Vanguard's guide to Core-Satellite investing

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Core-Satellite—a powerful investment approach

The core-satellite concept is a portfolio philosophy that combines the best of portfolio theory and a real-world market-tested approach.

In essence, core-satellite is a common sense investment approach which combines the benefits of index funds—lower cost, broader diversification, tax efficiency* and lower volatility—with actively managed funds or other direct investments offering potential for outperformance.

Core-satellite brings greater discipline and stability to an investment portfolio by:

- Reducing reliance on 'picking winners' or chasing fund manager returns
- Providing greater portfolio diversification
- Potentially improving after-tax returns by taking maximum advantage of capital gains discounts
- Reducing overall fund management and transaction costs

* Through lower portfolio turnover

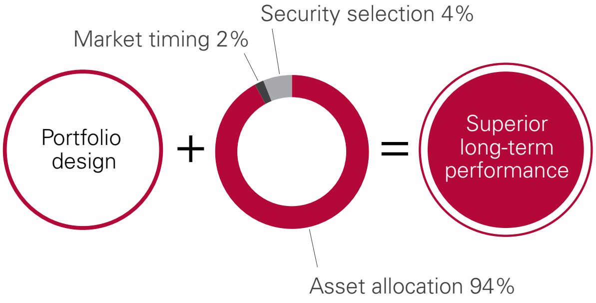
Core-Satellite builds on the fundamental importance of asset allocation

Core-satellite is an approach that recognises the fundamental importance of asset allocation for long-term portfolio results.

Market timing and security selection may provide some short-term gains at times, however, over the long term research studies have proven that asset allocation is far more important.

Research in both Australia and overseas has consistently concluded that asset allocation is by far the greatest determinant of portfolio outcomes. Security selection and market timing only have minor influence, particularly over the long term.

The Brinson, Hood and Beebower study, *Determinants of Portfolio Performance* (1986, 1991), concludes that asset allocation accounts for 94% of the variation in returns in a portfolio, leaving market timing and security selection to account for only 6%.



> "*Brinson, Hood and Beebower* concluded that a portfolio's asset allocation is the primary determinant of portfolio return variability, with security selection and market timing playing minor roles."

Source: Vanguard Investment, Counseling & Research paper, *Sources of Portfolio Performance*: the enduring importance of asset allocation July 2003, executive summary.

Core-Satellite combines the benefits of index and active management

The core-satellite concept recognises the fundamental differences between index and active fund management and combines the best aspects of both approaches.

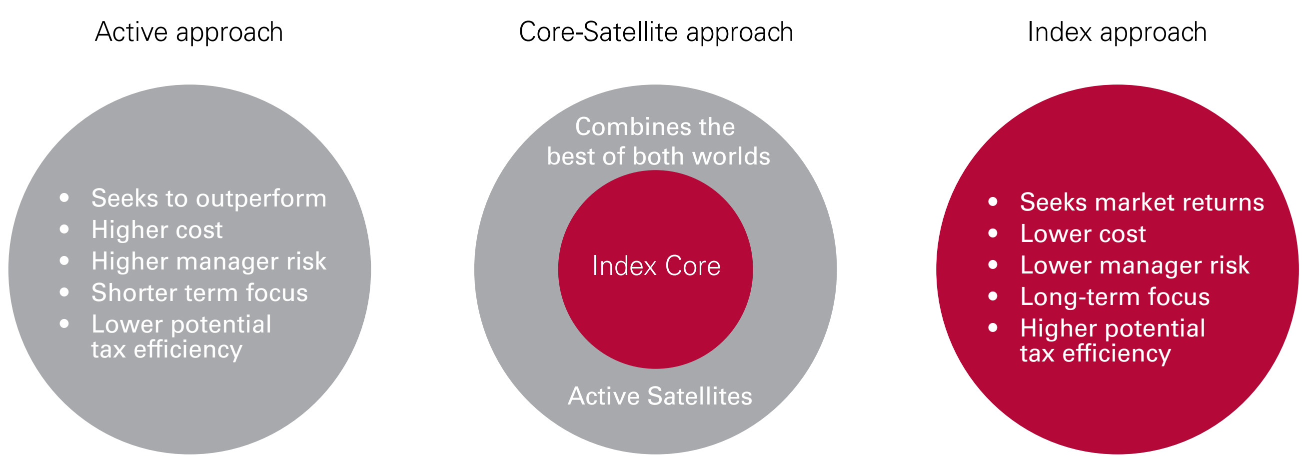
The index approach

The primary aim for an index fund is to track market performance (beta) at a low cost to an investor.

Index funds achieve this by holding a broad spread of securities within an index with an aim to track the overall performance of the index. An index fund does not require the same level of research and security analysis that active management requires (at substantial cost) and will tend to buy and hold these securities with very low levels of portfolio turnover. Lower portfolio turnover results in lower fees to the investor and generally more favourable tax outcomes.

The active approach

The primary aim of an active fund is to seek outperformance of the index (alpha) through security selection and/ or market timing.



The key benefits of indexing the 'core' of your portfolio

Low costs

Tax efficient

Indexing has a cost advantage due to low management fees and low transaction costs.

Indexing's buy and hold approach makes the most of CGT concessions.

Low costs

Management fees—index funds have lower ongoing fees than most active funds investing in similar assets. In other words, it costs less to manage and operate an index fund compared to an actively managed fund.

Transaction costs—index funds generally have lower portfolio turnover than most active funds, resulting in lower ongoing trading costs. Index fund costs are around half the industry median[1].

1 Source: Morningstar research.

Tax efficient

Funds which have a high level of portfolio turnover generally create greater capital gains tax liabilities for investors than funds with low turnover. Generally, the lower the portfolio turnover, the more tax efficient the portfolio will be. If individual securities in a fund are held for longer than 12 months they become eligible for a 50% capital gains discount on disposal for individual investors, resulting in greater tax efficiency. Index funds tend to have low portfolio turnover due to their 'buy and hold' strategy. This reduces realised capital gains tax on which tax is payable, which maximises the compounding effect of having your money work harder for you over the long term.

Competitive long-term performance

Portfolio diversification

Reduced key person risk

Indexing has historically delivered competitive long-term performance at low cost[2].

Competitive long-term performance history

Indexing aims to deliver competitive long-term investment results at low cost. Historically, few active managers have been able to sustain consistent above index returns after costs and tax over the long term.

Indexing naturally gives investors a well-diversified portfolio through a broad spread of investments within an index.

Portfolio diversification

Broad portfolio diversification means less exposure to the performance fluctuations of individual shares or securities. The overall effect is to moderate the volatility of a portfolio and 'smooth out' investment returns over time. Index funds invest in a wide selection of securities in the relevant index therefore minimising stock specific risk.

Index funds are more process dependent than active managers, who rely more heavily on the individual skill of portfolio managers.

Reduced key person risk

By reducing the dependence on key individuals an index process delivers a greater certainty of ongoing outcomes and greater stability of results.

2 Past performance is not an indicator of future performance.

Beating the index is challenging year after year

Active managers can at times beat the index, however very few beat it consistently over time. Investors face a major challenge in picking with confidence 'who' will outperform let alone 'when' they will perform.

The diagram below displays funds that filled the top four positions in performance tables among the Australian equity managers in the year 2000. All performed well above the S&P/ASX 200 index, which grew by 6.4% in that year.

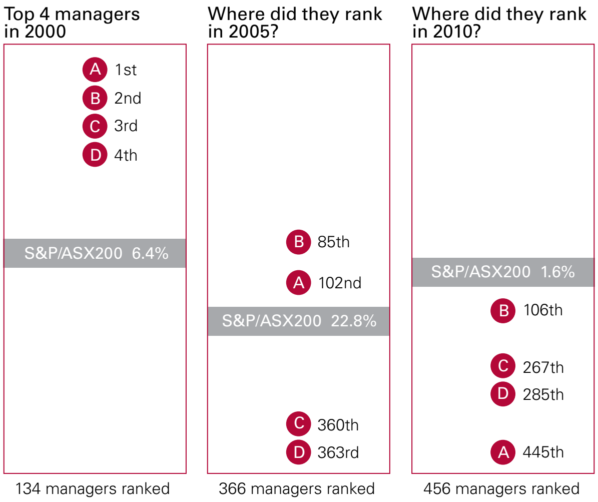
The performance of the same four funds five years later in 2005 however, saw them scattered well down the table, with two of them near the bottom of the league table. Ten years on, all four funds performed below the index.

"Top performing retail share managed funds for one year are not normally those of the next…"

Source: Morningstar publication, *Five lessons to Learn from Last Years Top Performing Share Funds* – May 2007

Yesterday's heroes

What happened to the top four Australian equity managers of 2000?



Note: Figures are for period ending December 2000, 2005 and 2010.
Source: Vanguard calculations using Morningstar, Inc.

Tax efficiency and the impact of portfolio turnover

Tax can be the largest cost any investor will have to pay (even within superannuation funds) impacting significantly on your overall net investment returns.

Portfolio turnover will significantly impact your after tax result.

Income generated from share market based managed funds comes in two forms. Firstly in dividend distributions from the underlying shares which may have imputation tax credits or foreign tax offsets attached. This type of income is generally tax efficient.

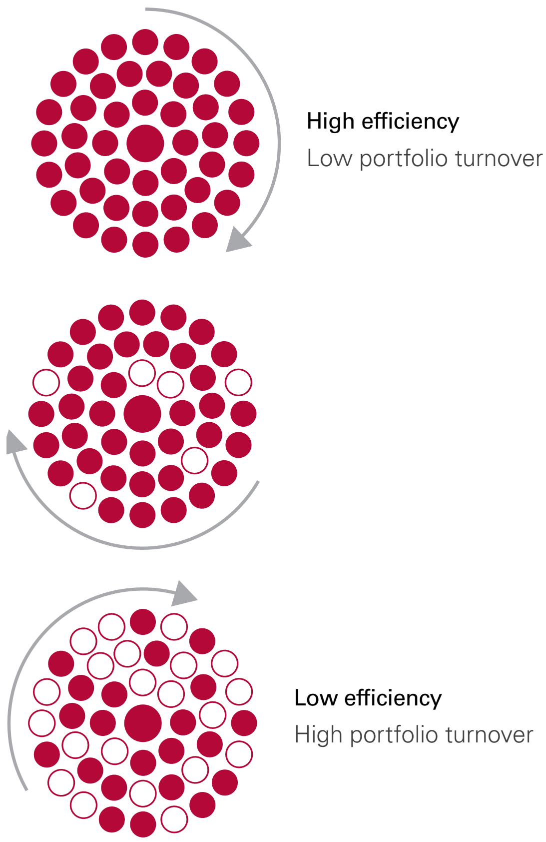
The second source of income is in the form of capital gains distributions as a result of shares within the fund having been sold during the financial year and distributed to investors. Capital gains distributions are either fully taxable or concessionally taxed in the hands of the investor, depending on how long the shares sold have been held within the fund. For shares that have been held for greater than 12 months, only 50% of the gain is taxable for individual taxpayers, whereas gains on shares held less than 12 months will be fully taxable.

Therefore, trading activity or high portfolio turnover of fund managers selected will significantly impact on your after tax result.

Index funds by their very nature tend to have lower portfolio turnover as they tend to 'buy and hold' shares for longer time periods to match the index. Vanguard's Australian Shares Index Fund for example has averaged less than 1% p.a. turnover in the three years to 31 December 2016.

The compounding effect of having more money working for you in the fund rather than paid out as income is a distinct advantage.

Generally, investment funds that have high levels of share turnover where shares are held for less than 12 months, will be less tax efficient than funds that have low portfolio turnover.



Winners and losers and the zero sum game

Indexing's low cost, tax efficient approach to investing makes index funds an efficient and highly suitable investment strategy for constructing the core of an investment portfolio.

Investment performance is a zero sum game

Leading investment academics coined a phrase 'the zero sum game' to describe investment performance of market securities. For every winner there must be an equal loser. The zero sum game suggests that when you consider the impact of costs and taxes on investment returns, active managers/investors have a difficult task in outperforming the market.

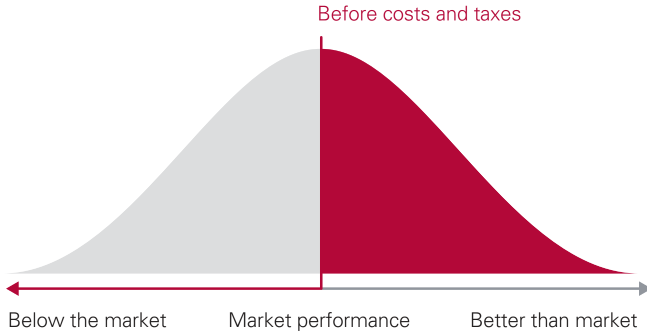
"Most investors will find that the best way to own common stocks (shares) is through an index fund that charges minimal fees. Those following this path are sure to beat the net results, after fees and expenses, of the great majority of investment professionals."

Warren Buffet, one of the world's most celebrated investors.
Source: Berkshire Hathaway Inc. Chairman's Letter, 1996, pg 15.

The zero sum game

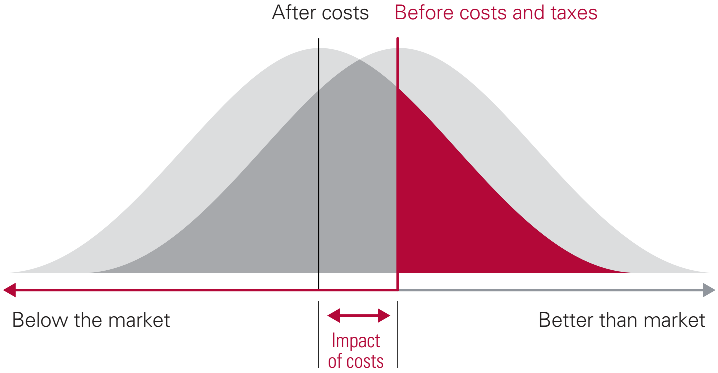
Before cost distribution of returns

The bell curve shown represents a typical distribution of market securities returns. Market performance is the midpoint—50 per cent of returns are better than the market and conversely 50 per cent of returns are below the market. This is known as the zero sum game—for every winner there is an equal loser.



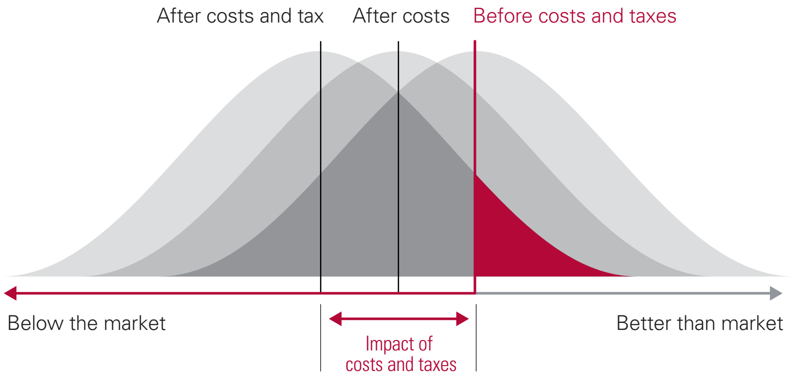
After cost distribution of returns

All investments incur costs when assets are purchased or sold. When costs are taken into account the distribution bell curve moves to the left of the mid point on the chart. The chance of outperforming 'after costs' becomes more difficult as shown by the reduced area on the right (in red). Keeping costs to a minimum gives your portfolio a clear advantage.



After tax and cost distribution of returns

Tax can have a substantial effect on overall results. When both tax and costs are taken into account, the bell curve moves even further to the left. The challenge to outperform the market after costs and taxes becomes even more difficult as shown by the smaller area on the right (in red). Investment funds that minimise management costs and optimise tax efficiency offer a distinct advantage.



Implementing a Core-Satellite portfolio

The principle of core-satellite can easily be integrated into a traditional investment portfolio implementation process.

Risk profiling and asset allocation

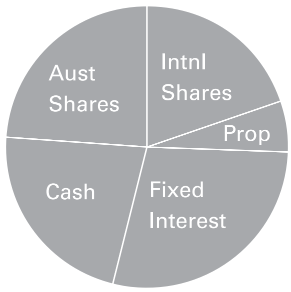
Risk profile analysis remains the first step in portfolio construction formulation. An investor's goals, personal situation, preferences and risk tolerance, all need to be considered to build an investor's risk profile—then matched to an appropriate asset allocation across shares, property, fixed interest, cash and other assets.

The core-satellite index active balance

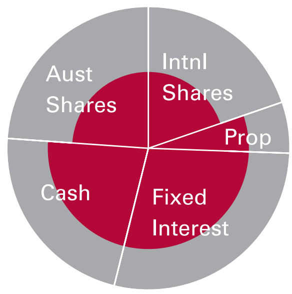
Within each asset class, decisions need to be made around the proportion of 'core' to be allocated to indexing and the proportion to active management or direct shares. This can be dependent on the level of risk compared to the market an investor is prepared to take on, and the level of tax efficiency an investor desires. The mix of index and active chosen may vary from sector to sector. In some asset classes where the indexing case is particularly strong—for example fixed interest—it may be appropriate to have 100% indexed.

Manager selection

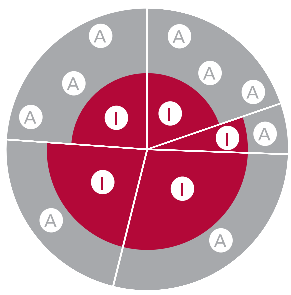
Finally, you need to decide on an index manager for the 'core' (not all index managers are the same), as well as the number of active managers 'satellites' chosen to complement the core. Ideally managers selected should correlate differently to the index core. In some sectors you may require only one or two managers, in other sectors you may require more.



Determine asset allocation



Allocate index and active proportions



Select index and lowly correlated active managers

Active managers/direct investment (satellite)
Index investment (core)

Note: Asset allocations in these diagrams are intended to be an example only and not a recommendation.

A diversified solution

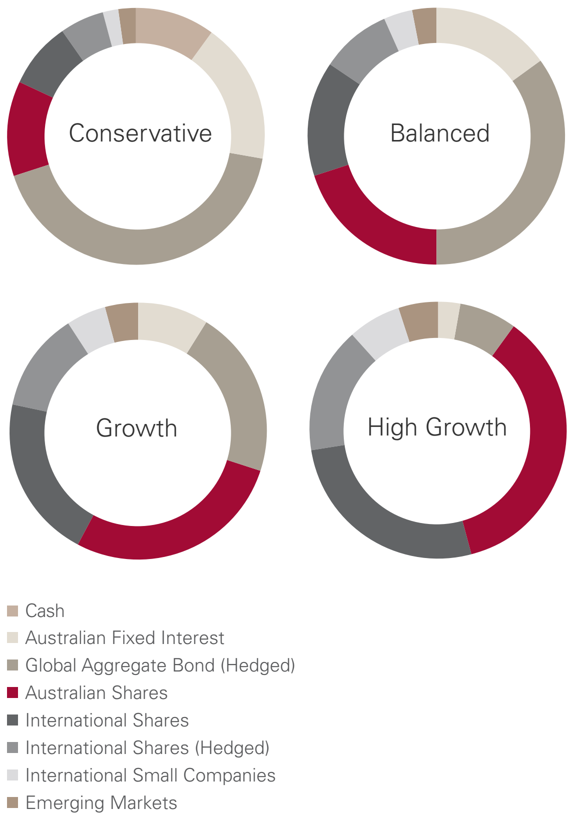
Incorporating a diversified index fund at the 'core' of a portfolio is an alternative for investors who prefer a low cost total solution without needing to constantly rebalance their portfolio.

Vanguard's diversified index fund solutions

Vanguard provides four diversified investment options from conservative through to high growth. A diversified index fund solution at the 'core' of a portfolio provides the following benefits:

- Low cost
- Diversification across asset classes
- Maximum diversification within asset classes
- Constant and efficient rebalancing

Target asset allocations of Vanguard's Diversified Funds



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