

The Problem With Quantitative Stock Selection Models

Eugene Hawkins - September 1985

The hypothetical statements that appear below illustrate the type of remarks many practitioners, and most academics, would make if asked to review the past performance of a quantitative stock selection model. The issues raised here can be debated at length, but once they become mired in the quicksand of cause and effect, correlation, statistical significance, luck, risk-taking and skill, only a judgmental "leap of faith" (the 60% confidence interval!) can prevent a viable selection model from being rejected. The case against rank-order selection strategies is presented here because it constitutes a form of insurance that most investors will not utilize the underlying methodology, thereby diminishing its effectiveness.

DATA MINING

The returns for this model are certainly impressive -- and so are the T-statistics; but where are the printouts for the 200 back tests (alternate data items, cut off-points, weighting combinations, etc.) you tried (or might as well have tried!) that didn't work out. After all, even a broken clock is right twice a day; and it's well known that there are $500!/(470!)(30!)$ or 1,440,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000 ways of selecting non-identical portfolios of 30 stocks from the S&P 500. By definition, half of these portfolios will outperform the market and millions will show spectacular results.

USE IN "REAL TIME" IS IRRELEVANT

It doesn't matter that you have been using the model "in real time" for the last five years unless you can explain why it should continue to work. Obviously, the model doesn't know you've been using it, and whether it will continue to work isn't related to your past or future plans for using it.

MARKET EFFICIENCY OR THE FUTURE WILL NOT BE LIKE THE PAST

I agree criteria "X" has worked very well over the last 20 years and I think John Doe has provided a clear explanation of the underlying reasons. However, since it has now been acclaimed in at least a dozen major articles and passed every test for significance taught at Stanford, Chicago and Harvard doesn't common sense suggest its obsolescence is virtually assured. After all 5,000 institutional investors can't be that inattentive to a widely publicized, easy to use, decision rule.

MARKET RELATED RISK

The raw' returns are excellent, but I expect the betas and interim variability of return on these portfolios was so high that the risk adjusted returns are negligible. Indeed, if the market were to fall 40% (as in 1973-74), the value of these stocks would probably drop 60% due to their betas.

PRESENT VALUE OF A PERPETUAL CLAIM

As Peter Bernstein has noted: "The owner of any security that has a maturity date beyond the next five minutes -- and equities are perpetuities -- cannot escape from making a bet on the future." As a manager of pension assets who must deal with actuarial assumptions stretching 75 years into the future, I take the perpetual claim quite seriously and think stock valuation and selection must be based on the discounted present value of all future dividends. Unfortunately, I see nothing in your model that addresses the problem of identifying mispriced stocks in terms of this classical method.

A PORTFOLIO STRATEGY FOR DUMMIES

I make \$450,000 a year as manager of this fund. I have a number of assistants who are also well paid. How can we possibly embrace an investment strategy that a bright 15 year old could run off the back of an envelope?