Get "Sharpe" With Mutual Funds: The REEF Line

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In my previous article, I suggested ways of improving your returns in your fixed-income portfolio using the Sharpe Measure.

The "Sharpe Measure" is a risk[1] adjusted return that also takes into account the return on risk-free investments. It is available in PAL*TRAK*[2] database for each mutual fund for 3, 5, 10 and 15-year time periods.

I would like to introduce a new concept for selecting consistently high-performance equity mutual funds to suit your own risk tolerance.

Canadian Equity Funds

I divided all the mutual funds into two groups: the first group includes the funds with the Sharpe Measure of less than 3 and the second group higher than 3. Furthermore, I divided each of these groups into subgroups of different risk categories. I took the average returns in each of these subgroups.

Figure 2: The "Risk Efficient Excellence Frontier" or REEF line for Canadian equity funds. High risk does not necessarily mean consistently high returns, unless it is accompanied by a high Sharpe Measure.
Conversely, low risk does not mean low returns, if the Sharpe Measure is high.

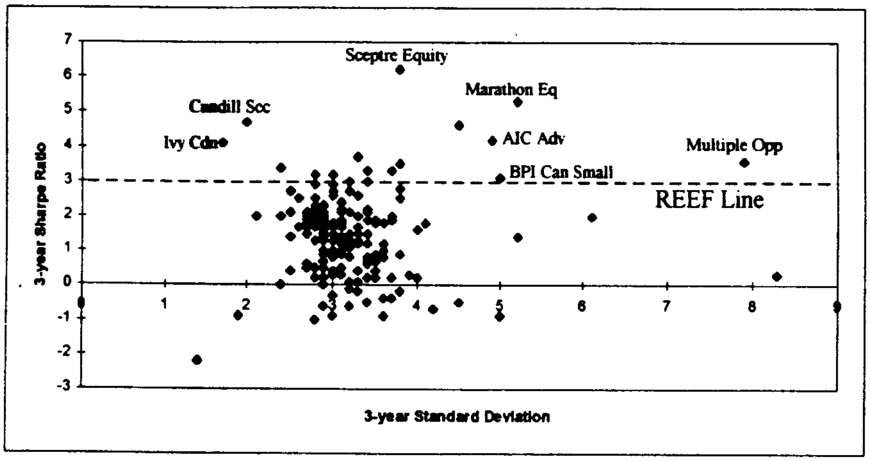

Figure 1 depicts the returns in each of these subgroups. The results speak for themselves: Don't buy a Canadian equity mutual fund with a Sharpe Measure less than 3.

Figure 2 depicts the relationship between the Sharpe Measure and the standard deviation. Each dot represents one mutual fund with the Sharpe Measure on the vertical scale and standard deviation on the horizontal scale.

The minimum Sharpe measure that is acceptable to me for Canadian and U.S. equity funds is 3.0, and for international equity funds is 2.5. The horizontal dashed line on the graph marks this frontier. I call this line the "Risk Efficient Excellence Frontier" or the REEF line for short. I only consider funds that are above the REEF line as suitable funds in which to invest.

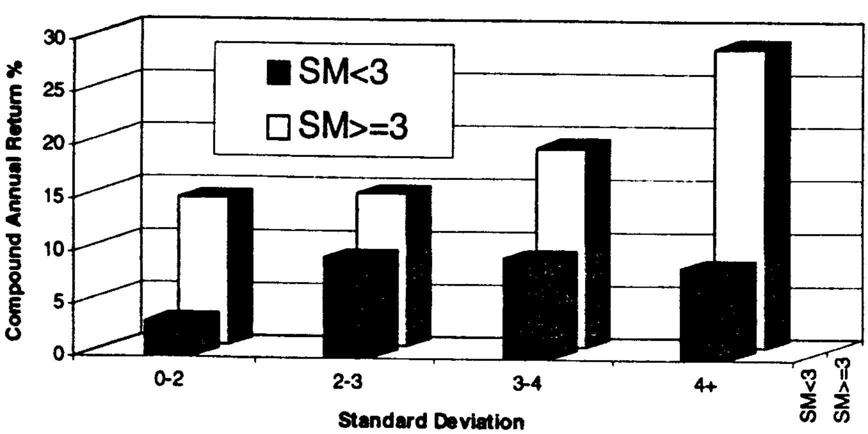

Figure 1: Comparison of Average Annual Returns of Canadian equity mutual funds with the Sharpe Measure higher than 3 and lower than 3, grouped in different risk categories. If you want consistently high returns, buy only funds with the Sharpe Measure of 3 or higher.

[1] Standard Deviation is used as a measure of risk.

[2] Portfolio Analytics Limited, 1-800-531-4725. All data in this article is courtesy of Pal*Trak* data base.

There are a number of funds above the REEF line with a wide range of degrees of risk. Therefore, I have a choice of several different funds to suit my client's risk tolerance and achieve *consistently* high returns relative to the fund's volatility.

I am convinced that the REEF line is a much better definition than what is generally known as the "efficient frontier" for two reasons:

The "efficient frontier" chart reflects only the risk/reward relationship. The REEF line reflects not only the risk/reward relationship, but it also includes the *consistency* of returns by including a measure of "risk-free" return in the equation.

The conventional "efficient frontier" line is usually (but not necessarily) a parabolic line eyeballed to fit through several data points and is subject to the visual interpretation of the person who draws this line. On the other hand, the REEF line is a straight line and therefore lends itself to an easier interpretation of efficiency and excellence of a fund. Any fund above the REEF line is considered to be managed with superior performance for its risk level, without any guesswork.

Here is the list of the Canadian Equity mutual funds that are above the REEF line in order of increasing risk:

FUND NAME	STANDARD DEVIATION	SHARPE MEASURE	3-YEAR CAR[3]
Ivy Canadian	1.7	4.1	12.5
Cundill Security	2.0	4.7	15.2
Optima Strat-Cdn Equity	2.4	3.4	13.7
Ideal Equity	2.8	3.2	14.4
Equit. Life Cda. Com. St	3.0	3.2	15.3
ABC Fundamental-Value	3.2	3.0	15.2
PH & N Vintage	3.3	3.7	18.0
TSE 300[4]	**3.3**	**2.0**	**12.4**
Tradex Equity	3.4	3.3	16.9
Bissett Small Capital	3.4	3.0	15.9
United Canadian Growth	3.7	3.3	17.7
Sceptre Equity Growth	3.8	6.2	29.0
Guardian Enterprise A	3.8	3.5	18.6
Navigator Value Inv Retire	4.5	4.6	26.6
AIC Advantage	4.9	4.2	26.3
BPI Canadian Small Co.	5.0	3.1	21.2
Marathon Equity	5.2	5.3	33.2
Multiple Opportunities	7.9	3.6	34.3

Ivy Canadian fund is half as risky as the TSE 300, yet it manages to attain about the same return.

PH&N Vintage has the same risk as TSE 300, yet its return is about 1.5 times as great.

Sceptre Equity Growth is a little riskier than the TSE 300, yet it achieved more than double the return.

If a fund consistently shows excellent performance, it falls victim to its own success because of the limited size of the Canadian equity markets. As more money pours into such a fund, two things can happen: either the fund closes its doors to new money to assure its continued success, or it keeps growing in size until it cannot perform efficiently and then falls quickly below the REEF line. Several of the funds on my REEF list are already closed to new investments.

New funds are born every day. When a new fund is about a year old and if it looks like a good candidate to be in my REEF list, then I match its performance to an older fund to estimate its volatility and its Sharpe Measure. If it looks good, I include it in my REEF list anyway, and monitor it periodically.

With interest rates reaching their 40-year low, I expect several funds to have a higher Sharpe Measure in the coming years. In that case, I will just have to raise my REEF line.

U.S. Equity Funds

Similar charts for the U.S. and international mutual funds are not shown here because of space considerations. Here is the list of the U.S. equity funds that are above my REEF line:

FUND NAME	STANDARD DEVIATION	SHARPE MEASURE	3-YEAR CAR[3]
Margin of Safety	1.7	3.2	11.3
Investors US Growth	2.0	3.8	13.3
Mawer US Equity	2.2	4.0	14.2
Cornerstone US	2.4	3.4	13.8
Green Line US Index	2.5	4.1	16.1
SSQ - Actions American's	2.5	5.2	18.7
S&P 500	**2.6**	**4.9**	**18.2**
CT Everest Amerigrowth	2.6	3.9	15.9
NN Can-Am	2.6	3.5	14.8
Atlas Am. Large Cap Gr	2.6	3.5	14.7
PH & N US Pooled Pension	2.7	4.2	16.8
C.I. American	2.7	3.7	15.7
PH & N US Equity	2.7	3.7	15.4
C.I. American Sector	2.7	3.6	15.4
Bissett American Equity	2.7	3.0	13.7
McLean Budden Pl Am Eq	3.0	4.1	18.1
Mclean Budden Am Gr	3.0	3.3	15.6
United American Equity	3.1	3.4	16.1
AGF Intl Grp-Amer Gr A	3.2	3.2	16.1
AIC Value	3.3	4.4	20.2
Altamira US Larger Co	3.5	3.1	16.4
United American Growth	3.9	4.0	21.3
Formula Growth	3.9	3.7	20.2
Universal US Emerg Gr	5.4	3.2	23.1

Only SSQ - Actions American's Fund had lower risk than the S&P 500 and yet had a better return.

Except for AIC Value, United American Growth, Formula Growth and Universal US Emerging Growth funds, no fund with an acceptable Sharpe Measure was able to beat the S&P 500 index.

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[3] Compound Annual Return.

[4] Shown only for comparative purposes.

International Equity Funds

Here is the list of international equity funds that are above my REEF line:

FUND NAME	STANDARD DEVIATION	SHARPE MEASURE	3-YEAR CAR[3]
Cundill Value	1.4	4.9	12.7
Ivy Foreign Equity	1.7	3.4	11.5
Templeton Growth	2.5	2.5	11.9
Fidelity European Growth	2.8	3.3	14.7
Trimark Select Growth	2.8	3.1	14.2
Canada Life US & Intl	2.8	2.9	13.7
Trimark Fund	2.8	3.6	15.9
Vision Europe	2.8	2.6	12.8
MD Growth Investments	2.9	2.5	12.8
Saxon World Growth	2.9	3.4	15.6
OHA Foreign Equity	3.0	3.1	14.8
Templeton Intl Stock	3.1	2.6	13.7
ADMAX Global Health Sc.	4.5	5.4	29.9

The following list depicts the returns on some commonly known indices for comparison purposes:

FUND NAME	STANDARD DEVIATION	SHARPE MEASURE	3-YEAR CAR[3]
Average 5-Year GIC	0.1	13.9	6.8
91-day Cdn T-Bill	0.1	0.0	5.6
Canada Savings Bonds	0.1	-10.5	5.1
Consumer Price Index	0.2	-17.8	1.3
Average Can. Bond Fund	1.9	0.8	7.1
S&P 500	2.6	4.9	18.2
Average US Equity Fund	3.1	2.2	12.4
Average Cdn Equity Fund	3.2	1.5	10.5
TSE 300	3.3	2.0	12.4
Average Intl Equity Fund	3.7	0.8	7.8

As always, these conclusions are based on historic data, and future performance may be different than the past performance. The statements made in this article are of pure mathematical nature and may not be applicable to your individual situation.

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