The Impact of Personal Income Taxes on Returns and Rankings of Canadian Equity Mutual Funds

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PRÉCIS

À partir des données sur les rendements de 343 fonds d'actions et fonds mutuels équilibrés gérés par des compagnies canadiennes au cours d'une période de dix ans, cet article évalue l'influence que les impôts sur le revenu des particuliers exerce sur la performance relative des ces fonds ainsi que sur leur classement. Nous proposons un algorithme permettant de classer les fonds mutuels selon leur rendement après impôt et calculons des mesures d'efficacité fiscale et d'excédent fiscal dans le contexte canadien, en mettant en évidence les hypothèses sous-jacentes à nos calculs.

Notre principal résultat est que le classement de fonds sur la base de leur rendement avant impôt diffère significativement de leur classement sur la base de leur rendement après impôt, et ce résultat s'avère robuste. Nous estimons à 46 % la probabilité que deux fonds dont les classements avant impôt sont voisins auront des classements inversés lorsque ceux-ci sont établis sur la base des rendements après impôt. Enfin, nous estimons qu'un investisseur qui fait face au taux marginal d'impôt sur le revenu le plus élevé perd environ 135 points de base en impôts sur les distributions de fonds, en supposant un taux de rendement annuel moyen avant impôt de 9,01 % tel que suggéré par notre échantillon.

Ces résultats devraient intéresser les nombreux Canadiens qui détiennent des fonds mutuels en dehors de leurs comptes enregistrés. Les investisseurs qui choisissent leur portefeuille de fonds mutuels en se basant sur la performance des fonds dans le passé devraient examiner les rendements historiques après impôt, les gestionnaires de fonds exerçant un important contrôle sur l'efficacité fiscale.

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ABSTRACT

This article examines 10 years of returns from 343 equity and balanced mutual funds managed by Canadian companies to assess the impact of personal income taxes on the funds' relative performance and rankings. We propose an algorithm for computing after-tax returns, which we use to generate after-tax mutual fund rankings. We also compute measures for tax efficiency and tax overhang in the Canadian context and highlight the assumptions made for the purposes of this computation.

Our main and robust result is that the ranking of funds on the basis of their pre-tax returns is significantly different from their ranking on the basis of after-tax returns. We also find a 46 percent probability that two funds whose pre-tax rankings are adjacent will have their rankings reversed when the ranking is done on an after-tax basis. Finally, we found that an investor with the highest personal marginal tax rate lost approximately 135 basis points to taxes on fund distributions from the average annual pre-tax return of 9.01 percent in our sample of funds.

These results should be of interest to the large number of Canadians who hold mutual funds outside their registered accounts. Investors who select mutual funds on the basis of past performance may want to focus on measures of historical after-tax performance, since fund managers do have substantial control over tax efficiency.

KEYWORDS: MUTUAL FUNDS ■ PERSONAL FINANCE ■ DISTRIBUTIONS ■ CAPITAL GAINS ■ PERFORMANCE ■ TRUSTS

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INTRODUCTION

The Canadian mutual fund industry is currently debating whether mutual funds should be required to disclose after-tax performance data in their annual prospectuses and public advertisements. In the United States, the Securities and Exchange Commission (SEC) has required mutual funds to disclose after-tax returns since April 2001, and professional organizations such as the Association for Investment Management and Research (AIMR) fully support the SEC's position. In Canada, the Capital Markets Branch of the Ontario Securities Commission recently solicited industry input on this issue, but there is no consensus among mutual fund companies.

Because of the significant influence of overall market conditions (bull or bear) on investment returns, mutual funds usually compete with each other on the basis of their relative rankings rather than their absolute returns. A pre-tax ranking, however, does not take into account holding period or turnover of assets inside the fund and therefore the taxable distributions made to investors. Differences in investment strategy, including holding-period decisions, generate differences in tax liability, and therefore differences in after-tax returns and rankings.

Motivated by the disclosure debate—and by the investing public's insatiable interest in historical returns—we have analyzed 343 equity and balanced mutual funds that are Canadian trusts managed by Canadian companies and marketed predominantly to Canadian investors. We selected only funds for which 10 years of historical data were available, and we analyzed the 10-year data for these funds to determine whether personal income taxes significantly affected the relative ranking of the funds. Our algorithm tracks the growth of an original dollar invested in a fund on January 1, 1992, traces all the amounts and types of distributions made by the fund, assumes that taxes are paid out of the distributions, and assumes that the after-tax amounts are reinvested in the same fund at the current fund unit value. We compare the final value of the fund on December 31, 2001 with the initial value on January 1, 1992 to arrive at total and annualized after-tax returns.

Our results for these Canadian managed funds confirm similar studies done with managed funds in the United States: the ranking of funds according to their after-tax returns is significantly different from their ranking according to their pre-tax returns. Our results also show a nearly 50 percent probability that the after-tax ranking of two funds whose pre-tax rankings were adjacent will reverse their pre-tax ranking. These results lead us to conclude that the mutual fund industry should adopt a uniform method for computing after-tax returns.

Do mutual fund managers explicitly consider changes in tax rates or tax law in making their holding-period decisions? It would be interesting to know whether the drop in the capital gains inclusion rate from 75 percent to 50 percent in 2000 prompted fund managers to hold more investments that yielded capital gains and thus to distribute more capital gains, at the expense of dividend-paying stocks and dividend distributions. Unfortunately, we do not have sufficient time-series data for the new low-tax-rate regime to address this issue.

The next section of the article examines the Canadian tax treatment of mutual fund distributions. We then review the literature on the magnitude of the effects of taxes on distributions. The two subsequent sections describe the data sources for our statistical analysis of historical returns and rankings and set forth our key results. The final section offers some concluding remarks.

THE TAX TREATMENT OF MUTUAL FUND DISTRIBUTIONS

Mutual funds are generally set up as trusts.[1] They are, therefore, taxed annually on all income, dividends, and capital gains earned in the trust that is not distributed to

1 Mutual funds may also be structured as corporations; these funds, often referred to as corporate class mutual funds, allow an investor to switch from one fund, or share class, to another on a tax-deferred basis. Distributions from a corporate class fund (reported on a T5 slip) are taxed in the same manner as distributions from a mutual fund trust. Consequently, the results of this

the unitholders. The use of a trust is beneficial, since the trust serves as a conduit for investment income and capital gains.[2] Mutual fund trusts are taxed at the highest marginal tax rate on all forms of income earned, so they usually distribute their earnings to unitholders at least once a year. In general, unitholders are no worse off under this zero-retention strategy than they would be under any alternative approach, and if their marginal tax rates are below the maximum rate they may be better off. Mutual fund distributions retain their character in the hands of the unitholders, who then pay tax at their respective marginal rates on the distributed interest, dividends, and capital gains.

Distributions to unitholders are reported annually on a T3 information slip and usually reinvested in additional units at the unit price on the date of distribution as part of an automatic savings plan. Given the automatic reinvestment of the entire distribution, unitholders must have access to other sources of cash in order to pay taxes on the distribution. In theory, a unitholder could ask the fund company to reinvest only a fraction of the distribution and remit the remainder to the tax authorities to cover the tax bill. This approach would simplify the task of tracking cash flows and computing after-tax returns for both unitholders and researchers. In computing after-tax returns for this study, we assume that taxes are paid from the distributions made and that only the net distributions are reinvested in additional units. It is important to note that the economic after-tax rate of return is the same whether the entire distribution is reinvested and taxes are paid out of another source or only the after-tax amount of the distribution is reinvested.

Investors' marginal tax rates will of course vary by income level and province of residence. Table 1 shows how a typical investor residing in British Columbia in 2001 might convert an advertised pre-tax return into a meaningful after-tax return. Note that if the investor does not redeem the fund units at year end she will not pay any taxes on the unrealized capital gains. These gains are attributable to appreciated securities within the fund that have not yet been sold by the manager.

The greater is the ratio between the after-tax return and the pre-tax return, the more tax-efficient is the fund. In the example in table 1, ratio is 85 percent (7.66 percent, the after-tax rate of return, divided by 9.01 percent, the pre-tax rate of return). In general, but not always, funds that minimize turnover—that is, the buying and selling of securities during the year—are more tax-efficient than other funds, since they have less realized gains to distribute. In some cases, mutual funds

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study should apply similarly to corporate class mutual funds. As of July 31, 2002, according to the Investment Funds Institute of Canada, corporate class mutual funds represented 3.38 percent of all mutual fund assets in Canada ($13.5 billion out of a total $400.5 billion).

2 A trust that qualifies as a unit trust or mutual fund trust can avoid the 21-year deemed realization rule and other unfavourable rules that apply to ordinary trusts. For more detailed descriptions of the taxation of mutual fund trusts, see Peter Botz, "Mutual Fund Trusts and Unit Trusts: Selected Tax and Legal Issues" (1994) vol. 42, no. 4 *Canadian Tax Journal* 1037-58, and Maurice C. Cullity, "General Concepts and Types of Trusts for Tax Purposes," in *Report of Proceedings of the Fortieth Tax Conference*, 1988 Conference Report (Toronto: Canadian Tax Foundation, 1989), 36:1-27.

TABLE 1 Example of an Annual After-Tax Return Calculation for a Resident of British Columbia Who Invested $10,000 on January 1, 2001 in a Mutual Fund that Earned a Pre-Tax Return of 9.01% During the Calendar Year

	Distributions and gains	Taxes due[a]	After-tax return (pre-liquidated)	After-tax return (fully liquidated)
Canadian dividends	$70.25	$70.25 × 0.360 = $25.29	$44.96	$44.96
Ordinary interest income	$32.12	$32.12 × 0.487 = $15.64	$16.48	$16.48
Realized capital gains	$387.11	$387.11 × 0.243 = $94.07	$293.04	$293.04
Unrealized capital gains ...	$411.52	$0	$411.52	$411.52 × (1 – 0.243) = $311.52
Total dollars	$901.00	$135.00	$766.00	$666.00
Total rate of return	9.01%	1.35%	7.66%	6.66%

[a] The highest statutory marginal tax rate for a British Columbia resident in 2001 was 48.7% for interest income, 36% for dividend income (reflecting a gross-up and dividend tax credit), and 24.3% for capital gains (reflecting a 50% inclusion rate).

can take advantage of the capital gains refund mechanism (CGRM)[3] to avoid any arising of tax at the mutual fund level. Depending on the level of redemption of its units or shares, the CGRM allows a mutual fund to claim a refund of the tax arising at the mutual fund level in relation to taxable capital gains.

The ratio of the tax loss associated with liquidation or redemption (which in table 1 equals 1 percent, or 7.66 percent minus 6.66 percent) to the pre-liquidation after-tax return provides a measure of the tax overhang, or the tax liability that may be triggered by locked-in gains. Capital gains are realized when the fund manager sells a stock that has appreciated in value. Unrealized gains are manifested in the appreciation of the net asset value of the fund, which remains untaxed until the underlying stocks are sold or the fund units are redeemed.[4] For investors in non-registered accounts, appreciation of the fund's net asset value owing to unrealized gains offers greater tax-deferred compounding than does the realization of capital gains, which triggers immediate taxes. Frequent turnover of stocks by the fund manager increases realized capital gains, thereby reducing opportunities for tax-deferred compounding and increasing the wedge between pre-tax returns and after-tax returns.

Turnover of stocks inside a mutual fund will not necessarily trigger realized capital gains. High turnover of stocks that have declined in value will not trigger realized capital gains, whereas low turnover of significantly appreciated stocks may

3 Subsection 132(1) of the Income Tax Act, RSC 1985, c. 1 (5th Supp.), as amended.

4 Money market funds generally operate differently, in that they credit all income daily and thereby keep the unit value of the fund constant.

trigger large realized capital gains (and, therefore, distributions). Turnover can also be triggered by shareholder redemptions and avoided by injecting new money into the fund. In the absence of protection from the CGRM, net redemptions can force a fund's managers to sell some of its stocks, thereby distributing realized capital gains to the remaining unitholders.

Capital gains distributions are added to the adjusted cost base (ACB) of the fund unit, a measure that reduces the liability for capital gains tax upon eventual redemption of the fund unit. Consequently, taxes paid on annual capital gains distributions may be viewed as simply a pre-payment of taxes.[5]

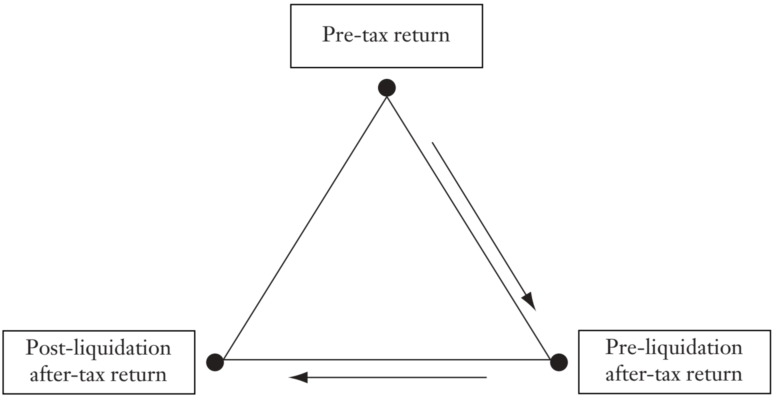
There are three rate-of-return measures that are of interest to individual investors. The first is the pre-tax rate of return, already widely reported and advertised by fund companies and the financial media. Investors who hold their mutual funds in a tax-sheltered registered plan may find this number sufficient for all of their investment planning. Investors who hold mutual funds outside of a registered plan, however, may find two other numbers more important. The first is the pre-liquidation after-tax return. This measure captures the return an investor would obtain from simply buying and holding the fund, and it reflects the tax burden on realized capital gains and on dividend and interest income earned inside the fund. The second measure is the investment return that results from selling the mutual fund unit at the end of the reporting period; it captures the additional tax burden of unrealized capital gains that is triggered when the fund unit is redeemed. Figure 1 depicts the relationship between these three measures of return. The three measures may be described arithmetically as follows:

1) The pre-tax return equals $(P_1 - P_0 + D_1)/P_0$, where P_1 is the unit price at the end of the holding period, P_0 is the unit price at the beginning of holding period, and D_1 is dividends received during the holding period.
2) The pre-liquidation after-tax return equals the pre-tax return minus the tax on interest and dividend income earned by the fund and on capital gains realized from sale of individual stocks inside the fund.
3) The post-liquidation after-tax return equals the pre-liquidation after-tax return minus the tax on capital gains realized at redemption of the mutual fund unit.

Funds that experience declines in net asset values may still make positive capital gains distributions, since fund managers buy and sell stocks on a regular basis. Although attempts are made to crystallize losses and thereby offset the gains, any net gains are flowed through to unitholders. Thus, for example, Trimark Canadian Endeavour fund distributed 5.7 percent of its net asset values despite a 4.3 percent drop in net asset values during 2002.

5 The financial press regularly warns investors to avoid buying into a fund just before it is about to make a large distribution, since this action will trigger immediate taxes on the unitholders.

FIGURE 1 The Relations Between Different Types of Mutual Fund Returns



LITERATURE REVIEW

Unlike US mutual funds, mutual funds that are managed by Canadian companies and marketed mostly to Canadian investors do not have to disclose their after-tax investment returns. Yet taxes exceed management fees and brokerage commissions in their ability to erode long-term investment returns. Although all fund companies disclose their pre-tax returns net of management fees (MERs), there is no provision for recognizing tax expense.

After-tax returns on any investment depend on the investor's tax circumstances. Indication of the difference between pre-tax return and pre-liquidation after-tax return may not offer investors a precise measure of their personal tax burden, but it does offer some measure of relative tax efficiency. Furthermore, to the extent that investors select funds on the basis of ranking, they should at least be aware that relative ranking based on a measure of pre-tax return is significantly different from relative ranking based on a measure of post-tax return.

Various measures of tax wedge or tax efficiency have been proposed in the literature. Randolph,[6] for example, defines effective portfolio turnover as the ratio of realized capital gains to total (realized plus unrealized) capital gains; the smaller is the ratio, the greater is the tax effectiveness. Randolph considers his derived measure superior to reported turnover, since the latter may reflect turnover that triggers losses rather than gains. Turnover, like cholesterol, may be either bad or good.

One way in which to remain attractive to investors is to be tax-efficient. Dickson, Shoven, and Sialm[7] provide empirical evidence that funds find it easier to be tax-

6 William Lewis Randolph, "The Impact of Mutual Fund Distributions on After-Tax Returns" (1994) vol. 3, no. 2 *Financial Services Review* 127-41.

7 Joel M. Dickson, John B. Shoven, and Clemens Sialm, "Tax Externalities of Equity Mutual Funds" (2000) vol. 53, no. 3, part 2 *National Tax Journal* 607-28.

efficient if they are in favour with investors and able to attract new money. Bergstresser and Poterba[8] explore the relation between the after-tax returns of US equity mutual funds and the subsequent new money that poured into these funds over the 1993-1998 period. They find that after-tax returns have more power to explain new cash inflows than do pre-tax returns. Moreover, other things being equal, funds with large overhangs of unrealized capital gains attracted less new money than did funds without substantial unrealized gains.

Huddart and Narayanan[9] found that fund managers considered taxes in their decisions to divest individual stocks in the fund. For growth funds, they found a statistically significant relationship between unrealized losses and decisions to divest. To be more specific, fund managers were more likely to liquidate their stocks if these divestments triggered capital losses then if they triggered like-sized capital gains.

The materiality and the long-term impact of the so-called tax wedge are well documented in the literature. Thorfinnson and Kiss[10] simulate the impact of turnover on after-tax returns in a Canadian context. They start their analysis with a $1 million equity portfolio invested at 12.4 percent for 20 years and simulate the effects of different turnover rates. They show that a turnover rate of 8.5 percent reduces performance by 1.2 percent, whereas turnover rates of 35 percent and 80 percent reduce it by 2.5 percent and 3.0 percent, respectively.

Table 2 shows the after-tax accumulated amount that is consumable by the investor under different scenarios for the fraction of gains realized annually. The investor starts with an initial investment of $10,000 in a mutual fund that earns 15 percent annually in each of the next 15 years; realized or distributed capital gains are taxed at the rate of 25 percent in the year of realization or distribution. The first column shows the fraction of unrealized capital gains (or pre-tax portfolio growth) that is realized each year. When liquidated, this fraction generates distributions (of realized capital gains) and triggers taxes payable along the way.

For example, if the fund sold 100 percent of the stocks in the portfolio in each year, then an initial investment of $10,000 would grow to $49,488 after taxes. If, however, the fund did not sell any of its stock holdings—the ultimate buy-and-hold strategy—$10,000 would grow to $63,527. Thus the second of the two extreme cases provides the mutual fund investor with 30 percent more consumable dollars than the first.

Fortin and Michelson,[11] in a study of US-managed funds during the period 1976-1993, found after-tax returns to be approximately 15 percent less than pre-

8 Daniel Bergstresser and James Poterba, *Do After-Tax Returns Affect Mutual Fund Inflows?* NBER Working Paper no. 7595 (Cambridge, MA: National Bureau of Economic Research, March 2000).

9 Steven Huddart and V.G. Narayanan, "An Empirical Examination of Tax Factors and Mutual Funds' Stock Sales Decision" (2002) vol. 7, no. 2-3 *Review of Accounting Studies* 319-41.

10 Mike Thorfinnson and Jason Kiss, "The Overlooked Piranha" (1996) vol. 9, no. 3 *Canadian Investment Review* 17-21.

11 Rich Fortin and Stuart Michelson, "What Mutual Funds Really Return After Taxes" [April 1996] *Journal of Financial Planning* 60-65.

TABLE 2 Relation Between Fund Turnover and Accumulated Portfolio After 15 years—$10,000 Investment and 15 Percent Annual Return

Fraction of capital gains realized each year (%)	Amount accumulated after 15 years ($)
0	63,527
10	61,907
20	60,340
30	58,822
40	57,354
50	55,933
60	54,558
70	53,227
80	51,940
90	50,694
100	49,488

Note: These results assume a 15 percent annual rate of return and a 25 percent annual marginal tax rate on realized capital gains for the entire period.

tax returns, even without considering state taxes. The tax wedge they computed varied widely across fund categories; it ranged from approximately 30 percent for corporate, government, and international bond funds to 10 percent for small-cap and international equity funds. Our results, shown in table 3, are similar: an average of 15 percent of the pre-tax return is lost to taxes on realized capital gains that are triggered by the turnover initiated by the fund managers. In other words, the pre-liquidation after-tax return is approximately 85 percent of the value of the pre-tax return.

A frequently cited study by Jeffrey and Arnott[12] considered whether actively managed mutual funds can produce sufficient returns from trading to cover not only management fees and trading costs but also the taxes induced by the turnover. They found that it is possible for active management to increase the after-tax value of returns, but only with careful planning. The implications of this conclusion are far-reaching: If most fund managers have a difficult time adding value by adopting an active investment strategy rather than a passive one, then the additional tax burden associated with an active strategy can only make things worse.

After-tax returns also depend critically on what holding period the fund's managers select, since annual fund distributions are not uniform across the year. Most mutual fund trusts calculate and distribute capital gains only at year-end, since it is difficult to determine net annual gains or losses earlier. It is possible, therefore, to change after-tax returns significantly by either including or excluding the month of distribution. Given the vagaries of the stock market, however, pre-tax returns are subject to the same sensitivity.

12 Robert H. Jeffrey and Robert D. Arnott, "Is Your Alpha Big Enough To Cover Its Taxes?" (1993) vol. 19, no. 3 *The Journal of Portfolio Management* 15-25.

In the case of the approximately 46 percent of investments by Canadians in mutual funds that are held inside registered accounts (registered retirement savings plans, registered retirement income funds, registered education savings plans, and other, similar plans),[13] the disclosure of after-tax returns is irrelevant, since this income is not subject to tax until it is withdrawn.[14] For sheltered investments, the rankings of pre-tax returns in table A1 in the appendix, below, are more relevant than the rankings of after-tax returns, subject to the caveats that historical rankings do not necessarily predict future rankings and that the rankings in the appendix are not adjusted for risk. The remaining 54 percent of investments in mutual funds are held in non-registered accounts that attract tax on an annual basis. Thus the market segment for which after-tax returns are more relevant than pre-tax returns is substantial. Furthermore, investors who hold mutual funds inside registered accounts may still be interested in their funds' tax efficiency, since they may wish to hold the same funds outside their registered accounts. Poterba, Shoven, and Sialm[15] elaborate on this point in their investigation of how retirement savers decide to allocate their investments between registered and non-registered accounts.

The tax rates that the various studies have used in calculating after-tax return range from the highest federal rate, excluding state and municipal taxes,[16] to an arbitrary 35 percent.[17] Our analysis uses the highest personal combined (federal and provincial) statutory tax rate in Canada adjusted for year and type of income (interest, dividends, or realized capital gains). Furthermore, the results we show in figures 2, 3, and 4 do not change substantially if one substitutes the medium-bracket tax rate (the federal rate of 22 percent adjusted for provincial income taxes, year, and type of income) for the top-bracket tax rate. As awareness of mutual fund fees increases and brokerage costs for buying and selling equities decline, many individuals who face the top-bracket marginal tax rate may switch from holding mutual funds to holding stocks directly. The findings of this study, however, remain applicable even if the mutual fund clientele is more likely to be in the middle tax bracket than the upper tax bracket.

DATA SOURCES AND SAMPLE SELECTION

Our study combines data from two sources: Morningstar Canada and Fundata Canada. These data provided us with net asset values and distributions for all retail mutual funds managed by Canadian companies that had at least a 10-year record of

13 As of December 2001. See Investor Economics, *Insight Index Funds Report*, February 11, 2002.

14 At which time it is taxed at ordinary rates, regardless of the type of income earned.

15 James M. Poterba, John B. Shoven, and Clemens Sialm, *Asset Location for Retirement Savers*, NBER Working Paper no. 7991 (Cambridge, MA: National Bureau of Economic Research, November 2000).

16 Securities and Exchange Commission, "Final Rule: Disclosure of Mutual Fund After-Tax Returns," January 18, 2001 (release nos. 33-7941; 34-43857; IC-24832; file no. S7-09-00).

17 Randolph, supra note 6.

performance on December 31, 2001. We found some discrepancies between the two sources, particularly in the classification of the distributions, and used an independent source—"The 15-Year Review of Mutual Funds" published semi-annually by *The Globe and Mail*, to reconcile the differences. In some cases, we examined the fund company's annual reports to determine the correct classification.

Our analysis suggested that whereas net asset values and the magnitude of fund distributions were fairly consistent across different databases there were some inconsistencies in the classification of distributions. We found instances of negative distributions (which apparently can occur, though very rarely, in the case of segregated funds of insurance companies), dividend funds that distribute all their gains as interest, and a variety of other puzzling anomalies. In some cases, dividend and interest distributions were aggregated and classified as interest distributions; in others, foreign sources of income were not segregated.

After a variety of judgment calls to resolve conflicting and ambiguous distributions, we reduced the data set to 343 equity and balanced funds with a record during the entire 10-year period January 1992 through December 2001. In our best estimate, this sample size represents approximately 90 percent of the universe of equity and balanced funds, managed by Canadian companies, that have a 10-year history.

Table A1 in the appendix lists the 343 funds, their pre-tax and post-tax returns over the 10-year period, and their relative rankings in respect of these returns. It is important to note that these rankings do not take into consideration differences in risk among the funds. In making actual investment decisions, one should compare only funds with the same risk. Furthermore, past returns and rankings of any type may not be indicative of future returns and rankings. Table 3 summarizes the data in table A1.

Our data do not include equity and balanced funds that may have operated during the period 1992-2002 but did not have a complete 10-year performance history. For example, our analysis would exclude a fund that was operational in the early 1990s but that subsequently closed down owing to poor performance. Omissions of this kind lead to what is known as the survivorship bias problem, which plagues much of the literature on mutual fund performance. One likely consequence of survivorship bias is that *observed* average returns will be higher than *true* average returns, since "losers" are more likely than "winners" are to have disappeared from the performance record. Since we are concerned with the impact of taxes on relative ranking and returns, rather than with performance relative to an index, we are not concerned about the problem of survivorship bias.[18]

Finally, in our regression analysis, we deleted 14 observations of mutual funds with negative 10-year performance records, since the tax-efficiency algorithm does not allow for negative returns (worse becomes better under the algorithm).

18 Interestingly, Cambridge (the funds with the worst performance) recently announced a restructuring and merging of funds that will likely remove them from future databases as well.

TABLE 3 Summary of Results in Table A1

	Number of funds observed	Mean	Median	Standard deviation	Maximum	Minimum
				percent		
Pre-tax return[a]	343	9.01	9.10	4.45	21.58	−16.16
Pre-liquidation after-tax return[a]	343	7.66	7.81	4.35	18.84	−16.77
Post-liquidation after-tax return[a]	343	6.66	6.78	3.90	16.21	−16.77
Tax loss to distribution[b]	343	1.35	1.25	1.12	7.13	0.00
Tax loss to liquidation[c]	343	1.00	1.02	0.62	2.63	0.00
Tax efficiency[d]	329	84.91	86.75	12.80	100.00	25.31
Tax overhang[e]	329	11.98	12.93	5.37	22.95	0.00

[a] Based on compound annual returns from 343 funds over the period January 1, 1992 through December 31, 2001. The calculations use the highest tax rates in Canada.
[b] Pre-tax return minus pre-liquidation after-tax return.
[c] Pre-liquidation after-tax return minus post-liquidation after-tax return.
[d] 1 – (tax loss to distribution/pre-tax return); the calculation excludes funds with negative returns.
[e] Tax loss to liquidation/pre-liquidation/after-tax return; the calculation excludes funds with negative returns.

RESULTS

Table 3 shows that the annualized pre-tax returns for the 343 funds averaged to 9.01 percent over the period. They ranged from a high of 21.58 percent to a low of −16.16 percent, with a standard deviation of 4.45 percent. The average annualized pre-liquidation after-tax return was 7.66 percent; the highest-ranked fund according to this measure earned 18.84 percent and the lowest ranked fund earned −16.77 percent. The standard deviation of pre-liquidation annualized after-tax return was 4.35 percent. Finally, the average annualized post-liquidation after-tax rate of return over the 10-year holding period was 6.66 percent. The range in this case was from 16.21 percent to −16.77 percent, with a standard deviation of 3.90 percent.

Table 3 clearly shows that taxes on distributions are material. An investor who faced the top statutory rate lost an average of 135 basis points (that is, 9.01 percent minus 7.66 percent) from the average annualized pre-tax return to income taxes paid on the fund's annual distributions; the result was an average tax efficiency of 85 percent (7.66 percent divided by 9.01 percent). An additional 100 basis points (7.66 percent minus 6.66 percent) per annum were lost to capital gains taxes upon redemption of the fund units at the end of the 10-year period. The 343 funds in our analysis ranged in their tax efficiency from 25 percent to 100 percent; the latter case implies a pre-liquidation after-tax return that is equal to the pre-tax return.

Table 4 shows the calculation of after-tax returns for a randomly selected equity mutual fund. We describe the detailed step-by-step algorithm in the appendix.

As figures 2, 3, and 4 show, the ranking of the mutual funds in our sample changes significantly if one compares the funds on an after-tax basis rather than a

TABLE 4 Sample Calculation of After-Tax Returns for the Elliott & Page Equity Fund

Date	Net asset value per unit at end of period	Interest distribution ($)	Highest tax rate on interest (%)	Capital gain distribution ($)	Highest tax rate on capital gain (%)	Dividend distribution ($)	Highest tax rate on dividend (%)	Foreign dividend distribution ($)	Highest tax rate on foreign dividend (%)	Split factor	Number of units assuming that entire distribution is reinvested	Number of units assuming that after-tax distribution is reinvested	Total cost ($)
31/12/91	28.7										34.84321	34.84321	1,000.00000
30/06/92	30.37	—	51.6	—	38.7	0.07	36.6	—	51.6	—	34.92352	34.89412	1,001.54634
31/08/92	9.97	—	51.6	—	38.7	—	36.6	—	51.6	3	104.77055	104.68237	1,001.54634
31/12/92	10.18	—	51.6	0.294	38.7	—	36.6	—	51.6	—	107.79634	106.53562	1,020.41241
30/09/93	12.56	—	52.4	—	39.3	0.0176	36.5	—	52.4	—	107.94739	106.63041	1,021.60305
31/12/93	11.17	—	52.4	2.134	39.3	0.02	36.5	—	52.4	—	128.76374	119.11713	1,161.07968
31/03/94	11.06	—	54.2	—	40.6	0.057	36.6	—	54.2	—	129.42735	119.50634	1,165.38433
31/12/94	10.41	—	54.2	0.538	40.6	—	36.6	—	54.2	—	136.11630	123.17501	1,203.57521
29/12/95	11.69	—	54.2	0.88991	40.6	0.162527	36.6	—	54.2	—	148.37069	129.83056	1,281.37854
31/12/96	13.6	—	54.2	0.737978	40.6	0.22	36.6	—	54.2	—	158.82186	135.34682	1,356.39969
31/12/97	13.24	—	54.2	—	40.6	0.101097	36.6	—	54.2	—	160.03458	136.00204	1,365.07481
17/12/99	15.05	—	52.9	0.117874	39.7	0.197736	37.9	—	52.9	—	163.39062	137.75400	1,391.44181
15/12/00	11.91	—	51.3	5.005853	34.2	0.006453	35.0	—	51.3	—	232.15333	175.90001	1,845.76079
31/12/01	10.25										232.15333	175.90001	1,845.76079

pre-tax basis. Figure 2 plots the pre-tax rankings against the pre-liquidation after-tax rankings for all the mutual funds in our sample. Each point represents one of the mutual funds. A fund that falls below the diagonal line had a pre-liquidation after-tax ranking that was higher than its pre-tax ranking; a fund that falls above the diagonal had a pre-liquidation after-tax ranking that was lower than its pre-tax ranking.

The average absolute value of the difference between pre-tax rankings and pre-liquidation after-tax rankings was 28. In other words, the average fund moved 28 places higher or lower in a ranked list of the 343 funds in our sample. For 50 percent of our sample funds, the difference between the fund's pre-tax ranking and its pre-liquidation after-tax ranking was no more than 19 places. The maximum change in ranking in our sample was a drop of 185 places.

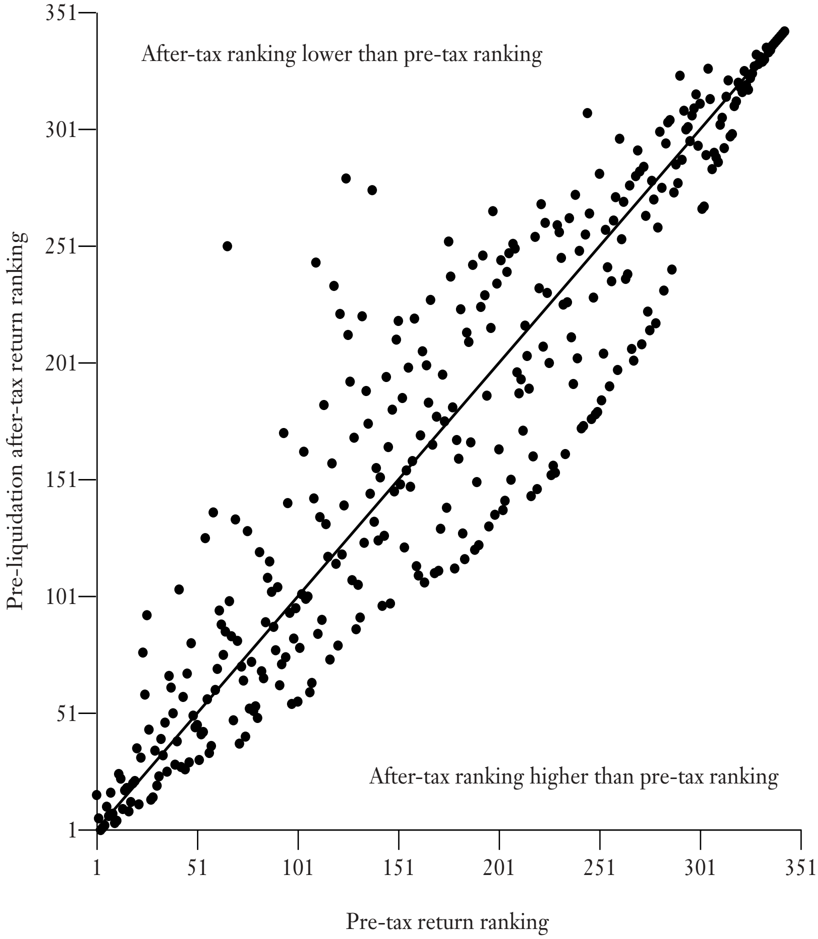
Figure 3 plots the pre-tax rankings of the mutual funds in our sample against the post-liquidation (after a 10-year holding period) after-tax rankings. The average absolute value of the difference between pre-tax rankings and post-liquidation after-tax rankings was 18. In other words, the average fund moved 18 places higher or lower on a ranked list of the 343 funds in our sample.

Figure 4 plots the pre-liquidation after-tax rankings against the post-liquidation (after a 10-year holding period) after-tax rankings for all of the mutual funds in our sample. The average absolute value of the difference between pre-liquidation after-tax rankings and post-liquidation after-tax rankings was 11.

The main message of figures 4, 5, and 6 is that the relative performance of a mutual fund can become either better or worse if it is ranked on the basis of its after-tax returns rather than its pre-tax returns. The change evidenced by the scattering of after-tax rankings away from the diagonal persists regardless of variations in individuals' marginal tax rates, holding-period assumptions, or choice of historical period.

Figure 5 shows the probability that the pre-liquidation after-tax ranking will reverse the pre-tax ranking of funds that are more or less adjacent on the pre-tax ranking scale. For example, suppose that an investor selects a mutual fund on the basis of its rank on the pre-tax return scale. As the first bar of figure 5 shows, if the gap between the pre-tax return of the selected fund and the pre-tax return of another fund is 1 basis point or less, there is a 46 percent probability that the pre-liquidation after-tax ranking will reverse the pre-tax ranking. Paradoxically, as the difference between funds' pre-tax returns increases, the probability of ranking reversal also increases. This outcome suggests that higher pre-tax returns generally require a more active management style—that is, one that involves a higher turnover of investments inside the fund, and consequently higher fund distributions and correspondingly lower after-tax returns. For example, when the gap in pre-tax returns increases from 1 basis point or less to 1 to 2 basis points, the probability of ranking reversal increases from 46 percent to 66 percent. Altogether, as figure 5 shows, there is a 47 percent chance that the pre-liquidation after-tax ranking of adjacent mutual funds will reverse the pre-tax ranking. Figure 6 shows the probability of reversals in ranking in comparisons of pre-tax returns and post-liquidation after-tax returns. Altogether, as figure 6 shows, there is a 45 percent chance that the post-liquidation after-tax ranking of more or less adjacent mutual funds will reverse the pre-tax ranking.

FIGURE 2 Pre-Tax Return Rankings Versus Pre-Liquidation After-Tax Return Rankings



These results suggest that selecting funds for taxable accounts on the basis of their relative rankings in terms of pre-tax returns may lead to erroneous investment choices. Of course, past returns may not provide any indication of future returns.

One measure of tax efficiency is the ratio of the pre-liquidation after-tax return to the pre-tax return. Tax-efficient funds have less turnover than other funds and consequently a higher tax overhang—that is, higher unrealized capital gains. Tax overhang is defined more formally as the ratio of the tax loss that is attributable to liquidation of mutual fund units to the pre-liquidation after-tax return. Figures 7, 8, and 9 show that funds with a high level of tax efficiency generally tend to have high tax overhangs.

FIGURE 3 Pre-Tax Return Rankings Versus Post-Liquidation After-Tax Return Rankings

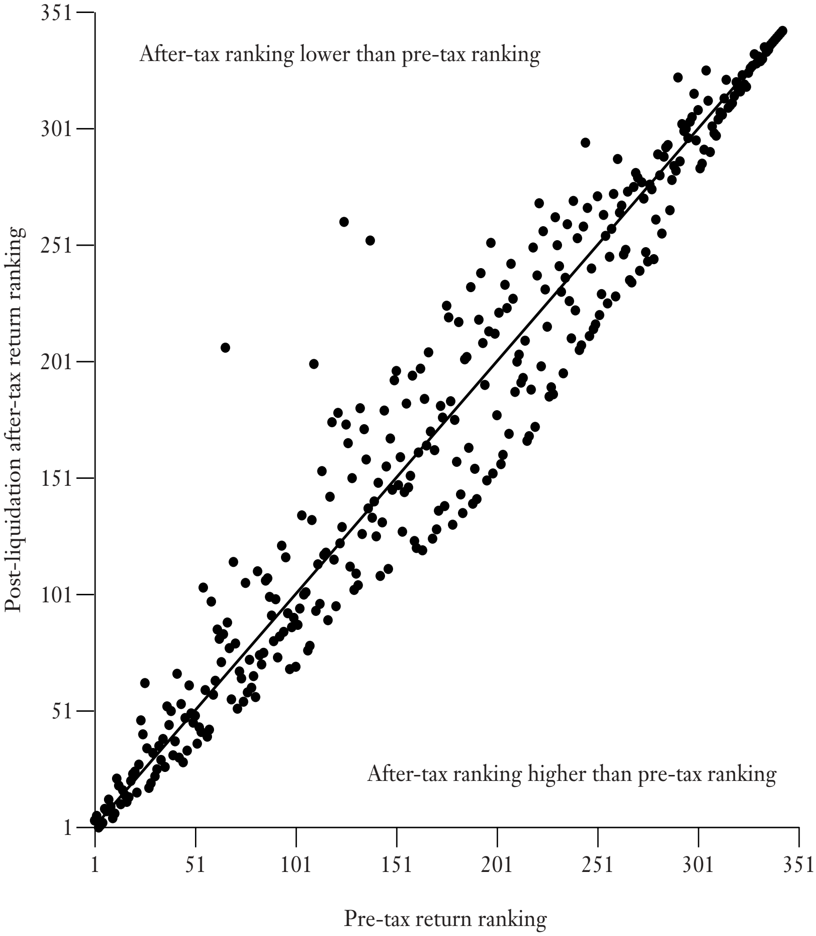
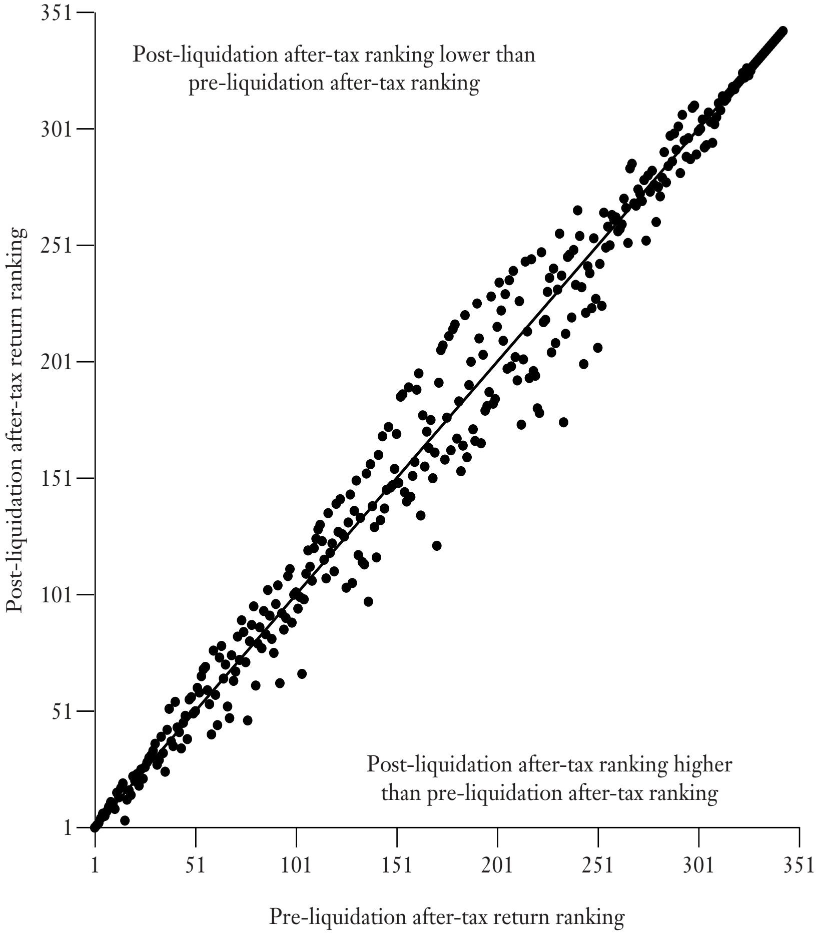


Figure 10 shows that pre-tax return measures of pure equity funds do not seem to have any statistical association with the funds' tax efficiency (or after-tax returns). This outcome suggests that it may not be easy to predict a pure equity fund's after-tax return or tax efficiency on the basis of its pre-tax return; hence the off-diagonal scattering in figures 2, 3, and 4. The obvious implication is that fund managers who rank high on a pre-tax basis may not necessarily rank high on an after-tax basis. Figure 11 shows a similar result for balanced mutual funds.

CONCLUDING REMARKS

The study discussed in this article developed an algorithm for computing the after-tax returns of mutual funds in a Canadian context and then compared the relative

FIGURE 4 Pre-Liquidation After-Tax Return Rankings Versus Post-Liquidation After-Tax Return Rankings

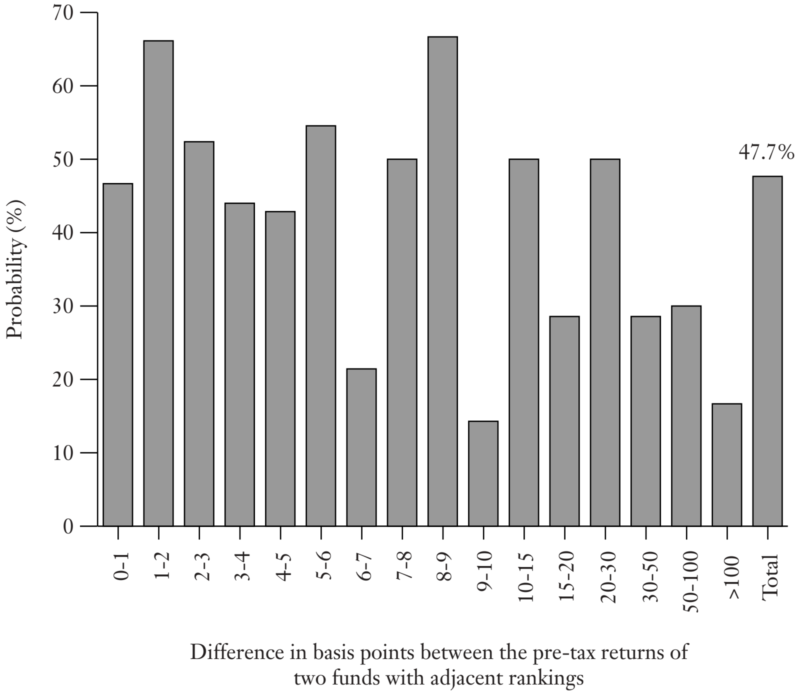


performance of 343 mutual funds managed and marketed by Canadian companies on a pre-tax and post-tax basis during the period 1992-2001, inclusive.

Individual taxable investors will, of course, seek to maximize their after-tax returns. To some extent, taxes on distributions are within the control of fund managers; consequently, investors should monitor their funds' tax implications in much the same way as they monitor the funds' risk and diversification characteristics. Of course, this monitoring should be done carefully, since—like pre-tax returns—after-tax returns for a single quarter or year may not necessarily reflect the fund's tax implications in the long term.

Our algorithm for calculating after-tax returns may not be universally acceptable, and we do not expect a single tax-efficiency measure that all members of the

FIGURE 5 Probability That the Ranking of Two Funds on the Basis of Their Pre-Liquidation After-Tax Returns Will Reverse Their Ranking on the Basis of Their Pre-Tax Returns



industry can agree upon to evolve soon. Indeed, all of the measures suggested in the literature have difficulties, and no measure is able to show the effect of taxes on a particular unitholder. Yet the fact that it is difficult to measure after-tax returns or to agree on a measure does not mean that nothing be done. Our analysis clearly shows that income taxes do matter, and that they are material. For investors who held mutual funds outside of registered accounts, taxes on annual fund distribution eroded approximately 135 basis points, or 15 percent, of the annualized pre-tax return for an average fund over the period January 1, 1992 through December 31, 2001.

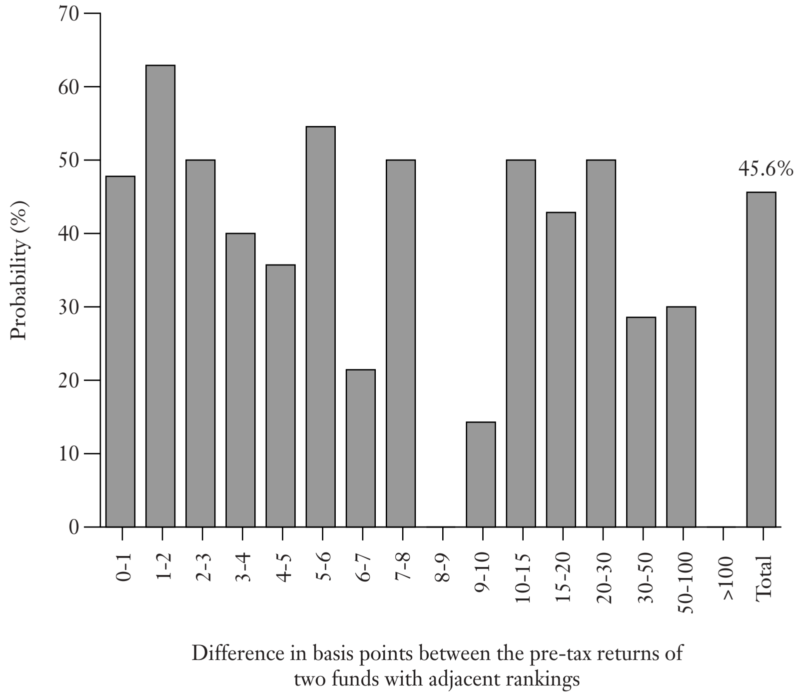
APPENDIX: AN ALGORITHM FOR COMPUTING AFTER-TAX RETURNS

The formulas we have used to calculate mutual fund returns are adapted from Dickson and Shoven.[19] Following Securities and Exchange Commission (US)[20] and Dickson and Shoven, we calculated after-tax returns by assuming that any taxes due

19 Joel M. Dickson and John B. Shoven, *Ranking Mutual Funds on an After-Tax Basis*, NBER Working Paper no. 4393 (Cambridge, MA: National Bureau of Economic Research, July 1993).

20 Supra note 16.

FIGURE 6 Probability That the Ranking of Two Funds on the Basis of Their Post-Liquidation After-Tax Returns Will Reverse Their Rankings on the Basis of Their Pre-Tax Returns



on a distribution are paid out of the distribution when the distribution is reinvested and thus reduce the amount reinvested. Moreover, for multiple distributions on different days in the month, we assume that the new units received from reinvesting one payment has no claim on any further distributions made in the same month.

$$\textit{Pre-tax return} = \left(\frac{\# BT_T \cdot NAVPS_T}{\textit{Initial investment}} \right)^{\frac{1}{n}} - 1, \tag{1}$$

$$\textit{Pre-liquidation after-tax return} = \left(\frac{\# AT_T \cdot NAVPS_T}{\textit{Initial investment}} \right)^{\frac{1}{n}} - 1, \tag{2}$$

and

$$\textit{Post-liquidation after-tax return} = \left[\frac{\left(\# AT_T \cdot NAVPS_T\right) - TUG}{\textit{Initial investment}} \right]^{\frac{1}{n}} - 1, \tag{3}$$

FIGURE 7 Equity and Balanced Mutual Funds: The Relation Between Tax Efficiency and Tax Overhang

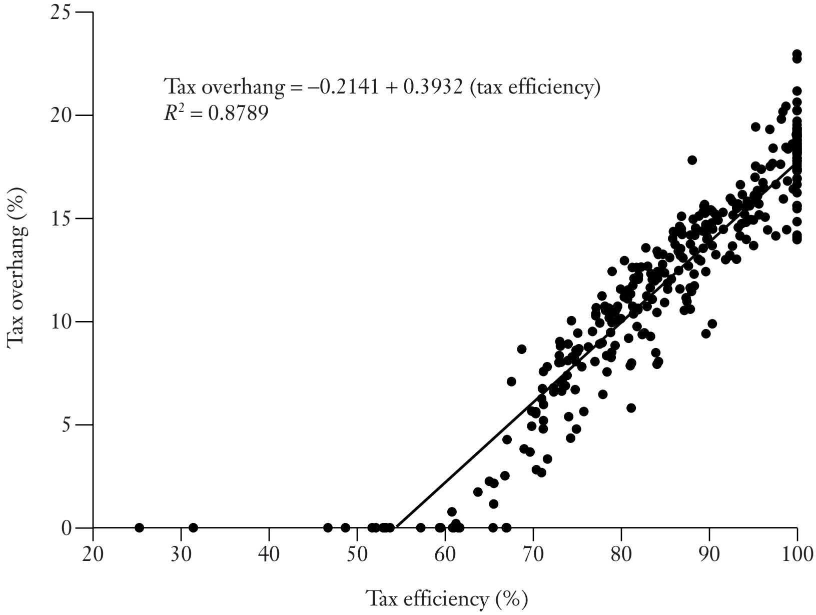


FIGURE 8 Equity Mutual Funds Only: The Relation Between Tax Efficiency and Tax Overhang

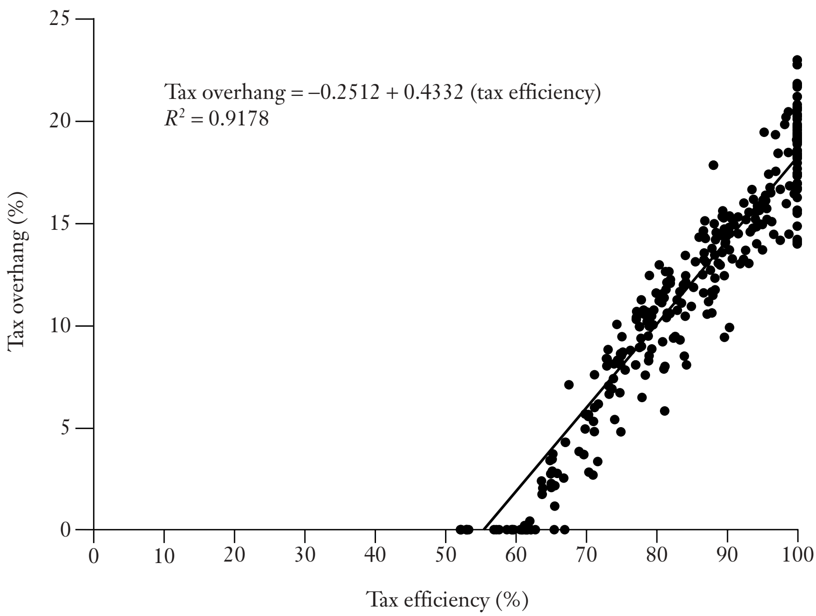


FIGURE 9 Balanced Mutual Funds Only: The Relation Between Tax Efficiency and Tax Overhang

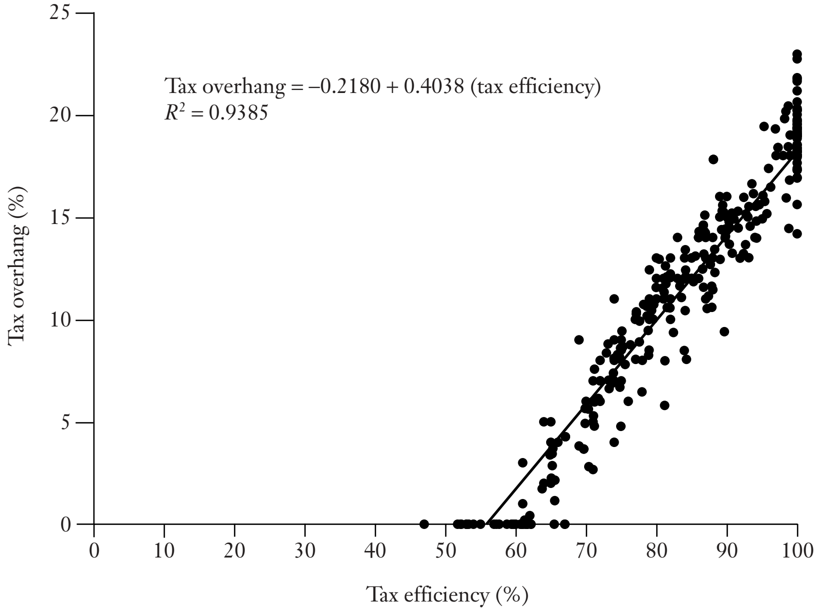


FIGURE 10 Equity Mutual Funds Only: The Relation Between Pre-Tax Return and Tax Efficiency

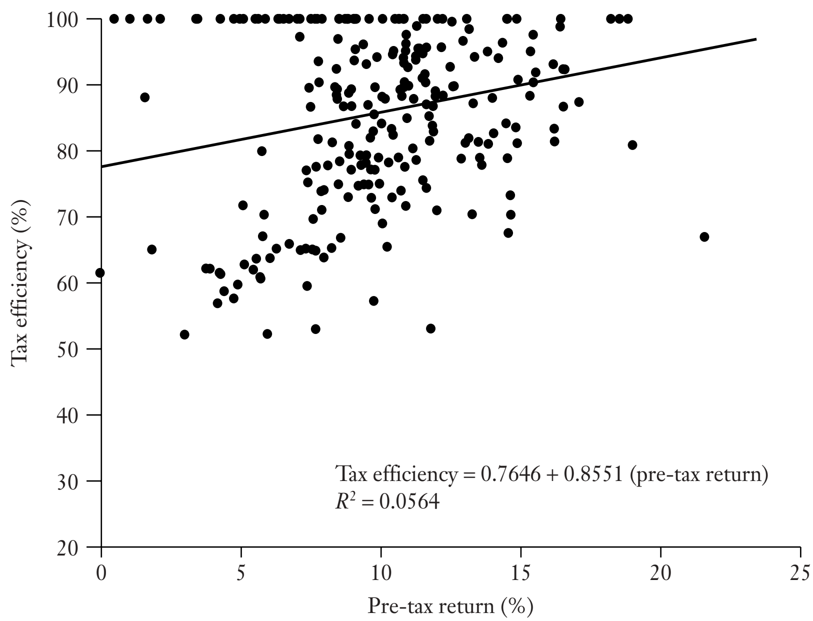
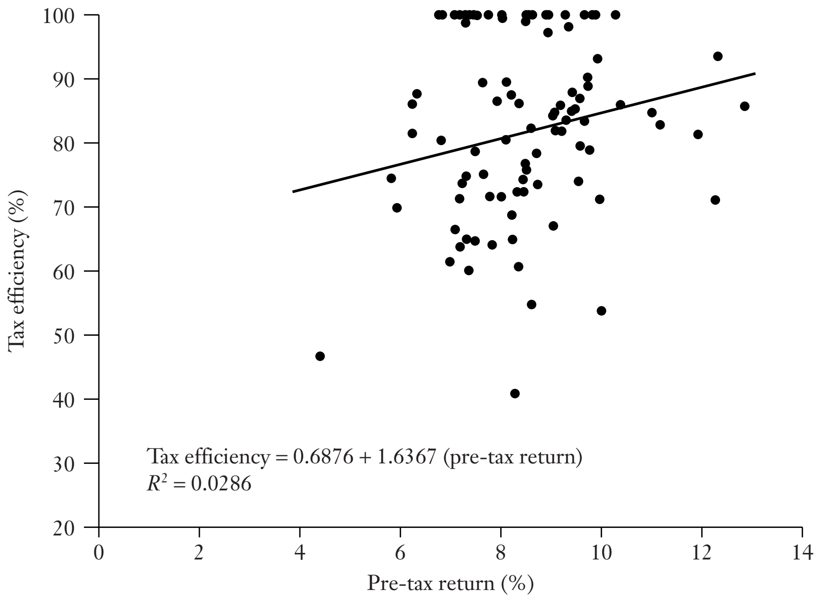


FIGURE 11 Balanced Mutual Funds Only: The Relation Between Pre-Tax Return and Tax Efficiency



Note: Coefficient is statistically insignificant.

where

$\#BT_T$	=	the number of units at the end of a holding period assuming the entire distribution is reinvested,
$\#AT_T$	=	the number of shares at the end of a holding period assuming the after-tax distribution is reinvested,
$NAVPS_T$	=	the net asset value per unit at the end of a holding period,
n	=	the number of a holding period, and
TUG	=	the tax on unrealized gain.

$$\#BT_t = \left[\#BT_{t-1} + \frac{\#BT_{t-1} \cdot int_t}{NAVPS_t} + \frac{\#BT_{t-1} \cdot CG_t}{NAVPS_t} + \frac{\#BT_{t-1} \cdot Div_t}{NAVPS_t}\right] SF_t, \tag{4}$$

$$\#AT_t = \left\{ \begin{array}{l} \#AT_{t-1} + \dfrac{\left[\#AT_{t-1} \cdot \left(1 - t_{int_t}\right) \cdot int_t\right]}{NAVPS_t} + \dfrac{\left[\#AT_{t-1} \cdot \left(1 - t_{CG_t}\right) \cdot CG_t\right]}{NAVPS_t} \\ + \dfrac{\left[\#AT_{t-1} \cdot \left(1 - t_{Div_t}\right) \cdot Div_t\right]}{NAVPS_t} + \dfrac{\left[\#AT_{t-1} \cdot \left(1 - t_{FxDiv_t}\right) \cdot FxDiv_t\right]}{NAVPS_t} \end{array} \right\} SF_t, \tag{5}$$

$$\#BT_0 = \#AT_0 = \frac{Initial\ investment}{NAVPS_0}, \tag{6}$$

where

t_{int_t} = the highest combined personal marginal tax rate in Canada for interest at time t,
t_{CG_t} = the highest combined personal marginal tax rate in Canada for realized capital gains at time t,
t_{Div_t} = the highest combined personal marginal tax rate in Canada for dividend at time t,
t_{FxDiv_t} = the highest combined personal marginal tax rate in Canada for foreign dividend at time t,
CG_t = the capital gain distribution at time t,
Div_t = the dividend distribution at time t,
$FxDiv_t$ = the foreign dividend distribution at time t,
SF_t = the split factor at time t,
$NAVPS_t$ = the net asset value per share at which the distribution at time t is reinvested,
$NAVPS_0$ = the net asset value per share at the beginning of a holding period, and
TUG = the tax on unrealized gain.

$$TUG = \max\left[\# AT_T \cdot \left(NAVPS_T - ACB_T\right) \cdot t_{URCG_T}, 0\right], \tag{7}$$

where

t_{URCG_T} = the highest combined personal marginal tax rate in Canada for capital gain at the end of a holding period, and
A_{CB_T} = the adjusted cost base per unit at the end of a holding period.

$$ACB_t = \frac{TC_t}{\# AT_t}, \tag{8}$$

where

$$TC_t = TC_{t-1} + \left[\# AT_{t-1} \cdot int_t \cdot \left(1 - t_{int_t}\right)\right] + \left[\# AT_{t-1} \cdot CG_t \cdot \left(1 - t_{CG_t}\right)\right] + \left[\# AT_{t-1} \cdot Div_t \cdot \left(1 - t_{Div_t}\right)\right] + \left[\# AT_{t-1} \cdot FxDiv_t \cdot \left(1 - t_{FxDiv_t}\right)\right], \tag{9}$$

and

$$TC_0 = \mathit{Initial\ investment}. \tag{10}$$

Table 4, above, shows a sample calculation based on information from the Elliott & Page Equity Fund. We assume that an initial investment of \$1,000 in the

Elliott & Page Equity Fund at the NAVPS on December 31, 1991—$28.70. According to equations 6, 10, and 8,

$$\begin{aligned}
\#BT \text{ on December 31,1991} &= \#AT \text{ on December 31, 1991} = 1000/28.7 = 34.84321,\\
TC \text{ on December 31, 1991} &= \text{Initial investment} = \$1,000,
\end{aligned}$$

and

$$ACB \text{ on December 31, 1991} = \$1,000/34.84321 = \$28.70.$$

On June 30, 1992, the fund distributes a dividend of $0.07 per units, which will be reinvested at $30.37. According to equations 4, 5, 9, and 8,

$$\begin{aligned}
\#BT \text{ on June 30, 1992} &= 34.84321 + [(34.84321 \times 0.07)/30.37]\\
&= 34.92352,\\
\#AT \text{ on June 30, 1992} &= 34.84321 + \{[34.84321 \times 0.07 \times (1 - 0.3660)]/30.37\}\\
&= 34.89412,\\
TC \text{ on June 30, 1992} &= \$1000 + [34.84321 \times 0.07 \times (1 - 0.3660)]\\
&= \$1001.54634,
\end{aligned}$$

and

$$ACB \text{ on June 30, 1992} = \$1001.54634/34.89412 = \$28.70244.$$

On August 30, 1992, Elliott & Page Equity Fund did not make any distributions but split its units with a split factor of three. According to equations 4, 5, 9, and 8,

$$\begin{aligned}
\#BT \text{ on August 30, 1992} &= 34.92352 \times 3 = 104.77056,\\
\#AT \text{ on August 30, 1992} &= 34.89412 \times 3 = 104.68236,
\end{aligned}$$

and

$$ACB \text{ on August 30, 1992} = \$1001.54634/104.68236 = \$9.56748.$$

On December 31, 1992, the fund distributes capital gains of $0.294 per unit, which is reinvested at $10.18. Thus,

$$\begin{aligned}
\#BT \text{ on December 31, 1992} &= 104.77056 + [(104.77056 \times 0.294)/10.18]\\
&= 107.79635,\\
\#AT \text{ on December 31, 1992} &= 104.68236 + \{[104.68236 \times 0.294{*}(1 - 0.3870)]/10.18\}\\
&= 106.53561,\\
TC \text{ on December 31, 1992} &= \$1001.54634 + [104.68236 \times 0.294 \times (1 - 0.3870)]\\
&= \$1020.41241,
\end{aligned}$$

and

$$ACB \text{ on December 31, 1992} = \$1020.41241/106.53561 = \$9.57813.$$

The same procedures are used to calculate $\#BT$, $\#AT$, TC, and ACB of other years. At the end of the 10-year holding period, December 31, 2001, $\#BT = 232.15333$, $\#AT = 175.90001$, $TC = \$1845.76079$, $ACB = \$10.49324$, and $NAVPS = \$10.25$. According to equations 1, 2, and 3,

$$\textit{Pre-tax return} = \left[\frac{(232.15333 \cdot 10.25)}{1000}\right]^{\frac{1}{10}} - 1 = 9.06\%,$$

$$\textit{Pre-liquidation after-tax return} = \left[\frac{(175.90001 \cdot 10.25)}{1000}\right]^{\frac{1}{10}} - 1 = 6.07\%,$$

and

Post-liquidation after-tax return

$$= \left\{\frac{(175.90001 \cdot 10.25) - \max\left[175.90001 \cdot (10.25 - 10.49324) \cdot 0.244, 0\right]}{1000}\right\}^{\frac{1}{10}} - 1 = 6.07\%.$$

Note that t_{URCG} at liquidation is 24.4 percent. Since the NAVPS at liquidation is the same as the ACB ($10.25), the tax on unrealized gain is zero.

TABLE A1 Returns from and Rankings of 343 Equity and Balanced Mutual Funds, Managed by Canadian Companies, at the End of the Period 1992 Through 2001

	Pre-tax return (%)	Pre-liquidation after-tax return (%)	Post-liquidation after-tax return (%)	Pre-tax return ranking	Pre-liquidation after-tax return ranking	Post-liquidation after-tax return ranking	Tax loss to mutual fund distribution (%)	Tax loss to liquidation (%)	Tax efficiency (%)	Tax overhang (%)
Multiple Opportunities Fund	21.58	14.45	14.45	1	16	4	7.13	0.00	66.97	0.00
ABC Fundamental-Value Fund	19.00	15.37	13.96	2	6	6	3.63	1.41	80.88	9.18
Formula Growth Fund	18.84	18.84	16.21	3	1	1	0.00	2.63	100.00	13.96
AIC Advantage Fund	18.54	18.54	15.93	4	2	2	0.00	2.61	100.00	14.07
Maestral Quebec Growth Inc.	18.23	18.23	15.65	5	3	3	0.00	2.58	100.00	14.18
Signature American Small Companies	17.09	14.94	13.27	6	11	9	2.15	1.66	87.40	11.14
Quadrus Dividend Fund (MX)	16.58	15.32	13.30	7	7	8	1.27	2.02	92.35	13.17
Trimark Fund—SC	16.53	14.33	12.68	8	17	13	2.20	1.66	86.70	11.57
MAXXUM Dividend Fund	16.52	15.26	13.25	9	8	10	1.26	2.02	92.38	13.21
Forester Growth Funds—Equity	16.44	16.44	14.00	10	4	5	0.00	2.44	100.00	14.83
Investors U.S. Large Cap Value Fund	16.42	16.22	13.88	11	5	7	0.19	2.34	98.82	14.44
AGF International Value Fund	16.22	13.21	11.84	12	25	22	3.01	1.37	81.42	10.36
Chou Associates Fund	16.20	13.51	12.26	13	23	19	2.70	1.25	83.36	9.27
Northwest Specialty Equity Fund	16.17	15.06	13.10	14	10	11	1.11	1.96	93.13	13.01
Saxon Stock Fund	15.54	14.28	12.43	15	18	17	1.26	1.85	91.89	12.99
Dominion Equity Resource Fund Inc.	15.46	13.97	12.59	16	19	15	1.49	1.38	90.38	9.88
GBC Canadian Growth Fund	15.45	15.08	12.95	17	9	12	0.37	2.13	97.59	14.14
Altamira Select American Fund	15.36	14.60	12.60	18	13	14	0.76	2.00	95.07	13.67
Dynamic Power Canadian Growth Fund	15.34	13.55	11.96	19	21	21	1.79	1.59	88.34	11.72
Trimark Select Growth Fund	14.91	13.54	11.75	20	22	24	1.37	1.79	90.78	13.23
Spectrum American Growth Fund C$	14.88	12.08	11.38	21	36	25	2.80	0.70	81.17	5.80
AIC Value Fund	14.86	14.86	12.57	22	12	16	0.00	2.30	100.00	15.46
McLean Budden American Equity Fund	14.83	12.39	11.02	23	32	28	2.44	1.37	83.56	11.07
ABC Fully-Managed Fund	14.65	10.31	9.74	24	77	47	4.35	0.57	70.33	5.53
Mawer New Canada Fund	14.64	10.73	10.02	25	59	41	3.91	0.71	73.28	6.62

(Table A1 is continued on the next page.)

TABLE A1 Continued

	Pre-tax return (%)	Pre-liquidation after-tax return (%)	Post-liquidation after-tax return (%)	Pre-tax return ranking	Pre-liquidation after-tax return ranking	Post-liquidation after-tax return ranking	Tax loss to mutual fund distribution (%)	Tax loss to liquidation (%)	Tax efficiency (%)	Tax overhang (%)
BPI American Equity Fund	14.56	9.84	9.14	26	93	63	4.72	0.70	67.57	7.08
Saxon Small Cap	14.53	11.47	10.52	27	44	35	3.07	0.95	78.89	8.25
GBC North American Growth Fund Inc.	14.53	14.53	12.26	28	14	18	0.00	2.27	100.00	15.60
Trans Agent Plan	14.51	14.51	12.25	29	15	20	0.00	2.26	100.00	15.61
MAXXUM Dividend Growth Fund	14.48	12.19	10.72	30	35	33	2.29	1.47	84.17	12.09
Bissett Canadian Equity Fund Class F	14.36	13.84	11.75	31	20	23	0.52	2.08	96.38	15.05
AGF American Growth Class	14.21	13.36	11.34	32	24	26	0.85	2.03	94.05	15.18
Chou RRSP Fund	14.04	11.61	10.51	33	40	36	2.43	1.10	82.67	9.44
National Bank Small Capitalization Fund	13.99	12.32	10.91	34	33	30	1.68	1.41	88.02	11.45
Ethical North American Equity Fund	13.85	11.23	10.34	35	47	39	2.62	0.88	81.06	7.85
Royal Energy Fund	13.82	13.14	11.18	36	26	27	0.68	1.96	95.05	14.91
Fidelity Growth America Fund Series A	13.62	10.60	9.65	37	67	53	3.01	0.95	77.87	8.96
Mac Cundill Value Fund Series A	13.54	10.69	9.78	38	62	45	2.85	0.91	78.96	8.50
Renaissance Global Value Fund	13.49	10.98	9.69	39	51	51	2.52	1.29	81.36	11.74
Mac Unv Canadian Resource Fund	13.36	12.59	10.83	40	29	32	0.77	1.76	94.24	13.97
MD Growth Investment Limited	13.31	11.61	10.38	41	39	38	1.70	1.22	87.20	10.53
Saxon World Growth	13.27	9.34	9.08	42	104	67	3.93	0.26	70.40	2.81
Mac Unv Future Fund	13.16	12.96	10.90	43	28	31	0.20	2.06	98.45	15.93
Mac Cundill Canadian Security Fund Series A	13.15	10.77	9.64	44	58	54	2.38	1.14	81.93	10.56
Empire Equity Growth Fund	13.08	13.08	10.95	45	27	29	0.00	2.12	100.00	16.23
Tradex Equity Fund Limited	13.03	10.58	9.74	46	68	48	2.45	0.84	81.21	7.98
Batterymarch U.S. Equity Fund	12.94	12.51	10.71	47	30	34	0.43	1.81	96.66	14.43
GGOF Centurion American Value Ltd. Classic	12.88	10.15	9.19	48	81	62	2.73	0.96	78.83	9.46
Saxon Balanced Fund	12.86	11.03	9.70	49	50	50	1.84	1.33	85.73	12.05
GGOF Guardian Enterprise Classic	12.63	11.34	9.75	50	45	46	1.29	1.59	89.82	14.06
Orbit World Fund	12.58	11.30	9.72	51	46	49	1.29	1.58	89.76	13.98

(Table A1 is continued on the next page.)

TABLE A1 Continued

	Pre-tax return (%)	Pre-liquidation after-tax return (%)	Post-liquidation after-tax return (%)	Pre-tax return ranking	Pre-liquidation after-tax return ranking	Post-liquidation after-tax return ranking	Tax loss to mutual fund distribution (%)	Tax loss to liquidation (%)	Tax efficiency (%)	Tax overhang (%)
AGF Canadian Growth Equity Fund	12.55	12.49	10.44	52	31	37	0.05	2.05	99.57	16.41
Talvest Value Line U.S. Equity Fund C$	12.49	11.58	9.82	53	42	44	0.91	1.75	92.73	15.15
MAXXUM Pension Fund	12.33	11.53	9.90	54	43	42	0.80	1.63	93.52	14.14
FMOQ Investment Fund	12.28	8.73	8.14	55	126	104	3.55	0.59	71.09	6.74
CIBC U.S. Equity Index Fund	12.23	10.81	9.28	56	57	60	1.42	1.53	88.39	14.17
Empire Premier Equity Fund	12.21	12.21	10.18	57	34	40	0.00	2.03	100.00	16.63
Templeton International Stock Fund	12.17	11.65	9.88	58	37	43	0.52	1.77	95.70	15.16
Altamira Equity Fund	12.03	8.54	8.31	59	137	98	3.49	0.23	70.99	2.67
Spectrum Canadian Equity Fund	12.01	10.69	9.31	60	61	58	1.31	1.38	89.06	12.93
Investors Summa Fund	11.96	10.56	9.14	61	70	64	1.40	1.42	88.28	13.42
Templeton Growth Fund Ltd.	11.96	9.72	8.68	62	95	86	2.23	1.04	81.33	10.73
AGF American Tactical Asset Allocation Fund	11.93	9.90	8.78	63	89	82	2.04	1.11	82.93	11.23
Co-operators Cdn Conservative Focused Equity	11.89	10.32	8.92	64	76	72	1.57	1.39	86.78	13.52
Elliott & Page American Growth Fund	11.87	9.95	8.76	65	86	84	1.92	1.19	83.83	11.96
Montrusco Bolton U.S. Index Fund	11.85	6.29	6.29	66	251	207	5.56	0.00	53.08	0.00
Royal U.S. Equity Fund C$	11.79	9.61	8.60	67	99	89	2.18	1.02	81.53	10.58
Maritime Life Value Equity Fund-R	11.75	10.02	8.83	68	84	78	1.73	1.19	85.27	11.84
TD U.S. Index Fund—I U$	11.73	11.22	9.46	69	48	56	0.51	1.76	95.67	15.69
Dynamic American Value Fund C$	11.64	8.66	7.79	70	134	115	2.98	0.87	74.38	10.03
Bissett Dividend Income Fund Class F	11.64	10.13	8.80	71	82	80	1.51	1.32	87.05	13.07
Equitable Life Segregated Common Stock Fund	11.63	11.63	9.67	72	38	52	0.00	1.97	100.00	16.90
Templeton Global Smaller Companies Fund	11.63	10.51	9.07	73	71	68	1.12	1.44	90.37	13.67
McLean Budden Canadian Equity Growth Fund	11.61	10.64	9.10	74	65	65	0.97	1.54	91.63	14.46
Standard Life Ideal Equity Fund	11.58	11.58	9.62	75	41	55	0.00	1.96	100.00	16.93
Trimark Canadian Fund—SC	11.52	8.70	8.02	76	129	106	2.81	0.68	75.56	7.80
TD Canadian Equity Fund—I	11.51	10.91	9.28	77	53	59	0.60	1.63	94.76	14.93

(Table A1 is continued on the next page.)

TABLE A1 Continued

	Pre-tax return (%)	Pre-liquidation after-tax return (%)	Post-liquidation after-tax return (%)	Pre-tax return ranking	Pre-liquidation after-tax return ranking	Post-liquidation after-tax return ranking	Tax loss to mutual fund distribution (%)	Tax loss to liquidation (%)	Tax efficiency (%)	Tax overhang (%)
Fidelity International Portfolio Fund Series A	11.51	10.48	8.92	78	73	73	1.03	1.56	91.03	14.90
Sceptre Equity Growth Fund	11.49	10.97	9.21	79	52	61	0.52	1.76	95.52	16.08
AGF Canadian Dividend Fund	11.38	10.87	9.10	80	54	66	0.51	1.78	95.50	16.34
Fidelity Far East Fund Series A	11.34	11.22	9.33	81	49	57	0.12	1.88	98.92	16.80
Pursuit Canadian Equity Fund	11.29	8.88	7.93	82	120	111	2.41	0.94	78.62	10.64
TD Dividend Growth Fund—I	11.27	10.57	8.87	83	69	75	0.70	1.71	93.79	16.14
Mawer World Investment Fund	11.26	10.62	8.94	84	66	71	0.64	1.68	94.35	15.82
CIBC Capital Appreciation Fund	11.26	9.89	8.84	85	90	76	1.36	1.05	87.88	10.59
Montrusco Bolton Enterprise Fund	11.18	9.26	8.00	86	109	107	1.92	1.26	82.83	13.56
Trimark Income Growth Fund—SC	11.18	8.98	7.98	87	116	108	2.19	1.00	80.38	11.18
Dynamic Dividend Growth Fund	11.15	9.45	8.24	88	103	100	1.70	1.21	84.73	12.76
Bissett Canadian Balanced Fund Class F	11.02	9.90	8.47	89	88	92	1.12	1.43	89.86	14.42
Royal European Equity Fund	11.00	10.19	8.80	90	78	81	0.81	1.39	92.67	13.65
Jones Heward Fund Ltd.	10.97	9.32	8.31	91	105	99	1.65	1.02	84.96	10.91
Dynamic International Value Fund C$	10.94	10.68	8.90	92	63	74	0.26	1.78	97.60	16.63
AIM Canadian Premier Fund	10.92	10.50	8.78	93	72	83	0.41	1.73	96.24	16.46
Spectrum American Equity Fund	10.90	7.81	7.55	94	171	122	3.09	0.26	71.66	3.33
Bissett American Equity Fund Class F	10.90	10.37	8.70	95	75	85	0.53	1.67	95.15	16.11
FERIQUE Equity Fund	10.89	8.45	7.70	96	141	117	2.44	0.75	77.58	8.90
Spectrum Canadian Investment Fund	10.86	9.82	8.40	97	94	93	1.04	1.42	90.42	14.47
Renaissance U.S. Fundamental Growth Fund	10.85	10.85	8.97	98	55	69	0.00	1.88	100.00	17.29
Investors Growth Portfolio	10.83	10.11	8.64	99	83	87	0.72	1.47	93.32	14.55
Investors European Growth Fund	10.83	9.71	8.50	100	96	91	1.12	1.21	89.64	12.41
Empire Elite Equity Fund	10.83	10.83	8.95	101	56	70	0.00	1.87	100.00	17.30
HSBC Equity Fund	10.81	10.18	8.60	102	79	88	0.64	1.58	94.11	15.52
MD Equity Fund	10.81	9.55	8.38	103	102	95	1.26	1.17	88.31	12.29

(Table A1 is continued on the next page.)

TABLE A1 Continued

	Pre-tax return (%)	Pre-liquidation after-tax return (%)	Post-liquidation after-tax return (%)	Pre-tax return ranking	Pre-liquidation after-tax return ranking	Post-liquidation after-tax return ranking	Tax loss to mutual fund distribution (%)	Tax loss to liquidation (%)	Tax efficiency (%)	Tax overhang (%)
Signature Dividend Income Fund	10.76	7.96	7.31	104	163	135	2.80	0.64	73.98	8.10
Quadrus Canadian Equity Growth Fund (MX)	10.73	9.58	8.20	105	100	101	1.15	1.38	89.29	14.38
MAXXUM Canadian Equity Growth Fund	10.71	9.56	8.19	106	101	102	1.15	1.37	89.27	14.38
Imperial Growth North American Equity Fund	10.70	10.70	8.84	107	60	77	0.00	1.86	100.00	17.37
London Life Canadian Equity Fund (LLIM)	10.67	10.67	8.81	108	64	79	0.00	1.85	100.00	17.38
BPI Global Equity Fund	10.64	8.41	7.36	109	143	133	2.24	1.04	79.00	12.42
StrategicNova Canadian Large Cap Value Fund	10.64	6.47	6.42	110	244	200	4.17	0.05	60.81	0.77
AGF Canadian Stock Fund	10.51	10.00	8.40	111	85	94	0.51	1.60	95.14	16.05
Spectrum Global Growth Fund	10.46	8.62	7.82	112	135	114	1.84	0.81	82.42	9.36
Royal Canadian Equity Fund	10.45	9.88	8.34	113	91	97	0.56	1.54	94.62	15.60
OTG Investment Fund—Growth Section	10.43	7.61	7.00	114	183	154	2.82	0.61	72.95	8.00
Beutel Goodman American Equity Fund	10.41	8.67	7.66	115	132	118	1.73	1.01	83.33	11.63
Scotia Canadian Growth Fund	10.39	8.93	7.65	116	118	119	1.46	1.28	85.96	14.35
Trans Balanced Investment Growth Fund (BIG)	10.39	10.39	8.57	117	74	90	0.00	1.82	100.00	17.52
McLean Budden Balanced Growth Fund	10.29	8.05	7.20	118	158	143	2.24	0.85	78.25	10.53
Clarica Amerifund	10.29	6.73	6.73	119	234	175	3.55	0.00	65.48	0.00
GGOF Guardian Canadian Equity Classic	10.23	8.99	7.76	120	115	116	1.24	1.24	87.89	13.74
Desjardins Laurentian Life Equity Fund	10.16	10.16	8.37	121	80	96	0.00	1.79	100.00	17.64
Special Opportunities Fund Ltd.	10.07	6.95	6.68	122	222	179	3.12	0.27	69.01	3.82
Investors North American Growth Fund	10.06	8.88	7.55	123	119	123	1.19	1.33	88.21	14.95
CI Global Fund	10.05	8.46	7.41	124	140	130	1.59	1.05	84.15	12.41
Montrusco Bolton Canadian Companies Equity	10.03	5.40	5.40	125	280	261	4.64	0.00	53.78	0.00
ICM Balanced Fund	10.01	7.13	6.76	126	213	174	2.88	0.37	71.20	5.19
Dynamic Partners Fund	9.98	7.48	6.85	127	193	166	2.49	0.64	75.03	8.51
Templeton Canadian Stock Fund	9.96	9.28	7.84	128	108	113	0.68	1.43	93.15	15.47
Trimark Select Balanced Fund	9.93	7.85	7.07	129	169	151	2.09	0.78	78.98	9.94

(Table A1 is continued on the next page.)

TABLE A1 Continued

	Pre-tax return (%)	Pre-liquidation after-tax return (%)	Post-liquidation after-tax return (%)	Pre-tax return ranking	Pre-liquidation after-tax return ranking	Post-liquidation after-tax return ranking	Tax loss to mutual fund distribution (%)	Tax loss to liquidation (%)	Tax efficiency (%)	Tax overhang (%)
Canada Life Global Equity Fund S-34	9.92	9.92	8.16	130	87	103	0.00	1.76	100.00	17.76
FMOQ Omnibus Fund	9.89	9.32	7.94	131	106	110	0.57	1.38	94.21	14.80
London Life U.S. Equity Fund (LLIM)	9.87	9.87	8.11	132	92	105	0.00	1.76	100.00	17.79
FERIQUE Balanced Fund	9.83	7.00	6.66	133	221	181	2.83	0.34	71.18	4.79
TD U.S. Equity Fund—I	9.80	8.79	7.50	134	124	127	1.02	1.29	89.64	14.69
Dynamic Value Fund of Canada Ltd.	9.80	7.56	6.78	135	189	172	2.24	0.78	77.14	10.27
Trimark Canadian Endeavour Fund	9.79	7.73	6.91	136	175	159	2.07	0.82	78.89	10.57
HSBC Canadian Balanced Fund	9.78	8.36	7.27	137	145	138	1.41	1.09	85.54	13.09
Montrusco Bolton Taxable U.S. Equity Fund	9.77	5.59	5.59	138	275	253	4.17	0.00	57.27	0.00
Mawer Canadian Equity Fund	9.75	8.67	7.36	139	133	134	1.09	1.31	88.86	15.10
Templeton Balanced Fund	9.74	8.08	7.22	140	156	141	1.66	0.87	82.97	10.72
Dynamic European Value Fund	9.74	8.79	7.51	141	125	126	0.95	1.27	90.24	14.51
Investors Mutual of Canada	9.74	8.12	7.12	142	152	149	1.62	1.00	83.40	12.31
Forester Growth Funds—Balanced	9.67	9.67	7.94	143	97	109	0.00	1.73	100.00	17.90
Renaissance Canadian Balanced Fund	9.67	8.73	7.38	144	127	132	0.95	1.34	90.21	15.40
Scotia American Growth Fund	9.67	7.46	6.67	145	195	180	2.21	0.80	77.19	10.66
Beutel Goodman Canadian Equity Fund	9.65	7.91	6.94	146	165	156	1.74	0.97	81.99	12.22
Maritime Life Growth Fund (A&C)	9.63	9.63	7.91	147	98	112	0.00	1.73	100.00	17.92
MAXXUM Canadian Value Fund	9.59	7.62	6.81	148	181	168	1.96	0.81	79.53	10.62
Quadrus Canadian Balanced Fund (MX)	9.59	8.34	7.15	149	146	146	1.25	1.18	86.95	14.21
Mawer Canadian Balanced Retirement Savings Fund	9.58	7.18	6.56	150	211	193	2.40	0.62	74.90	8.60
OTG Investment Fund—Diversified Section	9.57	7.08	6.45	151	219	197	2.49	0.63	74.00	8.90
MAXXUM Canadian Balanced Fund	9.55	8.31	7.13	152	149	148	1.25	1.18	86.96	14.23
ICM Equity Fund	9.55	7.58	6.91	153	186	160	1.97	0.67	79.34	8.83
CI Global Sector Shares	9.49	8.84	7.47	154	122	128	0.65	1.37	93.14	15.51

(Table A1 is continued on the next page.)

TABLE A1 Continued

	Pre-tax return (%)	Pre-liquidation after-tax return (%)	Post-liquidation after-tax return (%)	Pre-tax return ranking	Pre-liquidation after-tax return ranking	Post-liquidation after-tax return ranking	Tax loss to mutual fund distribution (%)	Tax loss to liquidation (%)	Tax efficiency (%)	Tax overhang (%)
Investors Global Fund	9.49	8.09	7.16	155	155	145	1.39	0.94	85.31	11.56
Mac Balanced Fund	9.49	7.42	6.62	156	199	183	2.07	0.80	78.18	10.73
StrategicNova Canadian Midcap Value Fund	9.47	8.33	7.15	157	148	147	1.15	1.18	87.90	14.18
Investors Growth Plus Portfolio	9.43	8.01	7.02	158	159	152	1.42	0.99	84.96	12.35
Capstone Balanced Trust	9.42	7.05	6.49	159	220	195	2.36	0.57	74.92	8.05
TD Canadian Index Fund—I	9.40	9.04	7.53	160	114	124	0.36	1.51	96.13	16.72
APEX Canadian Growth Fund (AGF)	9.38	9.21	7.58	161	110	121	0.18	1.62	98.13	17.61
Spectrum Canadian Balanced Portfolio	9.36	7.82	6.88	162	170	162	1.54	0.94	83.56	12.03
Leith Wheeler Balanced Fund	9.31	7.25	6.43	163	206	198	2.06	0.81	77.85	11.23
Desjardins Laurentian Life Diversified Fund	9.30	9.30	7.62	164	107	120	0.00	1.68	100.00	18.09
AGF World Balanced Fund	9.29	7.37	6.60	165	200	185	1.92	0.77	79.32	10.44
Talvest European Fund	9.27	7.59	6.85	166	184	165	1.68	0.74	81.83	9.75
Cormel Balanced Fund	9.22	6.89	6.32	167	228	205	2.33	0.57	74.72	8.21
Spectrum Canadian Stock Fund	9.20	7.90	6.80	168	166	171	1.30	1.11	85.88	14.01
VistaFund Diversified 1	9.19	9.19	7.53	169	111	125	0.00	1.67	100.00	18.15
R Global Equity Fund	9.13	7.67	6.87	170	178	163	1.45	0.80	84.09	10.43
NAL-Investor Global Equity Fund	9.12	9.12	7.46	171	112	129	0.00	1.66	100.00	18.19
Perigee Canadian Select 35 Equity Fund	9.10	8.68	7.31	172	130	137	0.42	1.37	95.39	15.76
Spectrum Global Equity Fund	9.09	7.45	6.66	173	196	182	1.64	0.79	81.92	10.63
TD Balanced Growth Fund—I	9.09	7.71	6.69	174	176	177	1.39	1.02	84.77	13.25
Caisse de Securite du Spectacle Fonds Equilibre	9.08	8.51	7.25	175	139	139	0.57	1.25	93.70	14.73
Elliott & Page Equity Fund	9.06	6.07	6.07	176	253	225	2.98	0.00	67.04	0.00
Sceptre Balanced Growth Fund	9.05	6.64	6.17	177	238	220	2.41	0.47	73.33	7.11
Investors Dividend Fund	9.04	7.62	6.61	178	182	184	1.42	1.01	84.25	13.24
CDA Balanced Fund (KBSH)	9.04	9.04	7.39	179	113	131	0.00	1.65	100.00	18.24
TD Canadian Blue Chip Equity Fund—I	9.04	7.85	6.72	180	168	176	1.19	1.12	86.78	14.31

(Table A1 is continued on the next page.)

TABLE A1 Continued

	Pre-tax return (%)	Pre-liquidation after-tax return (%)	Post-liquidation after-tax return (%)	Pre-tax return ranking	Pre-liquidation after-tax return ranking	Post-liquidation after-tax return ranking	Tax loss to mutual fund distribution (%)	Tax loss to liquidation (%)	Tax efficiency (%)	Tax overhang (%)
TD Canadian Stock Fund—I	8.96	8.01	6.92	181	160	158	0.96	1.08	89.34	13.54
Mawer Canadian Diversified Investment Fund	8.96	6.91	6.19	182	224	218	2.05	0.72	77.15	10.37
BMO Equity Index Fund	8.95	8.70	7.17	183	128	144	0.25	1.54	97.23	17.65
Great-West Life Canadian Equity Investment (G) NL	8.95	8.95	7.31	184	117	136	0.00	1.64	100.00	18.29
Maritime Life Managed Fund-R	8.95	7.11	6.40	185	214	202	1.83	0.71	79.53	10.01
AGF Canadian Balanced Fund	8.91	7.19	6.40	186	210	203	1.71	0.80	80.76	11.09
Spectrum Canadian Growth Fund	8.88	7.88	6.85	187	167	164	1.00	1.03	88.78	13.02
Dynamic Dividend Fund	8.87	6.47	5.93	188	243	233	2.39	0.54	73.00	8.34
CDA Common Stock Fund (Altamira)	8.86	8.86	7.24	189	121	140	0.00	1.62	100.00	18.34
Altamira Special Growth Fund	8.84	8.25	6.95	190	150	155	0.59	1.29	93.30	15.69
Empire International Growth Fund	8.84	8.84	7.22	191	123	142	0.00	1.62	100.00	18.35
StrategicNova Canadian Dividend Fund Ltd.	8.80	6.91	6.18	192	225	219	1.89	0.72	78.50	10.49
OTG Investment Fund—Balanced Section	8.74	6.40	5.89	193	247	239	2.34	0.51	73.20	8.02
StrategicNova U.S. Large Cap Growth Fund Ltd.	8.73	6.84	6.27	194	230	209	1.89	0.57	78.37	8.34
Altamira Balanced Fund	8.72	7.56	6.57	195	187	191	1.16	1.00	86.75	13.19
NAL-Investor Canadian Equity Fund	8.67	8.67	7.07	196	131	150	0.00	1.60	100.00	18.44
Scotia Canadian Balanced Fund	8.64	7.11	6.21	197	216	214	1.53	0.90	82.30	12.63
Barreau du Quebec Balanced Fund	8.62	5.76	5.62	198	266	252	2.86	0.15	66.83	2.52
London Life Diversified Fund (LLIM)	8.61	8.61	7.02	199	136	153	0.00	1.59	100.00	18.47
Fidelity Canadian Large Cap Fund Series A	8.57	6.72	6.21	200	235	213	1.85	0.51	78.42	7.55
Perigee Symmetry Balanced Fund	8.57	7.94	6.68	201	164	178	0.63	1.25	92.66	15.81
CIBC Global Equity Fund	8.53	6.47	6.10	202	245	222	2.07	0.36	75.79	5.63
Standard Life Ideal Balanced Fund	8.52	8.52	6.94	203	138	157	0.00	1.58	100.00	18.53
Renaissance Canadian Growth Fund	8.51	8.43	6.88	204	142	161	0.09	1.55	98.97	18.35
Dynamic Fund of Funds	8.51	6.54	5.91	205	240	234	1.98	0.62	76.77	9.51

(Table A1 is continued on the next page.)

TABLE A1 Continued

	Pre-tax return (%)	Pre-liquidation after-tax return (%)	Post-liquidation after-tax return (%)	Pre-tax return ranking	Pre-liquidation after-tax return ranking	Post-liquidation after-tax return ranking	Tax loss to mutual fund distribution (%)	Tax loss to liquidation (%)	Tax efficiency (%)	Tax overhang (%)
National Bank Canadian Equity Fund	8.51	6.38	6.07	206	248	224	2.13	0.31	74.95	4.78
Altamira Global Diversified Fund	8.50	8.24	6.80	207	151	170	0.26	1.44	96.95	17.51
Scotia Total Return Fund	8.49	6.15	5.74	208	252	243	2.35	0.40	72.37	6.58
R Canadian Equity Fund	8.49	6.31	6.03	209	250	228	2.18	0.27	74.29	4.34
Altamira Capital Growth Fund Limited	8.47	7.45	6.58	210	197	188	1.03	0.87	87.86	11.62
Batirente Provident Fund	8.46	7.56	6.41	211	188	201	0.90	1.16	89.34	15.30
Royal Balanced Fund	8.45	7.48	6.39	212	194	204	0.97	1.09	88.48	14.52
Investors Canadian Equity Fund	8.45	7.81	6.56	213	172	192	0.64	1.25	92.42	15.96
Perigee International Equity Fund	8.45	7.10	6.54	214	217	194	1.34	0.56	84.10	7.92
CIBC Dividend Fund	8.42	7.25	6.26	215	204	210	1.17	1.00	86.16	13.72
Investors Canadian Large Cap Value Fund	8.42	7.55	6.84	216	190	167	0.87	0.71	89.66	9.40
VistaFund Diversified 2	8.37	8.37	6.81	217	144	169	0.00	1.56	100.00	18.61
Jones Heward American Fund	8.37	7.97	6.57	218	161	189	0.39	1.40	95.29	17.52
Spectrum Diversified Fund	8.36	6.05	5.64	219	255	250	2.31	0.41	72.35	6.78
Empire Balanced Fund	8.33	8.33	6.78	220	147	173	0.00	1.55	100.00	18.63
AGF Canadian Tactical Asset Allocation Fund	8.29	6.74	5.89	221	233	238	1.55	0.85	81.29	12.61
Royal U.S. Equity Fund U$	8.27	5.69	5.19	222	269	269	2.59	0.49	68.74	8.65
Investors Retirement Growth Portfolio	8.25	7.22	6.42	223	208	199	1.03	0.79	87.50	10.96
Remec Balanced Fund	8.24	5.85	5.49	224	261	257	2.39	0.37	71.00	6.25
TD Balanced Income Fund—I	8.23	6.83	5.97	225	231	232	1.40	0.87	83.04	12.67
Apex Balanced Fund (AGF)	8.22	7.35	6.20	226	201	216	0.86	1.15	89.50	15.66
Maritime Life Balanced Fund (A&C)	8.12	8.12	6.60	227	153	186	0.00	1.52	100.00	18.75
AGF Canadian Resources Fund	8.11	8.07	6.57	228	157	190	0.04	1.50	99.47	18.59
Great-West Life Equity/Bond Investment Fund (G) NL	8.11	8.11	6.59	229	154	187	0.00	1.52	100.00	18.76
Beutel Goodman Balanced Fund	8.04	5.87	5.34	230	260	263	2.17	0.53	73.06	9.02

(Table A1 is continued on the next page.)

TABLE A1 Continued

	Pre-tax return (%)	Pre-liquidation after-tax return (%)	Post-liquidation after-tax return (%)	Pre-tax return ranking	Pre-liquidation after-tax return ranking	Post-liquidation after-tax return ranking	Tax loss to mutual fund distribution (%)	Tax loss to liquidation (%)	Tax efficiency (%)	Tax overhang (%)
Trans IMS Asset Allocation Fund	8.03	5.95	5.63	231	257	251	2.08	0.32	74.07	5.38
Optimum Balanced	8.02	6.41	5.76	232	246	242	1.60	0.65	80.00	10.13
Desjardins International Fund	7.97	6.90	5.97	233	226	231	1.08	0.92	86.51	13.39
Canada Life Canadian Equity S-9	7.97	7.97	6.47	234	162	196	0.00	1.50	100.00	18.84
Royal Select Balanced Portfolio	7.93	6.89	5.89	235	227	237	1.04	1.00	86.86	14.48
Talvest Canadian Equity Leaders Fund	7.90	5.84	5.41	236	263	260	2.06	0.43	73.89	7.38
Scotia Canadian Blue Chip Fund	7.89	7.14	6.04	237	212	227	0.76	1.09	90.38	15.33
Trans IMS Canadian 35 Index Fund	7.87	7.50	6.22	238	192	211	0.38	1.27	95.23	16.98
Talvest Canadian Asset Allocation Fund	7.84	5.61	5.18	239	273	270	2.22	0.44	71.63	7.80
Ethical Growth Fund	7.80	7.30	6.08	240	203	223	0.50	1.21	93.57	16.62
Royal Select Conservative Portfolio	7.79	6.37	5.57	241	249	254	1.42	0.80	81.78	12.61
Imperial Growth Canadian Equity Fund	7.77	7.77	6.30	242	173	206	0.00	1.47	100.00	18.95
Clarica MVP Equity Fund	7.76	7.76	6.29	243	174	208	0.00	1.47	100.00	18.96
BMO Asset Allocation Fund	7.76	6.02	5.42	244	256	259	1.74	0.60	77.60	9.92
Vision Europe Funds	7.73	4.10	4.10	245	308	295	3.63	0.00	53.01	0.00
Spectrum Dividend Fund	7.69	5.78	5.23	246	265	267	1.92	0.54	75.10	9.43
National Life Global Equities Fund	7.68	7.68	6.22	247	177	212	0.00	1.46	100.00	19.01
TD North American Equity Fund—I	7.68	6.86	5.79	248	229	241	0.81	1.07	89.42	15.58
Canada Life Managed Fund S-35	7.66	7.66	6.21	249	179	215	0.00	1.46	100.00	19.02
Great-West Life Equity Index Investment (G) NL	7.65	7.65	6.20	250	180	217	0.00	1.46	100.00	19.02
R Balanced Fund	7.65	5.33	5.13	251	282	272	2.32	0.20	69.68	3.67
TD Special Equity Fund—I	7.59	7.58	6.14	252	185	221	0.01	1.44	99.91	19.05
Mac Unv International Stock Fund	7.56	7.25	5.99	253	205	230	0.31	1.26	95.94	17.37
CIBC Balanced Fund	7.54	5.93	5.33	254	258	264	1.61	0.60	78.67	10.17
Desjardins Environment Fund	7.51	6.51	5.56	255	242	255	1.00	0.95	86.67	14.60
Great-West Life Diversified Investment (G) NL	7.50	7.50	6.06	256	191	226	0.00	1.43	100.00	19.11

(Table A1 is continued on the next page.)

TABLE A1 Continued

	Pre-tax return (%)	Pre-liquidation after-tax return (%)	Post-liquidation after-tax return (%)	Pre-tax return ranking	Pre-liquidation after-tax return ranking	Post-liquidation after-tax return ranking	Tax loss to mutual fund distribution (%)	Tax loss to liquidation (%)	Tax efficiency (%)	Tax overhang (%)
Royal Select Growth Portfolio	7.50	6.71	5.69	257	236	246	0.78	1.02	89.55	15.24
Sceptre Global Equity Fund	7.50	5.84	5.47	258	262	258	1.65	0.38	77.95	6.46
Elliott & Page Balanced Fund	7.47	5.62	5.13	259	272	273	1.85	0.49	75.23	8.67
GGOF Alexandria Global Growth Classic	7.44	7.44	6.02	260	198	229	0.00	1.42	100.00	19.15
Mavrix Dividend & Income Fund	7.40	4.40	4.40	261	297	288	2.99	0.00	59.54	0.00
Ethical Balanced Fund	7.38	6.05	5.32	262	254	265	1.33	0.73	81.97	12.04
Investors Retirement Plus Portfolio	7.37	5.68	5.22	263	270	268	1.69	0.46	77.05	8.05
AltaFund Investment Corp.	7.37	6.69	5.67	264	237	247	0.68	1.02	90.72	15.19
CIBC Core Canadian Equity Fund	7.34	6.63	5.65	265	239	249	0.71	0.98	90.33	14.77
National Bank Retirement Balanced Fund	7.33	5.48	5.11	266	277	274	1.85	0.37	74.81	6.69
Royal Precious Metals Fund	7.32	7.23	5.90	267	207	236	0.09	1.33	98.74	18.43
Clarica MVP Balanced Fund	7.32	7.32	5.91	268	202	235	0.00	1.41	100.00	19.22
National Bank Aggressive Diversified Fund	7.31	5.38	5.01	269	281	276	1.92	0.37	73.69	6.88
LaSalle Balanced Fund	7.30	4.79	4.73	270	292	282	2.52	0.06	65.55	1.15
Investors Income Plus Portfolio	7.24	5.29	4.83	271	283	280	1.95	0.47	73.13	8.80
Imperial Growth Diversified Fund	7.20	7.20	5.81	272	209	240	0.00	1.39	100.00	19.29
Spectrum Global Diversified Fund	7.19	5.26	4.89	273	285	278	1.93	0.37	73.20	7.03
TD Balanced Fund—I	7.19	5.83	5.17	274	264	271	1.36	0.66	81.10	11.33
CI Emerging Markets Fund	7.13	6.94	5.66	275	223	248	0.19	1.28	97.28	18.39
RBC Life—Equity Growth Fund	7.11	7.11	5.73	276	215	244	0.00	1.38	100.00	19.34
Scotia Global Growth Fund	7.11	5.42	4.95	277	279	277	1.68	0.48	76.30	8.76
Altamira Growth & Income Fund	7.10	5.65	5.05	278	271	275	1.45	0.61	79.63	10.73
RBC Life—Balanced Fund	7.09	7.09	5.71	279	218	245	0.00	1.37	100.00	19.36
University Avenue U.S. Growth Fund	7.02	5.89	5.39	280	259	262	1.13	0.50	83.96	8.48
Clarica Diversifund 40	6.99	4.27	4.27	281	300	290	2.73	0.00	61.02	0.00
Desjardins Balanced Fund	6.84	5.50	4.79	282	276	281	1.34	0.71	80.40	12.94

(Table A1 is continued on the next page.)

TABLE A1 Continued

	Pre-tax return (%)	Pre-liquidation after-tax return (%)	Post-liquidation after-tax return (%)	Pre-tax return ranking	Pre-liquidation after-tax return ranking	Post-liquidation after-tax return ranking	Tax loss to mutual fund distribution (%)	Tax loss to liquidation (%)	Tax efficiency (%)	Tax overhang (%)
NAL-Investor Canadian Diversified Fund	6.82	6.82	5.49	283	232	256	0.00	1.33	100.00	19.52
Caldwell Balanced Fund	6.77	4.44	4.35	284	295	289	2.33	0.10	65.58	2.15
Capstone International Trust	6.73	4.15	4.15	285	304	293	2.58	0.00	61.62	0.00
GGOF Guardian Monthly Dividend Ltd. Classic	6.73	4.12	4.11	286	305	294	2.60	0.01	61.27	0.20
VistaFund Equity 1	6.53	6.53	5.24	287	241	266	0.00	1.29	100.00	19.70
TD International Equity Fund—I	6.39	5.60	4.89	288	274	279	0.79	0.71	87.67	12.68
Trans-Canada Pension Fund	6.34	5.16	4.54	289	286	285	1.17	0.62	81.48	12.08
Desjardins Equity Fund	6.33	5.45	4.67	290	278	283	0.88	0.78	86.06	14.29
Middlefield Mutual Funds Limited-Growth Class	6.27	1.97	1.97	291	324	323	4.30	0.00	31.44	0.00
StrategicNova World Strategic Asset Allocation	6.25	5.05	4.47	292	288	287	1.20	0.58	80.81	11.52
Talvest Global Asset Allocation RSP Fund	6.25	3.98	3.91	293	309	303	2.26	0.07	63.76	1.73
CI Canadian Sector Shares	6.05	4.22	3.99	294	301	300	1.82	0.24	69.87	5.65
Stone & Co. CAMAF Corporate Class	5.95	4.19	3.95	295	302	301	1.77	0.24	70.34	5.62
GGOF Centurion Canadian Balanced Classic	5.94	4.42	4.06	296	296	297	1.52	0.37	74.47	8.28
Clarica Equifund	5.88	4.10	3.90	297	307	304	1.77	0.20	69.87	4.92
All-Canadian CapitalFund	5.83	3.91	3.75	298	310	306	1.92	0.17	67.07	4.27
Mavrix Diversified Fund	5.83	2.72	2.72	299	316	316	3.11	0.00	46.73	0.00
StrategicNova Commonwealth World Balanced Fund Ltd.	5.78	4.62	4.09	300	294	296	1.16	0.53	79.96	11.56
All-Canadian Compound Fund	5.75	3.50	3.50	301	312	309	2.25	0.00	60.89	0.00
VistaFund Equity 2	5.71	5.71	4.56	302	267	284	0.00	1.15	100.00	20.21
National Life Equities Fund	5.69	5.69	4.54	303	268	286	0.00	1.15	100.00	20.23
Investors U.S. Large Cap Growth Fund	5.63	4.89	4.15	304	290	292	0.74	0.74	86.88	15.09
Cambridge Americas Fund	5.55	1.41	1.41	305	327	326	4.15	0.00	25.31	0.00
Montrusco Bolton International Equity	5.52	2.94	2.94	306	314	313	2.58	0.00	53.32	0.00
Signature Explorer Fund	5.45	5.28	4.26	307	284	291	0.17	1.02	96.91	19.30

(Table A1 is continued on the next page.)

TABLE A1 Continued

	Pre-tax return (%)	Pre-liquidation after-tax return (%)	Post-liquidation after-tax return (%)	Pre-tax return ranking	Pre-liquidation after-tax return ranking	Post-liquidation after-tax return ranking	Tax loss to mutual fund distribution (%)	Tax loss to liquidation (%)	Tax efficiency (%)	Tax overhang (%)
AGF Special U.S. Class	5.13	4.89	3.94	308	291	302	0.24	0.95	95.30	19.42
CI European Fund	5.09	5.00	4.01	309	289	299	0.09	0.99	98.22	19.80
VistaFund Capital Gains Growth 1	5.08	5.08	4.03	310	287	298	0.00	1.05	100.00	20.62
Altamira Resource Fund	4.96	4.18	3.85	311	303	305	0.78	0.34	84.27	8.05
Templeton Emerging Markets Fund	4.89	4.11	3.56	312	306	308	0.78	0.55	84.11	13.40
AGF Asian Growth Class	4.75	4.69	3.73	313	293	307	0.06	0.96	98.74	20.42
Mac Growth Fund	4.75	2.82	2.82	314	315	314	1.93	0.00	59.41	0.00
Caldwell International Fund	4.41	2.15	2.15	315	322	322	2.26	0.00	48.72	0.00
Talvest Asian Fund	4.40	4.33	3.46	316	298	310	0.07	0.87	98.40	20.16
VistaFund Capital Gains Growth 2	4.28	4.28	3.37	317	299	311	0.00	0.91	100.00	21.16
Dynamic Canadian Precious Metals Fund	4.27	3.91	3.31	318	311	312	0.36	0.60	91.59	15.28
Altamira Short Term Global Income Fund	4.24	3.02	2.79	319	313	315	1.22	0.23	71.20	7.57
Investors Real Property Fund	4.17	2.16	2.16	320	321	321	2.01	0.00	51.75	0.00
TD U.S. Money Market Fund U$—I	3.90	2.40	2.40	321	319	318	1.49	0.00	61.70	0.00
Juniper Equity Growth Fund	3.75	2.67	2.51	322	317	317	1.08	0.16	71.21	5.97
Trans-Canada Dividend Fund	3.46	1.80	1.80	323	326	324	1.65	0.00	52.17	0.00
AIM American Growth Fund	3.40	2.21	2.16	324	320	320	1.19	0.05	65.06	2.25
GBC International Growth Fund	2.99	2.63	2.17	325	318	319	0.36	0.47	88.10	17.81
Great-West Life Canadian Real Estate 1 (G) NL	2.12	2.12	1.64	326	323	325	0.00	0.48	100.00	22.72
CI Pacific Fund	1.82	1.82	1.40	327	325	327	0.00	0.42	100.00	22.95
Investors Pacific International Fund	1.67	1.02	1.02	328	328	328	0.64	0.00	61.53	0.00
Trans IMS Canadian Growth Fund	1.57	−1.54	−1.54	329	333	333	3.11	0.00	na	na
CI Pacific Sector Shares	1.04	0.90	0.78	330	329	329	0.14	0.11	86.56	12.46
All-Canadian Resources Corporation	0.47	−1.16	−1.16	331	332	332	1.63	0.00	na	na
AGF Japan Class	−0.03	−0.28	−0.28	332	330	330	0.25	0.00	na	na
Working Ventures Canadian Fund Inc. (LSVCC)	−0.61	−0.61	−0.61	333	331	331	0.00	0.00	na	na

(Table A1 is concluded on the next page.)

TABLE A1 Concluded

	Pre-tax return (%)	Pre-liquidation after-tax return (%)	Post-liquidation after-tax return (%)	Pre-tax return ranking	Pre-liquidation after-tax return ranking	Post-liquidation after-tax return ranking	Tax loss to mutual fund distribution (%)	Tax loss to liquidation (%)	Tax efficiency (%)	Tax overhang (%)
Mavrix Growth Fund	−1.54	−3.45	−3.45	334	336	336	1.91	0.00	na	na
Trans-Canada Value Fund	−2.01	−2.21	−2.21	335	334	334	0.20	0.00	na	na
Investors Japanese Growth Fund	−2.63	−2.63	−2.63	336	335	335	0.00	0.00	na	na
University Avenue Canadian Fund	−2.68	−4.28	−4.28	337	337	337	1.60	0.00	na	na
Cambridge Global Fund	−6.71	−7.19	−7.19	338	338	338	0.48	0.00	na	na
Cambridge Pacific Fund	−8.92	−9.27	−9.27	339	339	339	0.35	0.00	na	na
Cambridge Special Equity Fund	−11.00	−11.63	−11.63	340	340	340	0.63	0.00	na	na
Cambridge Balanced Fund	−11.11	−11.81	−11.81	341	341	341	0.71	0.00	na	na
Cambridge Resource Fund	−15.19	−15.75	−15.75	342	342	342	0.56	0.00	na	na
Cambridge Growth Fund	−16.16	−16.77	−16.77	343	343	343	0.61	0.00	na	na
Mean	9.01	7.66	6.66				1.35	1.00	84.91	11.98
Median	9.10	7.81	6.78				1.25	1.02	86.75	12.93
Standard deviation	4.45	4.35	3.90				1.12	0.62	12.80	5.37
Maximum	21.58	18.84	16.21				7.13	2.63	100.00	22.95
Minimum	−16.16	−16.77	−16.77				0.00	0.00	25.31	0.00

Note: The above rankings are based on the assumptions described in the appendix. The pre-tax and after-tax rankings are historical and do not necessarily imply similar pre-tax and after-tax returns or rankings in the future. Neither the pre-tax nor the after-tax returns and rankings take into account differences in risk. Ceteris paribus, one can expect returns to be higher for riskier assets in a competitive financial market. Pre-tax returns and rankings as well as after-tax returns and rankings are strongly sensitive to the holding period assumed in this study. Holding periods that are longer or shorter than the 10-year period assumed in this study may produce significantly different returns and rankings. In computing pre-tax and after-tax returns, we have assumed that buying and selling commissions are zero. We have also assumed that fund unitholders have no capital losses to offset the capital gains distributed by the funds.

na not applicable.