



Fingerprinting Your Fund

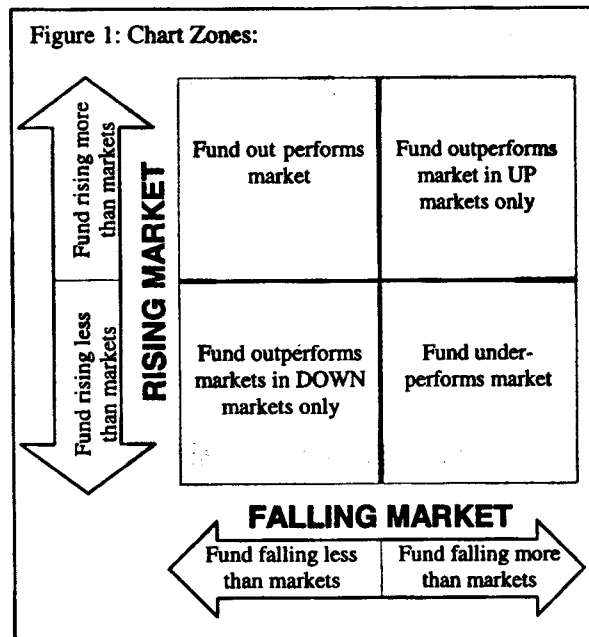
Cemil Otar

As investors, we want funds that surpass the markets when markets rise. And of course, we want them to retain their value when markets fall. However, current definitions of risk and return do not measure this need. The definition of "risk", as it pertains to mutual funds, does not differentiate between the "good" risk and the "bad" risk. The "good" risk is the volatility of a fund when it is rising and the "bad" risk is when it is falling.

Here is a method that I call "fingerprinting" which reduces these shortcomings. Fingerprinting helps visualize fund behavior separately in both rising and falling markets. It will assist you to evaluate fund excellence, regardless of whether you are a "buy-and-hold" investor or a "market timer".

Here are some of the benefits of fingerprinting funds in your portfolio:

- It requires very little math.
- All the input information is available in the financial newspapers; you don't need to spend your money to buy mutual fund data.
- It requires little of your time. If you are following twenty or so funds, you need to spend about two hours per month.
- A single page graph describes the fund performance visually, in both rising and falling markets. You can observe several years of history on a single page.
- By just looking at the graph, you can see if the fund is outperforming or underperforming the market.
- If you have a "buy-and-hold" portfolio, you can see immediately when your fund is becoming inefficient. This helps you weed out funds that are no longer suitable for your portfolio.
- If you like investing in different market sectors, such as precious metals, energy, etc., it guides you towards better "buy" and "sell" points.
- It allows you to compare two funds when you consider switching funds.
- It diminishes the flaw of using the standard deviation as a measure of risk. It separates the "good" volatility from the "bad" volatility.



- Last but not least, the shape of a fingerprint may indicate the fund style, i.e. index, growth, value.

The inset describes in detail how a fingerprint chart is created in eight simple steps. Following these steps, a single point is placed on the chart each month and connected to the previous month's point. I call this web of lines a "fingerprint" of the fund.

In essence, the vertical scale of the fingerprint chart shows how a fund behaves relative to the rising market. The higher the point on the chart, the better is the fund at outperforming a rising market. The horizontal scale shows how the same fund behaves in a falling market. The further the point to the left on the chart, the better is the fund at protecting itself in a falling market.

The chart is made up of four quadrants, or zones. The significance of each zone is described in Figure 1.

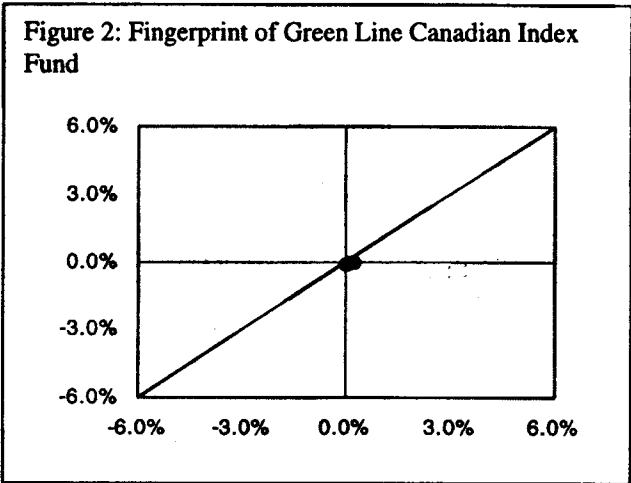
The location of the fingerprint reveals whether the fund is outperforming the markets. Its shape reveals the fund type. Let's first look at different fund types.

Index Funds

Index funds replicate the underlying index. They hold the same securities in the same proportions as the index. This being the case, in theory, the fund neither outperforms, nor underperforms the index. Therefore, we expect the fingerprint of an index fund to be a single dot right at the centre of our chart.

Figure 2 depicts the fingerprint of Green Line Canadian Index Fund. The fingerprint is slightly in the "underperform" zone because of the effect of the management expenses that fund has to pay.

There are also many "closet-index" funds. The manag-



ers of these funds, under the guise of actively managing their fund, actually mimic the benchmark index (for Canadian equity funds, TSE300), while collecting generous management fees. This strategy protects the manager as well. When the fund follows the markets down, blame the markets. When the fund goes up with the markets, the manager looks good. The fingerprint of a closet-index fund is not too dissimilar to the fingerprint of an index fund.

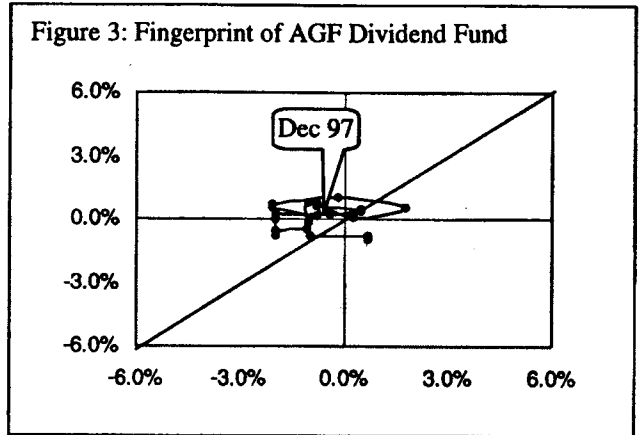
I avoid index or closet-index funds. Why pay any management fees if I can buy TIPs, HIPs, DIAMONDS with very little commission? These, I buy only when I cannot decide which fund to invest in, and only for relatively short periods of time. Mostly though, I stick with the best fund managers for the long term, and stay invested as long as the fund performs efficiently.

Sector Rotators

This style is also called "top down". A "top-down" manager overweights the fund's stock holdings in sectors, which he thinks will outperform the market. The rest of the fund's holdings is similar to the underlying index.

One can expect the fingerprint of a "top-down" fund to be a hybrid of the fingerprint of an index fund and the fingerprint of the overweighted sector.

Figure 3 depicts the fingerprint of the AGF Dividend Fund. The fingerprint indicates this fund outperformed TSE300 during most of the study period. The fingerprint covers a larger area indicating swings in the overweighting of different sectors at different times.



Growth Funds

Growth funds seek companies that have a high growth of earnings, cashflow etc. A well-managed growth fund is generally less volatile than a sector rotator, but more volatile than a value style fund.

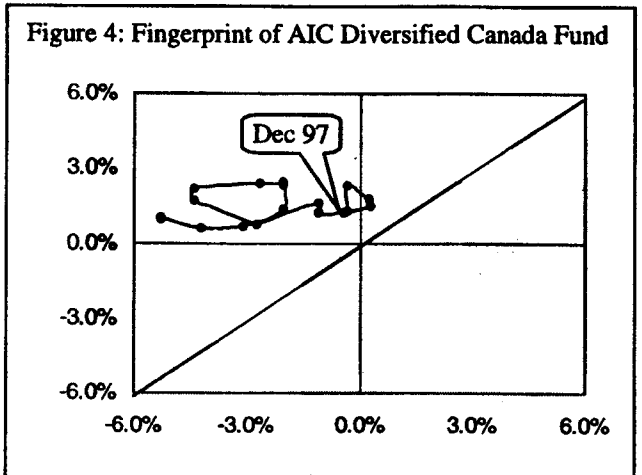


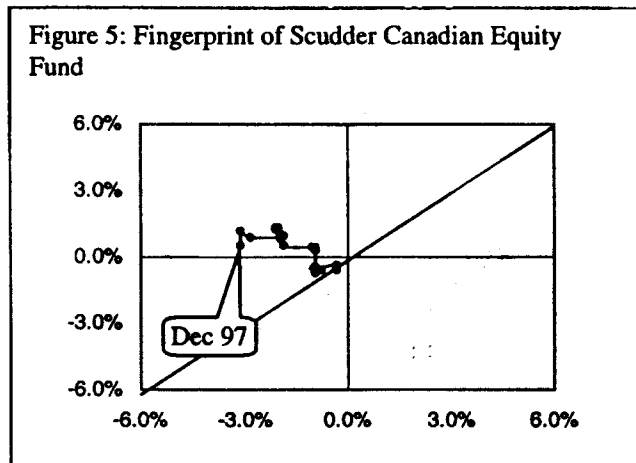
Figure 4 depicts the fingerprint of the AIC Diversified Canada Fund. It shows excellent performance both in rising and falling markets, because the entire fingerprint is located in the top left quadrant. During the study period, on the average, the TSE300 went up 3.9% and AIC Diversified went up 5.4% per month during the up-months. During down-months, on the average, the TSE300 went

down 2.9% and AIC Diversified went down only 0.9% per month.

Value Funds

Value funds seek companies that are generally undervalued, such as lower price to earnings ratio, or lower price to book ratio.

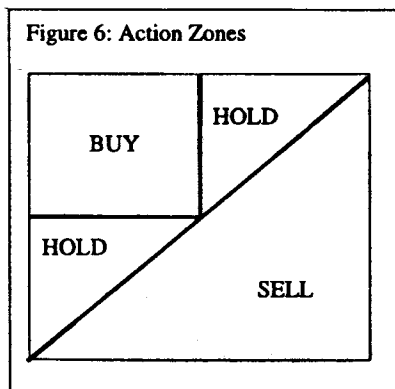
Figure 5 depicts the fingerprint of the Scudder Canadian Equity Fund. Notice that the fingerprint is located in the "buy" zone throughout the entire study period (except during start-up of the fund). Notice also, the volatility is less than both sector rotators and growth, typical of many value funds.



Now that we covered the shape of the fingerprint as it relates to the fund style, let's see how we can use fingerprinting to help us make better investment choices.

In essence, you want to own a fund if its fingerprint is on the top left zone of the chart. Some well-managed funds leave fingerprints in this area for several years. However, eventually, most funds either become too big and inefficient, or their managers leave for greener pastures.

An action signal (buy, hold or sell) is generated depending in which zone the most recent point of the fingerprint is located. If the point is located in the top left zone, it is in the buy zone. If the point is located below the diagonal line, it is in the sell zone. Otherwise, it is in the hold zone. The action zones are shown in Figure 6.



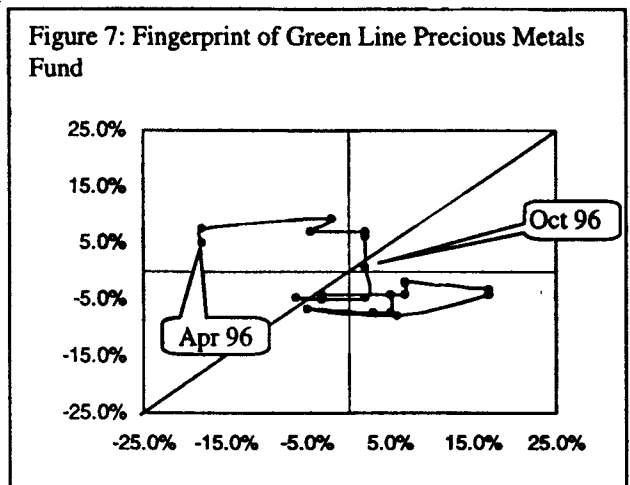
Buy-and-Hold Portfolio

Buy a fund only if its fingerprint is in the "buy" zone. If it moves to the "sell" zone, monitor closely. If it remains in the "sell" zone for too long, replace it with a more efficient fund.

Sector Timing

Fingerprinting can be used successfully to monitor the trend in a given sector.

Figure 7 depicts the fingerprint of the Green Line Precious Metals Fund. The fingerprint was in the buy zone until July 1996. Then it crossed to "hold" zone. In October 1996 it moved into the "sell" zone. Until December 1997 (end of the study period), the fingerprint never moved back to the "buy" zone.



Switching Funds?

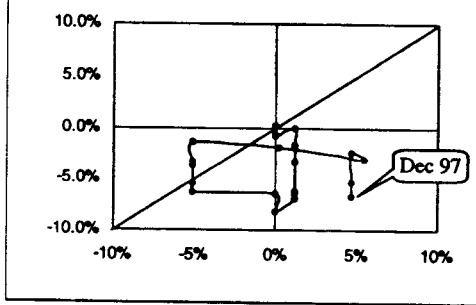
Fingerprinting helps you decide when to switch from one fund to another.

Example: Far too often, I read articles written by market gurus and enthusiastic fund managers saying, "Now is the time to invest in Japan!" The real question is: Would you sell some of your holdings in, say AIC Value Fund and buy Green Line Japan Growth Fund?

Answer: Fingerprint the proposed fund using the fund that you want to switch from, as your benchmark. In this example, the benchmark is the AIC Value Fund. Figure 8 depicts this fingerprint. Clearly, Japan Growth Fund was never in the "buy" zone relative to AIC Value. So, you would keep your AIC Value Fund throughout the entire study period, regardless of what the gurus say. This half-hour exercise could save you thousands of dollars.

There is another benefit of fingerprinting. After some experience with these charts, you can almost tell if and when a growth or a value fund starts turning into a sector rotator or a closet indexer, as it becomes bigger and bigger.

Figure 8: Fingerprint of Green Line Japan Growth Fund relative to AIC Value Fund as benchmark



Fingerprinting is a simple and unbiased method of picking and monitoring the high-performance funds whether you are a market timer, sector rotator, or a "buy-and-hold" investor seeking highest performing funds. As always, the funds cited in this article are examples only and should not be construed as a recommendation to buy, hold or sell. Good Luck!

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HOW TO CREATE A FINGERPRINT CHART

Here is an example of the fingerprint of AIC Diversified Canada Fund. You need at least six months of data to start. Choose a good quality graph paper. You may be using the same graph for several years.

Step 1: Choose a fund that you want to fingerprint. Then, choose a benchmark, typically TSE300.

Step 2: Fill out the month and year in Column A, and the monthly growth of the benchmark in Column B.

Step 3: If the benchmark growth (Column B) is a positive number (i.e. up market), write the growth of the fund in Column C; otherwise leave Column C blank. If the benchmark growth (Column B) is a negative number (i.e. down market), write the growth of the fund in Column D; otherwise leave Column D blank.

Step 4: Column E is the difference between the fund growth and the benchmark growth in up markets. If Column C is not blank, then Column E equals Column C minus Column B; otherwise leave Column E blank.

Step 5: Column F is the difference between the fund growth and the benchmark growth in down markets. If Column D is not blank, then Column F equals Column B minus Column D; otherwise leave Column F blank.

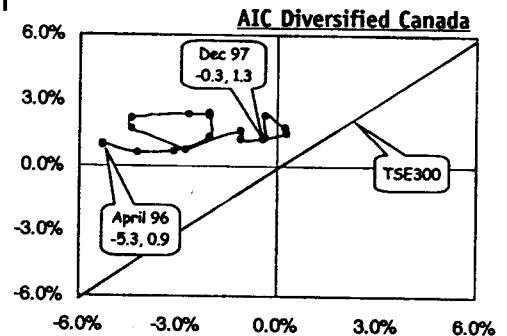
You need at least six months of data to start your chart. Go to step 2 until the first six lines are completed.

Step 6: Column G is the average of the last six lines of Column E. Use only non-blank entries to calculate the average.

Step 7: Column H is the average of the last six lines of Column F. Use only non-blank entries to calculate the average.

Step 8: Plot the values of Columns G and H on the graph. You may want to pencil in the date next to the point. Join this point with the last month's point.

Hint: For diversified funds, a graph range between -6 to +6 is sufficient in most cases. For sector, country and similar volatile funds, graph ranges can be as large as -25 to +25. Observation: The fund was in the top left quadrant throughout the study period. This is an indication of a well-managed fund. It outperformed the benchmark (TSE300) when it was rising or falling. However, the recent data points show that the fund is not as efficient in down markets as it used to be.



Month/ Year	TSE300	AIC Diversified		Difference in		6-month Moving	
	Benchmark Growth	Fund Growth in Up market	Down market	Up market	Down market	Average in Up market	Down market
Col. A	Col. B	Col. C	Col. D	Col. E	Col. F	Col. G	Col. H
Nov-95	4.7%	4.5%	-	-0.2%	-		
Dec-95	1.4%	4.2%	-	2.8%	-		
Jan-96	5.6%	6.0%	-	0.4%	-		
Feb-96	-0.5%		4.8%		-5.3%		
Mar-96	1.0%	2.7%	-	1.7%	-		
Apr-96	3.6%	3.6%	-	0.0%	-	0.9%	-5.3%
May-96	2.1%	2.4%	-	0.3%	-	1.0%	-5.3%
Jun-96	-3.6%		-0.5%		-3.1%	0.6%	-4.2%
Jul-96	-2.2%		-1.2%		-1.0%	0.7%	-3.1%
Aug-96	4.5%	7.9%	-	3.4%	-	1.3%	-2.0%
Sep-96	3.1%	8.8%	-	5.7%	-	2.3%	-2.0%
Oct-96	6.0%	6.3%	-	0.4%	-	2.4%	-2.0%
Nov-96	7.6%	7.8%	-	0.2%	-	2.4%	-2.0%
Dec-96	-1.2%		3.2%		-4.4%	2.4%	-2.7%
Jan-97	3.2%	4.3%	-	1.1%	-	2.1%	-4.4%
Feb-97	0.9%	2.1%	-	1.2%	-	1.7%	-4.4%
Mar-97	-4.8%		-3.7%		-1.1%	0.7%	-2.7%
Apr-97	2.2%	2.7%	-	0.5%	-	0.7%	-2.7%
May-97	7.0%	7.1%	-	0.1%	-	0.7%	-2.7%
Jun-97	1.1%	6.5%	-	5.4%	-	1.7%	-1.1%
Jul-97	6.9%	5.8%	-	-1.1%	-	1.2%	-1.1%
Aug-97	-3.8%		-4.0%		0.2%	1.2%	-0.4%
Sep-97	6.7%	9.3%	-	2.6%	-	1.5%	0.3%
Oct-97	-2.7%		-3.0%		0.3%	1.7%	0.3%
Nov-97	-4.7%		-3.1%		-1.6%	2.3%	-0.3%
Dec-97	3.1%	5.4%	-	2.3%	-	1.3%	-0.3%