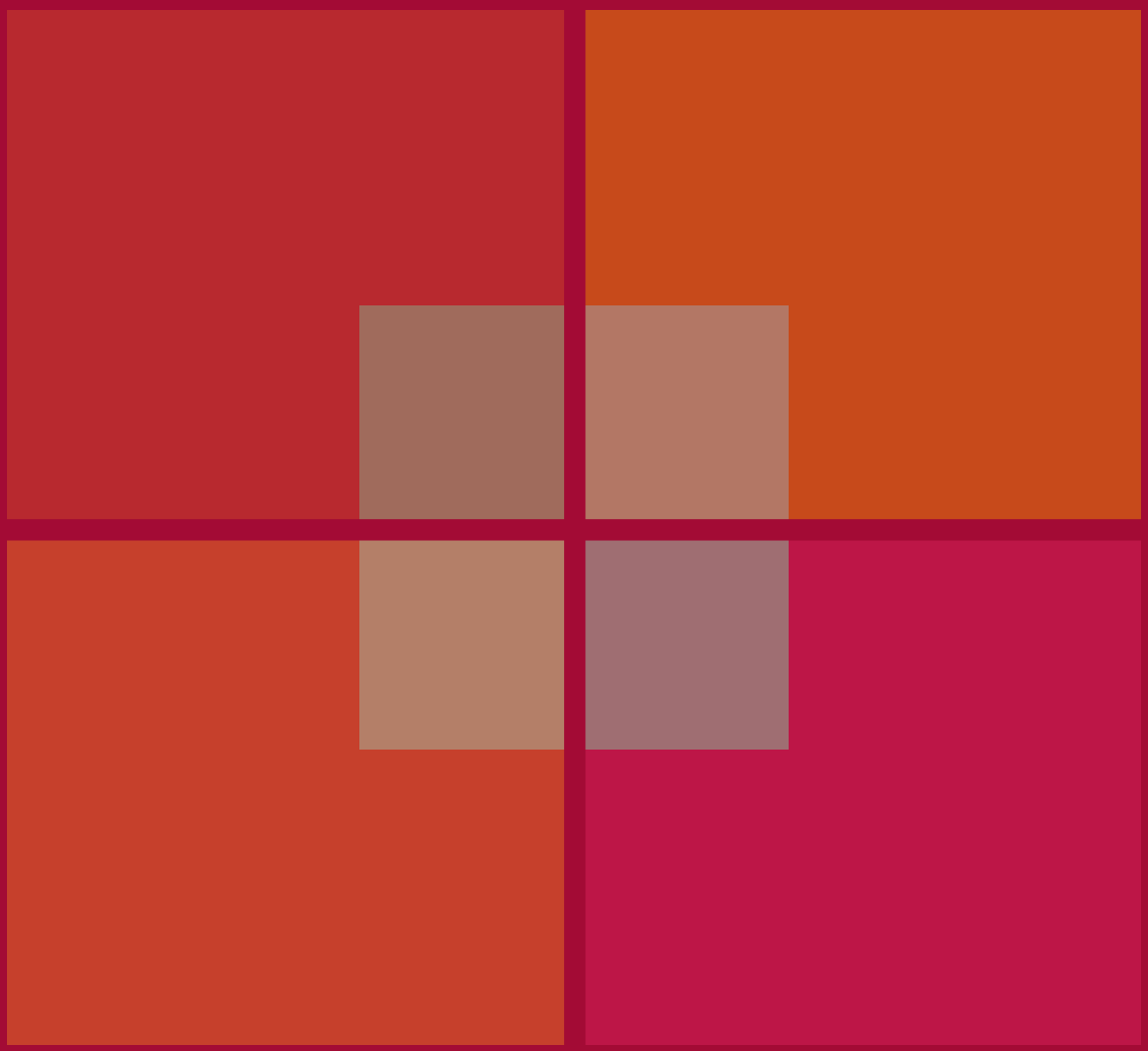
Vanguard®

Vanguard's Principles for Investing Success



Successful investment management companies base their business on a core investment philosophy, and Vanguard is no different. Although we offer many specific strategies, an overarching theme runs through the investment guidance we provide to clients—focus on those things within your control.

Instead, too many focus on the markets, the economy, manager ratings, or the performance of an individual security or strategy, overlooking the fundamental principles that we believe can give them the best chance of success.

These principles have been intrinsic to our company since its inception, and they are embedded in its culture. For Vanguard, they represent both the past and the future—enduring principles that guide the investment decisions we help our clients make.

Notes on risk: All investing is subject to risk, including possible loss of principal. Past performance does not guarantee future results. There is no guarantee that any particular asset allocation or mix of funds will meet your investment objectives or provide you with a given level of income. Diversification does not ensure a profit or protect against a loss in a declining market. Bond funds are subject to the risk that an issuer will fail to make payments on time, and that bond prices will decline because of rising interest rates or negative perceptions of an issuer's ability to make payments. High-yield bonds generally have medium- and lower-range credit-quality ratings and are therefore subject to a higher level of credit risk than bonds with higher credit-quality ratings. Investments in equities or bonds issued by non-Australian companies are subject to risks including country/regional risk and currency risk. Shares of companies based in emerging markets are subject to national and regional political and economic risks and to the risk of currency fluctuations. These risks are especially high in emerging markets. Prices of mid- and small-capitalisation equities often fluctuate more than those of large-company equities. Funds that concentrate on a relatively narrow market sector face the risk of higher share-price volatility. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Goals

Create clear, appropriate investment goals.

An appropriate investment goal should be measurable and attainable. Success should not depend upon outsize investment returns, or upon impractical saving or spending requirements.

Defining goals clearly and being realistic about ways to achieve them can help protect investors from common mistakes that derail their progress. Here we show that:

- Recognising constraints, especially those that involve risk-taking, is essential to developing an investment plan.
- A basic plan will include specific, attainable expectations about contribution rates and monitoring.
- Discouraging results often come from chasing overall market returns, an unsound strategy that can seduce investors who lack well-grounded plans for achieving their goals.
- Without a plan, investors can be tempted to build a portfolio based on transitory factors such as fund ratings – something that can amount to a "buy high, sell low" strategy.

Defining the goal and constraints

A sound investment plan—or policy statement, for institutions—begins by outlining the investor's objective as well as any significant constraints. Defining these elements is essential because the plan needs to fit the investor; copying other strategies can prove unwise. Because most objectives are long-term, the plan should be designed to endure through changing market environments, and should be flexible enough to adjust for unexpected events along the way. If the investor has multiple goals (for example, paying for both retirement and a child's education expenses), each needs to be accounted for. Once the plan is in place, the investor should evaluate it at regular intervals.

Figure 1. Example of a basic framework for an investment plan[1]

Objective(s)	Save $1,000,000 for retirement, adjusted for inflation.
	Moderate tolerance for volatility and loss; no tolerance for non-traditional risks[1]
Constraints	Current portfolio value: $50,000.
	30 years horizon
	Monthly net income of $4,000; monthly expenses of $3,000.
Saving or spending target	Able to contribute $5,000 annually.
	Expectation of $500 increase per year.
Asset allocation target	70% equity; 30%fixed income.
	Allocate to global as appropriate.
Sub asset	Market proportional within asset classes.
Passive/Active	Passive investment approach using index funds and ETFs's where appropriate.
Rebalancing methodology	Rebalance annually.
Monitoring and evaluation	Periodically evaluate current portfolio value relative to savings targets, return expectations and long-term objective.
	Adjust as needed.

This example is completely hypothetical. It does not represent any real investor and should not be taken as a guide. Depending on an actual investor's circumstances, such a plan or investment policy statement could be expanded or consolidated. For example, many financial advisers or institutions may find value in outlining the investment strategy; i.e. specifying whether tactical asset allocation will be employed, whether actively or passively managed funds will be used, and the like.

Source: Vanguard.

1 There are many definitions of risk, including the traditional definitions (volatility, loss, and shortfall) and some non-traditional ones (liquidity, manager, and leverage). Investment professionals commonly define risk as the volatility inherent to a given asset or investment strategy. For more on the various risk metrics used in the financial industry, see Ambrosio (2007).

Most investment goals are straightforward—saving for retirement, preserving assets, or funding a child's education, for example. Constraints, on the other hand, can be either simple or complex, depending on the investor and the situation. The primary constraint in meeting any objective is the investor's tolerance for market risk. Importantly, risk and potential return are generally related, in that the desire for greater return will require taking on greater exposure to market risk.

In most cases, the investment time horizon is another key constraint; for example, a savings fund with a theoretically infinite horizon might take some risks that would be unwise for an investor looking to fund a child's education. Other constraints can include exposure to taxes, liquidity requirements, legal issues, or unique factors such as a desire to avoid certain investments entirely. Because constraints may change over time, they should be closely monitored.

The danger of lacking a plan

Without a plan, investors often build their portfolios bottom-up, focusing on each investment holding rather than on how the portfolio as a whole is serving the objective. Another way to characterise this process is "fund collecting": These investors are drawn to evaluate a particular fund and if it seems attractive, they buy it, often without thinking about how or where it may fit within the overall allocation.

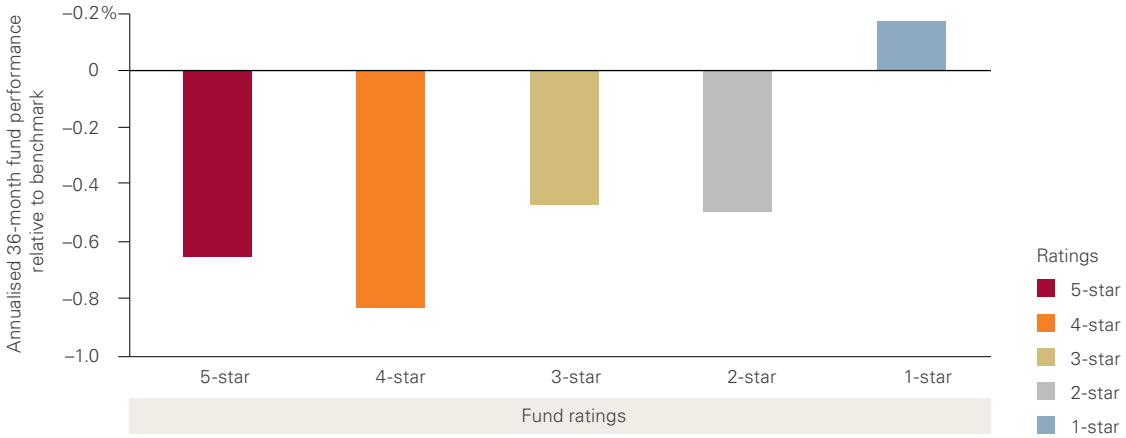
Figure 2 demonstrates a risk of such behaviour. It shows how investors have tended to flock to funds with high performance ratings, especially 5-star rankings, and also how those highly rated funds have tended to underperform immediately after receiving the high marks.

While paying close attention to each investment may seem logical, this process can lead to a collection of holdings that does not serve the investor's ultimate needs. As a result, the portfolio may wind up concentrated in a certain market sector, or it may have so many holdings that portfolio oversight becomes onerous. Most often, investors are led into such imbalances by common, avoidable mistakes such as performance-chasing, market-timing, or reacting to market "noise."

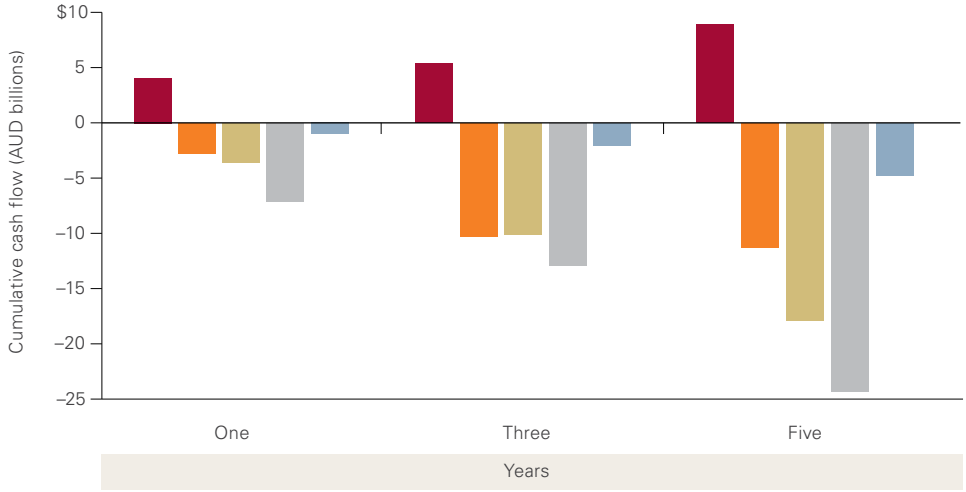
Many investors—both individuals and institutions—are moved to action by the performance of the broad equity market, increasing equities exposure during bull markets and reducing it during bear markets. Such "buy high, sell low" behaviour is evident in managed fund cash

Figure 2. Investors tend to buy highly rated funds even as they underperform

Median performance of funds versus style benchmark over the 36 months following a Morningstar rating.



Cash flows associated with performance ranking.



Notes: Morningstar ratings are designed to bring returns, risks, and adjustments for sales loads together into one evaluation. To determine a fund's star rating for a given time period (three, five, or ten years), the fund's risk-adjusted return is plotted on a bell curve. If the fund scores in the top 10% of its category, it receives five stars; in the next 22.5%, four stars; in the middle 35%, three stars; in the next 22.5%, two stars; and in the bottom 10%, one star. The overall rating is a weighted average of the available three-, five-, and ten-year ratings.

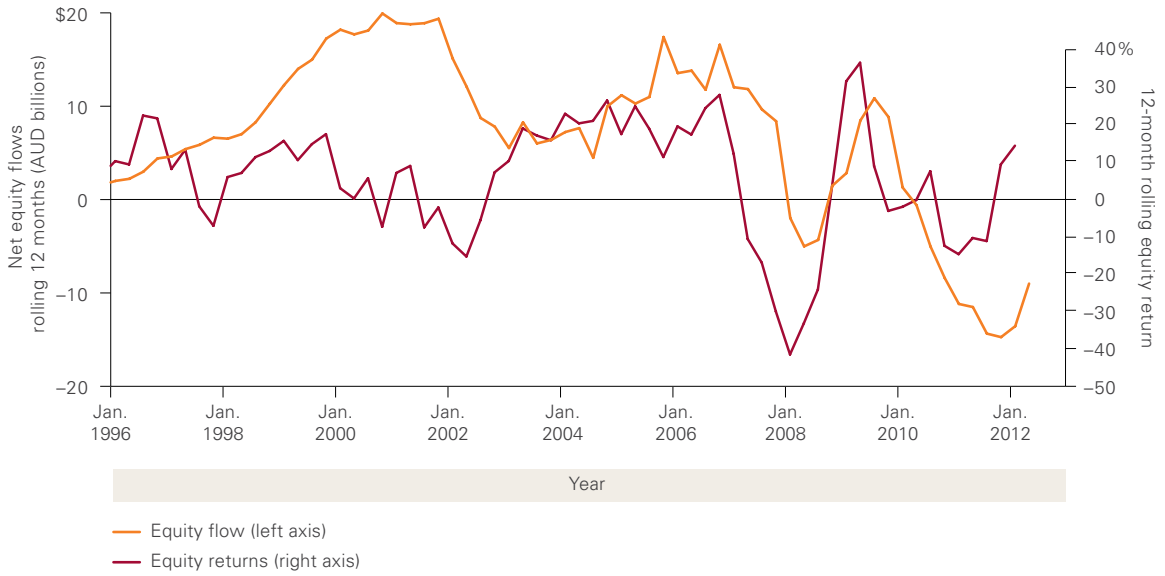
To calculate the median performance versus style benchmarks, Vanguard first assigned each fund to a representative benchmark according to both size and style (growth versus value). We then compared the performance of each fund to the performance of its style benchmark for each 36-month period since December 2005 (this was the first date that ratings are available for Australian managed funds as before that date there was a different rating methodology which is no longer in use). Funds were grouped according to their star ratings, and we then computed the median relative return versus the style benchmark for the subsequent 36-month period. Data are through December 2012.

Sources: Data on cash flows, fund returns, and ratings were provided by Morningstar. Index data to compute relative excess returns were provided by FactSet. More information is available in the Vanguard research paper Mutual Fund Ratings and Future Performance (Philips and Kinniry, 2010).

flows that mirror what appears to be an emotional response—fear or greed—rather than a rational one. **Figure 3** shows that not only do investors in aggregate allow their portfolios to drift with the markets, but they also tend to move cash in and out of equity investments in patterns that coincide with recent performance of the equity market. Over the periods we identified as either bull or bear periods, in the majority of cases these cash flows, together with a failure to rebalance, amounted to buying high and selling low.

For example, from early 2003 to the market peak in September 2007, investors' allocation to equity funds increased dramatically and in the two years preceding that peak, as the market climbed 42%, investors poured more than A$4.6 billion into equity funds. Unfortunately, the equity market then reversed and returned a lower -24% over the next two years. At the same time as the equity market was falling, investors were net sellers of bonds and continued to do so until recently.

Figure 3. Managed fund cash flows often follow performance



Notes: Net flows represent net cash moving in or out of equity funds for Australian funds excluding ETFs and excluding platforms. Index returns are based on the All Ordinary Index from 1993 to 2000; the S&P/ASX 300 index 2000 to 2012.

Sources: Morningstar for cash-flow data; Bloomberg for market returns.

A sound investment plan can help the investor to avoid such behaviour, because it demonstrates the purpose and value of asset allocation, diversification, and rebalancing. It also helps the investor to stay focused on intended contribution and spending rates.

We believe investors should employ their time and effort up front, on the plan, rather than in ongoing evaluation of each new idea that hits the headlines. This simple step can pay off tremendously in helping them stay on the path toward their financial goals.

The key take-away

The best way to work toward an investment goal is to start by defining it clearly, take a level-headed look at the means of getting there, and then create a detailed, specific plan. Being realistic is essential to this process: Investors need to recognise their constraints and understand the level of risk they are able to accept.

They also need to be clear-eyed about the markets, because research has shown that pinning one's hopes on outsize market returns—or on finding some investment that will outperform the markets—is not the most likely road to success.

Balance

Develop a suitable asset allocation using broadly diversified funds.

A sound investment strategy starts with an asset allocation suitable for the portfolio's objective. The allocation should be built upon reasonable expectations for risk and returns, and should use diversified investments to avoid exposure to unnecessary risks.

Both asset allocation and diversification are ingrained in the idea of balance. Because all investments involve risk, investors must manage the balance between risk and potential reward through the choice of portfolio holdings. Here we provide evidence that:

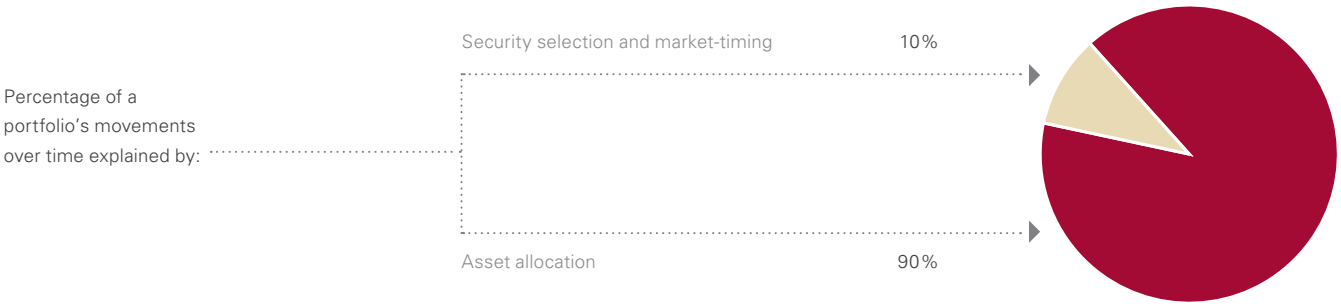
- A diversified portfolio's proportions of equities, bonds, and other investment types determine most of its return as well as its volatility.
- Attempting to escape volatility and near-term losses by minimising equity investments can expose investors to other types of risk, including the risks of failing to outpace inflation or falling short of an objective.
- Realistic return assumptions—not hopes—are essential in choosing an allocation.
- Leadership among market segments changes constantly and rapidly, so investors must diversify both to mitigate losses and to participate in gains.

The importance of asset allocation

When building a portfolio to meet a specific objective, it is critical to select a combination of assets that offers the best chance for meeting that objective, subject to the investor's constraints.[2] Assuming that the investor uses broadly diversified holdings, the mixture of those assets will determine both the returns and the variability of returns for the aggregate portfolio.

This has been well documented in theory and in practice. For example, in a paper confirming the seminal 1986 study by Brinson, Hood, and Beebower, Wallick et al. (2012) showed that the asset allocation decision was responsible for 90% of a diversified portfolio's return patterns over time (**Figure 4**).

Figure 4. Investment outcomes are largely determined by the long-term mixture of assets in a portfolio



Note: Calculations are based on monthly returns for 336 Australian. Funds from January 1990 to December 2011. For details of the methodology, see the Vanguard research paper *The Global Case for Strategic Asset Allocation* (Wallick et al., 2013).

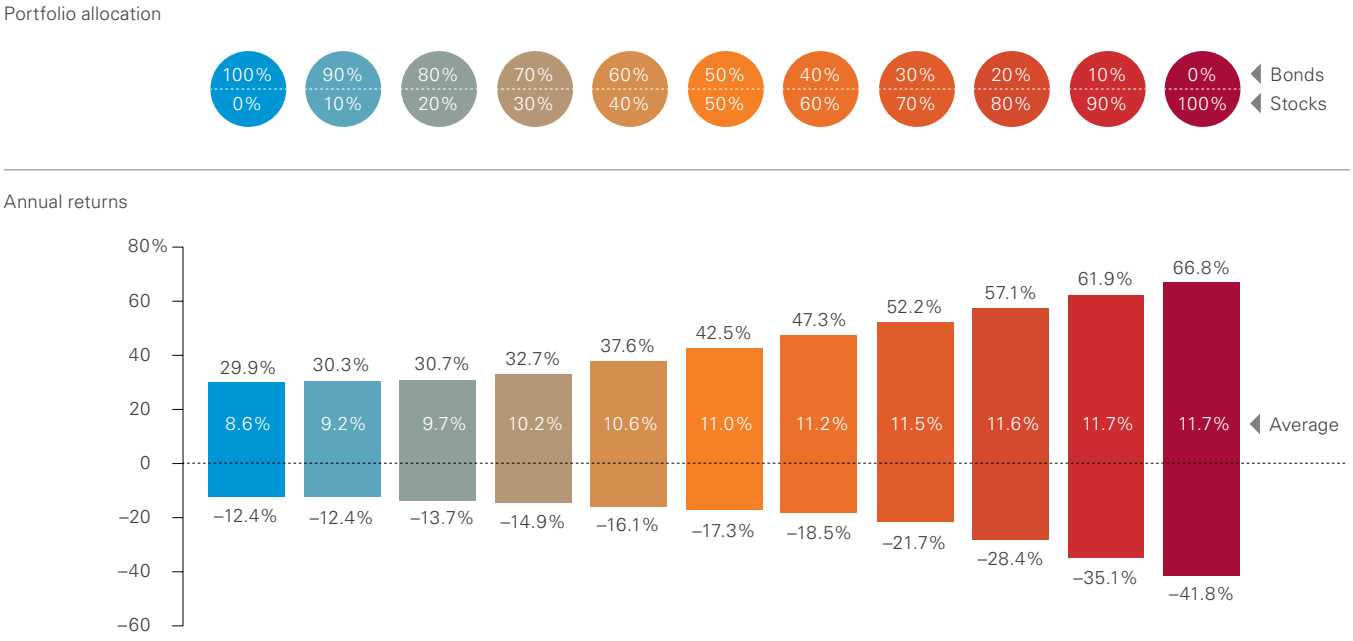
Sources: Vanguard calculations using data from Morningstar.

2 For asset allocation to be a driving force of an outcome, one must implement the allocation using vehicles that approximate the return of market indexes. This is because market indexes are commonly used in identifying the risk and return characteristics of asset classes and portfolios. Using a vehicle other than one that attempts to replicate a market index will deliver a result that may differ from the index result, potentially leading to outcomes different from those assumed in the asset allocation process. To make the point with an extreme example: Using a single stock to represent the equity allocation in a portfolio would likely lead to very different outcomes from either a diversified basket of stocks or any other single stock..

In **Figure 5** we show a simple example of this relationship using two asset classes – Australian equities and Australian bonds—to demonstrate the impact of asset allocation on both returns and the variability of returns. The middle numbers in the chart show the average yearly return over 50 years for various combinations of equities and bonds. The bars represent the best and worst one-year returns. Although this example covers an unusually extended holding period, it shows why an investor whose portfolio is 20% allocated to Australian equities might expect a very different outcome from an investor with 80% allocated to Australian equities.

Figure 5. The mixture of assets defines the spectrum of returns

Best, worst, and average returns for various equities/bond allocations, 1962–2012.



Note: Equities are represented by the All Ordinaries Total Return Index and bonds are represented by the 10 year Government Bond Total Return Index. Data are through 31 December 2012.

Source: Credit Suisse, "Credit Suisse Global Investment Returns Yearbook 2013", data used by Credit Suisse and in our chart are originally sourced from Dimson, Marsh and Staunton, London Business School, "Triumph of the Optimists".

Equities are risky—and so is avoiding them

Equities are inherently more volatile than investments such as bonds or cash instruments. This is because equity owners are the first to realise losses stemming from business risk, while bond owners are the last. In addition, whereas bond holders are contractually promised a stated payment, equity holders own a claim on future earnings. But the level of those earnings, and how the company will use them, is beyond the investor's control. Investors thus must be enticed to participate in a company's uncertain future, and the "carrot" that entices them is higher expected or potential return over time.

Figure 5 also demonstrates the short-term risk of owning equities: Even a portfolio with only half its assets in equities would have lost over 17% of its overall value in at least one year. Why not simply minimise the possibility of loss and finance all goals using low-risk investments? Because the attempt to escape market volatility associated with equity investments by investing in more stable, but lower-returning, assets such as Bank Bills can expose a portfolio to other, longer-term risks.

One such risk is "opportunity cost," more commonly known as shortfall risk: Because the portfolio lacks investments that carry higher potential return, it may not achieve growth sufficient to finance ambitious goals over the long term. Or it may require a level of saving that is unrealistic, given more immediate demands on the investor's income or cash flow (in the case of accumulated pension fund, for example). Another risk is inflation: The portfolio may not grow as fast as prices rise, so that the investor loses purchasing power over time. For longer-term goals, inflation can be particularly damaging, as its effects compound over long time horizons. For example, Bennyhoff (2009) showed that over a 30-year horizon, an average inflation rate of 3% would reduce a portfolio's purchasing power by more than 50%.

For investors with longer time horizons, inflation risks may actually outweigh market risks, often necessitating a sizeable allocation to investments such as equities.

Use reasonable assumptions in choosing an allocation

Just as important as the combination of assets that are used to construct a portfolio are the assumptions that are used to arrive at the asset allocation decision. By this we mean using realistic expectations for both returns and volatility of returns. Using long-term historical data may serve as a guide, but investors must keep in mind that markets are cyclical and it is unrealistic to use static return assumptions. History does not repeat, and the market conditions at a particular point in time can have an important influence on an investor's returns.

For example, over the longer term Australian equities returned an average of 11.9% annually and Australian bonds 8.7% (based on the same market benchmarks used in **Figure 5**). For this 50-year period, half-equity, half-bond portfolio would have returned 11% a year on average if it matched the markets' return.

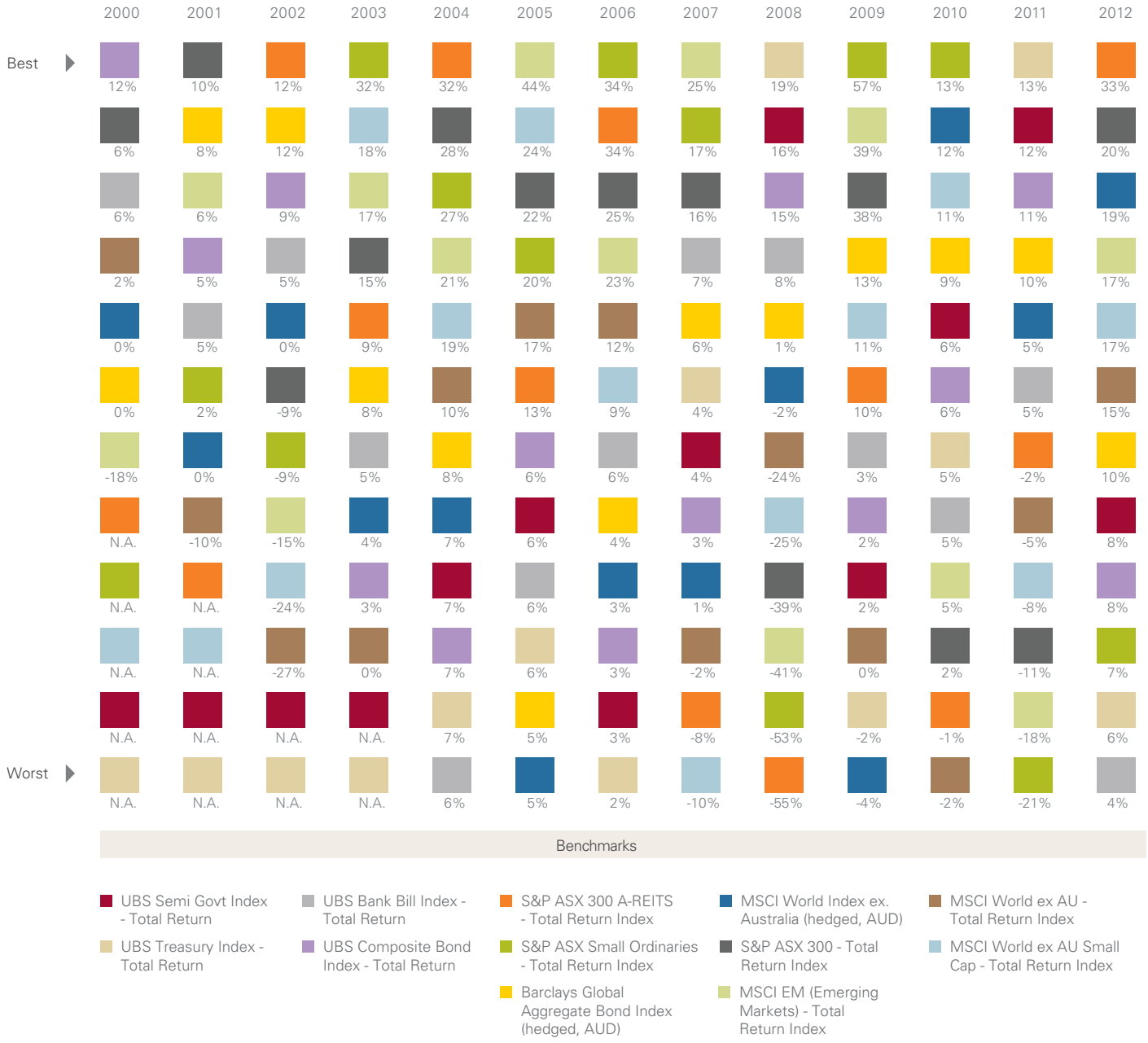
But look at a shorter span, and the picture changes. For example, from 1982 through 2012, Australian equities returned an average of 12.3% a year, while bonds returned 11.2%. A portfolio split evenly between the two asset classes and rebalanced periodically would have generated an average annual return of 12.5%. As you can see, anyone with such a portfolio over this particular period could have earned over 1.5% a year more than the long-term historical average.

In practice, investors will always need to decide how to apply historical experiences to current market expectations. For example, as reported in *Vanguard's Economic and Investment Outlook* (2013)[3] , returns over the next decade may look very different from the examples above as a result of current market conditions. Particularly for bonds, the analysis provided in the paper suggests that returns may be lower than what many investors have grown accustomed to. The implication is that investors may need to adjust their asset allocation assumptions and contribution/spending plans to meet a future objective that could previously have seemed easily achievable based on historical values alone.

3 This is based on the US version of *Vanguard's Economic and Investment Outlook* (2013) but the Australian version to be published later in 2013 is expected to reveal a similar outcome.

Figure 6. Market segments display seemingly random patterns of performance

Annual returns for various investment categories ranked by performance, best to worst: 2000–2012.



Note: Benchmarks reflect the following asset classes—for Australian equities, the S&P/ASX 300 Index; for Australian small cap equities, S&P ASX Small Ordinaries; for developed global equity markets, the MSCI World ex Australia Index (hedged, AUD and unhedged, AUD); for emerging markets, the MSCI Emerging Markets Index (AUD); for Australian real estate, the S&P, ASX 300 Property Index; for Australian. investment-grade bonds, the UBS Composite Bond Index; for short term interest rates, UBS Bank Bill Index; for Australian government bonds, UBS Government Index; for Australian semi-government bonds, UBS Semi Government Index; and for global bonds, the Barclays Global Aggregate Ex Australia. Index (Hedged, AUD). N.A. is used for returns not yet available in the particular time period.

Sources: Vanguard Group, FactSet data.

Diversify to manage risk

Diversification is a powerful strategy for managing traditional risks.[4] Diversifying across asset classes reduces a portfolio's exposure to the risks common to an entire class. Diversifying within an asset class reduces exposure to risks associated with a particular company, sector, or segment.

In practice, diversification is a rigorously tested application of common sense: Markets will often behave differently from each other—sometimes marginally, sometimes greatly—at any given time. Owning a portfolio with at least some exposure to many or all key market components ensures the investor of some participation in stronger areas while also mitigating the impact of weaker areas. See for example **Figure 6**, where we show annual returns for a variety of asset and sub-asset classes. The details of **Figure 6** do not matter so much as its colourful patchwork, which shows how randomly leadership can shift among markets and market segments.

Performance leadership is quick to change, and a portfolio that diversifies across markets is less vulnerable to the impact of significant swings in performance by any one segment. Investments that are concentrated or specialised, such as REITs, commodities, or emerging markets, also tend to be the most volatile. This is why we believe that most investors are best served by significant allocations to investments that represent broad markets such as Australian equities, Australian bonds, global equities, and global bonds.[5]

4 Diversification carries no guarantees, of course, and it specifically may not mitigate the kinds of risks associated with illiquid assets, counterparty exposure, leverage, or fraud.

5 We believe that if global bonds are to play an enduring role in a diversified portfolio, the currency exposure should be hedged. For additional perspective, including an analysis of the impact of currency on the return characteristics of foreign bonds, see Philips et al. (2012).

Although broad-market diversification cannot insure an investor against loss, it can help to guard against unnecessarily large losses. One example: In 2008, the S&P, ASX 300 Index returned –40%. However, more than half of the equities in the index that year had individual returns worse than –50%. The worst performers in the index are in the financial, energy and property sectors, of which some (excluding energy stocks which tend to pay a lower unfranked yield) are considered a staple in many dividend-focused portfolios (**Figure 7**).[6]

Although this example comes from the equity market, other asset classes and sub-classes can provide many of their own. It's worth saying again that, while diversification cannot insure against loss, undiversified portfolios have greater potential to suffer catastrophic losses.

Figure 7. The ten worst and best equities in the S&P/ASX 300 Index in 2008

Worst performers	Return
Allco Finance Group Ltd.	–97.74%
Albidon Ltd.	–95.37
ING Industrial Fund	–94.49
Aditya Birla Minerals Ltd.	–94.05
Compass Resources Ltd.	–93.79
APN European Retail Property Group	–93.60
Prime Infrastructu Stapled Units	–93.13
NRW Holdings Ltd.	–92.88
Kagara Ltd.	–92.82
CNPR Group	–92.48

Best performers	Return
Linc Energy Ltd.	162.50%
Origin Energy Ltd.	82.15
IMF (Australia) Ltd.	41.74
Eastern Star Gas Ltd.	33.72
OM Holdings Ltd.	24.32
Extract Resources Ltd. (Ordinary shares).	22.22
AGL Energy Ltd.	14.56
Iluka Resources Ltd.	13.37
Pan Pacific Petroleum N.L.	12.00
Centennial Coal	11.07

For illustrative purposes only. Please note that this example reflects the financial crisis and, in particular, the fact that the majority of the decline in stock prices occurred in 2008.

Sources: FactSet and Vanguard.

6 For further discussion, see *Did Diversification Let Us Down?* (Bennyhoff, 2009).

The key take-away

Asset allocation and diversification are powerful tools for achieving an investment goal. A portfolio's allocation among asset classes will determine a large proportion of its return—and also the majority of its volatility risk. Broad diversification reduces a portfolio's exposure to specific risks while providing opportunity to benefit from the markets' current leaders.

Cost

Minimise cost.

Markets are unpredictable. Costs are forever. The lower your costs, the greater your share of an investment's return. And research suggests that lower-cost investments have tended to outperform higher-cost alternatives. To hold onto even more of your return, manage for tax efficiency. You can't control the markets, but you can control the bite of costs and taxes.

To show why it is essential to consider cost when choosing investments, we provide evidence that:

- Higher costs can significantly depress a portfolio's growth over long periods.
- Costs create an inevitable gap between what the markets return and what investors actually earn—but keeping expenses down can help to narrow that gap.
- Lower-cost managed funds have tended to perform better than higher-cost funds over time.
- Indexed investments can be a useful tool for cost control.

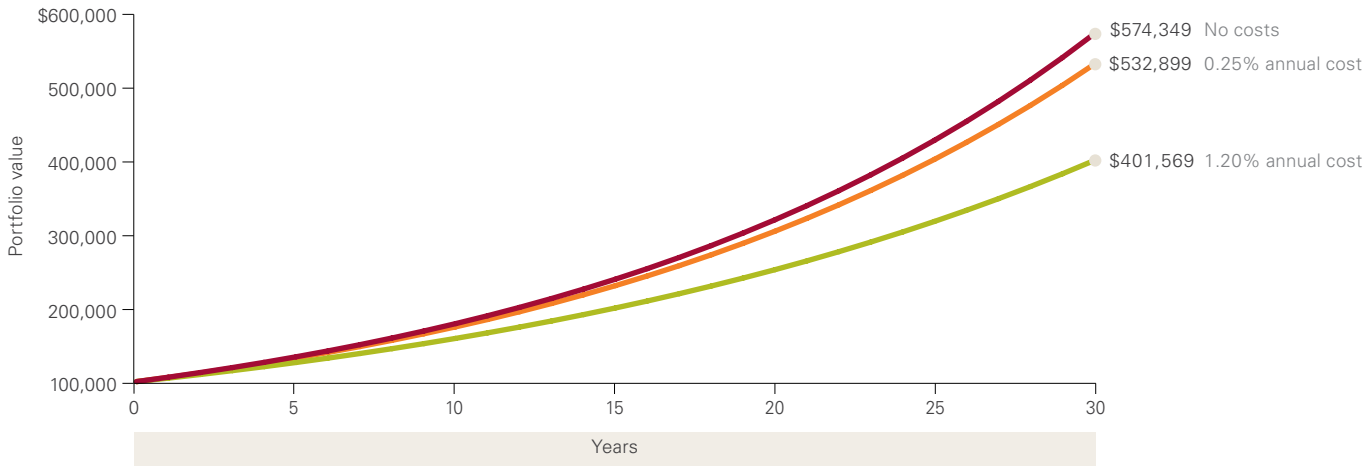
Why cost matters

Minimising cost is a critical part of every investor's toolkit. This is because in investing, there is no reason to assume that you get more if you pay more. Instead, every dollar paid for management fees or trading commissions is simply a dollar less earning potential return. The key point is that—unlike the markets—costs are largely controllable.

Figure 8 illustrates how strongly costs can affect long-term portfolio growth. It depicts the impact of expenses over a 30-year horizon in which a hypothetical portfolio with a starting value of $100,000 grows an average of 6% annually. In the low-cost scenario, the investor pays 0.25% of assets every year, whereas in the high-cost scenario, the investor pays 1.20%, or the approximate asset-weighted average expense ratio for Australian equity funds as of 30 April 2013.[7] The potential impact on the portfolio balances over three decades is striking—a difference of above $130,000 (more than the portfolio's $100,000 starting value) between the low-cost and high-cost scenarios.

Figure 8. The long-term impact of investment costs on portfolio balances

Assuming a starting balance of $100,000 and a yearly return of 6%, which is reinvested.



Note: The portfolio balances shown are hypothetical and do not reflect any particular investment. The final account balances do not reflect any taxes or penalties that might be due upon distribution.

Source: Vanguard Group.

7 The asset-weighted expense ratio for all Australian equities funds was 1.2% at 30 April 2012, according to Morningstar.

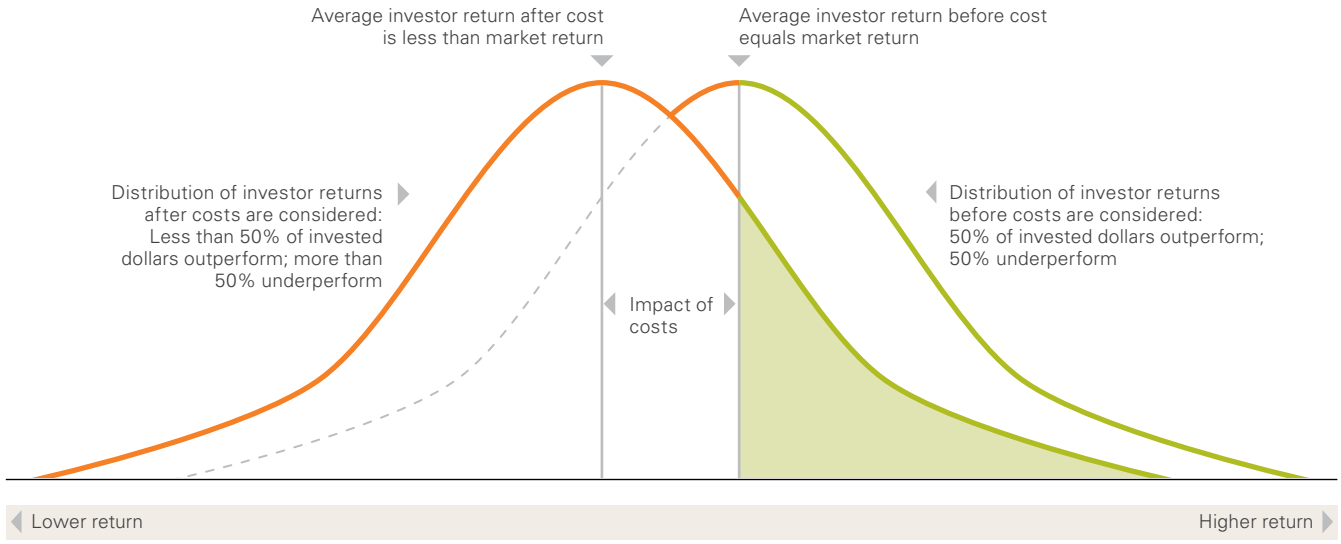
Figure 9 looks at the impact of costs in another way—by illustrating how they cause the return of investors in aggregate to trail the overall market return. It shows a bell-shaped distribution of returns, from lowest to highest, with the average return marked by a vertical line. In any market, the average return for all investors before costs is, by definition, equal to the market return. Once various costs are accounted for, however, the distribution of returns realised by investors move to the left, because their aggregate return is now less than the market's. The actual return for all investors combined is thus the market return reduced by all costs paid. One important implication of this is that, after costs, fewer investors are able to outperform the markets (occupying the green area in Figure 9).

Reduce cost to help improve return

There are two ways to shift an investor's after-cost return to the right, toward the green region. The first is to earn higher returns than the average investor by finding a winning manager or a winning investment strategy (an "alpha" or "skill-based" approach).

Figure 9. The impact of costs on overall investor returns

Hypothetical distributions of market returns before and after costs.



Note: These distributions are theoretical and do not reflect any set of actual returns.

Source: Vanguard Group.

Unfortunately, research shows that this is easier said than done (Steinfort, 2012). The second way is to minimise expenses. **Figure 10** highlights five studies evaluating the impact of costs on performance. The common thread among them is that higher costs lead to worse performance for the investor.

Figure 11 compares the inverse relationship between investment performance (over ten years to 30 April 2013) and cost within the Australian managed fund universe, based on Morningstar data. The negatively sloping trend line highlights the fact that the greater the costs, the lower the net returns.

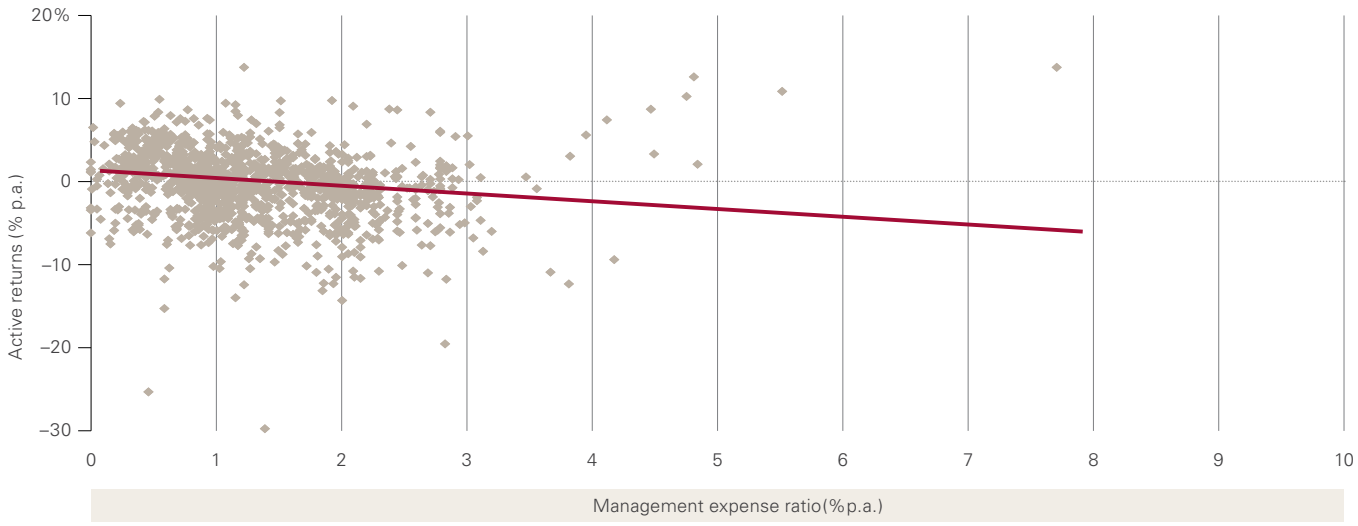
Indexing can help minimise costs

If—all things being equal—low costs are associated with better performance, then costs should play a large role in the choice of investments. As **Figure 12** shows, index funds and indexed exchange-traded funds (ETFs) tend to have costs among the lowest in the managed

Figure 10. Higher costs make for unhappy news: Studies document effects on performance

1996	Martin J. Gruber, in a study on growth in the mutual fund industry, found that high fees were associated with inferior performance and also that better-performing managers tended not to raise fees to reflect their success. After ranking funds by their after-expense returns, Gruber reported that the worst performers had the highest average expense ratio and that the return differences between the worst and best funds exceeded the fee differences.
1997	Mark Carhart followed with a seminal study on performance persistence in which he examined all of the diversified equity managed funds in existence between 1962 and 1993. Carhart showed that expenses proportionally reduce fund performance.
2002	Financial Research Corporation evaluated the predictive value of various fund metrics, including past performance, Morningstar rating, alpha and beta, as well as expenses. The study found that a fund's expense ratio was the most reliable predictor of its future performance, with low-cost funds delivering above-average performance in all of the periods examined.
2010	Christopher B. Philips and Francis M. Kinniry Jr. showed that using a fund's Morningstar rating as a guide to future performance was less reliable than using the fund's expense ratio. Practically speaking, a fund's expense ratio is a valuable guide (although of course not a certain one), because the expense ratio is one of the few characteristics that are known in advance.
2011	Daniel W. Wallick and colleagues evaluated the associations between a fund's performance and its size, age, turnover and expense ratio. They found that the expense ratio was a significant factor associated with future alpha (return above that of a market index).

Figure 11. Lower costs can support higher returns



Notes: All Australian managed funds available for Australian investors in each Morningstar category as at 30 April 2013.

Sources: Vanguard calculations using data from Morningstar.

fund industry. As a result, indexed investment strategies can actually give investors the opportunity to outperform higher-cost active managers—even though an index fund simply seeks to track a market benchmark, not to exceed it. Although some actively managed funds

Figure 12. Asset-weighted expense ratios of active and indexed investments

		Average expense ratio (%) as of 30 April 2013			
	Investment Type	Actively managed funds	Low cost actively managed funds*	Index funds	ETFs
Australian equities	Large-cap	1.13	0.95	0.41	0.28
	Mid/small-cap	2.00	0.98	0.65	0.48
Australian sectors	Equity sector	1.11	0.97	0.51	NA
	REITs	0.94	0.73	0.38	0.37
Global equities	Developed market	1.14	0.97	0.43	0.25
	Emerging market	1.42	1.05	0.39	0.65
Australian bonds	Corporate	0.71	0.40	0.34	NA
	Government	0.53	0.36	0.31	0.24

* "Low cost actively managed funds" refers to the average expense ratio of the bottom quartile for that investment type.

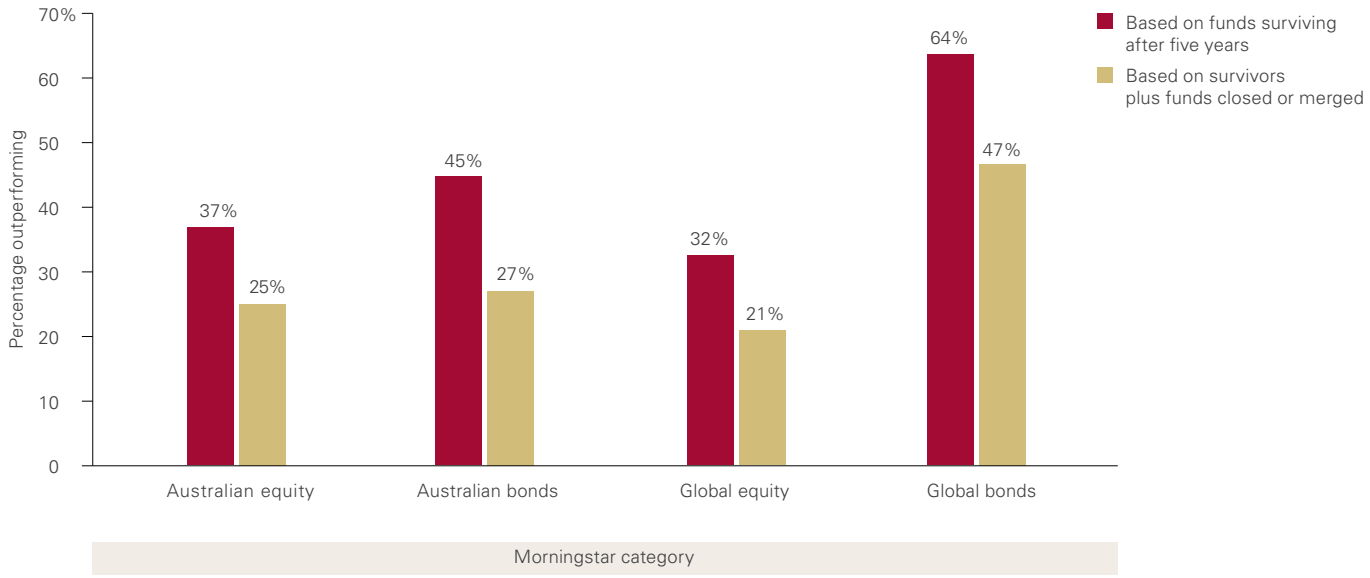
Notes: "Asset-weighted" means that the averages are based on the expenses incurred by each invested dollar. Thus, a fund with sizable assets will have a greater impact on the average than a smaller fund. ETF expenses reflect indexed ETFs only. We excluded "active ETFs" because they have a different investment objective from indexed ETFs.

Sources: Vanguard calculations, using data from Morningstar Inc.

have low costs, as a group they tend to have higher expenses. This is because of the research required to select securities for purchase and the generally higher portfolio turnover associated with trying to beat a benchmark.[8]

There is much data to support the outperformance of indexed strategies, especially over the long term, across various asset classes and sub-asset classes. **Figure 13** shows how low-cost index funds as a group may often do better than actively managed funds within common asset categories over the five years through 30 April 2013. It provides the results in two ways: first, measuring only those funds that survived for the entire decade; and second, including the funds that disappeared along the way.[9] The chart shows how difficult it can be for active managers to outperform indexed funds. The results are especially telling

Figure 13. Percentage of active funds outperforming the average return of low-cost index funds over the five years through April 2013.



Notes: Data cover the five years ended April 30, 2013. The actively managed funds are those listed in the respective Morningstar categories. All returns used were for the Investor class.

Sources: Morningstar and Vanguard.

8 Turnover or the buying and selling of securities within a fund, results in transaction costs such as commissions, bid-ask spreads and opportunity cost. These costs, which are incurred by every fund, are not spelled out for investors but do detract from net returns. For example, a managed fund with abnormally high turnover would be likely to incur large trading costs. All else equal, the impact of these costs would reduce total returns realized by the investors in the fund.

9 For additional analysis regarding the performance of funds that have been closed, see Schlanger and Philips (2013).

when they account for funds that were closed or merged during the five-year period. Research has shown that low costs, inherent in passive investing, are a key driver in the long-term outperformance of indexed portfolios (Steinfort, 2012).

Tax-management strategies can enhance after-tax returns

Taxes are another potentially significant cost. For many investors, it may be possible to reduce the impact of taxes by allocating investments to relatively tax-efficient investments, such as broad-market equity index funds or ETFs. These types of investments are tax-efficient due to the reduced turnover and tax reduction strategies when holdings are sold, which reduces the capital gains tax that maybe payable.

The key take-away

Investors cannot control the markets, but they can often control what they pay to invest. And that can make an enormous difference over time. The lower your costs, the greater your share of an investment's return, and the greater the potential impact of compounding.

Further, as we have shown, research suggests that lower-cost investments have tended to outperform higher-cost alternatives.

Discipline

Maintain perspective and long-term discipline.

Investing can provoke strong emotions. In the face of market turmoil, some investors may find themselves making impulsive decisions or, conversely, becoming paralysed, unable to implement an investment strategy or to rebalance a portfolio as needed. Discipline and perspective are the qualities that can help investors remain committed to their long-term investment programmes through periods of market uncertainty.

In this paper, we show the benefits of a disciplined approach to investing and the cost of allowing emotional impulse to undermine it. We provide evidence that:

- Enforcing an asset allocation through periodic rebalancing can help manage a portfolio's risk.
- Spontaneous departures from such an allocation can be costly.
- Attempts to outguess the market rarely pay.
- Chasing winners often leads to a dead end.
- Simply contributing more money toward an investment goal can be a surprisingly powerful tool.

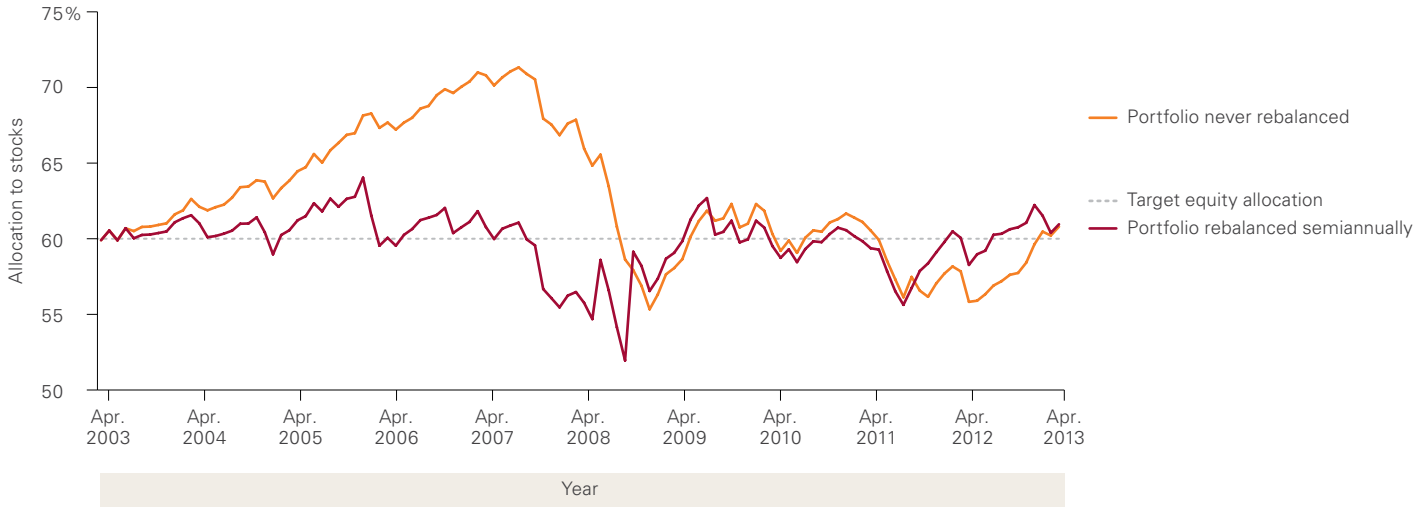
The case for discipline

Although the asset allocation decision is one of the cornerstones for achieving an objective, it only works if the allocation is adhered to over time and through varying market environments. Periodic rebalancing will be necessary to bring the portfolio back into line with the allocation designed for the objective. In a 2010 paper, Jaconetti, Kinniry, and Zilbering concluded that for most broadly diversified portfolios, the asset allocation should be checked annually or semi-annually, and the portfolio should be rebalanced if it has deviated more than 5 percentage points from the target.

Of course, deviations resulting from market movements offer an opportunity to revalidate the targeted asset allocation. However, abandoning an investment policy simply because of these movements can harm progress toward an objective. **Figure 14** shows how an investor's risk exposure can grow unintentionally when a portfolio is left to drift during a bull market.

Figure 14. The importance of maintaining discipline: Failure to rebalance can lead to increased risk or lower return

Changes in equity exposure for a rebalanced portfolio and a "drifting portfolio," March 2003–April 2013.



Notes: The initial allocation for both portfolios is 30% Australian equities, 30% global equities, and 40% Australian bonds. The rebalanced portfolio is returned to this allocation at the end of each June and December. Returns for the Australian equity allocation are based on the S&P/ASX 300 Total Return Index.. Returns for the global equity allocation are based on the MSCI World Index ex Australia (unhedged in AUD), and returns for the bond allocation are based on the UBS Composite Bond Total Return index.

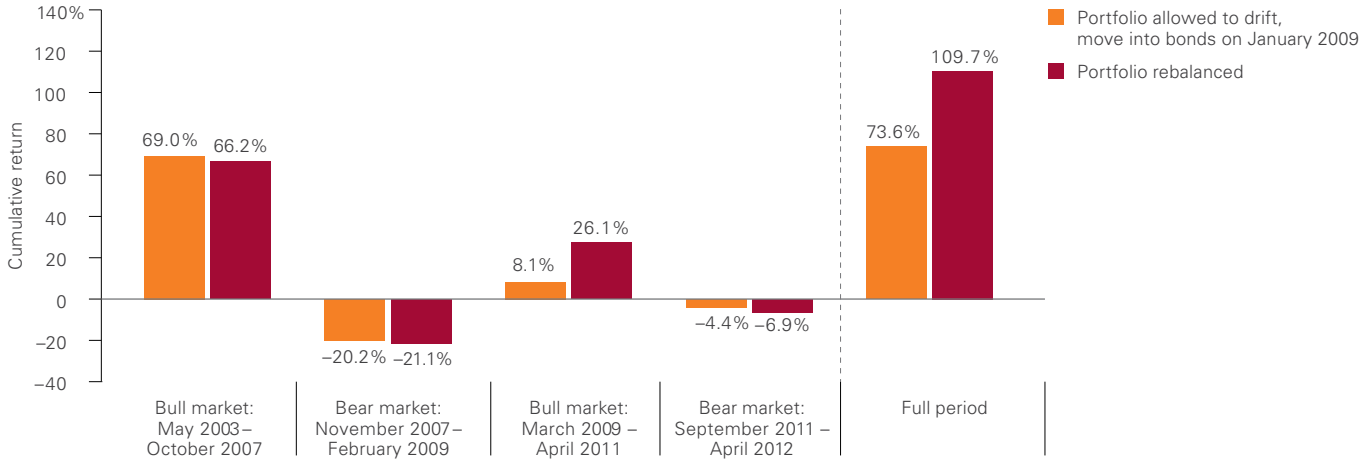
Source: Vanguard, using data provided by FactSet.

It compares the equity exposures of two portfolios—one that is never rebalanced and one that is rebalanced twice a year—over changing market environments since early 2003. Both of these hypothetical portfolios start at 60% equities, 40% bonds, but over the first four years in the period examined the "drifting" portfolio moved to over 70% in equities. Higher equities exposure might seem appealing during a bull market, but by late 2007 the portfolio would have faced significantly greater downside risk as the financial crisis began.

Figure 15 shows the impact of fleeing an asset allocation during a bear market for equities. In this example, the investor moves out of equities at the end of December 2008. The portfolio escapes the equity market's further declines in January and February 2009 (equities dropped an additional 9% in those two months), but it also misses out on the significant bull market that started in March. Although this represents an extreme example, it also reflects a reality for many investors: After

Figure 15. The importance of maintaining discipline: Reacting to market volatility can jeopardise return

What if the "drifting" investor fled from equities after the 2008 plunge and invested 100% in bonds?



Notes: The initial allocation for both portfolios is 30% Australian equities, 30% global equities, and 40% Australian bonds. The rebalanced portfolio is returned to this allocation at the end of each June and December. Returns for the Australian equities allocation are based on the S&P/ASX 300 Total Return Index, returns for the global equities allocation are based on the MSCI World Index ex Australia (unhedged in AUD), and returns for the bond allocation are based on the UBS Composite Bond Total Return index.

Sources: Vanguard, using data provided by Factset.

abandoning exposure to an asset class, such as equities, inertia makes it all too easy to postpone the decision to "get back in."

It's understandable that during the losses and uncertainties of a bear market in equities, many investors will find it counterintuitive to rebalance by selling their best-performing assets (typically bonds) and committing more capital to underperforming assets (such as equities). But history shows that the worst market declines have led to some of the best opportunities for buying equities. Investors who did not rebalance their portfolios by increasing their equity holdings at these difficult times not only may have missed out on subsequent equity returns but also may have hampered their progress toward long-term investment goals—the target for which their asset allocation was originally devised.

Ignore the temptation to alter allocations

In volatile markets, with very visible winners and losers, market-timing is another dangerous temptation. The appeal of market-timing—altering a portfolio's asset allocation in response to short-term market developments—is strong. This is because of hindsight: An analysis of past returns indicates that taking advantage of market shifts could result in substantial rewards. However, the opportunities that are clear in retrospect are rarely visible in prospect.

Indeed, Vanguard research has shown that while it is possible for a market-timing strategy to add value from time to time, on average these strategies have not consistently produced returns exceeding market benchmarks (Equitieston and Shtekhman, 2010). Vanguard is not alone in this finding. Empirical research conducted in both academia and the financial industry has repeatedly shown that the average professional investor persistently fails to time the market successfully. Figure 16 lists nine studies making this point, starting back in 1966 when J.L. Treynor and Kay Mazuy analysed 57 managed funds and found that only one showed significant market-timing ability.

Figure 17 looks at the record of market-timing mutual funds in the US since 1997[10]. Presumably most such funds are run by sophisticated investment managers with data, tools, time, and experience on their side. Generally speaking, their common objective is to outperform a benchmark in any market environment. To do this, the managers may be authorized to invest in any asset class or sub-asset class of their choosing, at any time. Figure 17 shows the record of these "flexible-allocation funds" since 1997 in five distinct periods—three bull markets and two bear markets. We compare them against a broad benchmark consisting of US and non-US equities and US bonds.

Two important conclusions can be drawn from this analysis: (1) in only one period did a majority of the flexible-allocation funds outperform the balanced benchmark; and (2) among those that did outperform in a particular period, less than half were able to carry

Figure 16. Casualties of market-timing

These are groups found to have failed, on average, to successfully time the markets, along with the researchers responsible for the findings. (All the studies are listed in the References.)

Asset allocation funds	Becker et al.	1999
Investment clubs	Barber and Odean	2000
Pension funds	Coggin and Hunter	1983
Investment newsletters	Graham and Harvey	1996
Managed funds	Chang and Lewellen	1984
	Henriksson and Merton	1981
	Kon	1983
	Treynor and Mazuy	1966
Professional market timers	Chance and Hemler	2001

10 "Flexible-allocation funds" that change their allocation based on market performance, otherwise known as "market-timing mutual funds" are not available in Australia as an investment category. Despite this we believe that the US example provides a strong case regarding the difficulties of "successful" professional market timing which is applicable to any market.

that performance forward into the next period. The lesson? If market-timing is difficult for professional managers with all their advantages, investors without such advantages should think twice before altering a thoughtfully designed portfolio.

As **Figures 16** and **17** have shown, the failure of market-timing strategies has not been limited to managed funds. Investment newsletters, superannuation funds, investment clubs, and professional market-timers have also failed to demonstrate consistent success. Why is success so elusive? In a word—uncertainty. In reasonably efficient financial markets, the short-term direction of asset prices is close to random. In addition, prices can change abruptly, and the cost of mistiming a market move can be disastrous.

Figure 17. Market-timing versus a market benchmark: A spotty record

Performance of flexible-allocation funds compared with a 60% stock/40% bond benchmark, January 1997–December 2012.

	Bull market	Bear market	Bull market	Bear market	Bull market
Date range	1/1/1997–31/8/2000	1/9/2000–28/2/2003	3/1/2003–31/10/2007	1/11/2007–28/2/2009	1/3/2009–31/12/2012
Benchmark returns	0%	0%	0%	0%	0%
Number of flexible-allocation funds	144	193	228	467	409
Number of flexible-allocation funds that outperformed benchmark	48	117	83	204	170
Percentage of flexible-allocation funds that outperformed benchmark	33.3%	60.6%	36.4%	43.7%	41.6%
Annualized performance of median fund relative to benchmark return	–2.1%	+2.6%	–1.3%	–2.4%	–0.6%
Number that outperformed benchmark in consecutive periods	18 of 48	47 of 117	26 of 83	32 of 204	—

Notes: The balanced benchmark consists of the MSCI US Broad Market Index (42%), the MSCI All Country World Index ex USA (18%), and the Barclay's U.S. Aggregate Bond Index (40%). Flexible-allocation funds are those defined by Morningstar as having "a largely unconstrained mandate to invest in a range of asset types."

Sources: Vanguard, using data from Morningstar.

Ignore the temptation to chase last year's winner

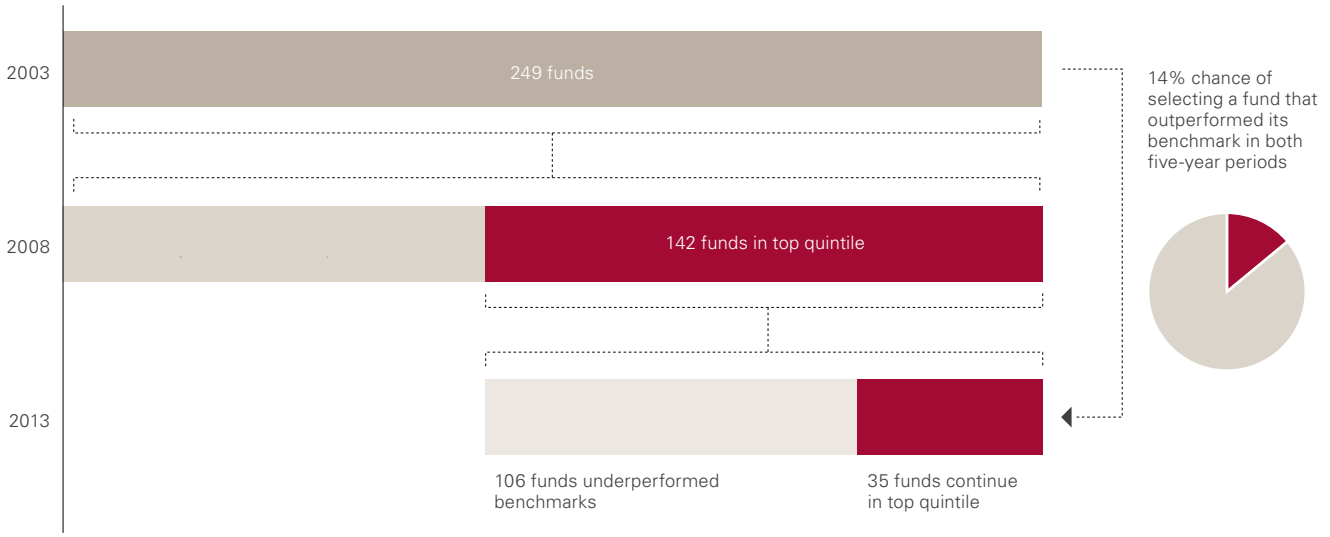
Another component of performance-chasing has to do with investment managers themselves. For years, academics have studied whether past performance has any predictive power regarding future performance. Researchers dating back to Sharpe (1966) and Jensen (1968) have found little or no evidence that it does. Carhart (1997) reported no evidence of persistence in fund outperformance after adjusting for the common Fama-French risk factors (size and style) as well as for momentum. More recently, in 2010, Fama and French's 22-year study suggested that it is extremely difficult for an actively managed investment fund to regularly outperform its benchmark.

Figure 18 demonstrates the challenge of using past success as a predictor of future success. The ten years through April 2013 were split into two five-year periods, and the available funds were grouped based on whether they outperformed or underperformed their targeted benchmark indexes. In 2008, at the end of the first five years, nearly more than half of the funds finished in the top quintile but it is more telling as to what happened to those outperformers in the top quintile in the second five years. Investors who selected one of them at the start of 2008 stood a significant chance of disappointment, as only 14% (35 out of a total of 249) of funds were able to remain in the top quintile for a second five-year period.

This inconsistency among winners is also a reason why abandoning managers simply because their results have lagged can lead to further disappointment. For example, in a well-reported study, authors Amit Goyal and Sunil Wahal (2008) looked at institutional pension plans that replaced underperforming managers with outperforming managers. The results were far different than expected. The authors found that, following termination, the fired managers actually outperformed the managers hired to replace them over the next three years.

Figure 18. Fund leadership is quick to change

How the top-performing equity funds of 2003 fared in the rankings five years later—only 14% remained in the top quintile.



Note: The chart is based on ranking of all actively managed Australian equity funds according to their excess returns versus their benchmarks as reposted by Morningstar during the ten years through April 2008.

Sources: Vanguard and Morningstar.

Market-timing and performance-chasing can be a drag on returns

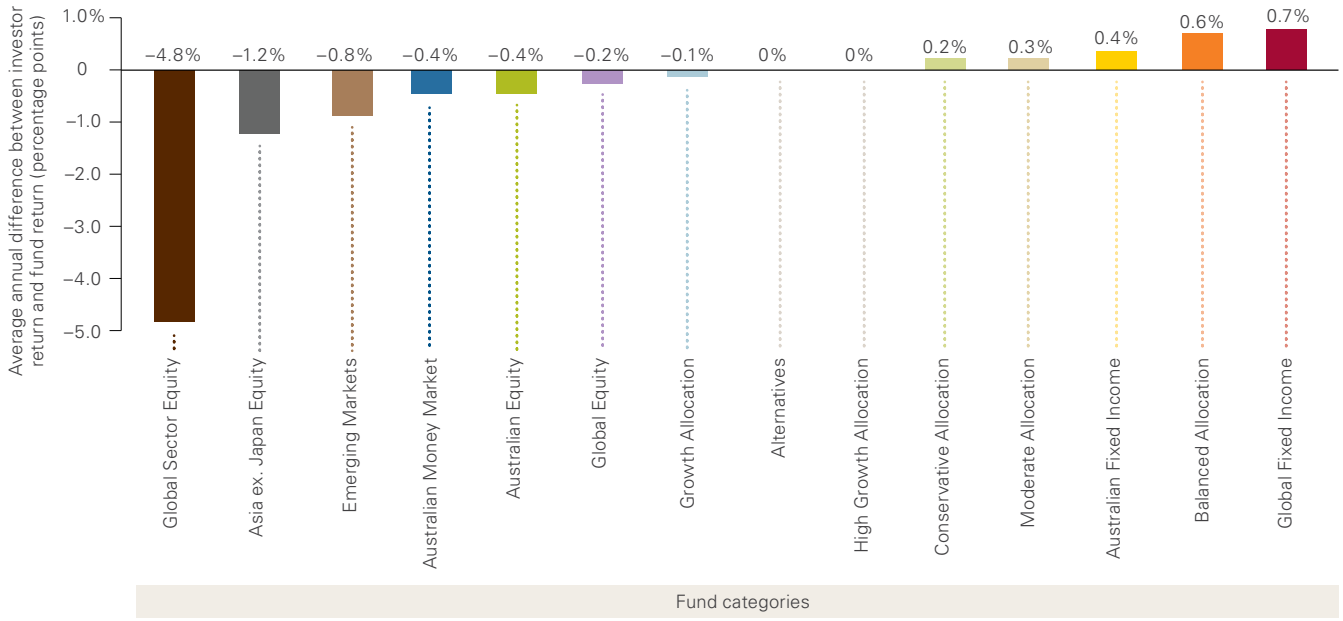
A number of studies address the conceptual difficulties of market-timing. Some examine the records of professional market-timers. The results are discouraging for proponents of market-timing. But what about the experience of the typical investor? Has timing been a net positive or negative?

We can answer that question indirectly by looking at the difference between fund returns and investor returns. **Figure 19** examines the annual impact of investors' buy/sell decisions on the returns they earn (investor return) relative to the returns reported by the funds they are invested in (fund return) across different fund categories since 2002. The data suggest that, on average, market-timing maybe hazardous to long-term investing success—which may certainly apply to the more volatile or growth-oriented asset classes which are on the left hand side of the chart (with negative return). There are two key implications to be drawn from this

data. First, investors generally trail the funds they are invested in as a result of the timing of cash flows.[11] Second, the difference between less volatile funds (to the right) and specialised, volatile funds (to the left) has been significant. Investors in these niche vehicles have often earned significantly less than the funds themselves—in part because many invest only after a fund starts looking "hot," and thus never see the gains that got it that reputation. The data suggest that, on average, market-timing is hazardous to long-term investing success.

Figure 19. How investors' returns lagged their funds' returns, 2002–2012

When investors chase performance, they often get there late.



Notes: The average difference is calculated based on Morningstar data for investor returns and fund returns. Morningstar Investor Return™ assumes that the change in a fund's total net assets during a given period is driven by both market returns and investor cash flow. To calculate investor return, the change in net assets is discounted by the fund's investment return to isolate the amount of the change driven by cash flow; then a proprietary model is used to calculate the rate of return that links the beginning net assets and the cash flow to the ending net assets.[12]

Sources: Morningstar and Vanguard calculations. Data cover the period from January 2002 through December 2012.

11 An investor's performance, of course, is influenced not only by the timing of cash flows but also by the return of the investments themselves.

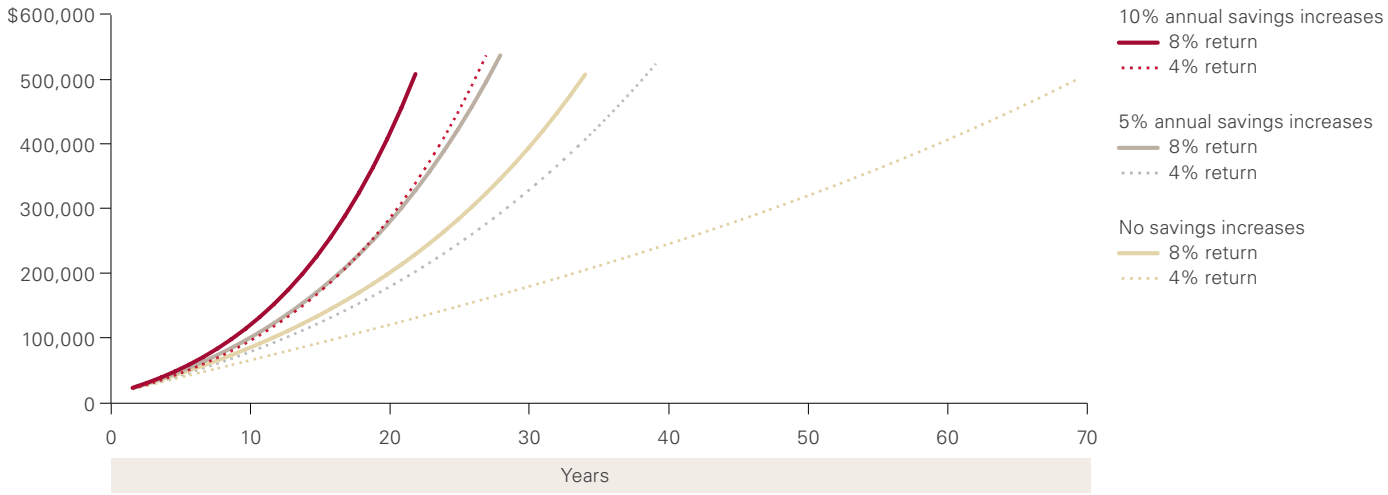
12 Morningstar® Investor Return™ (also known as dollar-weighted return) is calculated in a similar manner as internal rate of return. Investor return measures the compound growth rate in the value of all dollars invested in the fund over the evaluation period. Investor return is the growth rate that will link the beginning total net assets plus all intermediate cash flows to the ending total net assets.

Increasing the savings rate can have a substantial impact on wealth accumulation (Bruno and Zilbering, 2011). To meet any objective, one must rely on the interaction of the portfolio's initial assets, the contribution or spending rate over time, the asset allocation, and the return environment over the duration of the objective. Because the future market return is unknowable and uncontrollable, investors should instead focus on the factors that are within their control—namely asset allocation and the amount contributed to or spent from the portfolio over time.[13]

Figure 20 shows a simple example of the power of increasing contribution rates to meet a given objective. For this example we have an investor who has a goal of $500,000 (in today's dollars

Figure 20. Increasing the savings rate can dramatically improve results

Years needed to reach a target using different contribution rates and market returns.



Notes: The portfolio balances shown are hypothetical and do not reflect any particular investment. The final account balances do not reflect any taxes or penalties that might be due upon distribution.

Source: Vanguard.

13 It is also essential to control costs—another cornerstone of Vanguard's investment philosophy. The time horizon may or may not be within the investor's control.

adjusted for inflation), invests $10,000 to start, and—in the baseline case—contributes $5,000 each year (without adjusting for inflation). The example shows varying rates of market return.

The first set of two scenarios assumes that the contribution level is steady, with the investor relying more heavily on the markets to achieve the target. Simply increasing the contribution by 5% each year ($5,250 in year 2, $5,512 in year 3, etc.) or 10% per year significantly shortens the time needed to meet the $500,000 objective. Note that getting an 8% return while increasing savings by 5% a year produces almost the same result as getting a 4% return while boosting savings by 10% a year. In real-world terms, the big difference in those two scenarios is risk: An investor pursuing an 8% long-term return would most likely be forced to take on much more market risk than someone looking for 4%.

This reinforces the idea that a higher contribution rate can be a more powerful and reliable contributor to wealth accumulation than trying for higher returns by increasing the risk exposures in a portfolio.

The key take-away

Because investing evokes emotion, even sophisticated investors should arm themselves with a long-term perspective and a disciplined approach. Abandoning a planned investment strategy can be costly, and research has shown that some of the most significant reasons for derailment are behavioural: the failure to rebalance, the allure of market-timing, and the temptation to chase performance.

Far more dependable than the markets is a program of steady saving. Making regular contributions to a portfolio, and increasing them over time, can have a surprisingly powerful impact on long-term results.

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