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THE NEW RECRUIT TO YOUR ALPHA TEAM

Raewyn Williams

Part 1: Tax as a source of investment alpha

'Alpha' as an investment concept is well understood. It is the difference between a portfolio's actual return and the return expected from the portfolio based on its exposure to the market (its 'beta'). More simply, if a portfolio's return exceeds that of the market benchmark, the manager has generated positive alpha; if it has underperformed the market, the manager has generated negative alpha. Notably, in most investment literature, press and dialogue, alpha is a pre-tax concept. Currently, there is no place for tax skills or the notion of tax alpha in this world.

Yet, an institutional pre-tax focus is at odds with the fact that superannuation investment portfolios in Australia are (until retirement) taxable and what builds retirement savings for fund members is what their investment portfolios deliver after tax. Large superannuation funds in Australia have around \$612 billion collectively invested across Australian and international equities, with the income and gains taxed at the headline rate of 15%. Pension exemptions, capital gains tax discounts (on domestic and international equities) and franking credits (on domestic equities) generally reduce the effective tax rate on equities to 10% or lower. This makes the Australian Taxation Office (ATO) an (uninvited!) party to almost every profitable investment transaction a fund enters into on behalf of its members. Part of a superannuation trustee's fiduciary duty is to ensure the ATO receives its legally required 'cut' from these transactions. But an equal part of the trustee's fiduciary duty, arguably, is to ensure the fund is not overpaying and is legitimately managing the tax consequences of investing to maximise the after-tax return to its members. 'Standing in the shoes' of the member is the essence of being a fiduciary, and no one thinks members who manage their own tax affairs are looking to leave the ATO a 'tip'!

Restating alpha as an after-tax concept aligns it with superannuation funds' core purpose: building retirement savings for its members. That is what its members care about. Mathematically, moving from a pre-tax to after-tax alpha is simple. Alpha is a parameter in the capital asset pricing model; specifically, it is the intercept in the regression line of the portfolio returns R with the market benchmark returns R_M :

$$R - R_f = \alpha + \beta (R_M - R_f)$$

In the context of a portfolio, it is common to assume that $\beta = 1$, in which case the alpha becomes synonymous with the excess returns of the portfolio over the benchmark:

$$\alpha = R - R_M$$

For the portfolio and benchmark, we can calculate the after-tax returns R' and define the tax impact t as the difference between pre-tax and after-tax returns:

$$t = R - R'$$

$$t_M = R_M - R'_M$$

The after-tax alpha of the portfolio can be decomposed into two parts, the regular alpha we are accustomed to thinking about, and the alpha derived from tax management ('tax alpha'):

$$\begin{aligned} \alpha' &= R' - R'_M \\ &= (R - t) - (R_M - t_M) \\ &= (R - R_M) - (t - t_M) \\ &= \alpha + \alpha_{TAX} \end{aligned}$$

The tax alpha, which is the focus of this paper, can also be thought of as the after-tax excess return minus the pre-tax excess return:

$$\begin{aligned} \alpha_{TAX} &= \alpha' - \alpha \\ &= (R' - R'_M) - (R - R_M) \end{aligned}$$

The difference between after-tax alpha, α' above, and tax alpha, α_{TAX} above, is important. Tax alpha is generated when the fund pays a lower amount of tax (or receives a higher tax offset) on the portfolio return than would be suggested by the benchmark tax calculated. Tax may still reduce the overall portfolio return and if the manager's pre-tax alpha is negative, the portfolio may have done worse than the benchmark overall on an after-tax basis. After-tax alpha is what tells the fund whether the combination of pre-tax alpha and tax alpha effects has beaten, or fallen short of, the benchmark.

To show why this is not just an academic exercise, think of examples where the difference $t - t_M$ is bigger than the difference $R - R_M$. This is the classic case where an active manager's alpha is not big enough to cover its taxes. What looks to be building retirement savings for superannuation fund members is actually eroding wealth on an after-tax basis. If a fund accepts that after-tax returns are the correct baseline for establishing, and managing to, investment portfolio objectives, then it is clear that minimising negative tax alpha and maximising positive tax alpha in this performance equation is influential.

The superannuation industry's long history of managing to pre-tax returns creates a potential anchoring bias which may unnecessarily constrain a fund's approach to considering tax alpha management. In practice, this sub-optimal approach to tax alpha management is borne out in simple solutions like programmed tax lot selection and 'propagation' which are implemented in the 'back office' and leave the superannuation fund's 'front office' investment decisions untouched.

This is not meant to be dismissive of all such initiatives, which are better than no tax alpha management at all.

The intellectual case for tax alpha management challenges the idea of a fixed or 'protected' pre-tax outcome. It permits a fund or manager to take active risk to generate tax alpha. A fund or manager needs to establish a risk budget to genuinely pursue tax alpha just as it would any other form of investment alpha.

Part 2: Sources of tax alpha in a 'real world' portfolio

The tax alpha opportunity set

Desirable tax outcomes are shaped by the following general preferences (*ceteris paribus*) of superannuation funds:

- To pay a lower, rather than higher, rate of tax (which includes receiving higher, rather than lower, tax offsets) – these constitute permanent tax differences
- To pay tax in a later, rather than earlier, year – these constitute timing tax differences

There are other subsidiary preferences not strictly captured in a mathematical formulation of tax alpha which may be relevant to the fund, including:

- To pay tax in Australia rather than overseas
- To pay tax explicitly rather than as an embedded (hidden) charge

Tax alpha management requires identification of where opportunities arise in an investment portfolio to pursue outcomes that support these preferences – the tax alpha 'opportunity set'. As it turns out, the opportunity set is large, as explained in a previous paper: "the industry and its constituents (media, brokerage and advisory) were built upon investors embracing tactics. Unfortunately, tactical

movements of assets can create significant tax liabilities. A focus on the strategic, not tactical, structure of the portfolio should be the primary consideration for the investor. In addition, a long-term view and a sharp focus on the frictions of investing are critical to the success of an investment program."

These are the proverbial 'zaps' spoiling the serenity of our 'Bonyndoon' – a reminder that our best ideas, though theoretically sound, must be implemented in the real world of noise and frictions. Wherever there is change or friction, there is likely to be an opportunity to manage tax alpha for the benefit of the investment portfolio. For example, consider the following four 'flavours of capital gain taxation' in a multi-manager equity portfolio:

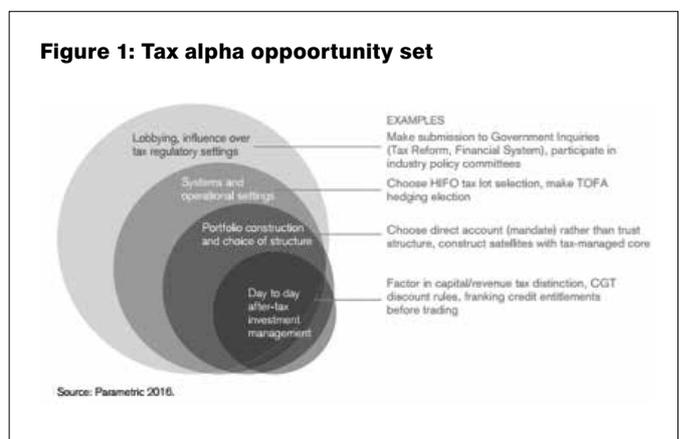
1. Tax on managers' alpha (active trading)
2. Tax on rebalancing to maintain desired weights
3. Tax on hiring or terminating a manager or changing the manager mix
4. Tax on updating weights to reflect benchmark reconstitutions.

In Figure 1, are depicted the sources of tax alpha in a diagram which has at its centre the day to day activities of an equity portfolio – an environment full of frictions – and emanates outward to upfront structural decisions, middle and back office settings and, at its outer reaches, the way a fund (or the industry in general) is able to influence the tax regulatory settings that apply to the fund's portfolio. All are spheres which, if exploited, have the potential to positively impact the quantum of tax paid – t in our after-tax return formula above.

Tax alpha management techniques

Traditional alpha sources are credible partly because managers are able to describe the techniques they use to generate the alpha in ways that make sense to investors. Techniques include: 'bottom up' approaches like stock research to identify mispriced stocks which are expected to 'mean revert' or stocks with the greatest dividend or growth potential based on underlying fundamental data, and 'top down' approaches which will benefit from wider macroeconomic trends and predictions.

Tax alpha, similarly, can be ascribed to particular skills and techniques. Below are some techniques that a tax-skilled manager could use to generate tax alpha in an investment portfolio (the inner circles of Figure 1).



- **Tax lot selection:** finding securities within a fund's universe of holdings with the most favourable tax profile (accrued tax loss or minimal gain, held for over 12 months). With the right technology and systems, these tax lots can be allocated to a manager's trades to reduce the tax impact of the trade (or potentially create a tax shelter).
- **Capital gains tax (CGT) discount targeting:** determining, in the course of trading equities, whether delaying the trade would allow the tax rate on the trade to drop from 15% to 10%. Here, a trade-off is managed between the risk of alpha signal decay and tracking error, and the known after-tax return benefit of delaying the trade. In a genuine after-tax focused strategy, tax will not always 'win out' in this contest – there is judgement involved. But this approach is clearly better than a pre-tax process in which the opportunity to reduce CGT is not even considered.
- **Tax deferral:** identifying where trades do not need to be done, or can be done in reduced quantities, or at a later point in time; for example, because they are 'de minimis' (trivial to the portfolio) or because different managers' trades within the same multi-manager structure can be 'crossed'. Also, stocks with large embedded taxable gains should require the manager to weigh the strength of his/her conviction as to the pre-tax alpha to be generated by the trade against the known tax penalty of trading. Low-turnover strategies can be favoured for the intrinsic tax deferral they offer (but see our caution on this below). Portfolios gain the compounded return on tax accrued but not yet paid, which can be likened to receiving a 0% interest loan from the ATO.
- **Loss realisation:** exploiting opportunities to crystallise an embedded tax loss by trading (provided there is a dominant investment purpose for the trade). Tax losses cannot be used to shelter gains from tax until they are realised. This is the much-neglected 'other half' of the tax alpha opportunity set in an equity portfolio and an important counter to familiar claims that passive strategies where losses are allowed to build up with no trading to unlock their tax shelter value are 'good' after-tax solutions.
- **Stock substitution:** selling similar stocks with a better tax profile (e.g. Rio Tinto for BHP, Westpac for CBA, Pepsi for CCA) in cases where the trading reason is not stock-specific; such as to reduce a particular sector bet or factor exposure.
- **Franking credit targeting:** valuing franking credit yields on Australian equity portfolios. Franking credits represent a 30% tax offset to a superannuation investor which creates up to \$1.43 of after-tax value for every \$1 of dividends received by a fund. Where franking credit management can be found, it usually takes the form of simply ensuring the manager's trades, post-dividend, are not sold within 45 days which would disqualify the fund from claiming franking credits under the '45 day rule'. This has become more useful since the stricter interpretation of the 45 day rule announced by the ATO in late 2014¹¹. However, it ignores more sophisticated portfolio construction approaches which can actively tilt towards franked dividend paying stocks and sectors, either strategically or tactically (though there are risk implications of such tilting. There is a general academic consensus that franking credits are not fully valued in Australian equity prices.
- **Buybacks and other corporate actions:** electing corporate actions to support tax-efficient restructures and opportunities. Off-market share buybacks are a high-profile opportunity in the Australian market to generate after-tax returns and tax alpha (often at the cost of pre-tax returns). The after-tax benefits of any particular buyback to a superannuation fund can vary significantly and should be carefully analysed by an investment manager.
- **Withholding tax management:** minimising the 'out of the market' drag from withholding tax (WHT) deducted from foreign equity dividends. This includes processes to claim WHT concessions at the source whenever possible, and to reclaim WHT deducted quickly and efficiently. WHT minimisation as a strategy is particularly valuable for a superannuation fund with pension assets because the WHT cannot be claimed back as a tax offset and is a permanent tax cost to the pension portfolio.

This is not an exhaustive list of the techniques that can be used to generate tax alpha. This list is complete enough, to make the concept of tax alpha real and allow investors to visualize applying tax alpha management techniques in a real-life equity portfolio. Underpinning these techniques are three important practical requirements:

 1. The portfolio manager's performance should be measured on an after-tax basis so that a manager is motivated to apply these techniques to generate tax alpha to improve performance.
 2. The portfolio manager should have real-time access to the superannuation investor's tax lot records (usually held by the superannuation fund's custodian), ideally at a whole-of-portfolio level, and,
 3. The portfolio manager should be given a modest investment risk budget to work with in order to deliver tax alpha. Introducing investment risk (say, tracking error) will obviously have an impact on pre-tax returns. However, there is a clear relationship between tracking error and tax alpha and a well-defined investment mandate will provide the manager with enough latitude to pursue tax alpha management techniques for meaningful reward, but not so much that the pursuit of tax alpha risks giving up too much of the pre-tax alpha earned.

Part 3: Quantum and drivers of tax alpha

Practically, insights about tax alpha won't matter to superannuation funds if the impact on performance is insignificant because the scarce resources of funds are traditionally only allocated to things that will 'move the dial'. We now explore the size of the potential benefit of applying the kinds of tax alpha management techniques described above and how sensitive they are to the following market or fund condition: Market returns; cross-sectional volatility; cash flows; turnover; portfolio overlap (redundancy).

The simulation assumes a tax efficient investment structure (separate multi-manager accounts), portfolio construction (Centralised Portfolio Management) and a centralised manager with tax alpha management skills. It invests \$100 into a hypothetical portfolio and runs 1000 Monte Carlo simulations (see appendix) with the following 'base case' parameters to generate expected returns, which are annualised (Table 1).

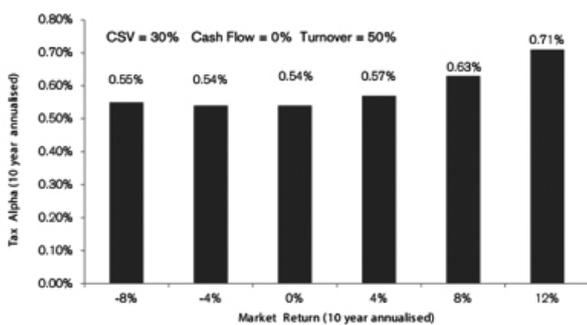
Table 1:

Hypothetical portfolio – base case parameters	
Simulation parameters	
Initial cash	\$100
Turnover (one-way)	50%
Investment universe	ASX200
Rebalancing frequency	Monthly
Investment horizon	10 years
Portfolio tracking error budget	50 basis points
Tax rate	15%
Capital gains tax discount	1/3
Minimum security weight	Five basis points
Market return	4% (2.5% price, 1.5% dividends)
Cross-sectional volatility	30%
Net cash flows	0%
Source: Parametric 2016	

The base case of a 4% return produces annual tax alpha projections – that is, a lower tax liability to the portfolio or higher tax refund than benchmark tax – of 54 basis points per year. The result is encouraging, but there's need to understand how important market returns are to the portfolio's tax alpha management initiatives. What if there is a market rally? What if the market is flat or falls?

Rerunning the simulations at the alternative market returns of (8%), (4%), (0%) and (-4%) shows little variation in the annual tax alpha projections, as shown below:

Figure 2. Tax alpha simulations - tax alpha variation with market return



Source: Parametric 2016. Simulated performance is provided for illustrative purposes; it does not represent the actual returns of any investor and should not be relied upon for investment decisions. Simulated performance is presented gross of advisory fees; the deduction of fees would reduce the returns presented.

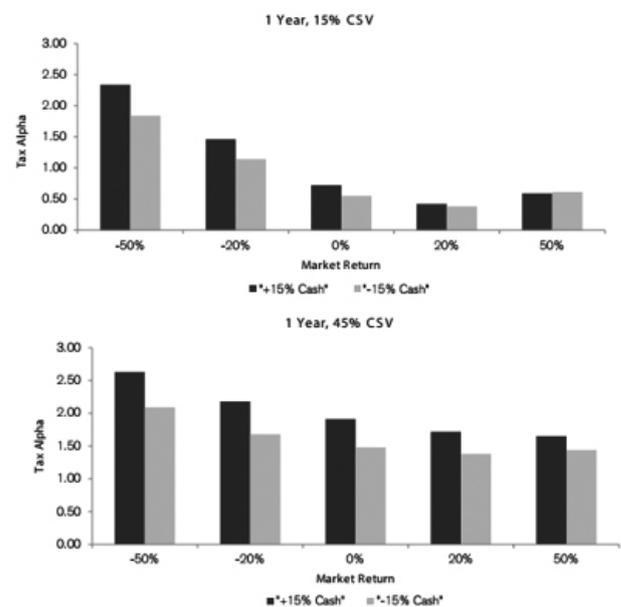
Despite a 20% variation in market returns, annual tax alpha varies by only 16 basis points per year for the 10 year period. This is explained by the diverse mix of tax alpha management strategies used across the cycle, which can be grouped into:

- Those which reduce or defer taxable capital gains, which 'come to the fore' in strong markets when gains are present in the portfolio; and
- Those which allow capital losses to be realised, which can be more

readily applied in down market environments. In these conditions, tax losses can be realised on the portfolio through monthly rebalancing back to within prescribed rebalancing ranges.

However, there is a 'story within a story' here if the investment horizon is much shorter. Over one year, the tax alpha results are much more dependent on market returns, the more so when the returns combine with high cross-sectional volatility and strong cash outflows (Figure 3).

Figure 3. Tax alpha simulations: First year tax alpha variation with market return and CSV



Source: Parametric 2016. Simulated performance is provided for illustrative purposes; it does not represent the actual returns of any investor and should not be relied upon for investment decisions. Simulated performance is presented gross of advisory fees; the deduction of fees would reduce the returns presented.

The short-term results show variations in tax alpha from over 50 basis points per year, in certain cases, to well over 100 basis points, with a negative correlation between one year market returns and tax alpha size. The short-term negative skew can be explained by the tracking error bounds: gainside tax alpha initiatives take the portfolio to its tracking error limits more readily than loss-side tax alpha initiatives (where the sale proceeds tend to create simultaneous buys to help keep overall portfolio risks within bounds).

We learn from this that market returns can be an important driver when tax alpha is measured over short time horizons, but not over longer time horizons. This can help to set the expectations of superannuation funds newly embarking on a tax alpha management strategy – the first year's results can be influenced by the prevailing market conditions, but the influence of the market subsides as the strategy's cumulative track record builds through time.

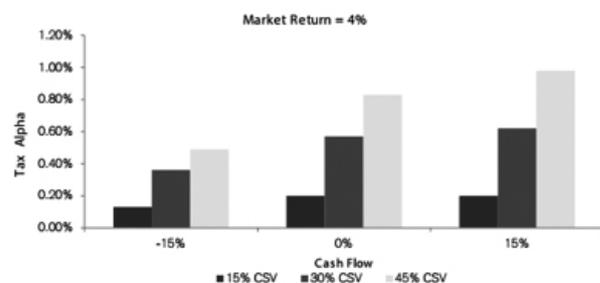
The short-term results hint at the importance of cross-sectional volatility and cash flows, so we examine the impact of these factors over the longer term. The 10 year tax alpha projections show (Figure 4).

Figure 4. Tax alpha simulations - tax alpha variation with cash flows and CSV



Source: Parametric 2016. Simulated performance is provided for illustrative purposes; it does not represent the actual returns of any investor and should not be relied upon to for investment decisions. Simulated performance is presented gross of advisory fees; the deduction of fees would reduce the returns presented.

Figure 5. Tax alpha simulations - tax alpha variation with turnover



Source: Parametric 2016. Simulated performance is provided for illustrative purposes; it does not represent the actual returns of any investor and should not be relied upon to for investment decisions. Simulated performance is presented gross of advisory fees; the deduction of fees would reduce the returns presented.

In this scenario a fund's cash flows are a greater driver of tax alpha than market returns, with an impact on annual tax alpha that can vary annually from a minimum 13 basis points to a maximum 98 basis points, a range of 85 basis points versus a long-term range of market return impacts of only 16 basis points. Tax alpha is lower as cash flows turn negative, which makes sense because of the stronger nexus between cash outflows, trading and taxable events. The impact is greater still when combined with volatility within the portfolio. Cash inflows, conversely, avoid the need to crystallise tax through selling and, instead, generate buys which are not taxable events. The cash flows are not diluting tax alpha management occurring elsewhere in the fund.

This leads us to the most important part of the story: in a portfolio shaped by market returns, cash flows and cross-sectional volatility, it is cross-sectional volatility which is the greatest driver of tax alpha outcomes, something the above charts evidence over both short and long-term time horizons. This result, too, will be no surprise to an experienced tax alpha manager. Cross-sectional volatility creates a series of short-term tax alpha signals which can be exploited and, arguably, places a higher intrinsic value on realising tax losses. The tax losses are 'banked' as they are realised, creating a kind of 'tax shelter option'. Because of the cross-sectional volatility, the options can become 'in the money' as other stocks move into gain positions and are effectively exercised as gains are crystallised. Cross-sectional volatility can also create great dispersion among the tax cost bases of identical stocks, which is valuable for a manager with tax lot selection skills.

The final part of our sensitivity analysis is to address misconceptions about the need for high turnover and/or portfolio overlap in order for a fund to generate material tax alpha. These myths are dangerous to superannuation funds because they suggest that most tax alpha comes from simply keeping turnover low and/or limiting overlap (redundancy) within their multi-manager equity portfolio.

This can lead to lazy thinking that tax — the difference between the tax on the fund's equity portfolio and a benchmark level of tax — is just 'what it is' and is simply the by-product of the fund's (tax naïve) investment decisions.

We revive for one last time our base case and expand our base case turnover assumption of 50% to a range of 5-100% turnover. From the results below that this has a modest (27 basis points) impact on annual tax alpha:

There is a need for some turnover in the portfolio in order to pursue tax alpha, particularly given that Australia's tax rules require a dominant investment purpose to trade. There is also evidence here that moving from a passive turnover range (5-10%) to an active turnover range (20%+) is helpful to tax alpha aspirations. However, Figure 5 shows that there is no straightforward relationship between ever-increasing turnover levels and tax alpha expectations. A portfolio need only have modest natural turnover levels to work with.

These results also make sense, remembering our earlier observation about the diverse mix of tax alpha strategies: gain-side strategies do not require — or give back to — a 'turnover budget', while loss-side strategies do use turnover, but in a restricted way because of Australia's tax laws. Turnover as a tax alpha lever is also limited, ultimately, by the portfolio's tracking error bounds. These insights are consistent with other research which has concluded that 'turnover is a poor proxy for tax efficiency', including a body of Parametric research. For example, in research published for superannuation funds last year, we showed that the after-tax performance difference between a typical passive equity strategy and a passive strategy with genuine tax alpha 'smarts' is around 25 basis points a year for an ASX 200 strategy and 30 basis points per year for an MSCI World ex Australia strategy.

Lastly, we discount the importance of portfolio overlap to the tax alpha proposition by citing our earlier research comparing a tax management solution (propagation) specifically designed to address portfolio overlap with a holistic tax-managed Centralised Portfolio Management solution. Within total tax alpha generated of 50-90 basis points per year, 10% or less (5-6 basis points) was dependent upon the existence of overlapping stock positions across the managers. Parametric recently confirmed this point by conducting a specific research project at the request of a large fund to assess the tax alpha potential of a high overlap equity portfolio and a low overlap equity portfolio. The portfolios showed similar potential for tax alpha of around 75-85 basis points each year, notwithstanding very different portfolio redundancy profiles of 42.2% and 7.8%.

"Normally, each player has his/her game plan for each match. However, a game plan does not work all the time. To reach the level of an advanced tennis player, you should have the ability to adjust or change your game plan... you have to have the versatility and skills that enable you to play and win no matter what types of player your opponents will be," Advanced Tennis — the Foundation for World Class Tennis.

Investment markets can be difficult ‘opponents’ for superannuation funds and it helps to find new game plans. This paper shows that the pursuit of tax alpha is a game plan superannuation funds can seriously pursue. Once after-tax returns are accepted as the more appropriate baseline for a fund’s investment focus, it is a simple intellectual exercise to recognise tax alpha as a lever funds can use to grow their members’ savings. Every dollar added closes the ‘retirement savings gap’ and it does not matter to members whether these dollars are added through ‘flashy forehands’ and ‘aces that clean the lines’ (glamorous activities like stock picking and manager selection) or tax alpha – the hardworking, grunting baseline player who never gives up. More accurately, tax alpha is like equipping a flashy tennis player with the ability to become the baseliner when the flashy shots misfire, becoming an exponent of every part of ‘the game’.

The sources of tax alpha can be seen every time the serenity of our ‘Bonnydoon’, which represents our best investment ideas, is interrupted by the background ‘zaps’, or frictions, of our real-world equity portfolios. These interruptions might seem challenging, but in reality should be seen as a source of strength, and a sign that there are many potential opportunities for funds to influence how much of their members’ investment outcomes are paid away in tax. Critical drivers like choice of investment vehicle and portfolio composition are perfectly controllable by the decision-makers within large superannuation funds. Choosing more tax efficient vehicles and structures can be done by reconfiguring – and not giving up – the existing (pre-tax) elements of a fund’s investment strategy. In other words, these tax alpha initiatives are truly additive.

We have also confirmed that certain non-controllable elements of a fund’s investment environment like market returns and cash flows are less important to the tax alpha proposition. The key non-controllable driver (but not the only driver) is cross-sectional volatility, and given the current investment conditions, this may in fact be good news to funds.

We conclude by demonstrating that tax alpha management is not confined to portfolios with high turnover or portfolio overlap (redundancy). This type of thinking is flawed by categorising tax management as merely a type of operational ‘damage control’; a downside expense which can at best be only limited. Our overarching message is that in an after-tax world – the only one fund members care about – tax alpha is a genuine source of alpha, which can be understood, harvested and measured.

It can be implemented strategically and tactically and it is capable of contributing to, or detracting from, investment returns. Most importantly, it is possible for funds to find good investment partners to help with this implementation to make tax alpha work just like any other source of investment alpha.

Simulation methodology

It is important to understand the simulations underlying our results. In each case, Parametric is simulating the average return (or what you might expect to achieve each year) starting with \$100 in cash. Given the average return environment and using a specific cross-sectional volatility, we randomly generate a 10 year scenario of market-average movements from a normal distribution (with the specified mean and volatility). Then, for each scenario, we simulate a portfolio of stocks, each having a sequence of returns with the appropriate volatility of excess return around the market average. We assume each universe — in this case we are looking at an ASX 200-like universe — but with a different turnover value per year. We simulate the portfolio management over a ten year period and rebalance the portfolio 12 times a year. For each case in the charts, we perform 1000 such scenario simulations.

The 1000 simulations give us a distribution of tax alpha management opportunities, i.e. a mean and a standard deviation. We measure these returns after taxes relative to an investment in non-tax managed portfolio.

Note that the simulations are designed to give a sense of the tax management opportunity and how it changes under different conditions. The experience of any one scenario is different than the mean shown. There is a great deal of variability among the scenarios. An investor’s individual experience will depend on their particular cash flows and the market movements those investments experience. We have made approximations in the simulations for modeling purposes and endeavored to be conservative in estimating the opportunity. **FS**