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Managing funds for after tax returns:
unresolved issues about unrealised gains

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Managing funds for after tax returns: unresolved issues about unrealised gains

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Managing a portfolio for after tax returns can be difficult and expensive and the paper reviews some perceived difficulties with managing a portfolio for after tax returns, actual practices used by managers and five methods for reporting after tax returns to investors and potential investors under Australian tax conditions. The value of unrealised gains in a portfolio is not quite clear as, even though it is considered to be valuable in after tax management, a US study shows that large unrealised gains in a portfolio may not be attractive to potential investors.

Managing funds for after tax returns: unresolved issues about unrealised gains Error!

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Abstract

Managing a portfolio for after tax returns can be difficult and expensive and the paper reviews some perceived difficulties with managing a portfolio for after tax returns, actual practices used by managers and five methods for reporting after tax returns to investors and potential investors under Australian tax conditions. The value of unrealised gains in a portfolio is not quite clear as, even though it is considered to be valuable in after tax management, a US study shows that large unrealised gains in a portfolio may not be attractive to potential investors.

MANAGING FUNDS FOR AFTER TAX RETURNS: UNRESOLVED ISSUES ABOUT UNREALISED GAINS

Introduction

This paper reviews some of the issues around managing a portfolio for after tax returns, in particular the perceived difficulties and benefits associated with after tax management, practices that are used to manage a portfolio on an after tax basis and methods for reporting to investors on an after tax basis under Australian tax conditions. Finally, it reviews a comprehensive US study of the effect of tax on mutual fund inflows that raises some issues of after tax management, specifically to do with the value of unrealised gains that need further research.

Perceived difficulties of after tax performance management

Post tax investing is perceived to be more difficult and complex than pre tax funds management and one reason given for that is the additional need for taxation expertise. Taxation in Australia is a separate discipline from financial accounting.

Managing a portfolio on an after tax basis requires integrating tax into the financial accounting systems of the fund manager. One example of that and which is particularly pertinent to funds management is the difference in the way that portfolio trades are accounted for. The standard accounting procedures of LIFO or FIFO as a means of accounting for stock that has been traded in a portfolio is not appropriate for managing the portfolio on an after tax basis. Generally, stock that is chosen to be traded with a view to managing tax will be those in the portfolio that give the smallest taxable gain or the largest tax loss and neither of those outcomes is necessarily based on the timing of acquisition such as that implicit in LIFO and FIFO. HIFO and LIFO seem better options and, even more so, specific stock selection.

Also, the Capital Gains Tax rules provide a 50% discount for assessable gains if the stock has been owned for at least 12 months. In that case the tax rules dictate that record keeping systems have the ability to identify stock to be traded that has been held for at least that period.

In addition to the complexity of integrating tax with financial accounting, after tax managing requires more expensive record keeping IT systems.

Managers will often resist managing their portfolio on an after tax basis because, they say, they have no knowledge of the marginal tax rates of investors in the fund or, indeed, if the investors are tax paying at all thereby making it difficult to manage the portfolio for a particular tax outcome.

Equally it is argued that a significant amount of funds under management in Australia are held by pension paying superannuation funds, which are not tax paying.

After tax management is also resisted because it is said to be unrewarding for the manager as their performance is usually remunerated by measurement against pre tax benchmarks. That raises a corresponding negative issue in that it is said that there is no point in managing a portfolio on an after tax basis because there are no comparative performance measurements on an after tax basis, as there are no post tax performance tables.

In terms of disclosing after tax returns, costs involved in obligating funds to report after tax include: changes in investment strategies and investor behavior that may have had distributional effects among funds depending on their relative after tax returns (funds with lower after tax returns may experience loss of market share to funds with higher after tax returns), the cost of complying with the disclosure obligations and the cost of implementing new systems to compute the standardized after tax performance.

However, the evidence in support of managing a portfolio on an after tax basis seems clear. Jeffrey and Arnott show that even though after tax management underperforms pre tax management by 30 bps on an absolute basis, when pre tax performance is recalculated into after tax performance, after tax performance measurement outperforms pre tax management by up to 200bps and, after all, it is the after tax performance which is critical to taxpaying investors.ⁱ

There was some debate, prior to introduction in the US of the obligation to disclose after tax performance in prospectus, about the need of investors for such disclosure. What was concluded was that investors who had been surveyed said that after tax returns were an important consideration in their decision to invest.

In addition, it was observed from the survey that after tax return disclosure helped investors compare and make better informed investment decisions as it gave them a clearer understanding of the fund's performance and helped them to evaluate the effect of tax on the fund.

There was resistance by some fund managers about having to disclose after tax performance on the basis that they would be uncompetitive with other investment vehicles that were not obliged to report after tax performance. With respect to this aspect, it was considered that disclosure of after tax performance would not make funds uncompetitive with other investment vehicles as funds compete with other investments in other ways, such as on asset selection and ease of diversification.

The benefits of such after tax reporting were considered to be:

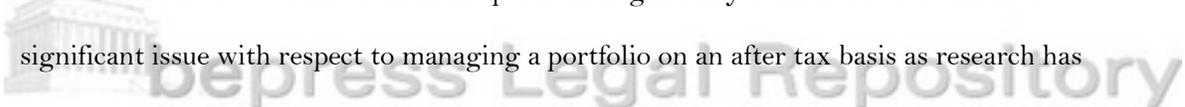
That taxes are one of the most significant costs of investing in mutual funds,

Many investors lack a clear understanding of the impact of tax on their fund investment, which can lead to 'a particular source of surprise for many investors when they discover that they can owe substantial taxes on their mutual fund investments that appear unrelated to the performance of the fund', and

There is a growing demand from investors to be provided with after tax returns.

After tax management practice

The rate of turnover of the stock in the portfolio is generally considered to be the most significant issue with respect to managing a portfolio on an after tax basis as research has



shown that the higher the rate of turnover the less tax efficient a portfolio will be. In the Australian tax context this effect largely comes about from two particular aspects.

First, Australia has a realisation basis for calculating assessable capital gains. That means, simply, that the gain on the value of the stock is not calculated (nor, indeed, taxable) until the stock has been disposed of. This should be compared with an accruals basis for calculating tax where tax is payable on the increase in value annually without the asset being disposed of. Incidentally, Australia has just included an accruals basis of taxation in respect of certain financial arrangements.

Nevertheless, a realisation basis of taxation means a deferral of the payment of tax on the gain until the stock is traded and that translates into, in effect, a loan of the tax by the government to the portfolio. An alternate way of looking at the value of deferral of the payment of tax is simply that the time value cost of the tax liability reduces the longer the period of deferral.

The second aspect of the Australian tax system that is important here relates to the way that capital gains are taxed and which has already been referred to. That is, only 50% of the gains on the disposal of stock are assessable to tax if the stock has been held for a minimum period of at least 12 months. The policy behind the 12-month rule is, broadly, an arbitrary holding period that differentiates for tax trades for investment purposes only from those that are simply to realise a gain. The obvious outworking of this rule is that tax efficiency is maximised by only trading stock that has been owned for at least twelve months and that is entitled to the reduced rate.

Nevertheless it is these two aspects, deferral of tax until realisation and a fifty percent discount on the tax on the gain of stock has been held for at least 12 months, that underpins the tax effect

of turnover on a portfolio and an increased rate of turnover of stock in a portfolio means that there is less deferred tax on unrealised gains in the portfolio.

However, large unrealised gains in a portfolio do not seem to be absolutely advantageous. First, they can create equity issues where new investors who are taking up an unrealised tax liability relating to gains that were accrued before they became an investor. Secondly, the size of the amount of unrealised gains in a portfolio, which is discussed below, can negatively affect the attractiveness of a fund.

The flip side of the way that gains are managed in a portfolio for the most efficient tax result, and which also has an effect on the tax management of a portfolio, is the way that tax losses in a portfolio are managed. The earlier that tax losses can be utilised, usually by being off set against assessable gains, the less value is lost to the portfolio. In other words, unutilised tax losses in a portfolio are a loss in value to the portfolio and, consequently, should be utilised as soon as possible. The generic name is 'loss harvesting' and US research shows how efficient this can be.

ii

Loss harvesting also interacts with the rate of turnover of a fund in that selling stock that has an unrealized gain in order to offset tax losses is generally considered to be inconsistent with efficient tax management of the portfolio as it implicitly increases turnover in the fund.

However, tax efficiencies are generated when trades of stock that are in tax loss match the trade of stock with unrealized gains. As Poterba observed, turnover is similar to cholesterol in that there is good cholesterol and bad cholesterol. Similarly there is good turnover, when matching tax losses, and bad turnover, that brings forward taxes that would otherwise have been deferred.

Within that outline of the two most significant tax issues relating to portfolio management, being turnover and loss harvesting, there are a number of other ways in which a portfolio can be efficiently managed for tax:

First, efficiently trading the investments. When a sell decision is made the stock that is chosen to be traded is the one that has the highest tax cost base, consequently reducing the realized taxable gain.

Secondly, there are strategies involving retaining the physical stock and effecting a change in its portfolio weighting by the use of derivatives when making tactical asset allocations.ⁱⁱⁱ

The efficiency is derived from not crystallizing taxation on unrealized gains in the underlying stock, which facilitates deferral of tax on those unrealized gains.

Finally, there are other more specialized strategies available such as changing the source of income from foreign investments in the portfolio by using derivatives that have a domestic source. These are effective for dealing with foreign withholding taxes that would otherwise have been paid on the cross-border income flows.

Efficiency and professional management

Efficiencies in tax management can also be achieved in the areas of information systems and record keeping. In the Australian context a significant number of these issues revolve around the Imputation system by which company shareholders are taxed on dividends. Essentially, that system distributes a credit for Australian taxes paid by the company, in addition to any cash

dividend, to the investor. The investor then includes the cash dividend and the tax credit as income, and claims the tax credit against any resulting tax liability. The net effect is that the distributed profits are taxed net at the investors tax rate. Examples of efficiencies in this aspect are:

Imputation credit conservation, which is ensuring that any stock selected to be traded, is not traded around its dividend-ex date, consequently preserving the value of imputation credits,

Imputation credit protection, which is ensuring that the 45-day rule is not breached so that the entitlement to imputation credits are protected,

Systematically taking the tax effect of imputation credits on a stock into account when deciding whether to trade. For example, grossing up the dividend yield for imputation credits in the sell decision,

Maximizing the value of share buy backs, which is calculating the tax effect of share buy back offers to determine whether they are tax efficient for the portfolio, and

Correctly managing tax outcomes from other corporate actions, such as demergers or scrip-for-scrip takeovers, where decisions will be made based on the most efficient tax outcome for the portfolio.^{iv}

Reporting after tax performance

The US Securities and Exchange Commission mandated reporting of after tax returns by



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certain classes of mutual funds in 2001. On the other hand, the Australian funds management industry has only recently (2008) adopted standards for funds to report after tax performance returns to investors but that are not yet mandatory.

This part of the paper reviews the method used in the US by which certain funds are obliged to report their performance on an after tax basis, the equivalent method in Australia and three other methods that have been suggested.

It is obvious that the US and Australian tax systems are unique. In particular, the imputation system for taxing distributed company profits is not mirrored in the US. Nevertheless, the critical issues in measuring after tax performance are differential capital gain tax rates based on length of holding and a realization tax basis, both of which are common to the two systems and any differences are recognized in the respective methods.

United States: Disclosure of mutual fund after tax returns

After tax returns have to be disclosed using a standardized methodology under which 1, 5 and 10-year pre and post liquidation calculations are reported.^v

The pre liquidation formula assumes a continuous holding over the end of the measurement period that reflected taxable distributions and the post liquidation calculation assumes that investment in the fund is sold (redeemed) at the end of the measurement period.

The pre liquidation formula reflects the tax effect on the investor of the manager's purchases and sales and, in that regard, the pre liquidation method for disclosing after tax returns provides information to investors about the tax efficiency of the manager's investment decisions.

The post liquidation measurement includes taxable distributions plus tax on sale of the investment and it, consequently, reflects the tax effect of the investor's decision to sell.

Assumptions included in the methodology are that there is a complete sale of shares at end of relevant period (1,5 and 10 years) and that capital losses are fully absorbed.

However, and importantly, the proportion of unrealized gain in the fund is not required to be directly disclosed.

More specifically, there are three parts to the disclosure of after tax performance, being:

- 1 Average annual total return,
- 2 Average annual total return (after taxes on distributions), and
- 3 Average annual total return (after taxes on distributions and redemptions),

each of which is explained as follows:

Average annual total return: For each of 1, 5 and 10 years the fund's annual total return is calculated by finding the average annual compounded rates of return over the 1, 5 and 10 year periods that would equal the initial amount invested to the ending redeemable value (ERV) according to the following formula:

$$P (1+T)^n = ERV$$

Where:



P= hypothetical \$1000 investment

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T= average annual total return

n= years

assuming that all distributions were reinvested and complete redemption of the investment at 1,5 and 10 years.

Average annual total return (after taxes on distributions): For 1, 5 and 10 year periods the fund's average annual total return (after taxes on distributions) is calculated by finding the average annual compounded rates of return over 1,5 and 10 years that would equate the initial amount invested to the ending value according to the following formula:

$$P(1+T)^n = ATV_D$$

Where:

P= hypothetical \$1000 investment

T= average annual total return (after taxes on distributions)

n= years

ATV_D= Ending value of the hypothetical investment made at beginning of each period after taxes on fund distributions but not after taxes on redemption

It is assumed in this that the taxes due on any distribution are calculated by applying the specific tax rate to each component of the distribution (for example, ordinary income, short term capital gains, long term capital gains) and that the taxable amount and character of each distribution is that as specified by the fund on the dividend declaration date and using the highest marginal tax rate.

Average annual total return (after taxes on distributions and redemptions): For 1, 5 and 10 year periods the fund's average annual total return (after taxes on distributions and redemption) is calculated by finding the average annual compounded rates of return over 1,5 and 10 years that would equate the initial amount invested to the ending value according to the following formula:

$$P (1+T)^n = ATV_{DR}$$

Where:

P= Hypothetical \$1000 investment

T= average annual total return (after taxes on distributions and redemption)

n= years

ATV_{DR} = Ending value of the hypothetical investment made at beginning of each period after taxes on fund distributions and on redemption

The same assumptions are made here as in the second method above and the ending value is determined by subtracting capital gains taxes resulting from the redemption and adding the tax benefit from capital losses resulting from the redemption.

Australia: IFSA product performance-calculation of after-tax returns

The Investment and Financial Services Association (IFSA), which is the peak representative body for fund managers in Australia, has specified an approach to calculating after-tax returns for reporting to a retail audience.^{vi} It is not mandated by IFSA nor is there any statutory obligation on managers to use it.

Broadly, the calculation of an after tax return is expressed as a percentage change in value of the investment, assuming the reinvestment of all distributions net of tax applicable to those distributions, broken into a pre-liquidation and post-liquidation after-tax returns where:

The pre-liquidation after-tax return is the percentage change in the investment assuming reinvestment of all distributions net of tax applicable to the distribution, and

The post-liquidation after-tax return is the after-tax return assuming the investment is redeemed at the time of the calculation.

Funds are required to use the highest marginal tax rate (MTR) plus a 15% superannuation rate, and zero and lower MTRs may also be used.

The after tax value of distributions is calculated as follows:

After tax distribution amount = $\sum (TC) * (1 - TR) + TF + TD$

Where:

TC = Taxable components including but not limited to:

Total Franked Dividends

Unfranked dividends

Realised Capital gains

Interest income

Other Australian Income

Imputation credits

Foreign sourced income

Passive foreign income

Foreign tax credits

TR = Tax rate at time of distribution

TF = Tax-free component including but not limited to:

Building depreciation allowance

Realised capital gains that are non-assessable

Other non-assessable income

TD = Tax deferred components



Depreciation

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Other tax deferred

The pre-liquidation after-tax return is the cumulative value of the investment assuming reinvestment of all after-tax distributions as follows:

$$\textit{After-tax_Return}_{@EndofPeriod} =$$

$$\frac{\textit{After-tax_Total_Value_Series}_{@EndofPeriod} (1/\#yrs)}$$

$$\textit{After-tax_Total_Value_Series}_{@StartofPeriod} - 1 * 100$$

The post liquidation after-tax return is:

$$\textit{PL_After-tax_Return}_{@Endofperiod} =$$

$$\frac{\textit{PL_After-tax_Total_Value_Series}_{@EndofPeriod} (1/\#yrs)}$$

$$\textit{After-tax_Total_Value_Series}_{@StartofPeriod} - 1 * 100$$

Where:

$$\textit{PL_After-tax_Value_Series}_{@EndofPeriod} = \textit{After-tax_Value_Series}_{@EndofPeriod} - \textit{Tax}$$

Where:



Tax = the tax payable on redemption of units in the product as at the reporting date

The calculation of Tax in the formula above recognizes the difference in types of capital gain from the cost base(s) of the units purchased from all the distributions reinvested. For example, the tax on the capital gains of the units reinvested in the last 12 months would represent undiscounted (disregarding the 50% discount) capital gains, while all others would represent discounted (recognizing the 50% discount) capital gains. The calculation of tax also takes into account the carried forward tax free and tax deferred components of the income in the investment.

In effect then, the value of the investment at two points is differentiated by the values calculated assuming that distributions had been reinvested after tax and the post liquidation value is a cumulative value of the investment assuming reinvestment of all after-tax returns and of tax payable assuming redemption of the investment.

Aggregate rate methods

As opposed to reporting after tax returns of a fund by comparison with the fund's pre tax returns, several other methods have been suggested that derive an after tax rate of return for the fund as a means of informing investors about its tax efficiency.

First, Morningstar has proposed a ratio for describing the tax efficiency of a fund, called the 'Tax Cost Ratio'. Broadly, this is the ratio of after tax returns from a fund to the before tax returns from the fund. They argue that that ratio isolates the effect for taxes and can be used to assess taxable distributions from the fund.^{vii}

Secondly, a methodology has been suggested to measure the capital gains tax burden of unrealized gains in a fund, called the 'accrual equivalent' capital gains tax rate. This was developed in the context that 'One of the most difficult problems in measuring after-tax portfolio performance concerns handling unrealized capital gains. The AIMR-PPS standards recommend ignoring potential future taxes on unrealized capital gains.'^{viii}

Again broadly, the capital gains tax burden on unrealized gains is expressed as "accrual equivalent" capital gains tax rate, which is the accrual tax rate that gives the investor the same total after tax portfolio value at the end of the realization period as the current realization-based rate, assuming disposal at the end of the realization period.

The following example was given to explain the method:

Assume that an asset's value at Year 0 is \$100, that it increases in value at 10%pa and there are no distributions. If the asset was realized each year and taxed as a short term gain (.396 is the tax rate on short term realized gains), then the after tax return each year would be:

$$10(1-0.396) = 6.04\%$$

After 10 years, no additional taxes would be due and the value would be:

$$\$100 (1-.064)^{10} = \$185.96$$

Calculating the accrual equivalent tax rate:



On the other hand, the value of the asset would be greater if the asset was held for 10 years and then capital gains were realized. Assuming that the asset grew at 10% pa for 10 years and that 20% of the gain was taxed away in year 10, the assets after tax value in 10 years would be:

$$(1.0 - 0.2) [\$100(1.10)^{10} - \$100] = \$227.5$$

The accrual equivalent tax rate is what the manager would had to have to earned as after tax basis each year to get \$227.5 in 10 years:

$$\$100 (1-R)^{10} = \$227.5$$

$$\text{So } R = 8.57\%$$

So, the accrual equivalent after tax return is:

$$\frac{10.00\% - 8.57\%}{10\%} = 0.143 \text{ or } 14.3\%$$

The final method is designed to recognize deferred tax liabilities in the portfolio resulting from unrealized gains in the portfolio and that represents a compromise between currently used methods that can under- or overstate tax effects. The method 'estimate a portfolio's after-tax future cash flows and value and then applies a tax-adjusted, risk-adjusted discount rate to determine the portfolio's after-tax value.'^{ix}

Unrealized gains unresolved issues

The very large and comprehensive study of the effect of tax on fund in-flows, involving 7798 observations of US equity mutual funds over the period from 1993 to 1999, by Bergstrasser and Poterba suggest that the value of unrealized gains in a portfolio in after tax management is still unresolved and needs further research.^x

That study compared the effect of tax, called, for the purposes of the study, the 'tax burden' of the fund, on fund inflows. The tax burden was the difference between the pre tax return and the after tax return, being:

$$T = td * (d+gs) + tcg * gl + tucg * u \text{ }^{xi}$$

The study concluded that:

After tax returns were negatively co-related to fund inflows,

After tax returns are better at explaining fund inflows than pre tax returns,

Funds with large unrealized gains experience smaller inflows, and

Large unrealized gains affect both in flows and outflows, but the inflows effect dominated the outflow effect.^{xii}

The effect of the tax burden of a fund was significant, indicating that a high tax burden reduces subsequent income flows, which was even the case when the following were controlled for: fund age, initial and current fund size, prior year expense ratio, fund load, asset turnover, median market capitalization, price to book ratio, morning star rating, and capital gains overhang (unrealized gains).

Determinants of tax burden were also investigated as part of the study and the following observations made:

Current turnover is a predictor of tax burden,

Proportion of fund value at previous year-end that is unrealized gains is a predictor of current tax burden,

Increase in tax burden is related to an increase in tax burden in following years,

Index funds have substantially lower tax burden (37bps difference) and tax managed funds have lower tax burden (32 bps) than other funds, and

Managerial changes and past inflows are correlated to tax burdens.

The negative effect of the tax burden and of the unrealized gains (capital gain overhang) of a fund related to fund inflows was considered comparable to the effect of fund expense ratio.

The general conclusion of the study on the effect of taxes on fund inflows was consistent with the view that taxable investors consider the impact of taxes when choosing mutual funds and that raises several issues.

First, the study was completed before mutual funds were required to disclose their after tax performance and, hence, information about the tax efficiency of the fund, to potential investors. That begs the question of how investors would have known about the tax characteristics of the fund in order to take that into account in their decision to invest.

Secondly, and more importantly if, indeed, the proportion of unrealized gains in the portfolio (the tax overhang) was a negative influence on the decision to invest in a fund, how does that sit with the general view that deferral of tax (which, necessarily means unrealized gains or tax overhang) is considered to be of value in managing a portfolio for after tax returns?

Further research is needed about the competing views that unrealized gains (tax overhang) is a positive value in after tax management against the studies' conclusion that it negatively affected fund inflows. It also raises questions about the value of unrealized gains in a portfolio and, indeed, whether that should be reported to potential investors.

Conclusion

The value of managing portfolios for after tax returns now seems clear and there are several methods by which the after tax returns can be reported including nominal invested amounts, comparison with pre tax returns and aggregate after tax rates.

Yet the value of unrealized gains in a portfolio seems unclear. On the one hand it is considered to be valuable in deferring tax on gains and, on the other, portfolios with large unrealized gains seem unattractive to investors.

ⁱ Is your alpha big enough to cover your taxes? Jeffrey, R. Arnott, R. *Journal of Portfolio Management*, Spring 1993 p15. Turnover rates and after tax returns. Susko, P. *the Journal of wealth Management* Winter 2003

ⁱⁱ Capturing tax alpha in the long run. Luck, C. www.aimrpubs.org

ⁱⁱⁱ Generally called “overlay strategies”. Care needs to be exercised here to avoid losing the imputation credits from application of the “at risk” 45-day rules. S 160 AQZH ITAA 1936. Also note the small shareholder exemption to this rule in ss 160AQU, 160 AQX and 160 AQZ if the sum of credits is less than \$5000. This more efficient outcome comes from the fact that derivative instruments can be taxed differently to the underlying investment, say, a realization basis rather than an accruals basis.

^{iv} Managing a portfolio on an after tax basis can have an effect on broader aspects of the investment management process such as with respect to: stock selection, portfolio construction, including volatility, structuring the portfolio, such as using a core and satellite structure, where aggressive loss harvesting is conducted in satellite portfolios, and risk management in the portfolio, such as the trade off between tax realization minimization and tracking error: A quick guide to tax efficient investment. Heddle, I. ITG ltd

^v Money market funds were excluded from the disclosure obligation and multiple classes within a fund must be separated between single classes and, finally, the highest marginal tax rate must be used.

^{vi} IFSA Guidance Note No. 25.00

<http://www.ifsa.com.au/public/content/ViewCategory.aspx?id=619#Guidance%20Note%2025>

^{vii} Morningstar After-Tax Performance Calculation Methodology, Morningstar Methodology Paper September 06 2006

^{viii} After-tax Performance Evaluation, James M. Poterba, *Investment Counseling for Private Clients II*, p58- 67, Association for Investment Management and Research, 2000

^{ix} After-Tax Performance Management, Stephen M. Horan, CFA, Philip N. Lawton, CFA, and Robert R. Johnson, CFA, *Journal of Wealth Management* Vol. 11, no. 1 (Summer 2008): 69–83

^x Do after tax returns affect mutual fund inflows? Daniel Bergstrasser and James Poterba, *The CFA digest* November 2002

^{xi} The pre tax return of the fund was equal to: dividends (d) + short term gains (gs) + long term gains (gl) + unrealized gains (u). The after tax return of the fund was equal to: $(1-t_d) * (d+gs) + (1-t_{cg}) * gl + (1-t_{ucg}) * u$, where t_d was the tax on dividends, t_{cg} the tax on capital gains and t_{ucg} the tax on unrealized capital gains. However, it was not possible to separate long term from short-term gains so long term gains were used exclusively.

^{xiii} Independent variables in the study were: Asset turnover, Current pre tax returns, Lagged fund inflows, Lagged tax burden, and Investment style (index, tax aware and active).