

The Evidence Bank

Today, high-quality research exists that demonstrates the investment approaches that are most likely to work in the future, as well as those approaches that are unnecessarily risky. There is overwhelming data about how impossible it is to pick stocks, trade in and out of them, and fare as well as the market. Likewise, the notion that there is a system by which one can consistently profit by timing the purchase and/or sale of securities has been proven false. The data on this is crystal clear and has been compiled by Nobel Laureates and other highly acclaimed thinkers and academics creating a consensus over the past two decades.

Nevertheless, many investment and financial advisers pay no attention to the evidence and instead follow a pre-scientific model. Their conventional investment approach assumes that investing amounts to speculation and forecasting and that the goal is to use “special” knowledge to achieve returns that are greater than the market as a whole. This “conventional approach” perpetuates because millions of years of evolution leaves us all ‘hard wired’ to believe mankind can find patterns, trends and predict outcomes; contrary to the evidence.

An easy sell

It is easier to sell products and investment solutions with a good story; investors want and expect this. Evidenced based investment solutions are ironically harder for people to accept such is the power of our nature and nurture (see Behavioural Finance).

Below is a collection of articles and papers, representing a small part of our evidence bank, which is a library holding most of the scientific evidence. We have listed below only some of the works and articles that discuss practical implementation and selected as ones we feel lay people should be able to understand.

Please bear in mind that most of the research was undertaken in the US which represents nearly half the world’s capital markets. Americans academics, journalists and financial advisers completed most of the work. There has been relatively little research undertaken by UK institutions.

Not available until 2004

Suitable funds to enable implementation of the strategies advocated by this body of work were not available in the UK until 2004. The world’s largest provider of low cost institutional asset class funds, Vanguard, still does not see a market big enough in the UK or Europe to warrant launching funds (as of 2008).

Research is grouped into the following subject groups

- **Asset Allocation**
- **Behavioural Finance**
- **Bonds**
- **Commodity Futures**
- **Dimensional Fund Advisors (DFA)**
- **Diversification**
- **Efficient Market Hypothesis (EMH)**
- **Emerging Markets**
- **Equity Premium**
- **Exchange Traded Funds (ETFs)**

- Fama/French Three-Factor Model
- Foreign Investing
- Hedge Funds
- Index Weighting
- Market Timing
- Modern Portfolio Theory (MPT)
- Mutual Fund (unit trust and OEICs) Persistence
- Passive vs. Active Management
- Pound Cost Averaging
- Real Estate Investment Trusts (REITs)
- Rebalancing
- Reversion to the Mean

Asset Allocation

["The true Impact of Asset Allocation on returns."](#) Roger G. Ibbotson, Ibbotson Associates, 2000. A shorter version of an important paper.

["The Importance of Asset Allocation,"](#) John Nuttall, The original paper "Determinants of Portfolio Performance" is widely misinterpreted; this document offers an alternative perspective.

["10 Lessons You Should Learn from Recent Market History,"](#) William Reichenstein, *AAL Journal*, February 2003. Here are the ten lessons referred to in the title:

1. Mixing bonds and stocks moderates portfolio risk;
2. Portfolio risk rises disproportionately slowly as stocks are added to the portfolio;
3. An all-bonds portfolio is not the lowest-risk portfolio;
4. Portfolio returns rise disproportionately quickly as stocks are added to the portfolio;
5. An often-overlooked risk for the long-run investor is the risk of having a too-conservative portfolio;
6. By rebalancing once a year, you maintain a stable risk exposure;
7. A balanced portfolio avoids market timing;
8. Due to rebalancing, if an asset class becomes overvalued, you will be selling it as it rises; and, if an asset class becomes undervalued, you will be buying it as it falls;
9. Rebalancing provides a discipline that helps investors overcome inertia;
10. A fixed-weight strategy takes little time and it can save time at tax time

["Protecting A Portfolio Against Inflation Risk,"](#) Steve Strongin and Melanie Petsch, *Investment Policy*, July/August 1997. It concludes that international diversification, index linked bonds, and commodities are the best hedges against inflation.

["The Importance of Investment Policy,"](#) J Ronald J. Surz, Dale Stevens, and Mark Wimer, *Journal of Investing*, Winter 1999. *"We find that, on average, policy [a.k.a., asset allocation] explains approximately 100% of investment returns. If a manager succeeds in adding value, this can drop to as low as 85% when risk is not incorporated, and even to 75% on a risk-adjusted basis. If the manager fails to add value, policy can explain as much as 135% of return unadjusted for risk, or 165% risk-adjusted; the difference between these percentages and 100% is explained by manager value reduced through market timing, selection, and/or costs. In other words, if a manager neither adds nor reduces value, policy explains 100% of performance."*

["Investment Policy Explains All,"](#) Ronald J. Surz, Dale Stevens, and Mark Wimer, *Journal of Performance Measurement*, Summer 1999. Another critique of the two Determinants of Portfolio Performance papers.

["The Asset Allocation Debate: Provocative Questions, Enduring Realities,"](#) Yesim Tokat, *Investment Research and Counselling /ANALYSIS*, April 2005. A summary of the issues. *"Unless there is a strong belief in the ability to select active managers who will deliver higher risk-adjusted net returns, investors' focus should be on the asset allocation choice and its implementation using broadly diversified, low-cost portfolios with limited market-timing."*

["The Asset Allocation Debate: A Review and Reconciliation,"](#) Yesim Tokat, Nelson Wicas, and Francis M. Kinniry, *Journal of Financial Planning*, October 2006. A summary of the issues. *"Unless there is a strong belief in the ability to select active managers who will deliver higher risk-adjusted net returns, investors' focus should be on the asset allocation choice and its implementation using broadly diversified, low-cost portfolios with limited market-timing."*

Behavioural Finance

Behavioural Finance can be defined as (courtesy of Russell J. Fuller);

- The integration of classical economics and finance with psychology and the decision-making sciences.
- An attempt to explain what causes some of the anomalies that have been observed and reported in the finance literature.
- The study of how investors systematically make errors in judgement, or "mental mistakes."

The Efficient Market Hypothesis's first investor behavioural assumption is frequently stated as investors are; "rational expectations wealth maximisers" – this means that investors form unbiased expectations of the future and given these expectations, they buy and sell in the securities markets at prices which they believe will maximise the future value of their portfolios.

However as we all know, humans can behave far from rationally. There are a large number of impediments to rational investing born out of millions of years of evolution. [Jason Zweig](#) sums it up thus;

Over 60 million years of primate evolution, did the brain develop to;

1. *Calculate algorithms for foreign currency arbitrage or option-adjusted spreads on collateralised obligations?*
2. *Avoid predators, identify predictable opportunities for foraging, seek simple patterns that maximise odds of survival?*

Jason argues that behavioural finance is not a window onto the behaviour of other people, but a mirror that shows our own shortcomings; we should use it not to take advantage of other stupid investors, but rather to make ourselves smarter investor

["Do You Sabotage Yourself?"](#) Jason Zweig, *Money*, May 2001. A great look at the pioneering work of Kahneman and Tversky.

["Psychology and Behavioural Finance,"](#) *Investor Home*, 1999. An excellent survey of this subject area.

["DALBAR Issues 2001 Update to 'Quantitative Analysis of Investor Behaviour' Report: More Proof that Market Timing Doesn't Work for the Majority of Investors," Dalbar Inc.](#) A press release announcing the 2001 update to their annual study. The study concludes that the average fund investor dramatically underperforms the market, presumably due to excessive fees, failed attempts at market timing, and general lack of investing discipline.

Bonds

Fixed income assets (e.g., bonds) are added to a portfolio to lessen its volatility and improved risk/return characteristics resulting from the less than perfect correlation of bonds with equities and other assets.

["Fixed Income," David A. Plecha, Dimensional Fund Advisors.](#) Details the rationale behind DFA's fixed income strategies. An excellent, very readable article.

Commodity Futures

Commodities refer to real assets such as energy, agriculture, livestock, industrial metals, and precious metals. The below papers make a compelling case for the diversification benefits of collateralised commodities index futures contracts (i.e., they have a very low correlation with other asset classes). Unfortunately, there are few practical means for retail investors to prudently expose themselves to this asset class. Michael Barr & Co currently recommends the [Lyxor ETF Commodities CRB \(GBP\)](#) as the preferred means of implementing this asset class

["Investing in collateralised commodity futures - an opportunity for institutional investors," David Rae, Consultant, Russell Investment Group, Russell Monograph No 18, Nov 2003.](#) A simple explanation of commodity investing.

["Commodities As An Asset Class," Frank Armstrong, Investor Solutions, July 15, 2004.](#) An outstanding primer on this asset class.

["Investing in Global Hard Assets: A Diversification Tool for Portfolios," Gary Baierl, Ibbotson Associates, April 7 1999.](#)

["The Benefits of Commodity Investment 2005 Update," Centre for International Securities and Derivatives Markets, June 2005.](#) *"Adding a commodity component to a diversified portfolio of assets has been demonstrated to result in enhanced risk-adjusted performance. We believe that this research would place the use of investable commodity indices as a central part of the institutional investors' asset allocation decision."*

["Strategic Asset Allocation and Commodities," Thomas M. Idzorek, Ibbotson Associates, March 27 2006.](#) *"Given the inherent return of commodities, there seems to be little risk that commodities will dramatically underperform the other asset classes on a risk-adjusted basis over any reasonably long time period. If anything, the risk is that commodities will continue to produce equity-like returns, in which case, the forward looking strategic allocations to commodities are too low".*

["An Investor's Guide to Commodities," Deutsche Bank, April 2005.](#) A good discussion of the issues.

We make use of funds provided by DFA, although you may never have heard of them because they do no advertising to the public.

["Indexing Goes Hollywood," Don Phillips, Managing Director Morningstar, Inc, Morningstar Indexes Yearbook 2005.](#) Consider the success DFA has had in selling its funds through advisors who undergo training on the merits of passive investing and in portfolio construction theory. Consider that over the past decade the dollar-weighted return (see **Passive vs Active Management**) of all index funds was just 79% of the time-weighted return investors could have gotten with those funds. Yet, the figures for DFA are much better. In fact, the dollar-weighted returns of DFA funds over the past 10 years are actually higher than their time-weighted returns—suggesting advisors who use DFA encourage very smart behaviour among their clients, even buying more out-of-favour segments of the market and riding them up, rather than buying at the peak and riding the trend down, which is usually the case with fund investors.

["How the REALLY smart money INVESTS: Nobel Prize winners entrust their nest eggs to DFA, where investing is a science, not a spectator sport," Shawn Tully, Fortune, July 6 1998.](#) An excellent article. Perhaps the best introduction to DFA in the popular press.

["So You Think Stock Picking Is a Fool's Game," Robert Barker, Business Week, November 18 2002.](#) An extremely brief basic introduction to DFA.

["The Best Fund Family You've Never Heard of — and Why It Doesn't Want Your Money," Beverly Goodman, TheStreet.com, August 26 2002.](#)

["Investment Porn' Panned by DFA Funds Preaching Fama's Gospel," Seth Lubove, Bloomberg.com, March 27 2007.](#)

Diversification

Diversification refers to the idea that your investments ought to be spread out. On average, a diversified portfolio will have the same expected return (but less risk/volatility) as a less diversified portfolio with similar characteristics. When put that way, it is easy to see why diversification is beneficial — why have a more risky portfolio if you can't expect higher returns in exchange for taking on that additional risk?

"Diversification is your buddy." — Merton Miller, winner of the Nobel Memorial Prize in Economic Sciences, 1990

["How Many Stocks Do You Need to be Diversified?" Daniel J. Burnside, Donald R. Chambers, and John S. Zdanowicz, AAll Journal, July 2004.](#) An excellent article.

["How much Diversification is Enough?" Meir Statman, Santa Clara University Working Paper, September 2002.](#) *"Lack of diversification is costly. Investors who hold only 4 stocks in their portfolios forego the equivalent of a 3.3% annual return relative to investors who hold the 3,444 stocks of the Vanguard Total Index Stock Market Index fund. Why do investors forego the benefits of diversification?"*

Efficient Market Hypothesis (EMH)

The Efficient Market Hypothesis is a controversial and often-disputed theory that states that fundamental and technical analysis does not lead to excess market returns. This is because markets are fully efficient and as such incorporate all relevant information about every security.

["Random Walks in Stock Market Prices," Eugene F. Fama, Chicago School of Business Selected Paper Series.](#) This is the seminal paper where Dr. Fama coined the term "Efficient Market." *"In an efficient market, competition among the many intelligent participants leads to a situation where, at any point in time, actual prices of individual securities already reflect the effects of information based both on events that have already occurred and on events which, as of now, the market expects to take place in the future. In other words, in an efficient market at any point in time the actual price of a security will be a good estimate of its intrinsic value."*

["A brief history of market efficiency," Elroy Dimson and Massoud Mussavian, European Financial Management, March 1998.](#) An excellent, highly readable history of the efficient market hypothesis.

["The Efficient Market Hypothesis and its Critics," Burton G. Malkiel, Journal of Economic Perspectives, 2003.](#) *"This survey examines the attacks on the efficient-market hypothesis and the relationship between predictability and efficiency. I conclude that our stock markets are more efficient and less predictable than many recent academic papers would have us believe."*

Emerging Markets

Emerging markets refers to the stock markets of economies which are developing (e.g., China, Brazil, Argentina, Mexico, etc.). Investing in emerging markets is often done with a small portion of one's portfolio in order to get the diversification benefits offered by this asset class.

["International Equity Investing: Investing in Emerging Markets," Yesim Tokat, Investment Counselling & Research ANALYSIS, July 2004.](#) A good discussion of issues surrounding investing in emerging markets.

Equity Premium

The "Equity Premium" refers to how much stock returns are higher than bond returns. There are many good reasons to believe that the equity premium in the future will be much less than the equity premium in the recent past. It is prudent to have realistic expectations of what stock returns are likely to be in the future. Therefore, macroscopic estimates thereof are quite important for investors.

["The Investment Implications of Lower Stock Return Prospects," William Reichenstein, AAI Journal, October 2001.](#) An excellent, readable article with very pragmatic advice.

["What Rate of Return Can You Reasonably Expect ... or What Can the Long Run Tell Us about the Short Run?"](#) Peter L. Bernstein, *Financial Analysts Journal*, March/April 1997. "A strange and unexpected conclusion emerges. Stocks are fundamentally less risky than bonds, not only because their returns have been consistently higher than those of bonds over the long run but also because less uncertainty surrounds the long-term return investors can expect on the basis of past history. Equity investors have at least some notion of what the long run has provided to owners of equities and at least a few hints as to whether stocks are high or low relative to their long-run performance. Investors in the bond market, even with 195 years of history to look back on, can make no statement at all about a basic return; they can make no judgments beyond the duration of the particular instrument they happen to be holding at any given moment."

["New evidence puts risk premium in context,"](#) Elroy Dimson, Paul Marsh, and Mike Staunton, *Corporate Finance*, March 2003. "Our work results in a set of forward-looking, geometric risk premia for the United States, United Kingdom, and for the world of around 2.5 to 4.0 per cent." "... this corresponds to arithmetic mean risk premia of around 3.5 to 5.25 per cent."

Exchange Traded Funds (ETFs)

Exchange Traded Funds are similar to conventional index mutual funds, but they are purchased like a stock. Blackstone uses ETFs to access certain asset classes such as property and commodities, which do not have a suitable unit trust or OEIC available. ETFs are not without their problems; such as fixed dealing charges, which can be very costly for regular purchases or rebalancing. Blackstone consequently pays a lot of attention to trades and tries wherever possible to mitigate the trading costs by aggregating many trades together which usually leaves each trade only bearing pennies of cost.

["The ETF vs. Open-End Index-Fund Shootout,"](#) William J. Bernstein, *Efficient Frontier*, Autumn 2001. Although William's research uses Vanguard's funds for comparison (not available in the UK), it never the less provides a good insight into some of the pros and cons of ETF.

["It's the Execution, Stupid!"](#) William J. Bernstein, *Efficient Frontier*, Winter, 2004. This article finds that the best index funds have tended to outperform "equivalent" ETFs even without considering the costs of bid-ask spreads and commissions which apply to ETFs, but not index funds.

Fama/French Three-Factor Model

These papers explore the intellectual underpinnings for the idea that tilting a stock portfolio towards small and value stocks will tend to result in higher long-term expected returns (at the expense of somewhat higher short-term volatility).

["Fama French Three Factor Model,"](#) Frank Armstrong, *Investor Solutions*, 2001. An outstanding, very readable introduction to the three factor model.

["The Cross-Section of Expected Stock Returns: A Tenth Anniversary Reflection,"](#) William J. Bernstein, *Efficient Frontier*, Summer 2002. A very readable retrospective ten years after the original Fama/French paper on the subject.

["Engineering Portfolios for Better Returns," Eugene Fama, Jr., Senior Consultant, May 1998.](#) Dr. Fama's son discusses the practical implications of the Fama/French Three-Factor model.

["Risk and Return: Professor Ken French on the Cross Section of Expected Returns," Bob Hansen, Tuck Today, Winter 2004.](#) An outstanding interview with Professor Ken French.

Foreign Investing

Investing internationally with a portion of one's portfolio is often recommended in order to achieve diversification benefits.

["International Index Funds and the Investment Portfolio," Scott Aiello and Natalie Chieffe, Financial Services Review, 8 1999.](#) *"This study urges caution for those investors who seek to maximise returns. However, it does suggest that the diversification one can gain from international index funds is significant and important."*

Hedge Funds

Hedge Funds are similar to mutual funds, but they are more risky, less regulated, less liquid, and dramatically more expensive (not only do they have annual expense ratios of about 2%, but they typically take 20% or more of all gains as well). Indeed a Hedge fund -fund of funds can be as high as 35 and 30%!

"If you want to waste your money, it's a good way to do it." "If you want to invest in something where they steal your money and don't tell you what they're doing, be my guest." — Dr. Eugene Fama, commenting on the prudence of investing in hedge funds

"If there's a license to steal, it's in the hedge fund arena." — Dr. Burton Malkiel, commenting on the high costs of hedge funds

["Hedge Fund Investing For Dummies," Bernard Condon, Forbes, May 14 2004.](#) *"Warning to hedge fund investors: You would do better giving your money to a monkey."* You may have to register (for free) to read this article.

["Hedge Funds: Risk and Return," Burton Malkiel and Atanu Saha, Financial Analysts Journal, November/December 2005.](#) *"We conclude that hedge funds are far riskier and provide much lower returns than is commonly supposed."*

["The Sleaziest Show On Earth," Neil Weinberg and Bernard Cohen, Forbes, May 24 2004.](#) *"Hedge funds will suck in \$100 billion this year from an ever-broader swath of investors. Pretty good for a business rife with exorbitant fees, phony numbers and outright thievery."* You may have to register (for free) to read this article.

Index Weighting

Index weighting refers to how a stock market index is weighted by the market capitalisation of each stock in the index. In such a weighting scheme, larger companies account for a greater portion of the index. Most indexes are constructed in this manner, for example the FTSE 100. In the USA there has been a debate for some time suggesting indexes should be constructed by alternative criteria; dividends, employees, economic footprint. ETF funds exist in the UK to gain exposure to what are commonly called "Fundamental Indexes", although the average investor has little or no knowledge of such funds. Back testing data and creating an investment strategy based on the findings can prove problematic as the anomalies it seeks to exploit may no longer exist. Fundamental index funds essentially overweight towards value stocks, something Michael Barr & Co achieves via specific allocation to value funds.

["Fundamental Indexation," Robert D. Arnott, Jason C. Hsu, and Philip Moore, *Financial Analysts Journal*, March/April 2005.](#) This was the paper that most spurred interest in this topic. *"In this paper, we examine a series of equity market indexes weighted by fundamental metrics of size, rather than market capitalisation. We find that these indexes deliver consistent and significant benefits relative to standard capitalisation-weighted market indexes."*

["Fundamentals-Weighted Indexing Offers New Insight on Value Investing," Eric Brandhorst, State Street Global Advisors, December 22, 2005.](#) A good discussion of the topic.

["Quieting The Noise," Matthew Hougan, *Journal of Indexing*, September/October 2007.](#)

["New Frontiers in Index Investing," Jason C. Hsu and Carmen Campollo, *Journal of Indexes*, January/February 2006.](#) Makes a compelling case for weighting based on fundamentals.

Market Timing

Market timing refers to an attempt to time investing decisions so as to invest in assets which are expected to go up in the near term and divest from assets which are expected to go down in the near term. The evidence is; this is a fruitless and expensive activity.

"The long, sad history of market timing is clear: Virtually nobody gets it right even half the time. And the cost of getting it wrong wipes out the occasional gain of getting it right. So the average investor's experience with market timing is costly. Remember, every time you decide to get out of the market (or get in), the investors you buy from and sell to are the best of the big professionals. (Of course, they're not always right, but how confident are you that you will be 'more right' more often than they will be?) What's more, you will incur trading costs or mutual fund sales charges with each move—and, unless you are managing a tax-sheltered retirement account, you will have to pay taxes every time you take a profit." — Charles Ellis

["Market-Timing Futility," Robert Sheard, Motley Fool, July 1 1998.](#) This article supports disciplined periodic investment. It suggests that, since the long-term return difference between making periodic investments with perfect timing and with perfectly imperfect timing is small, the important thing is to be making the periodic investments, not to try to time the markets. *"...for a genuine long-term investor/saver ... it makes precious little difference when you invest."*

Modern Portfolio Theory (MPT)

Modern Portfolio Theory refers to the idea that each investment ought to be selected in consideration of how it will interact with other assets in one's portfolio. Modern Portfolio Theory is the basis for Mean Variance Optimisation.

["The Appropriate Use of the Mean Variance Optimiser," William J. Bernstein, Efficient Frontier, January 1998.](#) An excellent discussion of how this tool can be used and (as is more usual) misused *"... you have to realise that the chances of your allocation, no matter how skilfully chosen, winding up exactly on the future efficient frontier are zero."*

["Strategic Asset Allocation: Make Love, Not War," John Rekenhaller, Journal of Financial Planning, September 1999.](#) This article criticises blindly following Mean Variance Optimiser (MVO) outputs during strategic asset allocation decision-making. We agree with the criticism. MVO is an interesting tool, but the results are extremely sensitive to the inputs. The inputs are either guesses about the future or facts about the past. Either way, we know that the data inputs are extremely imperfect predictors of the future, which causes decision-making based on them to be significantly less optimal than may appear to be the case. Dr Eugene Fama on optimisers: *"They're junk. You're wasting your time with an optimiser, but if you have a lot of time to waste, go ahead."*

Mutual Fund (unit trust and OEICs) Persistence

Mutual Fund Persistence refers to the question of whether past performance of a mutual fund has any positive correlation with future performance. The lack of persistence in mutual funds (and pension funds, etc.) is a large part of the empirical argument for passive management.

The root of this issue is whether it is possible for ANY *actively*-managed mutual fund to *consistently* achieve superior risk-adjusted returns. This is an important question. If the answer is no, then it implies that actively managed funds should be avoided (because they tend to be more expensive). If the answer is yes, then it inspires a separate, but equally important, question of whether it is possible to identify the few funds which will consistently outperform *in advance*. We believe that, while it is possible for an actively managed fund to occasionally achieve superior returns through good luck or even through skill, it is impossible to identify these fund managers in advance. The majority of well-done studies tend to support a lack of persistence for all but the worst performing equity mutual funds.

["Past Imperfect? The performance of UK equity managed funds," Mark Rhodes, Financial Services Authority Occasional Paper 9, August 2000](#) *"The weight of evidence is that information on past performance cannot be exploited usefully by retail investors."*

["The Performance of UK Equity Unit Trusts,"](#) Garrett Quigley and Rex A. Siquefield, Institute for Fiduciary Education, October 1 1999. This paper also appeared in *Journal of Asset Management*, February 2000. This provides a look at mutual fund persistence in the United Kingdom. *"Does performance persist? Yes, but only poor performance."*

["On Persistence in Mutual Fund Performance,"](#) Mark M. Carhart, *Journal of Finance*, March 1997. This may be the best and most authoritative study of persistence. The study concludes that there is virtually no persistence, except for the worst performing mutual funds (which is explainable either by their having high fees, poor strategies, and/or tax-loss harvesting by investors).

Passive vs. Active Management

The question of whether to invest in actively or passively managed mutual funds is an important one. Passive is perceived, in part because of the other meanings associated with the word passive, to be dull, unexciting and was once suggested to be "guaranteed mediocrity". Its unfortunate there is not a more exciting word to describe the strategy. However, passive investment strategies should be thought of more like shooting par at golf, always. Few can do it, and almost no one can continue to do it in the long run.

["Treasury - Minutes of Evidence,"](#) House of Commons, Minutes of Evidence which were ordered by the House of Commons to be printed 18 May 2006. Witnesses: Mr Clive Briault, Managing Director, Retail Markets, and Mr Dan Waters, Director, Retail Policy, Financial Services Authority, gave evidence. *Questions 146 through to 154 are very insightful. Here we have the government questioning two senior officials of the FSA as to the cost & value of active fund management. The later questions read like a sketch from Bremner, Bird, and Fortune.*

["Performance Persistence in Mutual funds,"](#) Professor David Blake PhD, Professor Allan Timmermann PhD, *An Independent Assessment of the Studies Prepared by Charles River Associates for the Investment Management Association, FSA, April 2002.* The original Charles River Associates (CRA) paper asserted that funds with good past performance did indeed repeat. *We do not believe that CRA's decision to conduct their analysis of performance persistence using raw returns is justified. The absence of risk adjustment in the performance study means that performance persistence figures are likely to divide mutual funds according to their levels of risk exposure and not according to the degree of fund manager skill or value-added. High-risk funds are more likely to be top performers (particularly in the long run), while low-risk funds are more likely to be among the worst performers. Performance figures based on raw returns are likely to induce investors to hold more mutual funds with high risk and fewer mutual funds with low risk, regardless of whether the returns generated by these funds are justified by their level of risk exposure.*

["The Arithmetic of Active Management,"](#) William F. Sharpe, *Financial Analysts Journal*, January/February 1991. *"If 'active' and 'passive' management styles are defined in sensible ways, it must be the case that (1) before costs, the return on the average actively managed dollar will equal the return on the average passively managed dollar and (2) after costs, the return on the average actively managed dollar will be less than the return on the average passively managed dollar. These assertions will hold for any time period."*

["Index and Enhanced Index Funds,"](#) David G. Booth, Dimensional Fund Advisors, April 2001. *"In summary, logic and empirical evidence overwhelmingly favour an investment approach based on index funds. The returns are higher and the fees are lower. The returns of an asset class are assured. The discipline keeps the portfolio fully invested, thereby avoiding the adverse timing pitfall inherent in investment committees and active managers."*

["Passive Management: It's Not an Oxymoron,"](#) Beverly Goodman, *TheStreet.com*, August 19 2002. A very readable article.

["Active Mismanagement: The Case for Index Funds,"](#) Beverly Goodman, *TheStreet.com*, August 12, 2002.

Pound Cost Averaging

Pound Cost Averaging or as it is often referred to in these articles "Dollar Cost Averaging" (however exactly the same maths at work) refers to a procedure whereby an equal amount is invested each period on an ongoing basis.

["Does loss aversion explain dollar cost averaging?"](#) Karyl B. Leggio and Donald Lien, *Financial Services Review* 2001. Perhaps the premier reason that some advocate dollar cost averaging is its ability to avoid the regret that might come from investing a lump sum *"at the worst possible time."* This paper concludes that even taking this into account, DCA results in sub-par performance when compared to lump sum investing

Real Estate Investment Trusts (REITs)

Real Estate Investment Trusts (REITs) are companies whose business is to own and operate Commercial Property. The company stock trades just like any other stock. Equity REITs are an excellent means to get exposure to the Real Estate asset class.

["REITs: Providing Core Real Estate Exposure,"](#) Devin I. Murphy, Ted Bigman, and Kevin G. Midwinter, *Institute for Fiduciary Education*, 2003. This paper includes some useful analysis of European REITs and their correlation with direct property markets and relative poor correlation with stocks and bonds. *"The evidence continues to build to demonstrate that pension funds can use a portfolio of real estate stocks in order to provide their core real estate allocation. This conclusion is based upon a survey of the listed property markets throughout the world and the preliminary data available for this relatively new sector."*

["Real Estate Investment Trusts: Review and Outlook,"](#) Munder Funds, 2004. A good review of the benefits of REITs. Although entirely based on US data, the conclusions should not change and are entirely valid for the UK. Here's a paraphrased summary of why to invest in a REIT fund rather than directly in Real Estate:

- Geographic diversification.
- Property type diversification.
- Liquidity.
- Small capital outlay.
- Professional management.
- In many cases, REIT stocks are trading at discounts to prices in which private real estate transactions are occurring.
- Ease of investment.
- Limited liability.

Rebalancing

Rebalancing refers to periodically restoring a portfolio's asset allocation to its target proportions. If you don't rebalance, the portfolio naturally drifts from its target allocation. This either increases or decreases your portfolio's risk profile, neither of which is desirable (assuming that the risk profile is optimal in the first place).

["Opportunistic Rebalancing: A New Paradigm for Wealth Managers,"](#) Gobind Daryanani, *Journal of Financial Planning*, January 2008. An excellent article.

["Case Studies in Rebalancing,"](#) William J. Bernstein, *Efficient Frontier*, Autumn 2000. *So, what can we conclude from all this?*

- *Monthly rebalancing is too frequent.*
- *There are small rewards to increasing one's rebalancing frequency from quarterly up to several years, but this comes at the price of increased portfolio risk.*
- *You makes your choice and you takes your chances, but don't sweat this one too much. The returns differences among various rebalancing strategies are quite small in the long run*

["Portfolio Rebalancing in Theory and Practice,"](#) Yesim Tokat, *Vanguard Investment Counselling & Research*, February 15 2006. A good discussion of the issue."

Reversion to the Mean

Reversion to the mean is the phenomenon whereby a stock's average performance (or a mutual fund's, or many other non-investing statistics) tend to become more average (i.e., less extreme) over time. If true, this implies that recent good performers are perhaps somewhat more likely than average to be below average performers in the future (and vice versa). This idea is supported by much of the research.

["Reversion in Action,"](#) Bill Schultheis, 1999. A great explanation of this concept for lay people.