Is modern portfolio theory compatiable with socially responsible investing?

THE FINAL (SOCIAL) FRONTIER

JAMES PICERNO

Harry Markowitz's 56-year-old portfolio-optimization theory may be middle aged, but it's forever young in the service of tackling the investment challenge du jour.

An intriguing example comes from a custom indexing shop in the San Francisco area, a region that's no stranger to finding inspiration in the finance literature for minting investment strategies. The Bay Area in the 1970s was host to the original index fund and the first disciplined use of tactical asset allocation in a quantitative framework. The same spirit of academically motivated innovation is alive and kicking at the Sausalito, Calif.-based Aperio Group LLC. This nine-year-old boutique has updated portfolio optimization for a new generation of tax-efficient and socially responsible investing (SRI) indexing strategies.

Aperio's forte is marrying the lessons of Markowitz with client SRI preferences, while keeping an eye on tax gain/loss-harvesting opportunities, and wrapping it all in an indexing structure. The customers—mainly institutional investors and wealth managers with high-net-worth clients—tap Aperio's services via separate accounts.

At first glance, Aperio's money management may look routine. The shop's staples—custom indexing, SRI and tax-harvesting strategies—are fairly common as independent services. But the blending of all three is still the exception in money management.

Aperio—Latin for "reveal" or "uncover"—specializes in quantitatively modeling investor preferences and incorporating those preferences in strategies that track an index of the client's choosing. The result: An index portfolio that hugs, say, the S&P 500 or MSCI EAFE while capturing a client's SRI values.

The strategy is one of modifying the classic optimization formula, a cornerstone of modern portfolio theory (MPT). In his 1952 paper, Markowitz outlined a quantitative technique for building portfolios with the highest return at the lowest risk (standard deviation). Aperio revises the idea by analyzing SRI values that are specific to the investor in relation to the target benchmark's tracking error. The goal: Building portfolios at the highest SRI values with minimal divergence from the benchmark's risk/return profile.

A related Aperio strategy is maximizing tax efficiency, which is applied to all client portfolios in the process of replicating benchmarks. The fee for its tax-savvy indexing starts at 35 basis points for domestic portfolios (40 basis points for international mandates). Adding the optional SRI overlay runs an extra 10 basis points. The combined services can be summarized as a tax-managed, customized SRI indexing package.

Aperio's portfolio engineering is innovative because it merges two investing disciplines that are not naturally complementary—MPT and SRI. Indeed, MPT is quantitative by design and reliant on dense theory; SRI is inherently subjective with no hard and fast rules.

Financial intuition suggests that building a portfolio that aspires to a higher good requires giving up some aspect of the market beta that's otherwise available to investors who are indifferent to SRI. But if a tradeoff is manifest, the cost can and does vary—perhaps widely—depending on the strategy, manager skills and investor goals.

Aperio claims that its proprietary strategies give investors more bang for their SRI buck. The underlying process "is anchored and grounded" in Markowitz's portfolio optimization, says Patrick Geddes, Aperio's co-founder and chief investment officer. Indexing and SRI are old news separately, but combining the two is still unusual, he reports. One reason is that MPT and SRI have typically existed in two distinct and largely disconnected financial worlds. But that's changing, as firms like Aperio start to bridge the gap.

The quant perspective comes naturally to Geddes, who was Morningstar's director of quantitative research and later CFO of the Chicago data firm before he co-founded Aperio in 1999. He's also on the finance faculty of the University of California Berkeley Extension, where he sometimes lectures MBA students on the finer points of investment theory.

Geddes' more ambitious ideas are reserved for Aperio, which excels in turning investors' SRI preferences into hard numbers. That's easier said than done, given the vagaries of defining "socially responsible" finance. "We're approaching a wide range of clients around some very different values," Geddes says. "We've got a Christian Science foundation for which we manage money, for example, and their hot-button issues sure look different from a traditional San Francisco Bay Area green-oriented liberal."

From the environment to religion, from corporate governance to peace advocacy and beyond, SRI's rainbow of goals and boundaries far outweighs its common elements. Socially responsible is a tidy label, but it reveals almost nothing about any one investor's objectives other than suggesting that there's an agenda beyond simply turning a profit. That hasn't stopped the launch of SRI funds for the masses, including specialty index funds. But publicly traded SRI portfolios can, at best, only satisfy the average SRI investor by delivering some generalized perception of social responsibility. That's sufficient for some investors, although wealthy clients and institutions often strive for more precision. And for good reason, since SRI is ultimately a personal decision, which means that it's ideally pursued as a customized strategy.

Meanwhile, investors who toe the MPT line should wonder if off-the-shelf SRI portfolios and benchmarks are suboptimal as per Markowitz, advises Geddes. It's easy to select a group of securities that hold fast to socially responsible ideals; it's something else to satisfy a particular investor's SRI philosophy without violating MPT tenets. According to Geddes, the challenges that can harass publicly traded, one-size-fits-all SRI indices are:

- **a large tracking error relative to the overall stock market or targeted benchmark**
- **suboptimal portfolios á la Markowitz**
- **investor SRI preferences that aren't maximized**

Aperio claims to resolve all three, at least as far as anyone can, and in a tax-savvy wrapper to boot. "That's what's so appealing about the way we're approaching [SRI indexing]," Geddes asserts.

An added bonus is the enhanced transparency that flows from quantitatively profiling the opportunities—and limits—of balancing tracking error against a target index with customized SRI objectives. Since marginal improvement in one generally comes at the expense of the other, the trick is finding an acceptable equilibrium—one client at a time.

"You can dial up or down your values system," Geddes says of his firm's portfolio strategy. "You can have a very strict values system with a lot higher tracking error, or we can show your specific value set at a high, medium or low threshold. Basically, our system's telling you, 'Here are your values at different value levels, and here's what it costs in terms of tracking error.'"

The crucial choice ultimately resides with the investor, who must decide how much his particular SRI agenda is worth in terms of replicating the target index. "If you want a higher social score, you're going to have to pay for it with a higher tracking error," explains Geddes. The good news, he tells *Wealth Manager*, is that Aperio's customized SRI indexing strategy generally cuts tracking error in half while producing a modestly higher social score (roughly 10 percent to 20 percent higher) compared to competing SRI strategies, as the on page XX illustrates.

"The traditional approach [to SRI] is excluding the companies you don't want, throwing them out, and cap weighting the rest," Geddes says. That's inferior, largely because it doesn't control risk as well as Aperio's strategy, he claims. No big surprise, perhaps, considering that risk management is MPT's raison d'être.

Geddes equates the relationship between SRI values and

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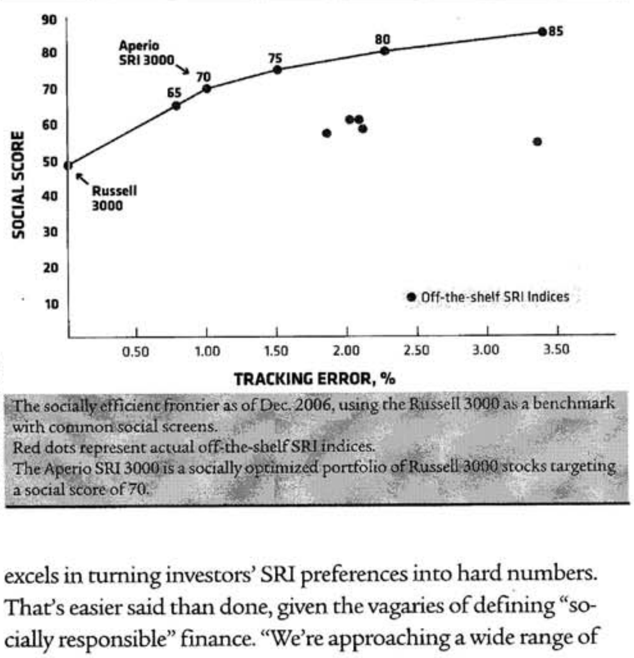
Higher socially responsible investing scores come at a price of higher tracking error, according to the Aperio Group



The socially efficient frontier as of Dec. 2006, using the Russell 3000 as a benchmark with common social screens.
Red dots represent actual off-the-shelf SRI indices.
The Aperio SRI 3000 is a socially optimized portfolio of Russell 3000 stocks targeting a social score of 70.

Source: Aperio Group LLC

tracking error with a modified information ratio (a risk metric calculated as alpha relative to a benchmark divided by the standard deviation of the alpha). "Basically, we're operating on a values ratio: Your SRI value score divided by your tracking error. Investors want the biggest improvement in SRI values for the smallest incremental cost of tracking error."

The front line of Aperio's strategy is quantifying investor values in a way that meaningfully captures SRI views. The task starts with a questionnaire informed by a social research database from a firm such as KLD Research & Analytics, which ranks companies on various SRI factors. Aperio interviews investors on a series of SRI topics and runs the answers through a database to quantitatively model the results. The stocks in the target index are scored according to the client's preferences.

"It's an imperfect process because you can't quantify everything," Geddes says of turning social scores into statistics. "You might have a hot-button issue that we don't have data for, but generally we can get pretty far."

Investors, it seems, can have their SRI preferences without violating MPT. The message appears to be resonating with some wealth managers and institutional investors. Aperio manages $1.4 billion directly in separate accounts and consults on another $6.5 billion with institutions. One convert is Wetherby Asset Management, which reports that Aperio's flexibility in portfolio design is a big attraction. "You can be as customized as you want in terms of investors' wishes and still do your best to track an index," says Debra Wetherby, CEO of her eponymous wealth management shop in San Francisco. "We're able to specify how important the various tradeoffs are on a per-client basis" in terms of SRI values versus tracking error.

The fact that Aperio doesn't try to be all things to all investors impresses another client. "They're a pure play," says Jeff Colin, a founding partner of Baker Street Advisors, another San Francisco wealth manager. "Their depth of expertise, as a result, is on a par with significantly larger organizations. That's attractive to me."

The broader lesson is that the warm and fuzzy world of SRI isn't immune to the quant revolution, or fated to be incompatible with MPT. Anyone who thinks otherwise may want to give Aperio a call.

Summing Up

Aperio Group LLC, a San Francisco money manager, integrates classic portfolio optimization techniques with socially responsible investing agendas for engineering more "efficient" SRI index portfolios.

Key Points:

- Higher SRI standards come at a price of higher tracking error relative to replicating an index
- SRI strategies can be quantified to a higher degree than is generally assumed

James Picerno (jpicerno@highlinemedia.com) is senior writer at *Wealth Manager*.