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In This Issue

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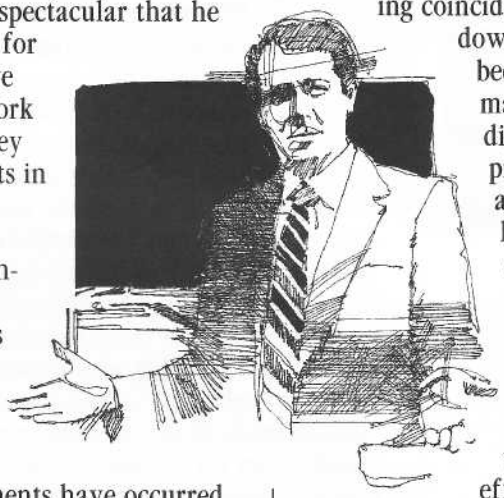
Optimal Portfolio Selection and Weighting - An Achievable Task

This is an updated reprint of an article that was first published in the September, 1992 CSI Technical Journal. We hope you enjoy the encore presentation.

In 1956 the security market analyst and mathematician Harry Markowitz developed a theory on portfolio analysis. It was so spectacular that he won a Nobel Prize for his efforts. I believe Mr. Markowitz's work may contain the key to sustaining profits in the commodity markets.



As a major mathematical development, the theory is relatively young. It is so young in fact, that many new additions and significant refinements have occurred in the last year. I hope that my suggestions in applying this theory to the commodity markets will enhance the collective knowledge base.

Mr. Markowitz's studies, known as Modern Portfolio Theory, have been used by successful mutual fund managers for years. Most commodity or futures traders have not embraced the theory because it is largely designed for the stock and bond markets. This is because it requires a dividend or interest-bearing statistic be present for application. Futures, as every trader knows, do not pay dividends or interest. However, I believe that Markowitz's Modern Portfolio Theory can still apply when this requirement is satisfied in another way.

As background, first let's look at the typical investor's idea of portfolio management. Many futures investors arrange diversified portfolios by mixing markets in hopes of minimizing coincident market drawdown. The consensus has been to trade a mix of markets from among distinctly different product classes such as a grain, a metal, a livestock, a financial etc... or combinations of the above. The trader might weight the various assets according to each product's dollar value. This is a noble effort that arguably does make some sense. Unfortunately, as traders who have tried it know, it really doesn't work very well.

This type of portfolio diversification doesn't work for at least two reasons: 1) unlike markets that are traded in the same currency tend to be economically correlated and 2) dollar weighting by product class can produce results that are far from optimal.

Modern Portfolio Theory investigates the mixing of products and combinations of weights of products. The result is that portfolio returns are maximized against the profit variances of portfolio assets. Profit and loss variance explains the same market characteristics as drawdown, and the level of drawdown is vitally important to the achievement of a consis-

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Optimal Portfolio Selection ...

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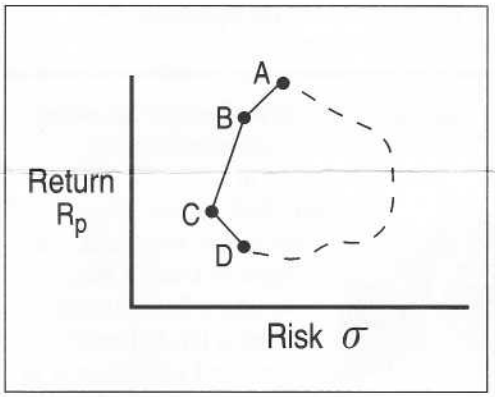
tent return on investment.

Modern Portfolio Theory adopts an esoteric language of its own. Among other terms, it discusses the "efficient frontier," which is exactly what comes out of an analysis of assets, their returns and their variance. To establish the efficient frontier for a portfolio of assets, plot your portfolio's return against its variance. The result will be a scattering of possible outcomes like the following:



Expected annualized percentage return, Rp, is plotted against the standard deviation of return, σ. The trader or portfolio analyst would have to weigh the benefit of generating a high return against the uncertainty of risk, which is measured through the standard deviation calculation. One's willingness to accept a low return could translate into a low risk. Accepting a high return might require a high risk. To find the efficient frontier in the above example, choose from the "C zone" choices (those formed by the boundary left arc of the scatter diagram). In the example, portfolio B would be preferred to D because although they have the same risk, B has a better return. All of the other thousands or millions of unlabeled choices are inferior to at least one of the C Zone choices and can be rejected.

The efficient frontier, chosen from among portfolio possibilities is always the "C" or arc-shaped left boundary of the population of portfolio candidates. The portfolio possibilities are governed by the number of assets from which the portfolio will be drawn and the number of combinations required for the portfolio size. They are also heavily governed by the proportional weighting of the selected portfolio assets.

It doesn't take a very vivid imagination to see the vast number of possibilities that should theoretically be studied to arrive at the efficient frontier. Fortunately, there are shortcuts in evaluating the problem, determining the weighting and arriving at a reasonable solution.

You might be surprised to learn that by combining an appropriate group of properly weighted assets, it is theoretically possible to have a portfolio return that exceeds the return of any member asset. Imagine dividing your resources 50:50 between a 7% yielding S & L and a 3% commercial bank and receiving a 9% overall return. This may not be possible in the banking world, but it is possible through the application of Modern Portfolio Theory principals to the commodity market. When two carefully selected financial futures market assets are combined and weighted, this scenario is theoretically and perhaps readily possible. The subject of portfolio weighting and interaction could be very significant to every trader's sustained success.

Readers should investigate ways of computing asset returns and variance for the markets followed by selecting candidate combinations of portfolios. This could lead to a quick way to weight portfolio assets and arrive at a workable tool for evaluating performance.

This rewarding area has not been addressed adequately by futures industry analysts. Most technicians are more involved in the smaller scope problem of timing their trades one market or system at a time. Solving the broad market integration tasks of portfolio selection, weighting and evaluation first may be more fruitful because it essentially depends upon many independent markets with proven records to achieve a balanced level of success. ✦

Bob Pelletier

Ask Customer Service

Each month in this column, our customer service staff answers common questions about the CSI Data Retrieval Service. Once again, Unfair Advantage® users have made the most calls to our service department with a wide range of questions. Here are a few:

Q. *I was expecting a larger manual with Unfair Advantage. Is more documentation available?*

A. It was our intention to provide just the small printed guide and the more extensive on-line manual. However, due to many requests for additional printed material, we are producing a larger printed version for release within a few weeks.

Q. *I use CompuServe to download my Unfair Advantage update files and patches, but I often receive incomplete files. What can I do to assure this doesn't happen?*

A. Many CompuServe users have had difficulties, especially when retrieving multiple days or large patch files. During lengthy downloads, it is common for WinCIM to mistakenly suggest disconnection. Failure to request continued connection within 60 seconds results in an incomplete data transfer. Since avoiding the problem requires continual, lengthy attention and since, in our experience, throughput is substantially below the modem rating, we recommend direct dialing to our server.

Q. *Unfair Advantage's portfolio menu lets me create nearest future and Perpetual Contract® data with a wide range of user-defined options. How can I create charts that will match the code 55 nearest future and 46 Perpetual Contract series I used with QuickTrieve®?*

A. If you still have your QuickTrieve manual (on-line or printed), take a look at the Data Resources Appendix for descriptions of the various delivery month codes. You'll find that code 55 uses the first nearest normal (non-switching) delivery month and rolls to the next contract on the first day of the expiration month. In translating this to Unfair Advantage, select a commodity from the portfolio manager, then pick Nearest Future contract *as the contract.* Use the default *Months* - don't click *switching,* and leave the *delivery months ahead* entry as 1. The *Roll on day of month* should be 1 and the *Roll on calendar months prior to expiration* should be 0.

To mirror a code 46 Perpetual Contract series, select a commodity from the portfolio manager, then pick Perpetual Contract as the *contract.* Use the default *Months* - don't click *switching,* and leave the *Months ahead to view market* at 3. The *Roll on day of month* should be 10 and the *Roll on calendar months prior to expiration* should be 0.

There could be a very slight difference in the resulting price series. This difference may occur because, unlike QuickTrieve, Unfair Advantage factors in leap-year effects. There is also a very minor effect attributed to rounding when converting exchange pricing units into decimal equivalent.

Q. *Unfair Advantage's portfolio manager offers many options for continuous contracts that were not available before. Please explain these terms: forward adjusted, delta as, open interest weighted and roll on open interest.*

A. With pleasure:

Forward adjusted - This smoothing technique is available through the back-adjusted continuous series option. Like standard back-adjusted files, forward-adjusted contracts are built from a series of contracts whose prices

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have been adjusted to eliminate the gaps between expiring and newly active contracts. Forward-adjusted contracts change prices of later contracts to match those of earlier contracts. Due to the effects of inflation and deflation, back-adjusted and forward-adjusted files can produce negative values. The same price series may, in fact, go negative in both back- and forward-adjusted files, depending on the rate of ascent or descent in price. This is not a testament to the validity of the back or forward adjustment transformation process for synthesizing past market behavior. See Delta as, below for information on how the adjustment is made.

Delta as - When back- and forward-adjusting price series, the price adjustment is based on the difference between the price of the expiring contract and the next contract on either the same day or between contiguous days. The choices are close-to-close, open-to-open and close to open. Each of the first two choices uses the opens or closes that occur on the same day. The close-to-open choice uses the overnight difference between the two contracts. The method chosen would be based upon personal preferences.

Open interest weighted - When creating a Perpetual Contract series, you have the option of rolling from one contract to the next on a specified day and month, basing the data on all active contracts, and weighting the resulting prices based on the lagged-day open interest of each contract. Weighting price with open interest, because of the mathematically stationary effects, is becoming an increasingly popular way to view past market behavior. Perpetual Contract prices have the added advantage of not producing negative quantities in the past.

Roll on Open Interest or Volume - In back-adjusted and nearest future series, you may specify the date and month for switching contracts or, by clicking this box, have the contracts switch automatically when open interest or volume becomes heavier in the next farther distant contract.

Q. *How are the* start date *and* years *entries used in the Portfolio manager?*

A. They limit the time period included in your files. The start date must be at least one month prior to the current date for files to be built. If you prefer to specify a number of years instead of entering a date, click years, then enter the number of years you desire. All files are built through the current date or the last trading day.

Q. *What is the difference between Nearest Future Group and Nearest Future Contract?*

A. Nearest Future Group is a way to limit the number of active contracts that will be built for a given commodity. If, for example, you wish to analyze all the nearby Treasury Bond contracts, but don't want to be bothered with those that are two or three years from expiration, you could set your nearest future group to supply the four nearest delivery months. Please note that these would be actual, unadjusted contracts.

A Nearest Future Contract is a single file created by combining an ever-changing list of nearby contracts. They are linked together into a single file of unadjusted data. You can select how many delivery months ahead the rollover should occur. This allows you to create a first nearest future, second nearest future and so on.

Q. *What are the Seasonal Indices listed under Studies?*

A. Seasonal Indices are a compilation of daily seasonal values for individual commodities. A seasonal index rating can be calculated for each of the average 251 trading days per year using

the vast data resources that are provided with Unfair Advantage. Do not attempt a seasonal index calculation unless your input time series will hold more than one full year of data. Some of the resulting indices are virtually mirror images of the recent past, while others reflect only subtle seasonal effects. When years of substantial history are supplied, the cumulative general wave form tends to prevail all of the time. Seasonal indices offer a way to combine seasonal information on commodity data with daily chart analysis to promote a better understanding of price movement. Please notice that the resulting wave form becomes more and more characteristic of the commodity as more data is processed.

The suggested usage of seasonal indices is to look for coincident peaks and troughs between the market and the index. When peaks coincide or when troughs coincide, the risk of loss on a trading position should be at its minimum. For some traders this may translate into an opportunity to take a heavier position. It is not recommended that seasonal indices be used as the sole basis for trading. They should only be used in conjunction with other confirming market factors.

To create a seasonal index, simply select the desired commodity, then any contract of that commodity for charting or inclusion in your portfolio. Then, from the Portfolio manager screen, click Studies. Click Seasonal Index, and if desired, click Amplify under parameters. Amplification of the index makes the seasonal wave form easier to conceptualize and would amplify anticipated effects. Click OK to finish your selection.

It is best to call for a seasonal index with many, many years of computed data. A Perpetual contract is preferred. An alternative would be to introduce a forward- or back- adjusted series where prices do not go negative. We would rate this study as extremely valuable to trader insight.

Q. *I received Unfair Advantage recently and am wondering if I should check your Web Site for upgrades.*

A. We recommend checking the Web Site at http://pcweb.csidata.com/ua/ua.htm once a week or whenever you experience a problem to look for upgrades and revisions. If you have a problem that isn't corrected there or you would like to learn the nature of the fix, please contact our service staff for details. ✦

Market Statistics Update

DELETIONS FROM THE STOCK DATA BASE

12323	ASCO	Alpha Solarco Inc
2411	AMTL	Amtrol Inc
2210	CWKTF	Cam-Net Communications Network Inc
13037	CRB	Capital Realty Investors Tax-Exempt Fund L.P. Series II
13036	CRA	Capital Realty Investors Tax-Exempt Fund L.P. Series I
1588	CHZ	Career Horizons Inc
8325	CFCX	Center Financial Cp
29629	CXILU	Chem International Inc
8356	CYE	Cheyenne Software Inc
3616	CDTX	Colonial Data Technologies Cp
7129	CTF	Counsellors Tandem Securities Fund Inc
8494	CUNB	Cupertino National Bancorp
5316	DRM	Diamond Shamrock Inc
3701	EJ	Everest & Jennings International Ltd
4863	FCL	First Colony Cp
2365	GEGIE	Global Spill Management Inc
21403	MCARX	Ivy Short-Term Bond FundIvy Funds
13031	BKG	Lehman Brotchers Holdings Inc. Regional Bank Suns 1996
3377	MEM	Mem Co
1598	MEMXY	Memorex Telex N.V. ADR
4223	METS	Met-Coil Systems Cp
12563	MORG	Morgan Financial Cp
4487	NIIUF	Neozyme II Corp./Genzyme Cp
9300	NIIS	New Image Industries Inc
12001	NVTKQ	Novatek International Inc
12010	OPEN	Open Environment Cp

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Holiday Schedule

CSI will be closed for voice communication from 7 p.m. Tuesday, December 31st through 8:30 a.m. Thursday, January 2nd for the New Years holiday. The CSI host computer will remain accessible, but there will be no data for January 1st when all markets will be closed.

From all of us at CSI to all our customers and readers, Happy New Year!