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Managed Account Research, Inc. 929 Santa Barbara Street, Santa Barbara, CA 93101
www.ma-research.com research@ma-research.com 800.308.1495

FOCAL POINT CONCEPTS:
Betting Strategy and Money Management

By Mack Frankfurter, Chief Investment Strategist

The search for the holy grail of trading systems is an endless journey fraught with numerous disappointments. For many traders learning the art of trading begins with finding a strategy which provides optimum buy and sell signals. Invariably, however, most veterans come to the same conclusion—the key is good money management.

Many money management techniques utilized by traders are evolved from betting systems used in gambling. Gambling is distinct from trading in that money is risked but the outcome of the gamble is a random event. Hence, the only way a gambler can influence events is in relation to the sizing and timing of wagers. Betting strategies are structured on some kind of logic such as probability or the observance of patterns. The idea is that the system employed will increase the gambler's chance of success. Such systems fall into two categories: *progression systems* and *staking systems*.

Progression Systems

Progression systems increase or decrease bet sizes after a loss, win or other event, with negative progressions increasing bet sizes after losses and positive progressions increasing bet sizes after a win. What should be readily apparent is that such systems increase a player's bankroll volatility thereby increasing the "risk of ruin."

The most familiar progression system is the Martingale strategy, where a player doubles his/her bet after a loss. In gambling it is generally played with even money games such as the red/black bet in roulette or the pass/don't pass bet in craps. The idea is that by doubling your bet after a loss, you would always win enough to cover all past losses plus one unit. For example, if a player starts at $5 and has three straight losses winning on the fourth bet, he/she will have lost $2+$4+$8 for a total loss of $14, and won $16 on the fourth bet for a profit of $2. The problem is that it is easy to lose several bets in a row and run out of betting money after doubling it away.

There is another strategy similar to the Martingale called Labouchere which does not require a player to risk his/her stake as quickly with dramatic double-ups. The system

Focal Point Concepts continued on page 2

THEORY TOPICS:

involves a "line" of numbers representing betting units, with the sum of the two outside numbers equaling the amount for the next bet. If a player wins he/she crosses out the two outside numbers and proceeds to use the inside line. If the player loses, he/she adds the amount just wagered to the end of the line and continues using the outside line. This is more flexible progression system which allows room for the player to design his/her initial line customized to his/her bankroll volatility preference.

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Both the Martingale and Labouchere betting strategies described above involve increasing bet sizes after a loss. These systems can also be used in reverse by increasing bet sizes after a win. The D'Alembert strategy is a progression betting system which also increases bet sizes during a winning streak and decreases bet sizes during losing streaks. In the classic D'Alembert system a player increases their next bet by one unit upon winning, and reduces their next bet size by one unit after a loss.

Most gambling is based on pure random outcomes—if one tosses a coin ten times and each time it comes up heads, the odds that it will come up heads again on the eleventh try is still 50/50. However, with certain games such as blackjack it is mathematically possible to estimate the probabilities of an outcome in order to create an "edge." The idea is to reduce bet sizes when the house edge is positive, and increase bet sizes when the house edge is negative. This approximates how many traders seek to manage risk.

Staking Systems

Whereas progression systems involve bet size management, staking systems are designed to take the emotion out of picking a side to bet on by making the decision process systematic. In fact, systematic trading is essentially a staking system.

"Follow the shoe" is a simple staking system where the player's next bet is the last winner. As an example, if the color in roulette comes up red, then the next bet will also be on red. Follow the shoe is a lazy approach to gambling predicated on the idea that one can catch winning streaks. With 50/50 games, this is illusionary. The Avant Dernier is another popular staking system where the player's next bet is derived from the second to last winner. This system supposedly works well when the results come in longer streaks or alternating patterns. The question is if the patterns are illusionary.

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Another kind of staking system is based on regression modeling. Regression modeling is a sophisticated statistical approach to forecasting future events and underlies much of modern finance. Simplistically, the idea is that past performance *is* indicative of future results. As an example, a gambler could model horse speed based on historical data including factors such as track conditions, age of the horse, jockey, recent health, etc. Based on analysis of this information, supposedly one can better predict outcome.

Gambler's Fallacy

The biggest gambling myth is that an event that has not happened recently becomes overdue and more likely to occur. This is known as the "gambler's fallacy." Hucksters

Focal Point Concepts continued on page 3

Focal Point Concepts from page 2

sell "guaranteed" get-rich-quick betting systems that are ultimately based on the gambler's fallacy. A sophisticated variation of this fallacy is called "the doctrine of the maturity of chance" or the Monte Carlo fallacy, which assumes that each play in a game of chance is not independent of the others.

Applicability to Trading

Most trading strategies are predicated on either of the following risk-reward objectives: (a) large percentage of losing trades consisting of small dollar losses, with winning trades generating large dollar gains; or (b) large percentage of wining trades consisting of small dollar gains, with occasional large dollar losses. The first strategy is typical of trend-following systems, whereas the second strategy is typical of option writing programs.

In either case, money management in speculative futures trading can play important role in determining long-term profitability, but perhaps even more importantly the equity volatility of a program. For example, traders who average down in losing trades using the Martingale double-down approach increase the risk of the trade at the maximum point of "pain." If the market comes back, then the position will quickly gain back its losses and become profitable. However, if the trade continues to go against the trader, the chance for risk of ruin is materially increased. This trading approach explains the return volatility of various CTA programs, and why occasionally such programs "blow up."

Money management in speculative futures trading is a complicated practice with many moving parts. Contract specifications are not all alike so adjustments need to be made as to the quantity of contracts traded. For example, a trader might trade five corn contracts for every one S&P 500 futures contract. Other factors include account unit size granularity (i.e., increasing position sizes based on accrued profits or losses) and the trader's confidence level in a specific opportunity.

The key questions that investors should ask a CTA before investing is if they employ a money management/betting strategy system, and if they increase or decrease bet size exposure during winning or losing streaks (e.g., drawdowns). A conservative trader will decrease risk whereas an aggressive trader will increase risk. Which would you rather have?

STATISTICAL INSIGHT: MAR Ratio and Calmar Ratio

Over the course of this year, Intelligent Trading has been building upon one statistical concept after another, starting with the basics. This issue delves further into some concepts that were developed within the managed futures industry in order to gauge whether or not it made sense to invest in a particular CTA trading program or not.

The MAR ratio is a measurement of risk-adjusted returns which compares the rate of reward with degree of risk, where the risk degree is measured by maximum decline. The formula divides the compound annual growth rate (CAGR) by the worst peak-to-valley decline in equity. For example, if a CTA trading program has a CAGR of 50% and the worst drawdown is 25%, then the MAR ratio is 2.0. Larger ratios signify better risk-adjusted returns.

The MAR ratio was invented by Managed Account Reports, now known as MAR/Hedge. In 1991, Terry Young of California Managed Account Reports invented a variation of the formula called Calmar ratio. The Calmar ratio uses the average annual rate of return for the last 36 months divided by the maximum drawdown for the last 36 months. The Calmar ratio changes gradually and serves to smooth out the overachievement and underachievement periods.

Although the Calmar ratio and MAR ratio are sometimes assumed to be identical, they are in fact different: Calmar ratio uses 36 months of performance data, whereas the MAR ratio uses all performance data from inception onwards.

In either case, CTAs with a 2.0 ratio or higher reflect a superior risk-reward ratio. Nevertheless, investors shouldn't rely purely on a quantitative analysis, but also use qualitative analysis to better understand the context of returns.

CONTRACT SPOTLIGHT: NYMEX RGGI CO2 Allowances (Symbol: RJ)

Competition between futures exchanges is fierce, and the way exchanges compete is by developing new futures products for traders to trade. One area which exchanges are keen to develop a foothold is in the area of emission allowances. NYMEX recently announced that it will launch a Regional Greenhouse Gas Initiative (RGGI) carbon dioxide allowance futures contract. The listing of these products on NYMEX is a Green Exchange Initiative, which will provide a trading platform for environmental commodities. This new futures contract, with commodity code RJ, will be physically delivered to the RGGI CO2 Allowance Trading System and will be available for trading on the CME Globex electronic trading platform. Additionally, off-exchange transactions can be submitted for clearing via NYMEX ClearPort. The size of the futures contract will be 1,000 RGGI CO2 allowances with a minimum price fluctuation of $0.01 per allowance. It will expire at the termination of the third business day prior to the first business day of the contract month. December 2009 will be the first listed month for both the futures and options contracts, with additional contract months to be added.

RGGI is a cooperative effort of ten northeastern states to reduce CO2 emissions. RGGI states have put in place a regional cap-and-trade system to regulate CO2 emissions from power plants, and the trading of carbon allowances under this program has begun in the over-the-counter market. RGGI plans to begin quarterly auctions of allowances starting September 2008, and the launch of the NUYMEX RGGI futures and options contracts are expected to provide the market with a valuable tool for hedging price risk.

Contract Specifications

Trading Unit	One thousand RGGI CO2 allowances for a dlelivery made by transfer throug the RGGI CO2 Alloance Tracking System.	**Price Quotation**	Prices shall be quoted in dollars and cents per allowance. The minimum price fluctuation shall be $0.01 per allowance ($10.00 per contract).
Trading Hours (US Eastern Time)	Available for trading on the CME Globex® trading platform from 6:00 PM Sundays through 5:15 PM Fridays, Eastern Time, with a 45-minute break each day between 5:15 PM and 6:00 PM.	**Trading Months**	Trading shall be conducted in contract months providing for delivery in such periods as shall be determined by the Exchange. Currently trading December 2009; additional contract months will be added based on commercial interest.
Last Trading Day	Trading in the current delivery month shall cease at terminationof the third busines day prior to the first business day of the contract month. The Clearing House shall privde Tender Allocation Notices to the respective Members on the last business day prior to the first business day of the delivery month.	**Deliverable Grades**	RGGI CO2 allowances delivery shall comply with all requirements to the electronic transfer of allowances on the RGGI CO2 Allowance Tracking System. All deliveries made under these rules shall be final and there shall be no appeal.
Settlement Type	Physical, at RGGI CO2 Allowance Tracking System (RGGI-COATS)	**More Information**	http://nymex.greenfutures.com/markets/

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Managed Account Research, Inc. 929 Santa Barbara Street, Santa Barbara, CA 93101
www.ma-research.com research@ma-research.com 800.308.1495