Portfolio Workbench – Quick Start Guide

Introduction

The quickest way to learn about the Portfolio Workbench is to take the three tours. This takes about 15 to 20 minutes and will give you a good understanding of what the App can do. If you have not yet taken the tours, we urge you to do so now.

But to design a real portfolio, you will need a bit more information in order to set the design parameters so that the resulting portfolio meets your requirements. This Quick Start Guide will have you designing real portfolios in under an hour.

We also provide a more comprehensive Reference Manual that goes into all of the features in much more detail and includes a technical discussion for those who want to understand more about the mathematics underlying the processes used in this software.

These portfolios consist of a long position in securities that are out-performing the market combined with a short position in either:

- Securities that are underperforming the market, or
- Some security that tracks the market.

The short position is used to lower the portfolio risk (Beta). For portfolios that cannot "sell short" we use long positions in inverse market exchange-traded funds such as tickers "SDS" or "QID".

Traditional "asset allocation" portfolios have used stocks (or equity mutual funds) combined with bonds (or bond mutual funds) to lower the portfolio Beta. This has worked well for the past thirty years because over that period, interest rates have been decreasing. But interest rates are expected to increase so using bonds to reduce the portfolio Beta will create a drag on portfolio returns. This App allows you to design controlled Beta portfolios without using bonds.

In the charts of the Portfolio Workbench, we use colors to identify what we are plotting:
- Green refers to the unhedged portfolio
- Red refers to the hedge security
- Blue refers to the final hedged portfolio

So let's now design a portfolio!

Designing a Portfolio

Once you start up the App you will see this dialog box. Here you select what you want to do in this session.

Again, if you have not taken all three tours, please take them now.

To design a new portfolio, click on Create a New Workspace. That brings up the Create New Workspace dialog.

We first have to select what securities we want in our portfolio. We can select any securities for which a continuous daily price series is available, including:

- Stocks
- Exchange-Traded Funds
- Mutual Funds
- Futures

We look for securities in the MinusMarket Screener application so click on New MinusMarket Screener Workspace. We will design a portfolio of stocks for this example.

This brings up the Select Initial Data dialog. We can then use the securities from an existing workspace or manually insert the ones we want. Let's insert our own so click on Manual Configuration.
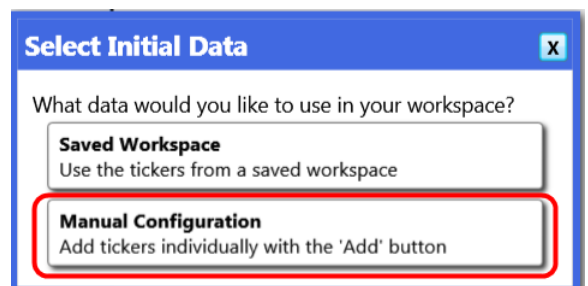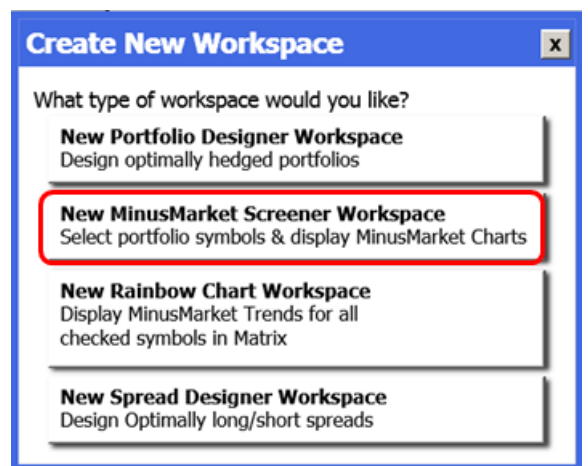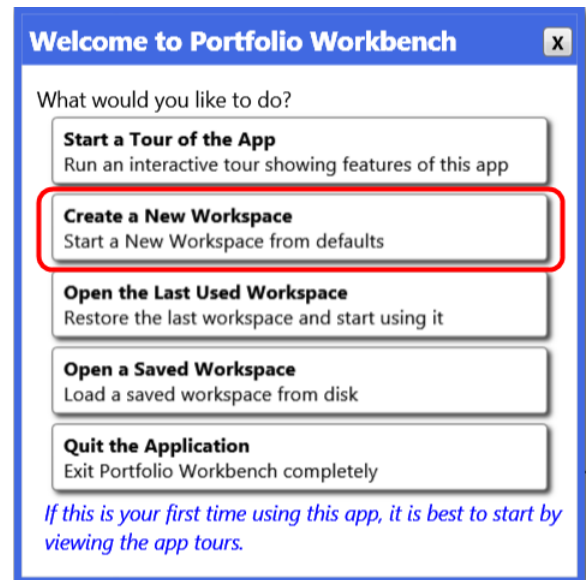
Click on the Index Members tab. Enter a suitable index ticker. Here is a list of common index tickers with the approximate number of stocks in each index:

- DJIA INDU Index 30
- S&P 100 OEX Index 100
- S&P 500 SPX Index 500
- S&P 400 MID Index 400
- S&P 600 SML Index 600
- S&P 1500 SPR Index 1500
- Nasdaq 100 NDX Index 100
- Russell Midcap RDG Index 900
- Russell 1000 RIY Index 1000
- Russell 2000 RTY Index 2000
- FTSE 100 UKX Insex 100
- Nikkei 225 NKY Index 225
- Hang Seng HSI Index 50
- CAC 40 CAC Index 40
- DAX 30 DAX Index 30
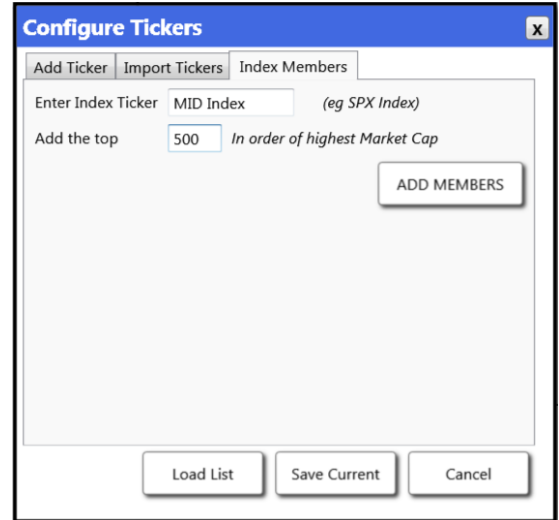
Then click ADD MEMBERS.

Click on YES to remove any existing tickers.

It will then load all the data for those tickers. This will take a few minutes. It typically can load ten years of daily data at about 75 tickers per minute.
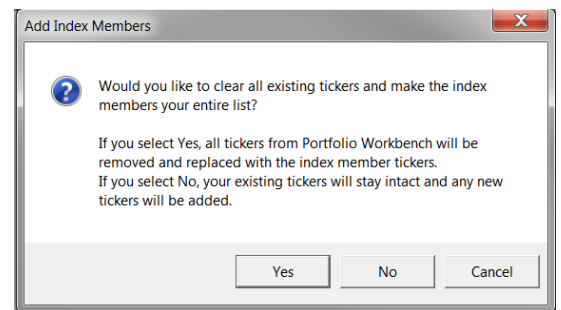
After everything is loaded, close the Configure Tickers dialog by clicking Cancel in the lower right corner of the box.
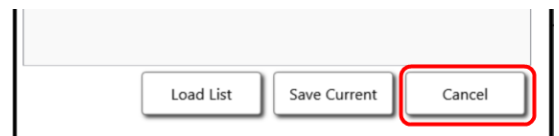
We next need to decide on how we want to divide the portfolio between the unhedged portfolio of stocks and the hedge. There are three possible configurations as shown in the figure on the right.

1. This configuration is required for accounts that cannot use margin. This splits the account between the stocks and the hedge and must use an inverse market ETF as the hedge.
2. This configuration uses a margin account and uses margin for the hedge. The hedge can be short positions in stocks or ETFs or a long position in an inverse ETF.
3. This configuration is like the previous one but adds leverage to increase the returns.
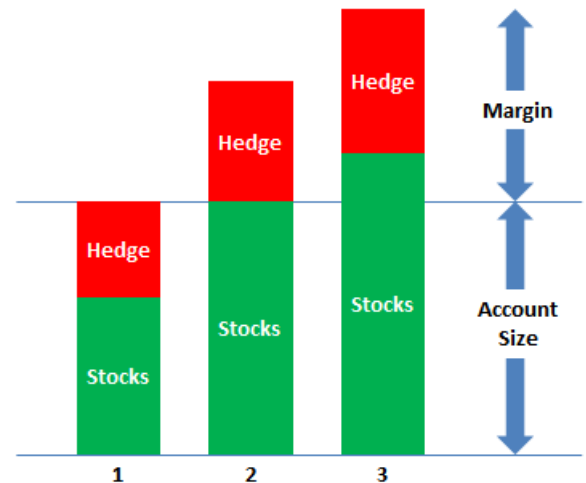
Click on the Settings header to bring up the Portfolio Workbench Settings dialog then click on the Calculations tab.

For this example, we will assume we are designing a portfolio for a retirement account that cannot use margin so we need to set the Compounding setting to No Margin Required – Fixed Trade Size so that the hedge position will not require using margin.

Next we need to decide what size positions we want to use for the portfolio. Let's assume a $250,000 portfolio with 10 stocks and 5% left in cash. So with equal positions we need 0.95 * $250,000 / 10 = $23,750 per position.

Change the Position Size to 23750.

We will leave the other settings at the defaults for this portfolio so click on OK.

Next we need to determine what to use as a hedge to cancel out some of the market component. Since we cannot use margin we cannot use short positions so we will use one of the inverse market ETFs, "SDS".

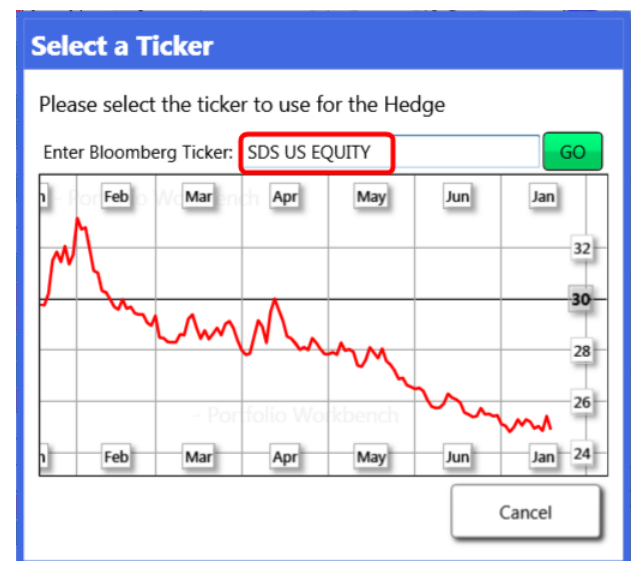Click on the Hedge ticker near the top left of the main chart.

This opens the Select a Ticker dialog. Insert SDS US Equity in the space provided and click on GO.
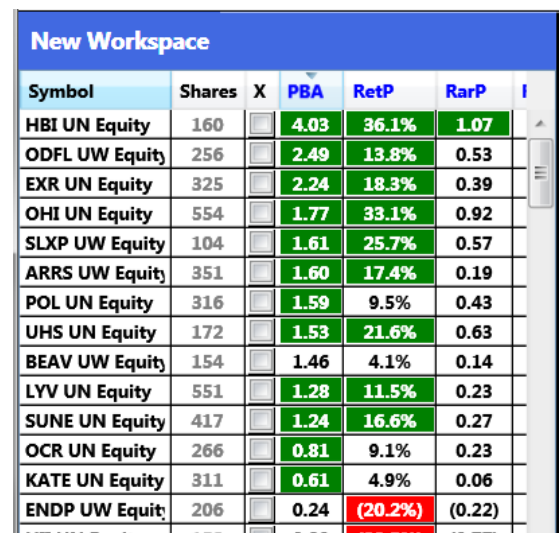
The values in the matrix will all recalculate based upon these new settings. We now need to select stocks we like. Click on the PBA column header to sort the highest values at the top. PBA is a proprietary measure that we have found tends to find good portfolio candidates. Those colored green in both the PBA and RetP columns tend to be good candidates to consider.
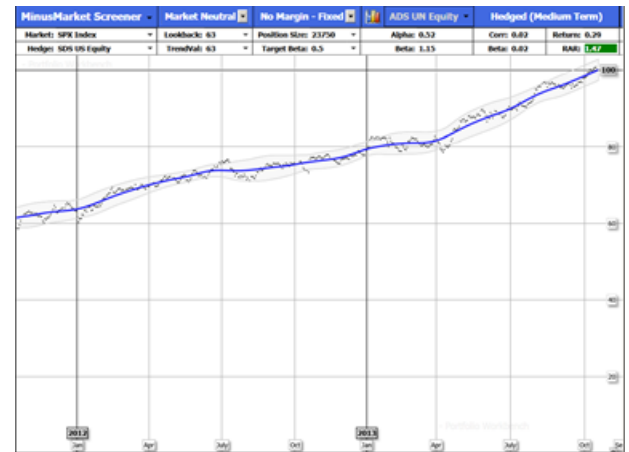

Symbol	Shares	X	PBA	RetP	RarP
HBI UN Equity	160		4.03	36.1%	1.07
ODFL UW Equity	256		2.49	13.8%	0.53
EXR UN Equity	325		2.24	18.3%	0.39
OHI UN Equity	554		1.77	33.1%	0.92
SLXP UW Equity	104		1.61	25.7%	0.57
ARRS UW Equity	351		1.60	17.4%	0.19
POL UN Equity	316		1.59	9.5%	0.43
UHS UN Equity	172		1.53	21.6%	0.63
BEAV UW Equity	154		1.46	4.1%	0.14
LYV UN Equity	551		1.28	11.5%	0.23
SUNE UN Equity	417		1.24	16.6%	0.27
OCR UN Equity	266		0.81	9.1%	0.23
KATE UN Equity	311		0.61	4.9%	0.06
ENDP UW Equity	206		0.24	(20.2%)	(0.22)

Click on the ticker at the top of the Symbol column to display the charts for that ticker. Good stocks tend to have curves that look like the picture at the right – moving up continuously over time with fairly narrow noise bands. The slope of this blue curve is proportional to the Alpha of the stock so this indicates a stable positive out-performance over the past few years.

Click on each ticker or use the arrow keys to look at each of the good candidates.

Click in the X column for stocks that look good to add them to your "Short List" of good stocks. Since we need 10 stocks, it is good idea to select perhaps 15 to 20 for the "Short List".

Next we want to remove all stocks not on our Short List. To do this, double-click anywhere on the column of tickers to bring up the Configure Portfolio Contents dialog then click on Clean up the portfolio.

It will ask you to confirm this action so click Yes.

That will leave us with only those stocks on our short list.

Now we need to switch to the Portfolio Designer application to finish the design. Click on the MinusMarket Screener in the header to again bring up the Select Application dialog.

This time, click on Portfolio Designer.

Click on each ticker again to look at the charts in detail.

Leave the check marks in the best looking 10 stocks to keep them in the portfolio. Keep the others in the list in case you need them later.

Then click on the Active label in the Matrix to display the charts and data values for the total portfolio.

The number in the Hedge column, 2741.5 in this example, is the number of shares of the hedge security (SDS) required to set this portfolio to market neutral (Beta = 0).

The number in the RetP column is the rate of return of this portfolio, which is a 37.9% per year rate in this example.

The number in the RarP column, 1.96 in this example, is the Risk-Adjusted Return of this portfolio, which is approximately equal to the Sharpe Ratio of the recent performance of this portfolio.

MinusMarket Screener

| Market: | SPTR Index | ▼ |
| Hedge: | SDS US Equity | ▼ |

Select Application [x]

Which Application would you like to view?

Portfolio Designer
Design optimally hedged portfolios

MinusMarket Screener
Select portfolio symbols & display MinusMarket Charts

Rainbow Chart
Display MinusMarket Trends for all checked symbols in Matrix

Spread Designer
Design Optimally long/short spreads

Double click on the application name to change this at any time.

New Workspace

Portfolio Name	Hedge		PBA	RetP	RarP	RarI
Active	2741.5		4.45	37.9%	1.96	0.3
Symbol	Shares	X	PBA	RetP	RarP	RarI
HBI UN Equity	160	✓	4.03	36.1%	1.07	0.2
ODFL UW Equity	256	✓	2.49	13.8%	0.53	0.1
EXR UN Equity	325	☐	2.24	18.3%	0.39	0.3
OHI UN Equity	554	☐	1.77	33.1%	0.92	0.1
SLXP UW Equity	104	✓	1.61	25.7%	0.57	0.1
POL UN Equity	316	✓	1.59	9.5%	0.43	0.1
UHS UN Equity	172	✓	1.53	21.6%	0.63	0.1
LYV UN Equity	551	☐	1.28	11.5%	0.23	0.1
SUNE UN Equity	417	☐	1.24	16.6%	0.27	0.0
OCR UN Equity	266	✓	0.81	9.1%	0.23	0.1
SIG UN Equity	145	✓	0.09	31.5%	0.44	0.1
UGI UN Equity	391	✓	0.07	24.3%	1.09	0.0
AHL UN Equity	399	☐	0.05	15.4%	0.36	0.0
RNR UN Equity	180	✓	0.05	18.1%	0.87	0.1
ATO UN Equity	406	✓	0.05	16.2%	0.53	0.0
IDTI UW Equity	883	☐	0.05	31.2%	0.51	0.0

The blue curve for the portfolio has been moving up smoothly. Notice that the dips in the market (black curve) are almost completely missing from the portfolio (blue curve). This happens because Market-Neutral portfolios cancel out the market component. The blue curve trends well, giving us some confidence that this level of performance is likely to continue for a while into the future.

So we have our portfolio. Now let's look at some of the characteristics of the portfolio.
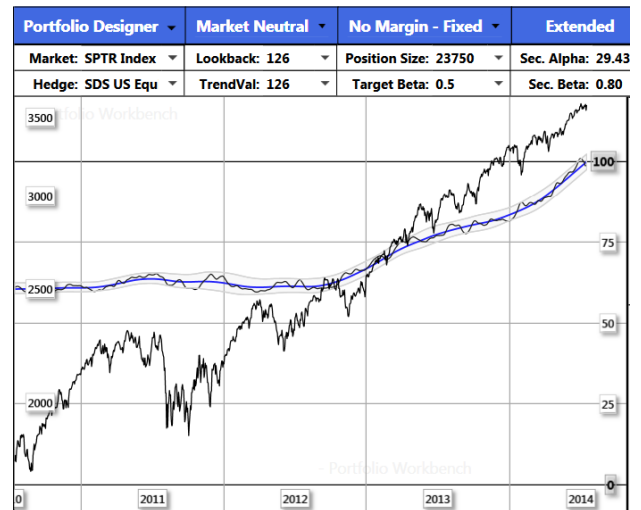
Double-click on the lower left chart and set it to display Correlations vs Market.
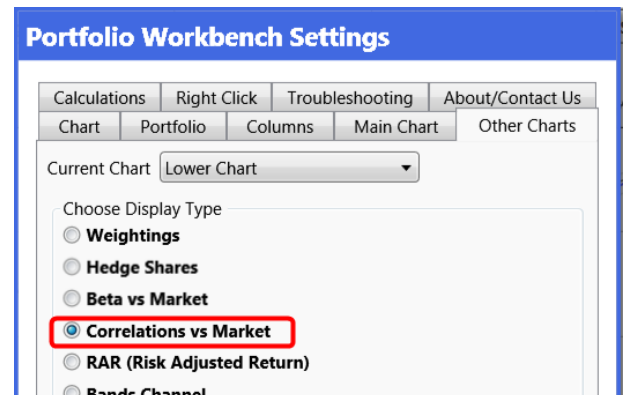
This plot shows the correlation of the unhedged portfolio (green) is running over 0.8, so it is highly correlated with the market, as we would expect.

The blue plot shows the correlation of the hedged portfolio. It is near zero over the several-year period.
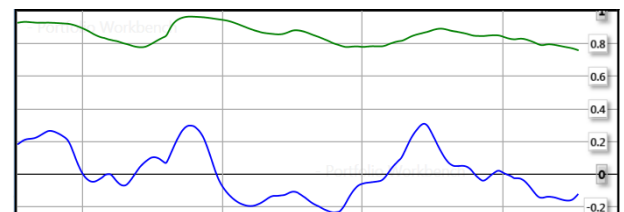
Click on the View menu to change what is shown on the screen. This will bring up the Select View dialog.

The various views are explained in the panel. Try them all to see how they look.

You can double-click on any chart to change what is displayed there.

Click on Extended to see three more small charts described in more detail below.

The top chart shows the number of shares of the hedge, (SDS) that was required over the past few years to keep the portfolio market neu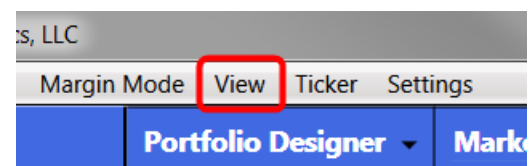tral. The number of shares of these inverse leveraged ETF must be rebalanced from time to time to keep the portfolio beta at the desired level. We usually check these portfolios weekly and rebalance the hedge perhaps monthly.

On the other hand, if you use a short position in an index derivative, such as the ETF, "SPY", or index futures, very little rebalancing is typically required.

The middle chart shows the Betas of the unhedged portfolio (green), the hedged portfolio (blue) and the hedge security (red). The Beta of the portfolio is near zero and the Beta of the hedge is -2.

The lower chart show the relative weighting of the unhedged portfolio (green) vs. the hedge (red) in value. They are roughly 2-to-1 since we are using a hedge with twice the volatility of the market.
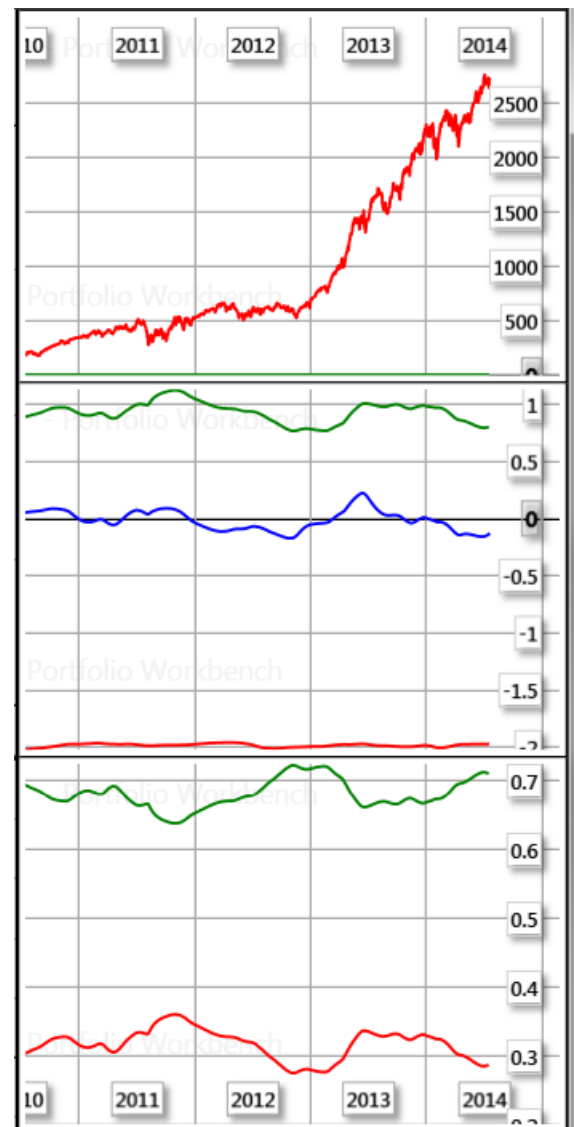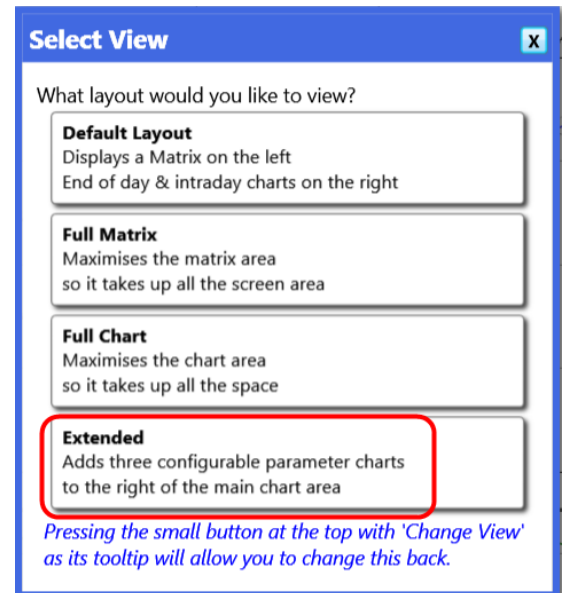
This portfolio is "market neutral" with a Beta near zero. This setting provides low risk but may underperform the market during strong up-trends. We can improve this in two ways.

One way is to add leverage. This requires a margin account but can increase returns fairly safely since market-neutral portfolios tend to be "crash-resistant" because during a sharp market drop, both the long and short sides tend to move together.
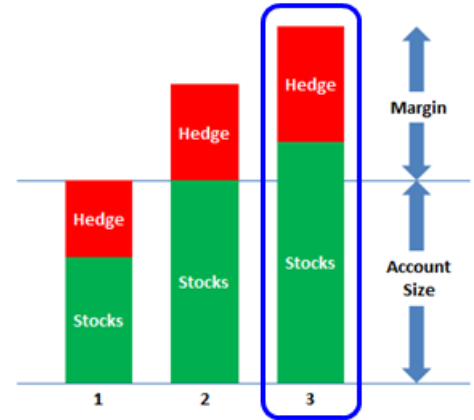
The other way to increase returns in up-markets is to increase the Beta of the portfolio somewhat. We can do that in this portfolio by shifting to the Target Beta application.

Switch the application to Target Beta in the title bar and the hedge size is now recalculated for a portfolio Beta of the default setting of +0.5. This increased the rate for return from 37.9% per year to 42.0% per year with only a slight increase in portfolio volatility.

The blue plot of portfolio beta in the center right now shows the portfolio beta to be about 0.5.
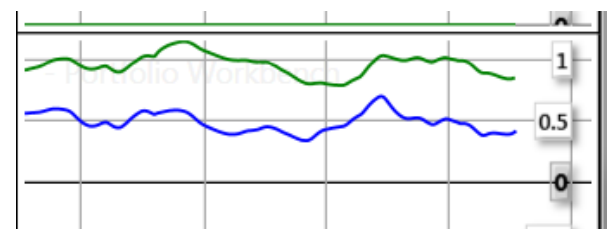
To complete the portfolio you need to decide how many shares you want to use. For example, you might want to round-off to the nearest 10, 50, or 100 shares.

For each stock in the portfolio, double-click on the Shares column and enter the number of actual number of shares you want to use then click OK. The share values in the listing change from gray to black to indicate that they are now fixed and cannot be changed by the program.
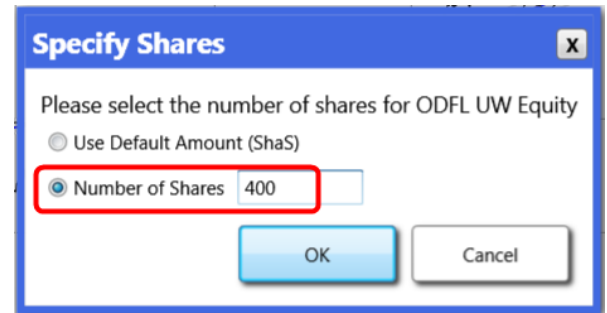
When you are happy with the portfolio, you will need to save it by clicking on the File menu in the header bar. Make sure to use some descriptive file name and be sure that the name includes the .txt file suffix so that when you need to revise the portfolio, you can reopen the file.
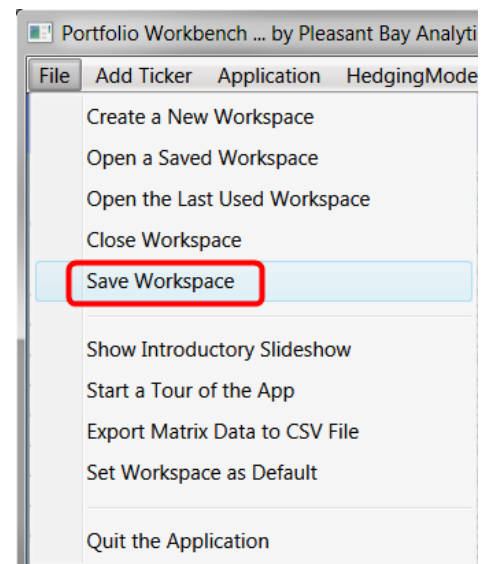
When to Replace a Stock

These portfolios usually continue at the designed rate-of-return for a short time then slowly start deteriorating as some of the stocks begin to reduce their rate of out-performance.

So we need to know when to switch out a stock for a better stock. This is a matter of judgment, of course, but it is not difficult once you learn to see the patterns stocks make on these MinusMarket charts.

The stock on the top right is obviously losing its outperformance as shown by the flattening blue curve. But note that it had similar flat periods back in May and December. So this stock seems to have flat resting periods, followed by a fast rise so we would hold this one, expecting another fast rise.

The second stock is also flattening as it did back in February but since the curve turned up only a year ago, we would be more cautious on this one and switch it out if it started down.

The third stock has been slowly deteriorating over the past year so it is most likely topping out. We would swap it for something better the next time we revised the portfolio.
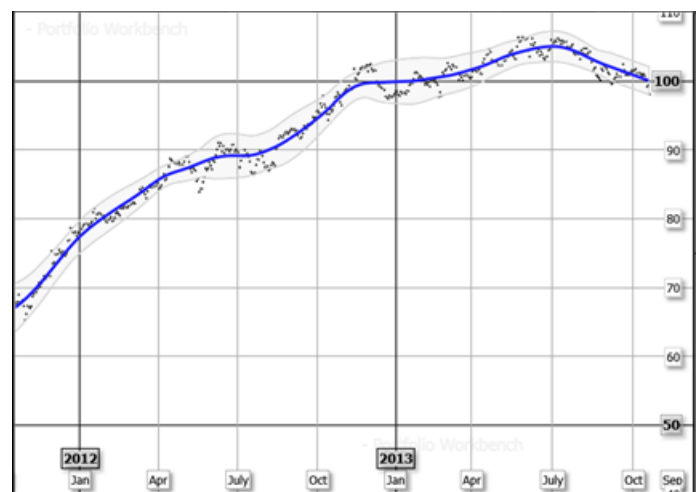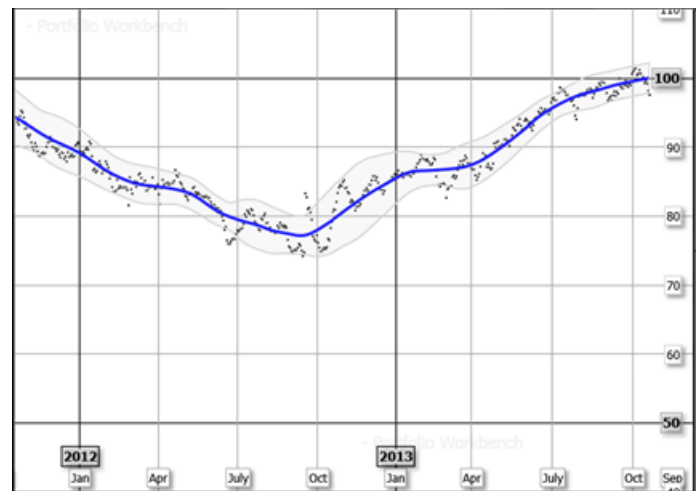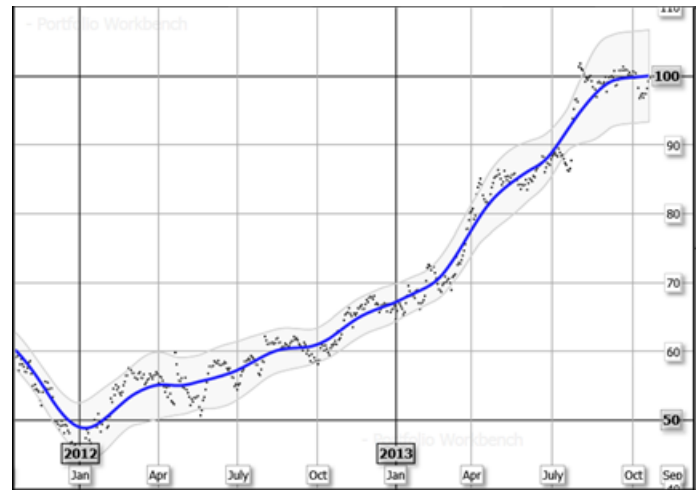
This stock has clearly topped out and since it does not have a long period of out-performance, we would swap it for a better one.
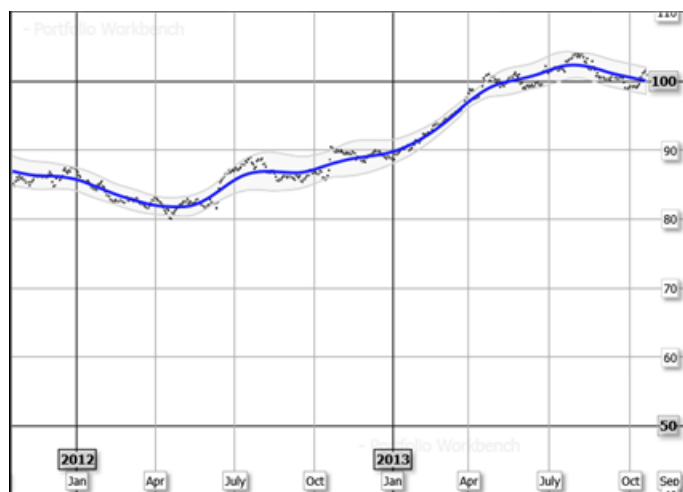
This stock was matching the market (flat) on the left side of the chart but has recently been improving. We would keep this one, expecting this improvement to continue. We see this kind of pattern when the company's fortunes begin to improve, this kind of improvement is almost impossible to see on a conventional price chart.
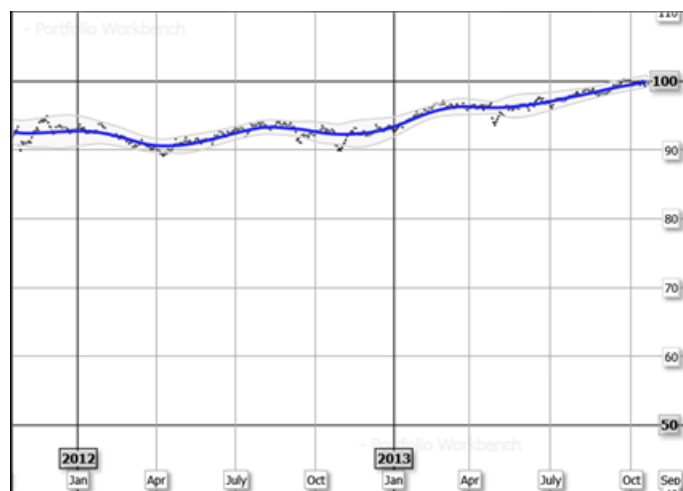
This looks like a turnaround situation that is starting to outperform strongly after a long period of slightly underperforming. We frequently see this kind of pattern when a new management team moves in.
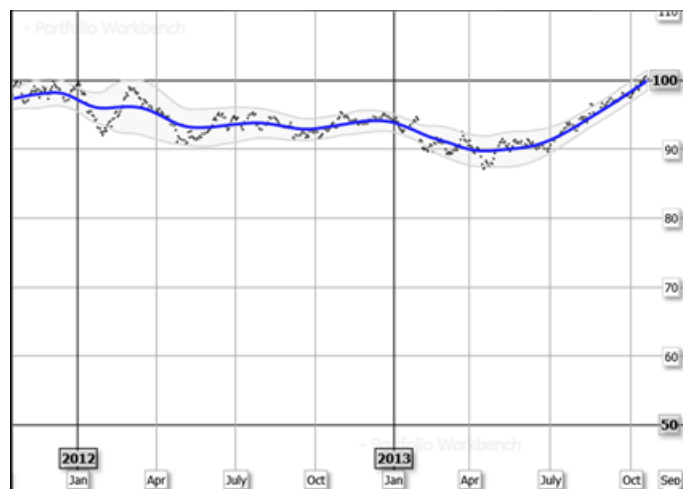
This is the picture of a totally "boring" stock that is basically matching the market. These are "total return" curves, which include dividends, so holding this stock is similar to holding an index fund, but with more risk…
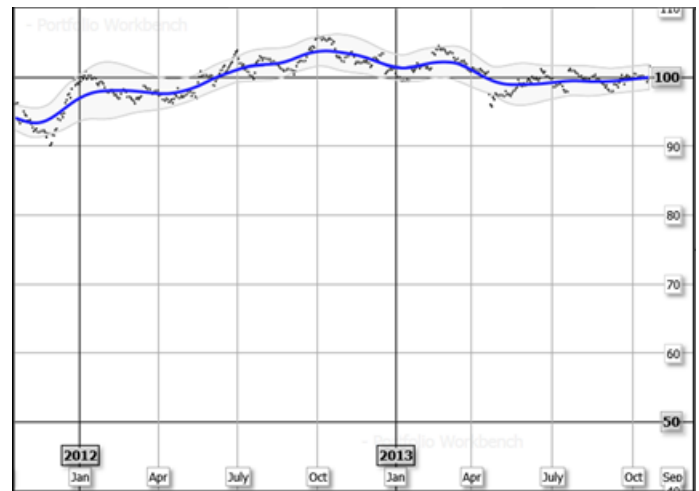
This stock is clearly trending up long-term but has periodic dips in performance so we would tend to ride through such dips.

Stocks seem to have a "personality" so if they are doing well overall and keep doing what they have been doing in the past, we tend to keep them. If they start doing something unexpectedly poor on these charts, we tend to swap them out.
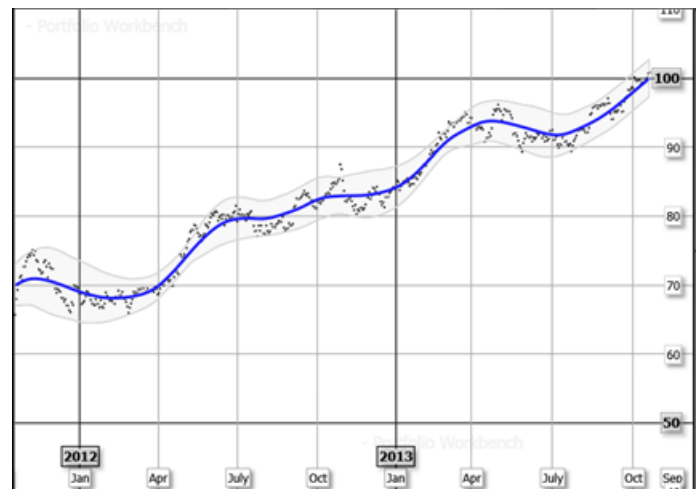
This is the chart for the +2x leveraged S&P 500 exchange-traded fund, "SSO" vs. the S&P 500 index. Even though it is leveraged 2-to-1, there is no outperformance after the market component is removed since all of the movement depends upon the market with a Beta of +2. The flat line shows that it is meeting its objective very closely.
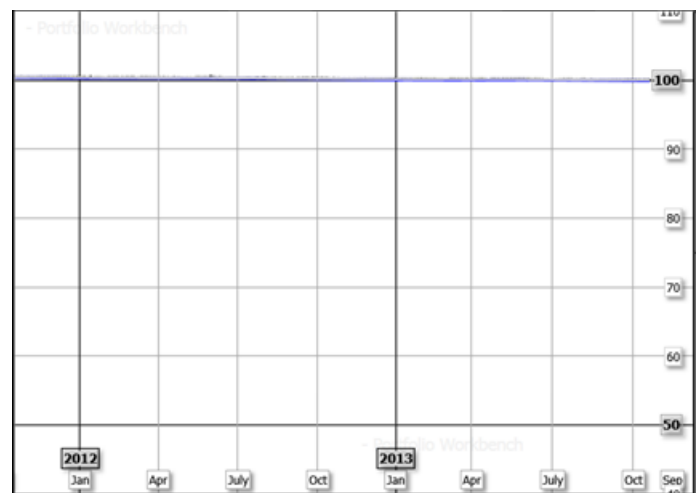
Revising a Portfolio

You can reopen the portfolio at any time to check on the performance. When you reopen the file, the App will recalculate everything as of the current date, including the number of shares of the hedge security that are required.

We usually click on each stock to see how it has been doing and swap out any that seems to be losing its outperformance.

You can usually replace a stock with one of the extra stocks that you left in the list from before but if you want to add other stocks, you can do so by double-clicking anywhere on the column of tickers. That will bring up the Configure Portfolio Contents dialog.

The choices are pretty obvious but if you would like to add several new tickers, it is usually faster to select the Open the Configure Tickers dialog.

Even if you make no changes, be sure to check the current required number of shares in the hedge and rebalance the hedge if it is off by more than 5% to 10%.

We usually rebalance the hedge whenever we change any stocks.

With the default Lookback Period and TrendVal period of 126 trading days (6 months) we typically modify a portfolio once every 4 to 8 weeks.

For other holding periods, you can increase or decrease the Lookback period and TrendVal periods. Ranges from 21 to 252 trading days (one year) tend to be useful for various purposes.

Configure Portfolio Contents ☒

How would you like to change the portfolio?

Add a new ticker
Select a new ticker to include in the portfolio

Replace the selected ticker
Replace WCN UN Equity in the portfolio list

Remove the selected ticker
Remove WCN UN Equity from the portfolio

Clean up the portfolio
Any unchecked items in the list will be removed.
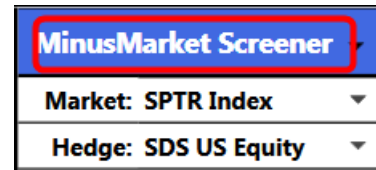
Open the Configure Tickers dialog
Use to import tickers or index lists.

Export the portfolio contents
Saves the tickers and shares to a CSV file on disk

Press the X at the top right to cancel

Longer-Term MinusMarket Charts

Sometimes it helps to see the MinusMarket charts of familiar stocks to better understand what it is showing us.

This is a long-term MinusMarket chart (blue) of the stock of Apple Computer (AAPL) vs. the market (black). The long continuous period of outperformance is readily apparent, ending in mid 2012 then turning up again recently.

This is a long-term MinusMarket chart of the stock of Hewlett Packard (HPQ). It was outperforming for many years until it started having management problems in early 2010. As we can see, these charts seem to closely reflect what is going on in the companies.

This is a long-term MinusMarket chart of the stock of Dell (DELL). As we know, it has been underperforming the market for a decade with a few short exceptions.

These are "Total Return" charts including dividends so the market chart (black) is now well above the peak in 2007 including dividends.

Some stocks just continue to outperform for years. This is a long-term MinusMarket chart of the stock of Nike, Inc. (NKE).

Notice how the market crash of 2009 does not appear in the chart, making it easy to see the outperformance.

ETF and Mutual Fund Charts

This is the MinusMarket chart for the Vanguard S&P 500 index fund. As we would expect, it is almost exactly matching the market index so this shows up as a flat line with a slope of zero (Alpha = 0, Beta = 1).

This is the MinusMarket chart of the Fidelity Magellan Fund. It looks very similar to the index fund but slightly underperforming, illustrating why many large stock funds are often called "closet index funds".

This is the MinusMarket chart of the Pimco Total Return fund. It was doing well up until May of 2013 when the Federal Reserve started talking about tapering off bond purchases.

This is the MinusMarket chart of the iShares MSCI Emerging Markets exchange-traded fund (EEM). It was clearly outperforming up until 2010 and has been underperforming since then.

These are MinusMarket charts of some of the popular "Dividend" exchange-traded funds. This one is the Vanguard Dividend Appreciation ETF (VIG). These are total return charts so the flat line is telling us that what this fund is giving us in dividends, it is taking away in capital appreciation. An index fund would be equally useful.

This is the Vanguard High Dividend Yield ETF (VYM). Same story with a total return about the same as in index fund.

Sample Portfolios

Rather than design a totally new portfolio, it is often easier to start with one that has been working well in the past. We provide a large number of Sample Portfolios on our web site (www.pleasantbayanalytics.com) that you can use as starting points. To use them simply download the workspace files for the portfolios you would like to try and place them in the C:\blp\data directory on your computer. You can then open them using the File menu on the Portfolio Workbench App.
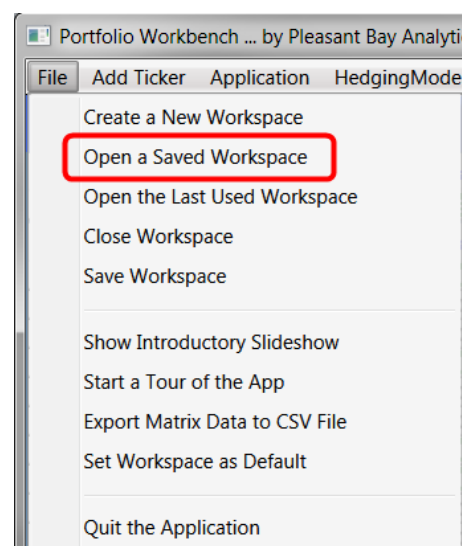
Summary

Hopefully at this point you have designed your first of many portfolios with our Portfolio Workbench and now better understand the power of this design method.

The steps are:

1. Decide on a "universe" of securities from which you would like to select the individual securities. It can be the components of an index, such as the S&P 500 index stocks, some prescreened list such as the Investor's Business Daily IBD-50 list, or any list of tickers you would like to investigate. You insert the tickers from that list and run the MinusMarket Screener application.
2. Sort the list on the PBA column, (and possibly the RetP or RarP columns) to get the best candidates near the top of the lists. Look at the charts for those and checkmark those that consistently out-performance, as indicated by the blue curve moving smoothly up and to the right. Select the number of stocks you need plus a few extra to use later as replacements.
3. Switch to the Portfolio Designer application and select the desired position sizes and other settings. Look at the performance numbers for that portfolio as a Market Neutral portfolio. That portfolio will often be satisfactory as it is.
4. But if the market is trending up, you might like to change the Objective to Target Beta and shift the portfolio beta up to 0.3 or 0.5 to add back some of the market component. The key point here is that we can select the stocks based upon their out-performance (Alpha) then independently adjust the beta of the final portfolio. We are not stuck with using the Alpha and Beta as they come prepackaged in each stock!
5. And if your requirement is for an unhedged portfolio, you can simply switch the Objective to Unhedged to eliminate the hedge completely to assess the performance of the unhedged version of the portfolio, with the assurance that your final portfolio is very likely to substantially out-perform your market benchmark.

This method of selecting securities for a portfolio is based only upon actual measurements of its actual past prices and does not depend upon any other factors. The beauty of the MinusMarket chart is that it removes all the market noise and makes the out-performance or under-performance very easy to see. And by looking at MinusMarket charts of familiar securities we can begin to learn the simple patterns that can help predict future out-performance.