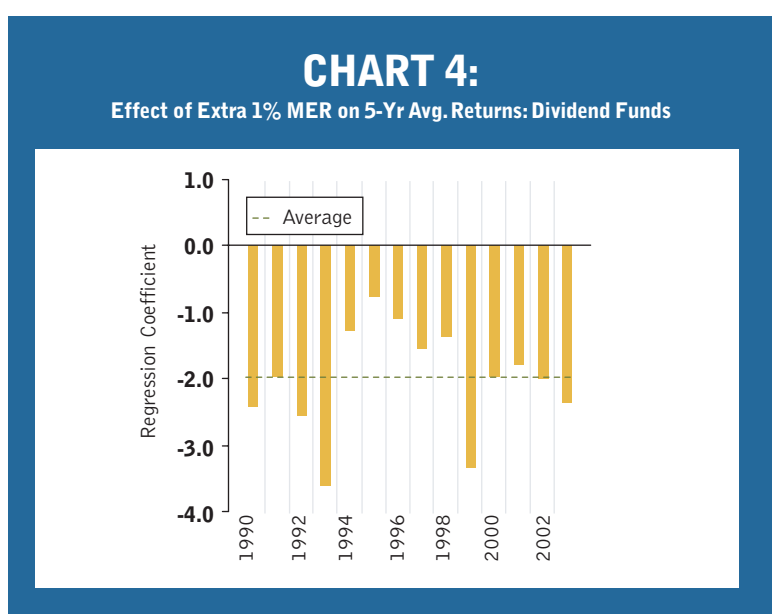
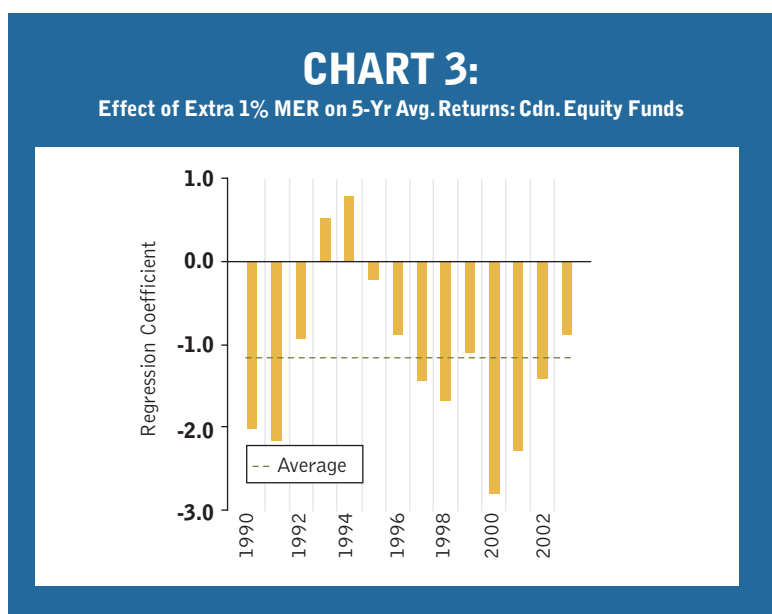
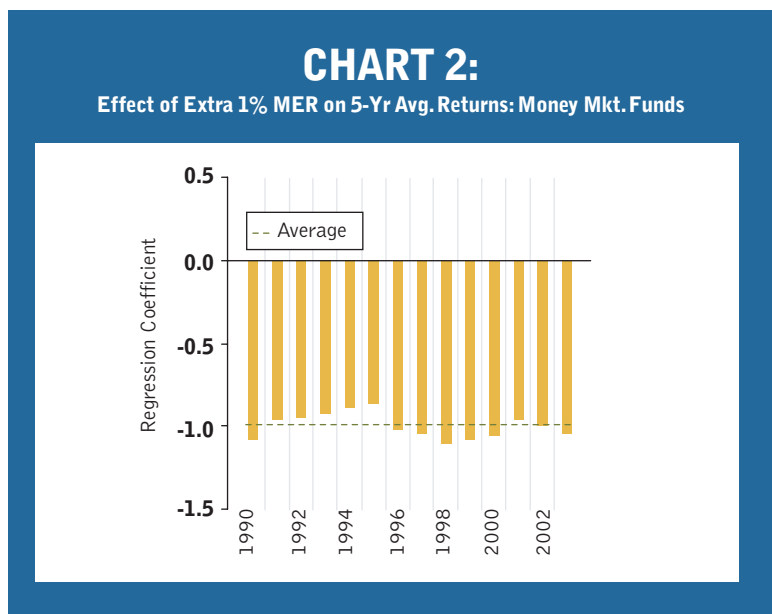
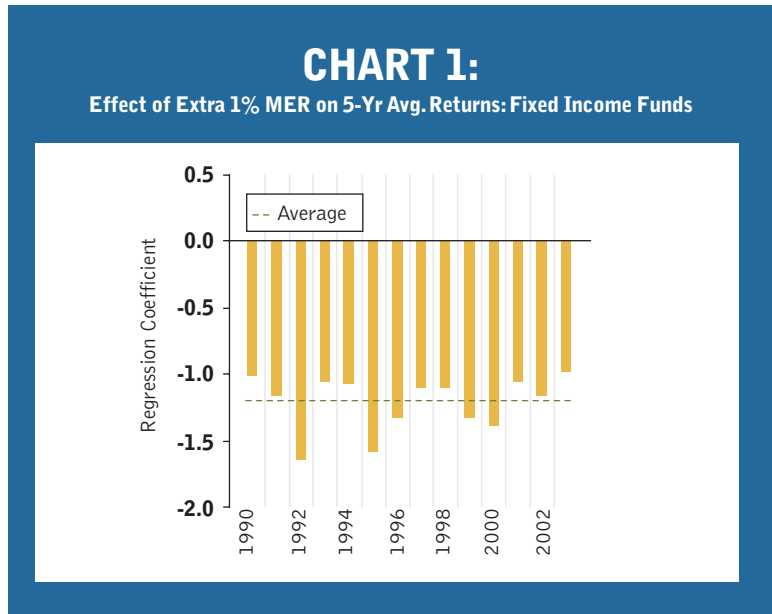


## The MER Bite:

Regression analysis indicates that expenses reduce returns almost one for one.

BY GENE HOCHACHKA



Does a higher management expense ratio, or MER, have any measurable or meaningful impact on mutual fund returns? Do the managers of higher-cost funds perform well enough to offset the extra costs of their funds, or do the costs end up being passed on to the mutual-fund unitholder in the form of lower returns?

Our research indicates that between 1986 and 2003, those Canadian mutual and segregated funds with higher MERs tend to perform worse than their lower-cost brethren, and thus higher expenses get paid out of the

unitholder's pocket. This comes as little surprise: a seminal study that covers all equity funds in the US from 1963 through 1993, estimates that after holding other factors constant, the effect of an additional 1% of expenses is to lower returns by 1.54%. Our study merely confirms that on average and over time, a similar negative relationship between expenses and returns also exists in Canada.

**DATA**

Our sample includes every Canadian mutual and segregated fund that has all of: total assets, calendar-year return and MER available at the end of any year from 1986 through 2003. It includes funds that were subsequently merged into other funds or dissolved, and is thus not subject

to the survivorship bias that tends to mar many studies of historical performance.

We include those mutual and segregated funds classified as Canadian balanced, dividend, Canadian equity, Canadian fixed income and Canadian money market, along with international (global) equity and U.S. equity. For the three and five-year samples we require that a fund have complete data in all three or five years up to and including the current year.

For example, our annual data begins in 1986 and for a fund to be included in the five-year sample that ends in 1990 it must have year-end assets, calendar-year return and MER available for each year from 1986 through 1990. We then calculate its average assets, average MER and compound average return over the five years, and subsequently examine the relationship between the five-year average return and the five-year average MER.

All pooled and institutional funds are removed from the sample, along with any funds not denominated in Canadian dollars. If a fund has multiple series then only the series with the longest history and containing the bulk of the assets is included. Our final sample includes 20,130 fund-years at the one-year horizon, 12,625 at the three-year horizon and 7,842 at the five-year horizon.

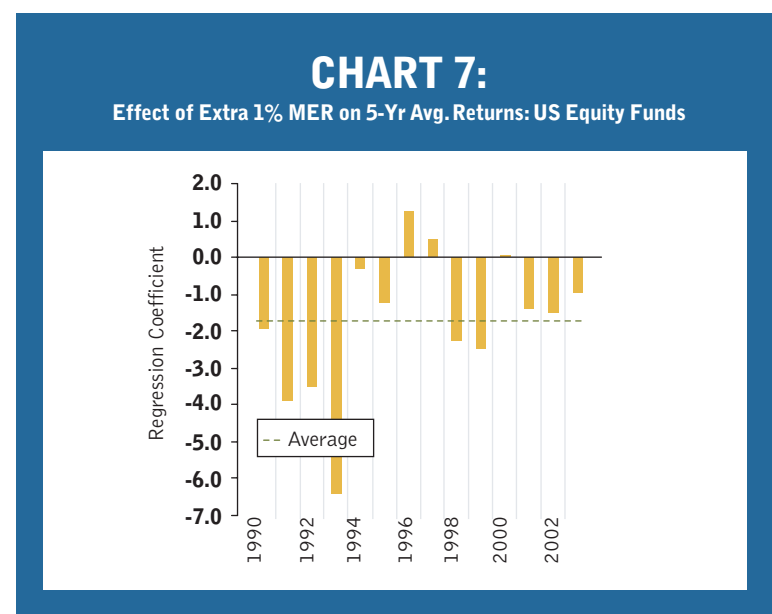
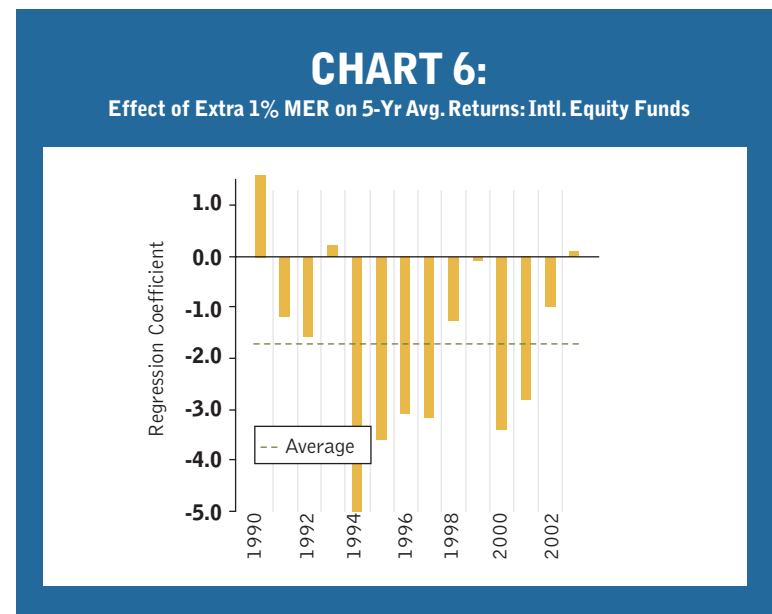
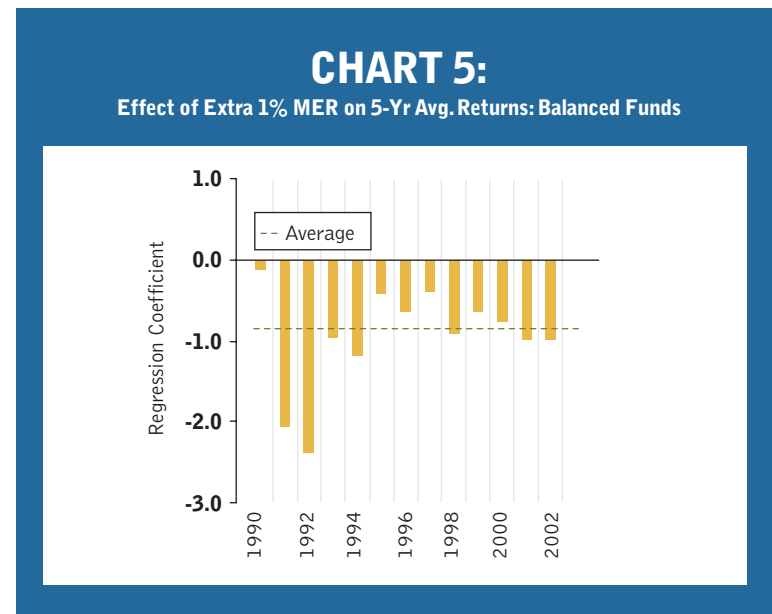
**METHODOLOGY**

Though we use several different analytical techniques to address this question, for brevity we only show the results of the "robust regression" method. The results from the different methods are qualitatively similar and are available from the author upon request.

With the robust regression method, for a given fund category and year we plot the returns against the expense-ratios for all of the available funds and determine whether there exists a positive or negative relationship between them.

If the higher MER funds also tend to exhibit higher returns, then the relationship is positive and the line slopes upwards. Alternatively, if expenses tend to subtract from returns then the higher-MER funds show lower returns and the line slopes downwards. The slope of the line measures the effect of an extra percent of expenses on fund returns, for a given fund category and year.

This method is very similar to linear regression (OLS), which we also run and whose results confirm those from the robust regression. The only difference is that our robust technique is less influenced



## ADVISORRESEARCH

by outlying observations that are far removed from and unrepresentative of the bulk of the data.

We repeat this every year for a particular fund category and then calculate the average and statistical significance of the resulting 18-year series of regression coefficients. If managers of high-MER funds offset their MER disadvantage then the average coefficient will be zero or positive; if they are not able to offset the high MER, then the average coefficient over time will be negative.

## RESULTS

Panels A through C show the average regression coefficient over all periods, along with their t-statistics. The average coefficient is negative for all fund types and at each of the one, three and five-year horizons. The coefficient for the one-year return is statistically significantly negative at the 5% confidence level for the fixed-income, money-market, dividend and international equity categories, and approaches traditional levels of significance for the balanced, Canadian and U.S. equity categories. For the fixed-income and money-market funds the t-statistics are off the scale; it seems that only one thing matters when choosing a fund in either of these categories.

The negative effect of MERs on returns becomes even more pronounced as the time horizon grows longer, as the average coefficient is statistically significantly negative for all seven categories at the three and five-year horizons. We feel it appropriate to present the five-year estimates for each cat-

egory in Charts 1 through 7, in order to give the reader a visual sense of the results. Along with the coefficients of the rolling five-year periods we also show the overall category average as a broken red line.

The results represent a rather damning indictment of the Canadian mutual-fund industry. Of the  $7 \times 14 = 98$  coefficients shown in Charts 1 through 7, only seven are positive; a whopping 91 of the 98 show a negative relationship between MERs and returns over the rolling five-year horizons. Equally important from the standpoint of economic significance is that the average coefficient is usually close to negative one, which implies that expenses subtract from returns on a one-to-one basis. This lends support to our hypothesis that the higher-cost funds do not en masse perform well enough to overcome their cost disadvantage, but instead tend to underperform their low-MER peers by an amount very nearly equal to the difference between the MERs.

To ensure that our conclusions are not driven by small funds whose scale inefficiencies result in higher MERs, we rerun the analysis for the large funds which collectively comprise 95% of each category's assets, and by doing so eliminate over half of the funds from the sample. The results (omitted for brevity but available from the author upon request) are slightly weaker but qualitatively similar to those for the sample as a whole: particularly for longer holding periods, the negative relationship between MERs and returns is not confined to the small

fry of the mutual-fund world but also holds for their larger brethren.

Using a sample of Canadian mutual and segregated funds that is free of survivor bias, we find that higher expense ratios have a negative effect on returns in each of the seven major fund categories examined over the 1986-2003 period. Our results are confirmed by several different analytical techniques and become even stronger as the return-horizon increases to three and five years. Not only do expenses negatively affect returns, but they appear to affect them on nearly a one-to-one basis.

This is not to say that all low-MER funds outperform all high-MER funds at all times: just as many smokers die at a ripe old age of natural causes, some high-MER funds exhibit top-quartile performance despite their cost disadvantage. But just as smoking increases the probability of contracting lung disease, our evidence shows that a high MER increases the probability of underperforming other funds in the same category.

Finally, the irony that our results become stronger as the holding period becomes longer is not lost on us. The long-term, buy-and-hold investor for whom investment-funds are designed and to whom they are marketed is also the person most harmed as high expenses exact their inevitable toll on long-term performance. Even more than the month-to-month performance-chaser, the long-term buy-and-hold investor is best served by eschewing higher-MER funds in favour of their lower-MER peers. **AER**

PANEL A: Effect of 1% increase in MER on one-year returns

1986-2003	Average	T-statistic
Fixed Income	-0.96	-6.21
Money Mkt	-0.98	-23.64
Balanced	-0.62	-1.45
Canadian Equity	-0.50	-1.31
Dividend	-1.16	-2.42
International Equity	-1.15	-2.01
US Equity	-0.72	-1.23

PANEL B: Effect of 1% increase in MER on three-year returns

1988-2003	Average	T-statistic
Fixed Income	-0.95	-6.48
Money Mkt	-1.03	-32.29
Balanced	-1.03	-4.52
Canadian Equity	-1.33	-3.74
Dividend	-1.81	-5.03
International Equity	-1.74	-5.72
US Equity	-1.14	-3.01

PANEL C: Effect of 1% increase in MER on five-year returns

1990-2003	Average	T-statistic
Fixed Income	-1.21	-25.47
Money Mkt	-1.00	-42.42
Balanced	-0.89	-5.09
Canadian Equity	-1.18	-3.67
Dividend	-2.00	-9.73
International Equity	-1.72	-3.45
US Equity	-1.72	-3.06

Though this research was conducted while the author was employed by Phillips, Hager & North Investment Management, it was undertaken completely independent-ly of them: the author financed the acquisition of the database himself, and all work was performed outside of regular employment hours.



**MISSED  
THE DETAILS ON  
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EVENTS?  
GO TO PAGES 22 & 23  
AND FIND OUT ABOUT:**

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