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Forget standard deviation – New ways to measure risk

THE mutual fund industry is letting investors down. It's continuing to allow and endorse the use of an antiquated risk measure – one that dupes you by not telling you how risky a fund really is.

The measure is "standard deviation," which shows how widely a fund's monthly returns are dispersed, usually over a three-year trailing period. Standard deviation is the basis of the volatility scale used in *The Globe and Mail's* monthly mutual fund tables and in every other newspaper. It's so widely accepted that nobody questions its validity or usefulness.

But standard deviation is the wrong mathematical model for the job. It fails to distinguish between volatility associated with making money (gains) and volatility associated with losses.

Standard deviation rewards consistent losers and punishes erratic gainers. Academics think using it as a risk measure for investment performance is laughable.

Don't believe me? There are dozens of journal articles with powerful arguments against standard deviation. And of course, as the regulators say, "nobody understands risk."

Understanding risk, in my view, is the most important determinant of your performance as an investor. When you lose money in a fund you didn't figure would go down, you're more likely to sell at the bottom.

Research shows that investors consistently do worse than the funds they own. In a study by Morningstar Inc., a Chicago-based fund-monitoring service, a group of 81 growth funds averaged 12 per cent annually over a five-year period – but investors in the funds lost

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2 per cent a year over the same time.

Why? Because, all too often, investors buy at the peak and sell at the first setback. My own studies show that investors in a popular Canadian resource fund underperformed their fund by an amazing 50 per cent over a two-year period because of the mistiming of their purchases.

Should investors take all the blame for buying and selling at the wrong time, or could the industry be more helpful? Here's my suggestion. I recommend that the industry tell investors more about the risk of losing money: how much, how often, how severe, how long.

A quick and dirty way of doing this is to provide some new measures of risk:

- How often did a fund lose money in a calendar year?
- In how many years did a fund earn a lower return than a one-year guaranteed investment certificate?
- How badly did a fund fare in its worst quarter, worst month and worst year?

Cambridge Special Equity Fund, for example, is a Canadian small-cap equity offering for which these new measures of risk would be especially helpful. It has a standard deviation of 8.4, about double that of most similar funds but not the riskiest fund of its type.

Wouldn't it be nice to be warned that this fund lost money in four years of its seven-year history? In three of those years, it lost

more than 20 per cent, and in its worst year – 1990 – it lost 35 per cent. In only three of the seven years did it outperform GICs.

Measuring downside risk is the new wave in investment research. Downside risk is a broad term that can describe elaborate measures of a fund's likelihood of underperforming some minimum rate of return. Or it can calculate the average loss.

Over all, downside risk is a framework that often involves a bunch of calculus to explain the potential for investment pain. I've greatly simplified a downside risk framework in my suggestions here, making them easy to understand and calculate.

Being told in advance of the frequent, temporary setbacks even good funds suffer might help people weather those downturns better. Or it might scare the nervous nannies away. Either result is a good thing for both the investor and the industry.

Making new risk measures mandatory won't solve all the industry's problems. And these risk profiles will apply only to mature funds – with a history of four or more years. A disclaimer would have to be drafted for newer funds.

But the fund industry owes it to investors to better disclose past risk, along with those seductive past returns it usually trumpets. And investors should start to demand more useful information about risk when they buy a fund.

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The article EM9525 reprinted above is used in Chapter 6 of the STAT 221 Course Materials.