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Portfolio Selection and Weighting - Your Reaction Part Two

The November CSI News Journal included the first installment of this two-part article on portfolio selection and weighting. The article began with responses to our readers' feedback on previous articles and progresses to introduce material on a related subject.

As you might recall, last month we made the point that, given the returns (or earnings) of two leveraged assets where each delivers a positive result, the return of a joint investment in a negatively correlated earnings situation will produce a return greater than the return of either performing asset. When negative correlation exists for asset earnings, a key requirement is that the assets must produce positive returns.

A case could also be made where only one of a pair of leveraged assets need produce a positive return so long as the non-producing intervals of the asset with the positive return are canceled out with productive intervals of the asset that produces overall negative returns. (On balance, the producing asset's positive return must exceed the absolute value of the non-producing asset's negative return.) The objective, in either the former or latter event, is to minimize the tendency for an account to decrease in size relative to the progression of the combined assets so that return can be improved by combining negatively correlated asset earnings.

Portfolio return can be measured by the ratio of dollar return of the performing assets divided by the required investment capital. If dollar return (the return expression's numerator) is a constant per unit time and the investment capital decreases with negative correlation effects and the characteristics of the leveraged investment, the portfolio return will increase.

Having addressed the specific questions about earlier articles on Modern Portfolio Theory, I'd like to discuss another factor that is necessary for market success. That is, how portfolio selection can be evaluated.

Literature showing methods and solutions for dealing with the problem of portfolio selection and weighting is abundant. Not much is said about evaluation, however. Evaluation is a proving exercise. Without it, serious doubts arise about the merits of your portfolio selection efforts. The investor's analytical package requires all three elements of portfolio selection, weighting and evaluation to be effective.

The mathematics of linear algebra, quadratic programming and matrix arithmetic are vital for this exercise in selection and weighting. Some interesting methods from advanced calculus represent areas of interest that will also help to solve parts of the problem.

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"Evaluation is a proving exercise. Without it, serious doubts arise about the merits of your portfolio selection efforts."

Portfolio Selection and Weighting...

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I wouldn't rule out Monte Carlo simulation as a viable tool for the important evaluation requirement.

An important place to start an integrated multiple asset analysis is by determining the required capital to trade a collection of diverse assets. Getting an accurate fix on the required capital is a rather difficult computation. It depends on a random variable having to do with the interaction of the assets and their correlation.

CSI's Trader's Money Manager™ represents a form of evaluation software that does an excellent job of calculating the required capital for a single asset or multiple assets which are independent. The calculation depends on a fixed projected probability of success. All portfolio candidates must hold a constant, fixed chance of producing a solvent or

successful result. The same requirement of solvency must be fulfilled for the portfolio where a certain level of dependence exists. This allows capital requirements to vary according to the merits of the candidate portfolio. This stipulation permits the comparison of different portfolios on the grounds that the level of probable risk can be maintained as a constant.

Admittedly, these arguments represent an unorthodox view. Some may say they are misleading because capital requirements cannot be set at an absolute level. Realistically, capital requirements are like the uncertainties of life. You can never be sure what a new day will bring. Can you go to work and return safely without accident? Can you keep a routine appointment without fail month after month? Every random event has a probability attached to it. In invest-

ment analysis, I believe it is appropriate to identify a probability that is so close to certainty that it will suffice to explain required capital that percentage of the time.

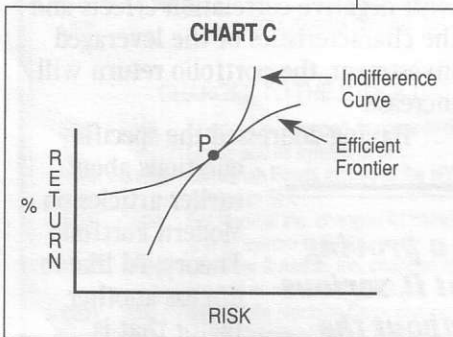
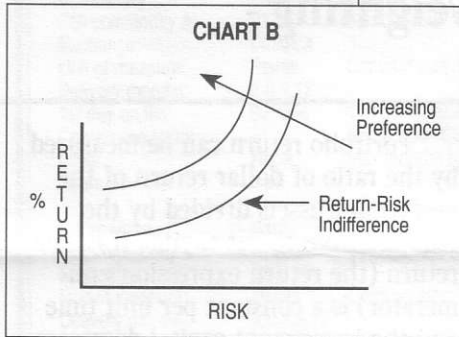
To reduce the chance you will be misled, correct for hindsight bias and sample from your proposed portfolio's interactive return statistics before attempting the simulation effort. This will let you adjust for excess parameter control and establish a probable required capital that will be accurate within the bounds of some small fractional error. This should prove accurate on a comparative basis when evaluating portfolio candidates and arriving at a defensible rate of return that also incorporates the element of risk.

Much of the literature on the area of Modern Portfolio Theory suggests utility analysis to help select an optimal point along the efficient frontier. The basic premise is that investors are adverse to risk. This being the case, the optimal point on the efficient frontier will vary from one investor to the next according to each investor's concave indifference curve (see chart B). An indifference curve generally reveals that a trader will accept more risk so long as the return is sufficient to produce an appropriate reward. On the other hand, when risk is very low, traders will be satisfied with a low return.

The investor should be positioned where the concave indifference curve intersects with the convex efficient frontier (point P) on chart C. Unfortunately, most investors are unaware of their position on the indifference curve, or even that such a curve exists. To further complicate this issue, each investor's indifference curve changes as life's forces bear against a chosen lifestyle.

This is why I believe my unorthodox method of combining return with risk to identify investment capital is

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The 9600 Baud Dilemma - Will A Faster Modem Save You Money?

As modem prices fall and available transmission speeds soar, we are frequently asked to recommend the optimal baud rate for retrieval from CSI. Our host computer now transmits data at speeds up to 9600 baud, but the purchase of a 9600 baud modem may not be the most practical choice for everyone.

The first consideration is your method of access. We support 9600 baud transmissions on our direct-dial (long distance) phone lines only. Network users cannot benefit from modem speeds greater than 2400 baud.

The CSI Data Retrieval Service is unique in that most of the data set retrieved comes from a specific portfolio of contracts, created on demand after logon. The portfolio creation process causes substantial delays in the overall transmission time.

If, for example, you have a portfolio of 50 contracts, you will likely experience a delay of thirty to forty seconds before the actual transmission begins, regardless of your modem's baud rate. This delay may be longer during times of high activity. Only after the portfolio file is created is the transmission time affected by the baud rate used. A file of 50 contracts will consist of approximately 1000 characters. Transmission times for a file of this size are shown below.

transmission speed	time in seconds
300 baud	34
1200 baud	9
2400 baud	5
9600 baud	2

As one can see, using a faster modem provides only a marginal benefit during a daily update transmission. Remember, a 40-second file creation delay would be added to the transmission time for each of these examples. Since telephone companies generally charge a one-minute mini-

mum for all calls, the benefits of a faster modem are further mitigated. We are currently working on ways to reduce the creation time by as much as two thirds. This decrease should be evident within the next few months.

Users of our larger Global Portfolios will not experience a creation delay because their files are made automatically after the last release of the current day's data. Some of these portfolios contain large quantities of data; thus a higher baud rate will significantly decrease retrieval time for these.

It should be noted that users who consistently retrieve large amounts of phone history will also benefit from a faster modem. Retrieval of a one-year historical file collected at 1200 baud will take around 60 seconds. The same file will be retrieved in about seven seconds at 9600 baud.

In summary, if you retrieve a very large daily portfolio, or if you regularly collect large amounts of phone history, then you will benefit from a higher speed modem when direct-dial access is used. If, on the other hand, you are collecting only a small-to-medium size portfolio and infrequently receive phone history, then your benefits will be minimal at best. Network users can only retrieve data at speeds up to 2400 baud.

We suggest you save yourself some money and hold on to your 2400 baud modem. If you have a 300 or 1200 baud model, you might consider upgrading to 2400 baud. The prices on these modems have dropped dramatically in the last six months, and generic units are available for below \$40 from some distributors. ♦

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Ask Customer Service

Each December our Customer Service staff addresses the important task of year-end file maintenance required for updating continuous contracts into the new year. This series of common questions and answers about file extension should assure that the transition goes smoothly for everyone.

Q. *Lately when I distribute my daily updates from CSI, my data listing includes a message that some of my files may need extending. What is this all about?*

A. Since QuickTrieve® posts prices to pre-created CSI-format data files, there must be a pre-defined ending date for each file. To save on disk space, the end of the current year is usually used. Everyone updating stocks, indexes, Perpetual Contract® data, cash prices or nearest futures series with ending dates of 1992 should see this message toward the end of the year. It is simply a reminder that something must be done by January 4th to avoid lost data. This message will disappear when you have extended your files as explained next.

Q. *1993 is fast approaching and I'm concerned about my continuous data files. They all have ending dates of December 31, 1992. How can I update these files next year?*

A. This question applies to all continuous data files including stocks, indexes, cash, nearest futures and Perpetual Contract data. QuickTrieve's Move/Split a Data File (Move a contract file on version 3.1) will help you extend your files.

The file extension process is much easier with QuickTrieve 4.01 or later than with previous versions. These later releases can autocreate all necessary files in a single run. They can also automatically create new data directories when the limit of 120 files is reached.

To begin, select <H> from the QuickManager Menu. A list of your files will be displayed. Press the letter designator of each continuous file ending in 1992. When finished, press <F3>.*

You will be asked if you want to create files for all items or just those

not existing on your target path. Say All. You will be shown each selected file and will be asked if you want to change the beginning or ending date of each. Answer Yes. Change the ending year for each item to 93. You may substitute 94 or 95 as desired to avoid doing this next year, but be aware that this practice tends to waste disk space.

When finished, check your new files to see that the data was transferred properly. If the new files are O.K., you'll probably want to delete the original files using Delete data file from disk.

You can do this any time before the end of December, as long as your new files are ready by January 4, 1993.

*The <F3> feature is included in version 4 series QuickTrieve only. Users of prior releases must move each file individually as directed through screen prompts.

Q. *What will happen if I don't extend my continuous files by the first business day in January?*

A. This will not be a major problem for users of QuickTrieve 4.01 or later who request autocreation of new files with each update. QuickTrieve will simply create a new file for each continuous series, using the ending date you specify. The new files will hold only 1993 data, however, so they won't be very useful for charting. We would still recommend combining your 1993 data with past data using the procedure described above.

Users of QuickTrieve 4.0 or earlier versions will have a greater problem. Since new files aren't created automatically during daily distribution, 1993 data could be lost. Be sure to print a data listing on January 4 to make sure everything is posting correctly. A NOFL (no file) status indicates that a contract was not posted. If your data listing shows NOFL for any of your contracts, go through the file extension process described above to create a larger file. Then distribute your update again. ♦

QuickTrieve 4.04

The long-awaited QuickTrieve version 4.04 should now be in the hands of those who ordered it. Those who elected to wait for a version with the 1993 Alert Calendar should receive their copies in late December or early January.

We'd like to remind you that any prepayment for this software was likely absorbed by other data-related expenses in previous months. The debit on your December or January invoice is the one and only charge for this software, so please submit the full amount shown.

Thank you for your orders and your patience. ♦

Portfolio Selection...

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the preferred way to help select the most appropriate portfolio. It takes personality out of the equation and replaces it with a probability statement.

Below is a bibliography of references that may be helpful for those who wish to dig deeper. At CSI, we are developing software on this subject that we may offer for sale. We will share with our customers progress and findings in future News Journals. Comments, suggestions and criticisms are welcome. ♦

Bob Pelletier

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CSI Software Product Summary

- QuickTrieve®/QuickManager®** - To retrieve, manage & edit data; includes Alert Calendar: Unrestricted use \$99, Daily data user \$39 and 4.04 Upgrade \$25
- QuickPlot®/QuickStudy®** - Charting & analysis software (requires QT/QM) \$156
- Trade Data Manager™** - Macintosh downloader & accounting program; includes 1st month of updates \$99
- Trader's Money Manager™** - Introductory price \$499 (a \$200 savings)
- Trading System Performance Evaluator™** - Computes your system's capital requirements \$199
- TraDesk™** - Traders' complete accounting system-(price varies with number of accounts) Starting @ \$399/Unrestricted use \$299/Daily data user or 12-month lease starting @ \$22/Mo.
- Seasonal Index Value Pack** - Three years of history for 33 popular commodities \$444
- Daily Updates** - Starting at \$12 per month
- CSI News Journal** - Aug. 1990 to present \$35/Yr. or \$5/Reprint
- CSI Mailing List** - \$200/1,000 names (CSI users omitted)

CHECK MASTERCARD VISA

AMOUNT ENCLOSED \$ _____

CARD # _____

EXP. DATE _____

NAME _____

DAY PHONE (____) _____

ADDRESS _____

SIGNATURE _____

USER ID#: _____

5¼" DISK 3½" DISK 12/92

All prices subject to change without notice.