The Generality of Long-Short Equitized Strategies: A Correction

"The Generality of Long-Short Equitized Strategies" by C. B. Garcia and F. J. Gould (FAJ, September/October 1992) makes an erroneous assumption about margin requirements, which gives rise to the conclusion that the maximum achievable alpha from a fully invested long-short equitized strategy is 2.48 alpha. We show here that the correct number is 1.8 alpha.

Garcia and Gould state (p. 64) that "current regulations limit short sales to twice the collateral of the investor," giving rise to their Equation (4):

$$S \le 2[1 - 0.05F - 0.05S].$$

Regulation T, issued by the Federal Reserve Board pursuant to the Securities Exchange Act of 1934, regulates the extension of credit by brokers. The current initial margin requirement for each equity position held in a margin account either long or short is 50%.[1] Equation (4) should thus be:

$$L + S \le 2[1 - 0.05F - 0.05S].$$

Garcia and Gould's Equation (6) now becomes: $1.2S \le 1.9 - 0.9L$. And their Figure B should be corrected along the lines of the accompanying chart.

Corrected Figure B   Feasible (L, S) Values for Special Case When $F = 1 - L + S$
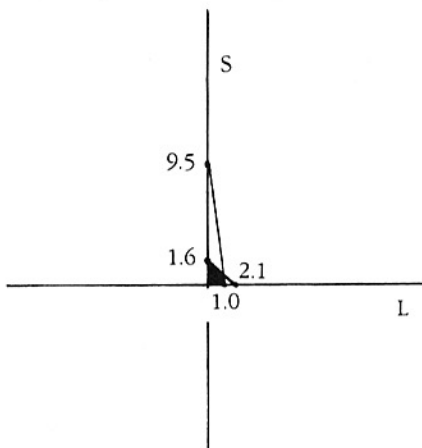
Finally, the intersection of Equations (5) and (6), when both are satisfied with equality, was previously L = 0.83, S = 1.65 and F = 1.82. It can be seen by inspection that this solution violates Regulation T, since the assumed one dollar of assets can support at most two dollars of long and short positions, and the total here is 0.83 + 1.65 = 2.48. Given current margin requirements, the theoretical maximum alpha that is achievable in a long-short strategy is two alpha.[2]

Solving for the correct intersection of Equations (5) and (6) produces the result: L = S = 0.90. Given realistic constraints on futures margin and residual cash requirements, the practical maximum alpha is 1.8, achieved when L = S = 0.90 and F = 1.0. This result should not be surprising, because it is precisely how most long-short equitized money is currently managed.

Footnotes

1. Federal Banking Law Reports, 12 CFR Part 220.18, p. 15,435-3. Technically, the margin is 50% of current market value for long positions and 150% for shorts. However, the proceeds of the short sale count in the customer's credit balance, making the effective rate 50% for shorts also. Note that Regulation T only covers the initial extension of margin when a transaction is effected. Subsequent margin is governed by maintenance margin requirements promulgated by the stock exchanges (e.g., NYSE Rule 431) and by individual brokerage firms. Maintenance requirements are more liberal than initial requirements, so a small loss in an initially fully margined position does not result in a margin call.

2. This assumes, as do Garcia and Gould, that the long and short alphas are equal. There is some evidence that higher alphas may be achievable on the short side. See B. Jacobs and K. Levy, "A Long-Plus-Short Market Neutral Strategy," in The CAPM Controversy: Policy and Strategy Implications for Investment Management (Charlottesville, VA: Institute of Chartered Financial Analysts, 1993).

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