Revisiting "The Cost of Socially Responsible Investing"

By Paul A. Ruud
July 30, 2013

The following is in response to the ongoing exchange of letters regarding socially responsible investing:

Endowments have been warned that socially responsible investing (SRI) incurs a financial cost, based on research by two prominent academicians. But that research – which has been presented and debated in this publication – is based on a tenuous model that is highly sensitive to its assumptions. Change those assumptions reasonably, as I did in my research, and the cost of SRI becomes trivial.

Recently, Swarthmore College's Vice President for Finance and Treasurer Suzanne P. Welsh, and Christopher M. Niemczewski, Chair, Investment Committee, Board of Managers, determined that the financial cost of divesting the college's endowment from fossil-fuel securities would be over $15 million over a 10-year period. They cited as justification a paper published in 2008 by Timothy Adler and Mark Kritzman (A-K) on the financial cost of socially responsible investing. In addition, Kritzman has promoted the cost estimates of this paper in other discussions about colleges and universities divesting from fossil-fuel securities, describing foregone returns in the hundreds of millions of dollars.[1] These events sparked my own interest in this research and, as time passed, my surprise that no response discounting these costs appeared. As an academic with expertise in economics and econometrics, I waited for a financial expert to provide a critical review.

The A-K paper finally received discussion on *Advisor Perspectives*, starting with a report by Adam Jared Apt about a talk on the subject Kritzman gave at a recent meeting of analysts in Boston. Adam Kanzer commented on Apt's description of Kritzman's argument and on the original paper. In subsequent letters to the editor, Kritzman and Apt both responded to Kanzer, who replied back. Finally, Apt responded to Kanzer's rejoinder. Much of this discussion centered on characterizations of active management and socially responsible investing.

In view of this discussion, I acknowledge at the outset that a constrained maximum is less than or equal to a corresponding unconstrained maximum so that if active management were optimal (in some *ex ante* sense) then active management constrained by socially responsible criteria would be suboptimal (in the same *ex ante* sense). At the same time, I note that whether socially responsible investment will actually incur a financial cost is

---

[1] See "Panel weighs costs, benefits of divestment (story & video)", January 23, 2013 and Mark Kritzman, "What Fossil-Fuel Divestment Would Cost," *The Chronicle of Higher Education*, March 18, 2013.

unclear for many well-understood reasons: returns are uncertain, managers are imperfect, and optimal does not mean maximum expected return to everyone.[2] So the argument by Adler and Kritzman that "socially responsible investment is costly" is facile, though I would predict – with a lot of uncertainty – SRI incurs some small cost.

But in this comment I will focus on the reliability of the A-K estimates of the expected financial cost. Do, as Adler and Kritzman also claim, their estimates of cost "inject a harsh reality into the debate about socially responsible investing"? The details of my analysis appear in The Inarguable Truth of Mark Kritzman and here I will give a descriptive summary of a few points.

A critical appraisal of Adler and Kritzman's model

The A-K estimates rest on Monte Carlo simulations of a simple model that creates two competing portfolios of hypothetical securities. But those simulations are unnecessary and merely introduce error into the calculations. The A-K model is unusual and does not conform to long-recognized and well-accepted aspects of active portfolio management including accounting for covariance among returns, diversifying risk, and balancing risk with expected return. The combination of simulation and model produces predictions of financial cost without bearing on actual SRI generally or divesting from fossil-fuel securities specifically.

That the A-K model is unrealistic is easily appreciated by financial professionals. Apt commented, "As more than one questioner pointed out on the evening of Kritzman's talk in Boston, and as Kanzer, too, points out, Kritzman's model is very crude." But crude models can yield insight and useful calculations. To assess the value of a model, one can examine its assumptions and its predictions. Milton Friedman famously argued that emphasis should be placed on the accuracy of predictions[3] and I will take that approach, recalling the assumptions in order to explain the predictions.

Here is an example of one odd prediction of the A-K model. The model poses a world in which security returns are independently distributed. The hypothetical manager predicts, with error, the securities that will have the highest return over the course of a year and fills the portfolio with a predetermined number of the top picks. The formulation selects managers who perform very well by conventional measures. For example, using parameter values highlighted by Adler and Kritzman, their manager will have an information coefficient of 4% and a corresponding information ratio of 55%. However the model predicts that this same manager will have an expected active portfolio return that is only 4% of the portfolio return originally forecasted by the manager. An A-K manager who

---

[2] For example, see the comments at the end of Apt's initial report and his first letter to the editor.
[3] Friedman, Milton, "The Methodology of Positive Economics," *Essays in Positive Economics*, Chicago: University of Chicago Press, 1953, pp. 3-43.

predicts an active return of 1% would expect the return to be 0.04% instead if the manager paid attention to the distribution of prediction errors. Obviously an active manager would soon learn about the difference, adjust to this information, and the distribution of prediction errors would change. But the A-K manager is oblivious.

In the A-K model, this oblivion is shared by the managers of the competing portfolios, unrestricted and restricted. Restricted portfolios, the A-K representation of SRI, are constructed from a universe of securities that are a random subset of the universe available to the unrestricted portfolio. Obviously, this assumes away the ability of an active-but-restricted manager to find alternative investments that effectively substitute for those removed by SRI.[4] The function of this awkward characterization of SRI is to create a financial loss in the model even though managers are irrational. In one A-K calculation, the unrestricted manager takes securities (with error) in the top 50% of returns. The restricted, or so-called socially responsible, portfolio consists of securities (with error) in the top 62.5% of returns. The lower 12.5% of returns reduces the SRI portfolio return. Obliviousness hurts the restricted portfolio more than the unrestricted one.

Where does this 12.5% figure come from? It comes from assuming that the universe of securities contains 500 securities, that the subset universe has only 400, and that both portfolios contain 250 securities. The A-K model contains a collection of such parameters that must be assigned values in order to make the financial cost calculations. Given the artificial character of the model, it makes no sense to try to propose parameter values that are realistic. Indeed, Adler and Kritzman do not attempt to do so, except for calculating information ratios that turn out to be meaningless. Instead their paper offers a range of values for the key parameters and reports the associated simulations of financial costs.

The simulated financial costs provide blurry snap shots of the way that the various parameters influence the costs implied by the A-K model. And for this model simulation is actually unnecessary. Although it is a valuable tool, especially in circumstances where analytical approaches cannot overcome model complexity, Monte Carlo simulation does not lead to general conclusions and will leave simulation error unless the number of replications is sufficiently large. The A-K model is simple enough to be described in terms of analytical probability distributions.

This leads to a second example of odd model predictions. The distribution of active returns in an A-K portfolio has an idiosyncratic bimodality, pictured in the graph below for two A-K parameter values that give their active manager "skill." For comparison, the graph also shows the normal distribution assumed for the universe of stocks (p=0.50).

---

[4] See also Kanzer's remarks.
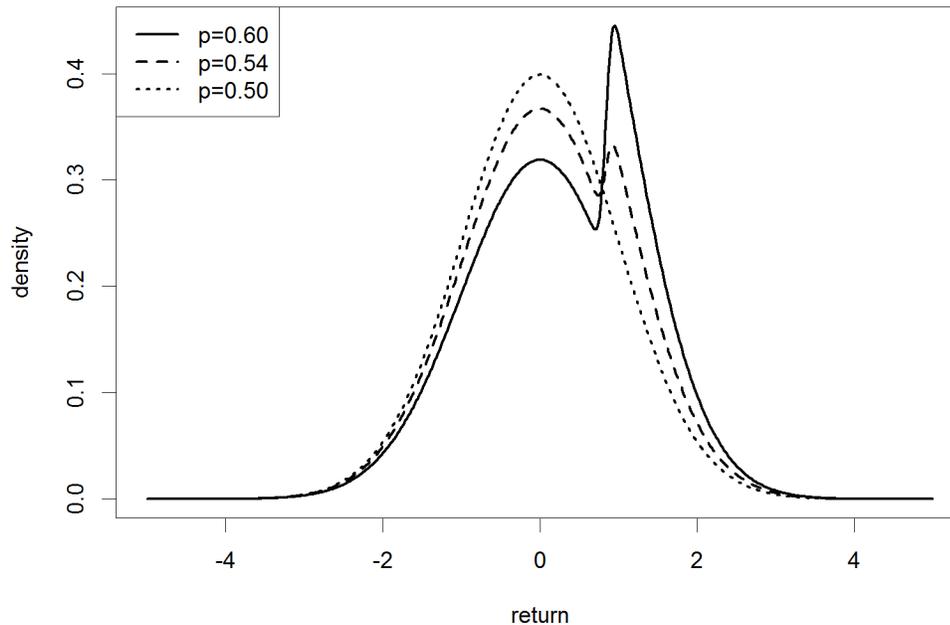
This bimodality is created by the artificial way in which an A-K manager makes prediction errors: either the prediction is exactly correct or the prediction bears virtually no relationship to the realized return. This assumption is unrealistic and, unfortunately, it leads to a prediction that is similarly strange. The costs generated by the model come from movements in the right-hand mode caused by restricting the universe of securities.

The A-K model predicts the uncertainty in the costs as well as the expected value. Apt observed, "There is a distribution of values for this cost, and I believe that it is very wide. The costs could even be negative (that is, additions to value)." Also curious about this, I simulated the A-K model to compute the fraction of times that the costs are negative for a single year.[5] This measure is not sensitive to scale so that it applies to all of the measures of dispersion in returns that Adler and Kritzman use. For the two sets of parameter values chosen for their summary cost calculations, the fractions of negative costs are 47% and 43% corresponding to portfolios of 100 and 250 securities respectively.[6] Apt's conjecture turns out to be quite conservative. Not only *can* the costs be negative; the model predicts costs to be negative almost as often as they are positive. This prediction may actually be accurate and certainly alters the significance of the A-K expected cost estimates.

---

[5] Adler and Kritzman do not specify a model for more than one year.

[6] I computed one hundred thousand simulations. The standard errors of these fractions, interpreted as estimates of probabilities, are approximately 0.15%. The other parameter values for the cost calculations are a skill level equal to 52% and a fraction excluded from the universe of securities equal to 20%.

ADVISOR PERSPECTIVES

Trustees and administrators of endowments – Beware!

In his reply to Adam Kanzer in this publication, Kritzman said, "Anyone who is interested can substitute their own assumptions of these [parameter values] into our framework to estimate the cost of restricting investment under different scenarios." To make this easier, I have provided computer programs along with my paper that reproduce my calculations and compute the simulations underlying the A-K paper. One can download these programs and run them with alternative parameter values to see the effects. A quicker, analytical approach shows that different parameter values make the A-K costs arbitrarily small or arbitrarily high.

Kritzman stated in the *Chronicle of Higher Education* that "[t]he analysis showed that the financial cost of excluding investments based on criteria other than expected performance can be substantial, potentially amounting to hundreds of millions of dollars." Indeed, and though he does not mention it, the same model says that the financial cost could be trivial. Neither calculation deserves credibility. There is no point in trying different scenarios. Yet trustees and administrators of endowments have relied upon Kritzman's large values. Those decision makers must recognize the limitations of those estimates.

Paul A. Ruud, Ph.D., is a professor of economics at Vassar College.

www.advisorperspectives.com

For a free subscription to the Advisor Perspectives newsletter, visit:
http://www.advisorperspectives.com/subscribers/subscribe.php