above 5 steps, you will have gained important experience and understanding of order types and how they are implemented and executed.

FTS DOW School Case (DJIA Stocks) Project: Technical Analysis

Question: What is the profitability of technical analysis and how does this relate to the weak form of the efficient market hypothesis?

Irwin and Park (Journal of Economic Surveys, 2007) documented the following: *"Among a total of 95 modern studies, 56 studies find positive results regarding technical trading strategies, 20 studies obtain negative results, and 19 studies indicate mixed results. Despite the positive evidence on the profitability of technical trading strategies, most empirical studies are subject to various problems in their testing procedures, e.g. data snooping, ex post selection of trading rules or search technologies, and difficulties in estimation of risk and transaction costs."*

In this project you will test the weak form of the efficient market hypothesis (EMH) under conditions that do not suffer from these deficiencies, by completing the following five steps:

1. Identify a short term technical trading strategy that you are interested in testing out using any subset of the Dow Jones Industrial Index (DJIA) stocks (see below for an example).
2. Identify stocks from the DJIA stocks that currently generate buy or sell signals given your trading strategy (i.e., are in the market relative to your trading strategy)
3. Implement your technical trading strategy using the Real Time FTS Client. This step controls against the deficiencies raised above in relation to existing technical analysis studies because the strategy is implemented *ex ante* using the real time prices in a manner that you cannot manipulate after the event.
4. Analyze your trading strategies using the reporting capabilities of the real time FTS Client; you can perform further analysis using the "export to Excel" feature of the FTS Real Time Client.
5. Answer the following question: How profitable was your technical trading strategy when implemented ex ante using the FTS Real Time Client over the time period tested? Is this result consistent or inconsistent with the weak form of the efficient markets hypothesis? Note: You should first define what the weak form of the EMH is and then compare your realized trading results with what you predict under the weak form of the efficient market hypothesis.

Example: There are many technical trading strategies. For this exercise, you should review and assess whether or not a strategy is currently in the market with respect to some subset of the DJIA stocks. Some strategies are always in the market. For example, a simple strategy that is always in the market buys and sells when the n-day moving average crosses over the slower moving (n+m)-day moving average. This is always in the market because whenever one trade is exited (say a long position is sold) a new opposite trade is initiated (a short position is taken in the same security). Examples of this strategy may contrast the n=100 to the n+m=350 day averages, or in a short term form the n=7-to the n+m=25-trading day moving averages. You can compute these averages for any stock at different financial web sites (the FTS real time client provides automatic links to several popular sites). Even better, you can download historical data and compute the strategy yourself in a spreadsheet.

FTS DOW School Case (DJIA Stocks) Project: Efficient Markets with Public Information

Question: What is the profitability of trading on public information and how does this relate to the semi-strong form of the efficient market hypothesis?

Public information comes in many forms including economy wide information that affects all stocks, firm specific information that affects an individual stock and its competitors. The semi-strong form of market efficiency can be assessed relative to public information by studying both forecasts and realizations of events. When testing sources of public information, you must be careful to guard against biases that arise from data snooping, ex post selection and manipulation of information, ignoring transaction costs and risk.

The objective of this project is to become acquainted with some of these issues using the FTS DOW School case. You will test the semi-strong form of the efficient market hypothesis (EMH) under conditions that do not suffer from the biases listed above. To do so, complete the following five steps:

1. Identify a source of public information that you are interested in testing using any subset of the DJIA stocks. Be careful to identify whether this source is firm specific or economy wide, and whether or not it involves a forecast and/or a realization of an event.
2. Form a short term view for your subset of stocks and translate this view into a trading strategy.
3. Implement your trading strategy using the Real Time FTS Client. This may include exploiting both limit and stop order capabilities of the FTS Real Time client. This step controls against the biases raised above, because your strategy is implemented *ex ante*.
4. Analyze your trading strategies using the reporting capabilities of the real time FTS Client including additional analysis using Excel and the data export capabilities of the FTS Real Time Client.
5. Answer the following question: How profitable was your trading strategy when implemented over the time period tested? Is this consistent or inconsistent with the semi-strong form of the efficient markets hypothesis? Note: You should first define what the semi-strong form of the EMH is and then compare your realized trading results along important predicted dimensions of this hypothesis. Although you are constrained by the time horizon of the project you should consider the nature and speed of the market adjustment, whether or not the short term market reaction is consistent with your view and how to assess whether a risk adjusted return was earned.

Example:

A good starting place is to work from the pre-assigned links in the FTS Real Time Client by double clicking on any of the stock tickers to check current firm specific events and forecasts and then extend your search by using key words like “Economic Calendar, Forecasts” using a search engine or other sources you have access to. You will soon be immersed in a very large amount of public information.

FTS DOW School Case (DJIA Stocks) Project: Portfolio Diversification

Note: this project requires use of Excel's Solver

Question: How do you create a diversified stock portfolio?

Advice given by most financial advisors is to not put all your eggs in one basket, i.e. to diversify, meaning that you hold several different stocks. The reasoning behind this is simple; if you hold one stock or very few stocks, you can either do very well and very poorly. By diversifying, you can reduce the chances of extreme outcomes, and thus reduce the risk of your portfolio; of course, you typically also affect the return you expect to get. How much you diversify typically depends on your risk aversion; the more you dislike risk, the more you would like to diversify.

Modern portfolio theory provides a technique for both measuring risk and return and determining the best way to diversify. In this project, you will learn to use Excel's Solver to create an "optimal" diversified portfolio. The details of modern portfolio theory are described in most investments textbooks, and will not be given here; instead, we will focus on the implementation, though we will need the following terminology.

Background

Let w_i denote the proportion of your money invested in stock i. So if your total investment is $1m, you hold 1000 shares of stock i, and the price of stock i is 25, then $w_i = 0.025$, i.e. you have invested 2.5% of your money in stock i. w_i is also called a *portfolio weight*. Since there is a direct relationship between the number of shares and the weight, once you have determined the weight, you can easily calculate the number of shares you must hold (given the price and the total investment).

Let $E(r_i)$ denote the expected return from stock i. This is usually measured annually, so $E(r_i)=10\%$ means you expect the stock to return 10% over the year. There are many ways to estimate the expected return; stock analysts use techniques involving historical data, fundamental analysis, and scenario analysis. Values based on the CAPM are provided by the FTS Real Time Client, though you can override them via the "Parameters" menu item. Given the portfolio weights, the expected return of the portfolio is:

$$ER(w) = \sum_i w_i E(r_i)$$

Finally, we need to describe risk. Modern portfolio theory uses the variance of returns as a measure of risk (or equivalently, the standard deviation, which is also referred to as volatility). To calculate the risk of a portfolio, you also need the covariances between stock returns. In notation, let σ_{ij} denote the

covariance between the returns of stocks i and j, so σ_{ii} is the variance of the return of stock i. Then, given the portfolio weights, the variance of the portfolio return is:

$$\sigma^2(w) = \sum_i \sum_j w_i w_j \sigma_{ij}$$

The FTS Real Time Client calculates all the covariances for you. The portfolio selection problem is to find weights that minimize the variance subject to some constraints. The first is that the sum of the weights equals 1; this simply means that you invest all the money you have allocated to stocks. The second is that the expected return from the portfolio equals your desired return. Beyond that, you can impose more conditions. For example, you may restrict short selling, either completely, which says $w_i \geq 0$. Or you may require that you will not invest more some amount in any one stock; this says $w_i \leq 0.1$. Common constraints for this case, which has 30 stocks, would be that you do not invest more than 15% in any one stock, and if there is no short selling, that you invest at least 2% in every stock.

Project

The objective of this project is to learn to apply modern portfolio theory by constructing portfolios, implementing the recommended portfolio, and tracking its performance over time. This is done by completing the following steps, and includes learning how to use Solver to calculate the portfolio weights.

1. From the RT Client, select "Covariances and Returns" in the Analytics area (at the bottom right); you will see your portfolio weights and the expected returns and covariances of all the stocks. In the Edit menu of the Analytics area, select "Export to Excel." This will transfer the data into an Excel spreadsheet.
2. Decide on a target expected return. This could be a number you pick, e.g. 7%, or you could be guided by the past return of an index such as the S&P500, or the yield on Treasury bonds.
3. Choose what constraints you want to impose. You may want to consult your investments text (e.g. the chapter on Optimal Risk Portfolios in the text by Bodie, Kane, and Marcus) for suggestions.
4. In your spreadsheet, implement the formulas for calculating the portfolio's expected return and variance. You may want to use the SUMPRODUCT function in Excel as well as its matrix multiplication functions.
5. Run Solver, define the objective (which is to minimize the variance) and the constraints (the two basic constraints plus additional constraints you chose), and calculate the portfolio weights. Note that if your constraints are unreasonable, there may not be a solution.
6. Implement your trading strategy using the Real Time FTS Client. This means that you have to take the weights and using current prices, calculate the number of shares of each stock to buy (or sell).
7. Wait a week. At that point, your actual portfolio weights will have changed because stock prices will have changed. You now have to decide whether you want to "rebalance" your position.

This means buying or selling to get back to the weights you had originally calculated. Or you may want to repeat steps 1-6 again since some of the return and covariance estimates may have changed. Note that the decision to rebalance is not that simple, since buying and selling stocks will incur a transaction cost; so if your weights are not too far from where they should be, you may want to wait to rebalance.

8. After a few weeks, answer the following questions: What was the risk and return of your portfolio over the time horizon? Did it conform to what was expected? Did you have to rebalance frequently? You should calculate the realized return, the volatility of your returns, and the Sharpe ratio for your portfolio, and compare these to the S&P 500.

FTS Exchange Traded Fund Project: International Diversification

Note: this project requires use of Excel's Solver

Question: Can you outperform the S&P by investing in global exchange traded funds?

Many academic studies have documented a "home bias" in investing, which means that people are over-invested in their home country and under-invested internationally. Other studies document the benefits of diversifying your portfolio to include international assets. An overview is contained in most investment textbooks, for example the chapter on "International Diversification" in the text by Bodie, Kane, and Marcus. In this project, you will construct portfolios of exchange traded funds (ETFs) to understand the benefits of such diversification.

An international ETF, for example the MSCI Switzerland Index Fund (which trades under the ticker EWL) is a portfolio of Swiss stocks constructed to mimic (or "track") a Swiss index (in this case the MSCI Switzerland Index). The ETF is traded in US Dollars, and embodies multiple sources of risk:

- Market risk in Switzerland, which reflect the ups and downs of the Swiss equity market
- Exchange rate risk (which arises if the US Dollar appreciates or depreciates against the Swiss franc)
- Basis risk, which measures the ability of the ETF to track its index
- Liquidity risk, which reflects changes in the demand for the ETF itself by investors. For example, if everyone wants to buy this ETF, its price can be greater than the value of the stocks it holds; in that case, it trades at a "premium." If its price is lower, it is said to trade at a discount.

A big advantage of an ETF such as this is that it allows US investors to have easy access to the Swiss market without having to buy Swiss stocks. Since it is traded in US Dollars, you don't have to worry about managing a multi-currency portfolio (though the exchange rate risk remains).

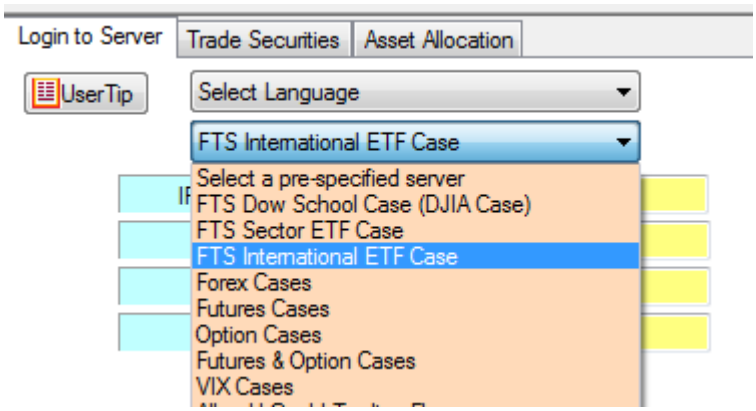
There are close to 1000 ETF's that trade; these include ETF's that track stock indexes, the EWL, as well as sectors (e.g. portfolios of international bonds, international sector ETF's, bonds within a country, sectors within a country, etc.), and you can find a lists of them at many web sites, e.g. www.ishares.com.

Objective

The project objective is quite simple: see if you can achieve a higher return and a lower variance than the S&P500 over the time period of the project. The target is to beat the S&P 500 by 6% annually, which is 0.5% a month. So if you are running the project for 1 month, you must beat it by .5%, if over 2 months, then by 1%, and so on.

You will have to construct a portfolio that is designed to achieve this goal, implement it, track the results, and adjust your portfolio ("rebalance it") over time. At the end, your report will compare the

risk and return of your portfolio compared to the S&P500. You can trade 49 ETF's available to you in the FTS International ETF Case (listed in the appendix). From the FTS Real Time Client, select this case:



Enter your trading name and password (assigned by your instructor) and login. When you start, you have $1m in cash, and you have to invest this in the ETF's.

Modern portfolio theory provides a technique for both measuring risk and return and determining the best way to diversify. In this project, you will use Excel's Solver to create an "optimal" diversified portfolio. The details of modern portfolio theory are described in most investments textbooks, and will not be given here; instead, we will focus on the implementation, though we will need the following terminology.

Background

Let w_i denote the proportion of your money invested in ETF i. So if your total investment is $1m, you hold 1000 shares of ETF i, and the price of ETF i is 25, then $w_i = 0.025$, i.e. you have invested 2.5% of your money in ETF i. w_i is also called a *portfolio weight*. Since there is a direct relationship between the number of shares and the weight, once you have determined the weight, you can easily calculate the number of shares you must hold (given the price and the total investment).

Let $E(r_i)$ denote the expected return from ETF i. This is usually measured annually, so $E(r_i)=10\%$ means you expect the ETF to return 10% over the year. There are many ways to estimate the expected return; default values are provided by the FTS Real Time Client, though you can override them via the "Parameters" menu item. Given the portfolio weights, the expected return of the portfolio is:

$$ER(w) = \sum_i w_i E(r_i)$$

Finally, we need to describe risk. Modern portfolio theory uses the variance of returns as a measure of risk (or equivalently, the standard deviation, which is also referred to as volatility). To calculate the risk of a portfolio, you also need the covariances between ETF returns. In notation, let σ_{ij} denote the

covariance between the returns of ETFs i and j, so σ_{ii} is the variance of the return of ETF i. Then, given the portfolio weights, the variance of the portfolio return is:

$$\sigma^2(w) = \sum_i \sum_j w_i w_j \sigma_{ij}$$

The FTS Real Time Client calculates all the covariances for you. The portfolio selection problem is to find weights that minimize the variance subject to some constraints. The first is that the sum of the weights equals 1; this simply means that you invest all the money you have allocated to ETF.s The second is that the expected return from the portfolio equals your target return. Beyond that, you can impose more conditions. For example, you may restrict short selling, either completely, which says $w_i \geq 0$. Or you may require that you will not invest more some amount in any one ETF; this says $w_i \leq 0.1$. Common constraints for this case would be that you do not invest more than 10% in any one ETF, and if there is no short selling, that you invest at least 1% in every ETF.

Project

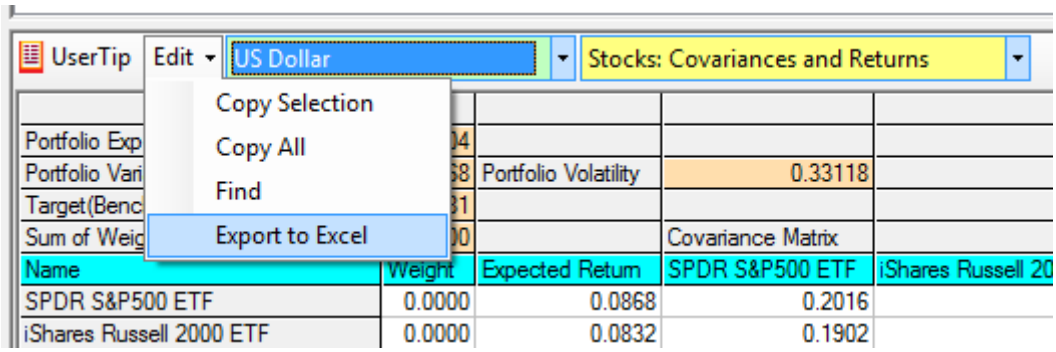
The objective of this project is to learn to apply modern portfolio theory by constructing portfolios, implementing the recommended portfolio, and tracking its performance over time. This is done by completing the following steps, and includes learning how to use Solver to calculate the portfolio weights.

6. From the RT Client, select "Covariances and Returns" in the Analytics area (at the bottom right):

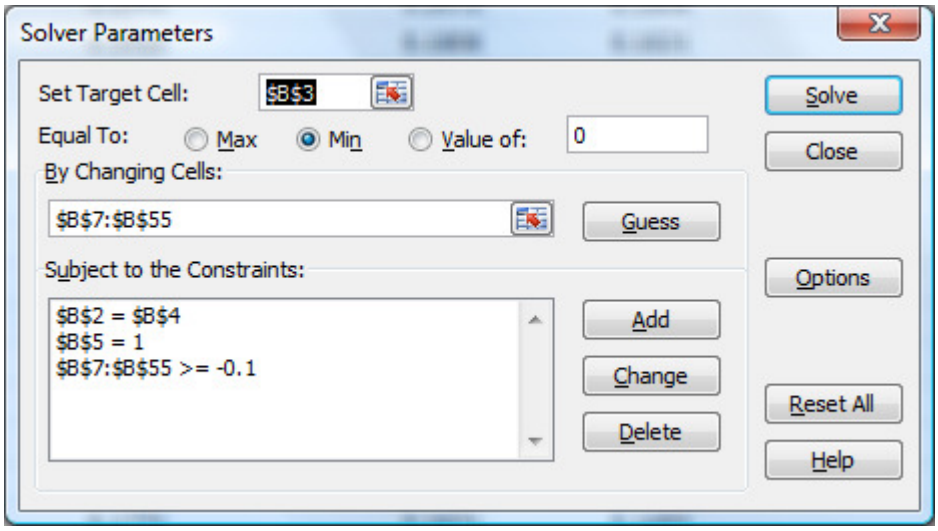
UserTip Edit US Dollar Stocks: Covariances and Returns

Portfolio Exp Return	0.03504				
Portfolio Variance	0.10968	Portfolio Volatility	0.33118		
Target(Benchmark) Return	0.0881				
Sum of Weights	1.00000		Covariance Matrix		
Name	Weight	Expected Return	SPDR S&P500 ETF	iShares Russell 2000 ETF	Nasdaq-10
SPDR S&P500 ETF	0.0000	0.0868	0.2016	0.1902	
iShares Russell 2000 ETF	0.0000	0.0832	0.1902	0.2072	
Nasdaq-100 ETF	0.0000	0.0836	0.1916	0.1808	
PROSHARES ULTRA MSCI ETF	0.3134	-0.0335	-0.1792	-0.1690	
PWRSHS FTSE RAFI JPN ETF	0.4867	0.0611	0.1205	0.1137	

you will see your portfolio weights and the expected returns and covariances of all the ETFs. In the Edit menu of the Analytics area, select "Export to Excel." This will transfer the data into an Excel spreadsheet:

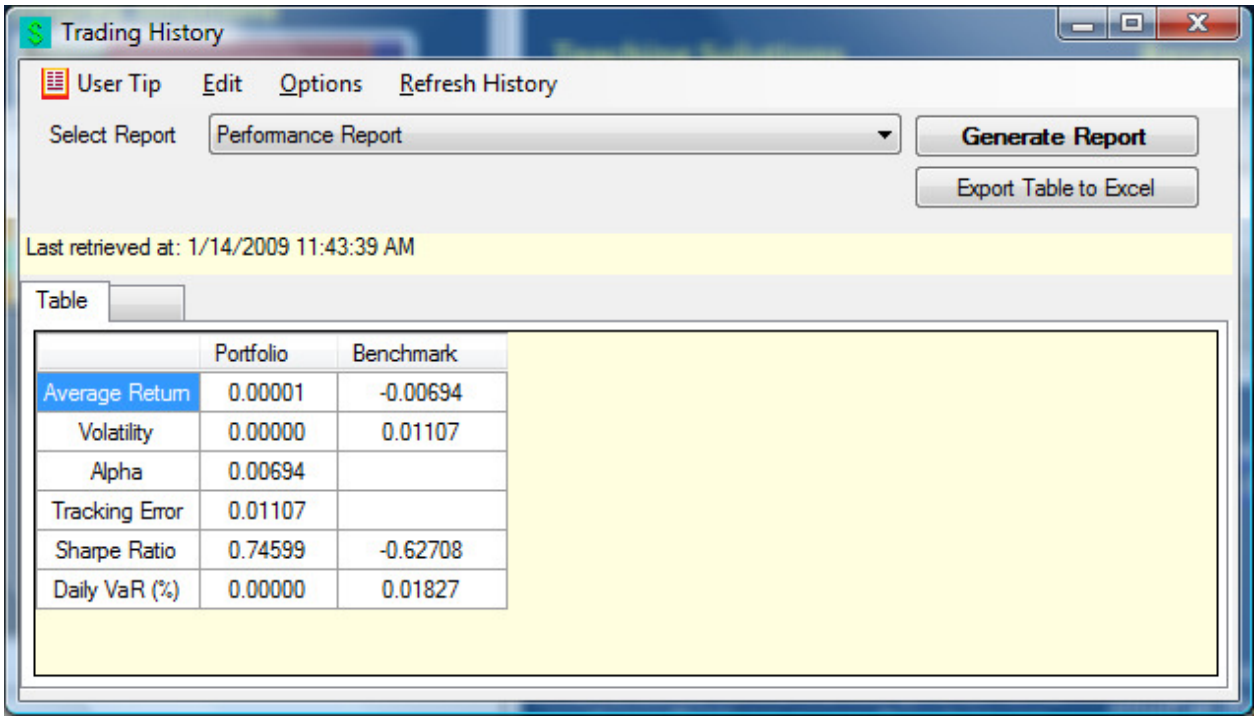


7. In the spreadsheet, enter target expected return; the S&P500 expected return is automatically entered for you, so you simply have to enter the ½% per month (depending on your horizon) to that number.
8. Choose what constraints you want to impose. You may want to consult your investments text (e.g. the chapter on Optimal Risk Portfolios in the text by Bodie, Kane, and Marcus) for suggestions.
9. In your spreadsheet, implement the formulas for calculating the portfolio's expected return and variance (the values from the RT Client are entered, but you will have to replace these with formula s). You may want to use the SUMPRODUCT function in Excel as well as its matrix multiplication function MMULT. For example, for this case, the weights will be exported to cells B7:B55 and the expected returns in C7:C55. The covariance matrix is in the range D7:AZ55. So in cell B2, you should enter the formula =**SUMPRODUCT(B7:B55,C7:C55)**. In cell B3, you should enter **=SUMPRODUCT(B7:B55,MMULT(D7:AZ55,B7:B55))** to obtain the portfolio variance as a function of the weights. Now, as the weights change, both the expected return and the portfolio variance will be recomputed. Without this step of changing formulas, Solver will not be able to calculate the optimal portfolio weights.
10. Add the formula for the sum of the weights in cell B5. In this example, you would enter **=SUM(B7:B55)**
11. Run Solver, define the objective (which is to minimize the variance) and the constraints (the two basic constraints plus additional constraints you chose), and calculate the portfolio weights. Note that if your constraints are unreasonable, there may not be a solution. Sometimes, without additional constraints, there may not be a solution. To start with, you may want to restrict short selling to be no more than 10% of the total value, i.e. $w_i \geq -0=.1$ for all i. For this problem, the Solver dialog box for the ETF's looks like:

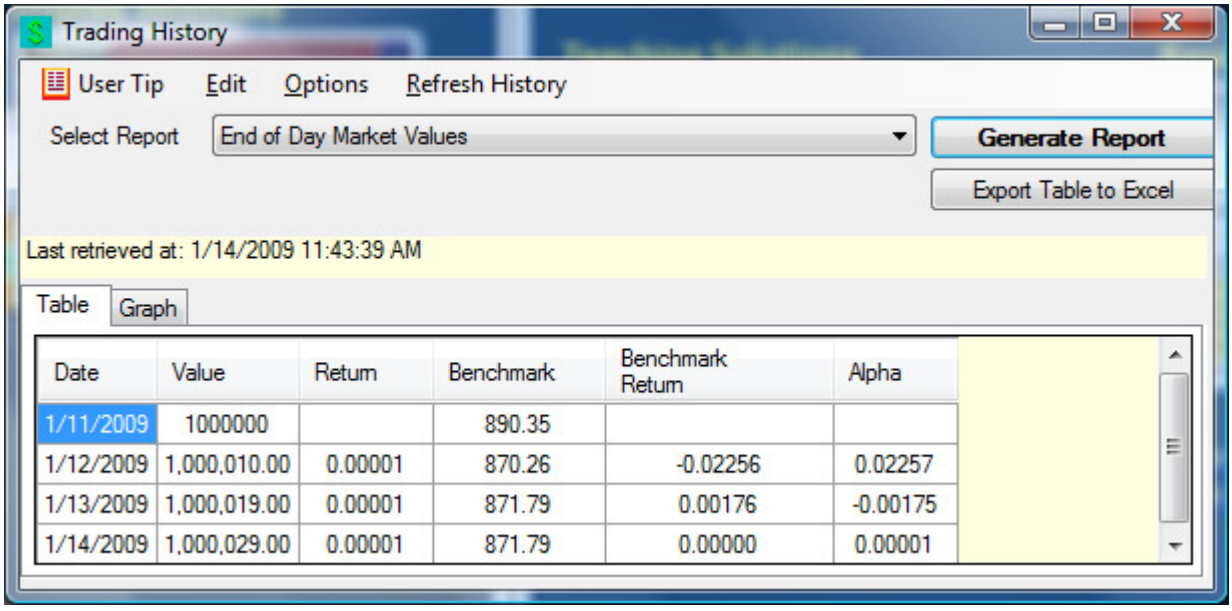


You should start with these constraints, and then experiment with others. This step requires some amount of experimentation. If you don't impose a constraint like the third one (a lower bound on the weights), Solver may not be able to find a solution.

12. Implement your trading strategy using the Real Time FTS Client. This means that you have to take the weights and using current prices, calculate the number of shares of each ETF to buy (or sell).
13. Wait a week. At that point, your actual portfolio weights will have changed because ETF prices will have changed. You now have to decide whether you want to "rebalance" your position. This means buying or selling to get back to the weights you had originally calculated. Or you may want to repeat steps 1-6 again since some of the return and covariance estimates may have changed. Note that the decision to rebalance is not that simple, since buying and selling ETFs will incur a transaction cost; so if your weights are not too far from where they should be, you may want to wait to rebalance. You can use the Portfolio Tracking function of the RT Client (described in the Appendix) to see how your position compares to your target weights.
14. After a few weeks, answer the following questions: What was the risk and return of your portfolio over the time horizon? Did it conform to what was expected? Did you have to rebalance frequently? You should calculate the realized return, the volatility of your returns, and the Sharpe ratio for your portfolio, and compare these to the S&P 500. The Reports menu allows you to do this quite easily. For example, it automatically calculates the performance of your portfolio compared to the benchmark:



And daily market values and returns:



Appendix 1: Using the "Portfolio Tracking" Capability

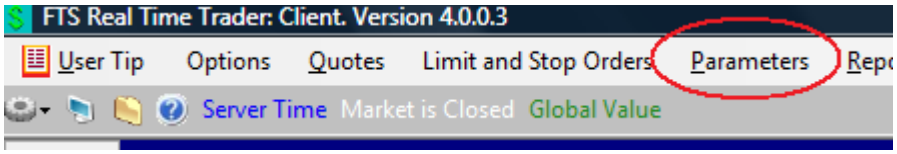
In the FTS Real Time Client, you can specify target weights (e.g. the result of the Solver calculation above) in the "Paremeters" menu. In the stock analytics, you can then select "portfolio tracking" and the system will show you the difference between your weights and the target weights and the implied trade.

Example: Suppose you want to your weights to be 25% in PROSHARES ULTRA MSCI ETF, 10% inPWRSHS FTSE RAFI JPN ETF, 5% in ISHARES JAPAN INDEX FUND, 30% in NETS TRUST TOPIX INX FD, and 30% in SPDR RUSS/NOM PRIME JPN.

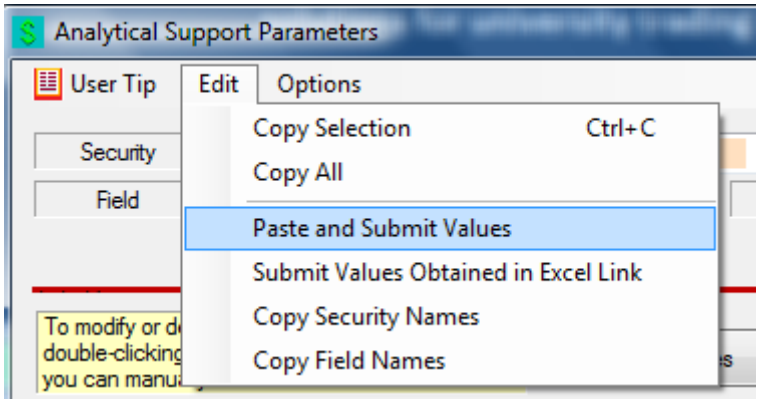
In a spreadsheet, create the following and **copy it**:

PROSHARES ULTRA MSCI ETF	TargetWeight	.25
PWRSHS FTSE RAFI JPN ETF	TargetWeight	.1
ISHARES JAPAN INDEX FUND	TargetWeight	.05
NETS TRUST TOPIX INX FD	TargetWeight	.3
SPDR RUSS/NOM PRIME JPN	TargetWeight	.3

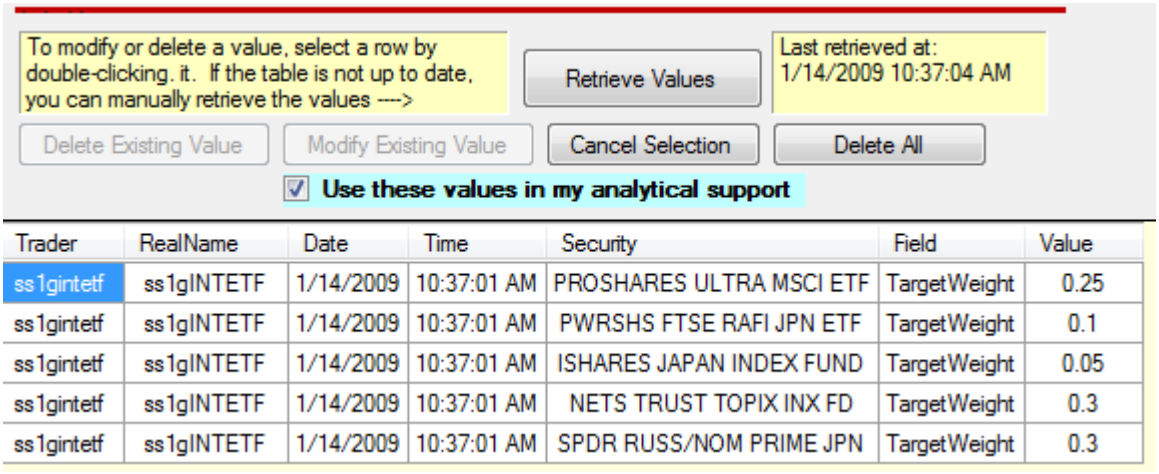
Select the "Parameters" menu:



In the window that appears, select the Edit menu and then "**Paste and Submit Values**"

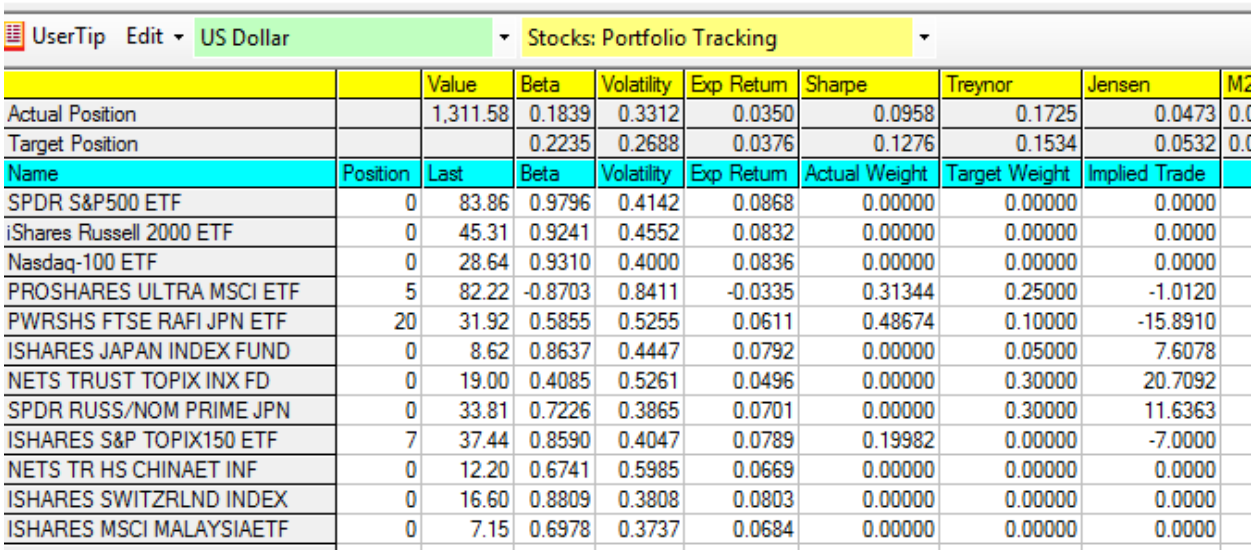


Then, check the box to use these in your analytical support. You will see:



Trader	RealName	Date	Time	Security	Field	Value
ss1gintetf	ss1gINTETF	1/14/2009	10:37:01 AM	PROSHARES ULTRA MSCI ETF	TargetWeight	0.25
ss1gintetf	ss1gINTETF	1/14/2009	10:37:01 AM	PWRSHS FTSE RAFI JPN ETF	TargetWeight	0.1
ss1gintetf	ss1gINTETF	1/14/2009	10:37:01 AM	ISHARES JAPAN INDEX FUND	TargetWeight	0.05
ss1gintetf	ss1gINTETF	1/14/2009	10:37:01 AM	NETS TRUST TOPIX INX FD	TargetWeight	0.3
ss1gintetf	ss1gINTETF	1/14/2009	10:37:01 AM	SPDR RUSS/NOM PRIME JPN	TargetWeight	0.3

Next, go to the analytical support area, at the bottom right, and select Portfolio Tracking:



		Value	Beta	Volatility	Exp Return	Sharpe	Treynor	Jensen	M2
Actual Position		1,311.58	0.1839	0.3312	0.0350	0.0958	0.1725	0.0473	0.0
Target Position			0.2235	0.2688	0.0376	0.1276	0.1534	0.0532	0.0
Name	Position	Last	Beta	Volatility	Exp Return	Actual Weight	Target Weight	Implied Trade	
SPDR S&P500 ETF	0	83.86	0.9796	0.4142	0.0868	0.00000	0.00000	0.0000	
iShares Russell 2000 ETF	0	45.31	0.9241	0.4552	0.0832	0.00000	0.00000	0.0000	
Nasdaq-100 ETF	0	28.64	0.9310	0.4000	0.0836	0.00000	0.00000	0.0000	
PROSHARES ULTRA MSCI ETF	5	82.22	-0.8703	0.8411	-0.0335	0.31344	0.25000	-1.0120	
PWRSHS FTSE RAFI JPN ETF	20	31.92	0.5855	0.5255	0.0611	0.48674	0.10000	-15.8910	
ISHARES JAPAN INDEX FUND	0	8.62	0.8637	0.4447	0.0792	0.00000	0.05000	7.6078	
NETS TRUST TOPIX INX FD	0	19.00	0.4085	0.5261	0.0496	0.00000	0.30000	20.7092	
SPDR RUSS/NOM PRIME JPN	0	33.81	0.7226	0.3865	0.0701	0.00000	0.30000	11.6363	
ISHARES S&P TOPIX150 ETF	7	37.44	0.8590	0.4047	0.0789	0.19982	0.00000	-7.0000	
NETS TR HS CHINAET INF	0	12.20	0.6741	0.5985	0.0669	0.00000	0.00000	0.0000	
ISHARES SWITZRLND INDEX	0	16.60	0.8809	0.3808	0.0803	0.00000	0.00000	0.0000	
ISHARES MSCI MALAYSIAETF	0	7.15	0.6978	0.3737	0.0684	0.00000	0.00000	0.0000	

This shows you your actual weights versus the target weights, and the performance measures for each. It also shows you the implied trades to re-balance your actual weights to the target weights.

Appendix 2: The ETF's

ETF	Ticker
SPDR S&P500 ETF	SPY
iShares Russell 2000 ETF	IWM
Nasdaq-100 ETF	QQQQ
PROSHARES ULTRA MSCI ETF	EWV
PWRSHS FTSE RAFI JPN ETF	PJO
ISHARES JAPAN INDEX FUND	EWJ
NETS TRUST TOPIX INX FD	TYI
SPDR RUSS/NOM PRIME JPN	JPP
ISHARES S&P TOPIX150 ETF	ITF
NETS TR HS CHINAET INF	SNO
ISHARES SWITZRLND INDEX	EWL
ISHARES MSCI MALAYSIAETF	EWM
ISHARES MSCI S AFR ETF	EZA
ISHARES FTSE/XINHUA 25	FXI
SPDR S&P CHINA ETF	GXC
NETS TRUST HANG SNG INFD	HKG
ISHARES SPAIN INDEX FUND	EWP
NETS S&P/ASX 200 FD ETF	AUS
NETS TRUST S&P/MIB ETF	ITL
ISHARES HONG KONG INDEX	EWH
ISHARES FRANCE INDEX FD	EWQ
NETS DAX INDEX FUND ETF	DAX
ISHARES MEXICO INDEX FD	EWW
ISHARES MSCI CHLFD ETF	ECH
POWERSHARES ETF GLDN DRA	PGJ
NETS TRUST CA40 INDEX FD	FRC
ISHARES GERMANY INDEX	EWG
ISHARES SINGAPORE INDEX	EWS
NETS FTSE 100 INDEX FUND	LDN
ISHARES MSCI CANADA ETF	EWC
ISHARES UN KNGDM INDX FD	EWU
ISHARES MSCI TAIWAN ETF	EWT
NETS TRUST FTSE/JSE ETF	JNB
ISHARES ITALY INDEX FUND	EWI
NETS TR PSI 20 IDX-PRT	LIS

ISHARES SWEDEN INDEX FD	EWD
ISHARES NETHERLANDS INDX	EWN
NETS TR SINGAPRE STS ETF	SGT
ISHARES MSCI AUS INDXETF	EWA
ISHARES MSCI SOUTH KOREA	EWY
ISHARES MSCI BRAZIL ETF	EWZ
BARCLAYS BNK IPATH MSCI	INP
NETS TR TA-25 IDX-ISRL	TAV
NETS TR AEX IDX FD NET	AEX
NETS TR BEL 20 IXFD BE	BRU
ISHARES MSCI BELGIUM ETF	EWK
ISHARES MSCI AUSTRIA ETF	EWO
MARKET VECTORS RUS ETF	RSX
PROSHARES UL FTSE/X ETF	FXP