

Investing in Pseudo-Science: the ‘Active versus Passive’ Debate

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Abstract

The debate about the merit of active or passive investment management encompasses a large body of empirical literature which generally shows that actively-managed portfolios underperform the market. This research is presented as scientific evidence that active management does not have any economic rationale. The efficacy of this debate has largely gone unchallenged. Unlike previous literature, this paper directly scrutinises the debate’s empirical methodology and argues that the rationale it provides for indexing tracking strategies is mistaken.

This paper also examines the consequences of indexing strategies and the debate’s profound effects on institutional investors. In terms of explaining market failures and predicting security prices, these aspects may be of equal significance to financial fundamentals themselves. This critique is of obvious importance to active managers who have a vested interest in ‘answering’ this debate, and also to finance scholars because the debate’s empirical foundation supports important precepts of investment theory.

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Introduction

It is a reasonable contention for investors and interested observers whether judgement has any value in the investment process, or whether simply constructing an index-tracking portfolio delivers a better economic outcome. Recent market failures have fostered the incredulity of investors and other stakeholders regarding the ‘science’ of investment and increased the onus on practitioners to defend the economic rationale and methods of active management.

Without the spectre of this debate, it would generally be accepted as common sense that active management would be essential given differing client constraints, and the fact that indices do not measure investment merit or quality.

Testing the merit of active investment strategies – colloquially, the ‘active versus passive’ debate – involves measuring the returns from actively managed portfolios to confirm if the selections of funds managers have outperformed the market on average. This debate has spawned a large body of empirical literature generally showing that actively-managed portfolios underperform market averages (Woolley and Bird, 2003: 304). The overall conclusion drawn from this debate is that judgement is superfluous in the investing process, and it establishes the rationale for index-tracking strategies.

Financial economists charge that, on average, active management *must* underperform index-tracking strategies after costs. Without a satisfactory answer to this charge, there does not appear to be any ‘scientific’ rationale for much of the investment industry. Following the debate’s empirical methodology to its logical conclusion, research pointing to superiority of active management should also be dismissed as being selective or unrepresentative. This debate remains in an unsatisfactory state with neither active nor indexing strategies validated universally. In particular, for practitioners advising clients according to their specific circumstances and liability structures, or for that matter, any market participant whose

portfolio has soundly trounced the market averages, the dissonant conclusions of the debate simply do not ‘gel’ with reality.

The first section of this article scrutinises the debate’s methodology and the ‘proofs’ offered by those arguing that index tracking strategies must provide a superior economic outcome. In ‘answering’ the debate, this section also briefly explains how anomalies arise from the debate’s measurement methodology, and its contribution to investment theory.

While the efficacy of the debate has largely gone unchallenged, index-tracking strategies have achieved increasing market share. In light of the conclusions reached in the first section, the next section reconsiders the rationale and practical consequences emerging from indexing strategies. These include the costs and risks faced by investors who use index-tracking strategies and the mismatch that exists between the objectives of index compilers and investors. This section also highlights how the investment industry’s economic imperatives have effectively subordinated prudent investment standards to the debate’s fixation upon indices and peer portfolios; neither of which are correlated with future potentialities or sound judgement.

The final section summarises the important questions asked about the debate and the consequent adoption of indexing strategies in order to focus on expanding the science of investment.

Scrutinising the debate's methodology and conclusions

Many academics and practitioners have contributed to a large body of literature of this debate which exemplifies how measurements, none of which are related to investment prospects and risks, can mislead researchers about the impact of human judgment in investments.

Fortunately, the debate's generalisations and conclusions can be scrutinised without recourse to even lengthier data sets or further direct observations of portfolios.

Simplifying the debate: can anyone outperform?

The debate can be simplified by posing the question 'can *anyone* outperform the market'?

Two Nobel laureates in financial economics answered this question a long time ago.

Samuelson states 'what logic can demonstrate is that not everybody, nor the average person can do better than the comprehensive market averages...that would contradict the tautology that the whole is the sum of its parts' (Samuelson, 1974: 18). Similarly, Sharpe apparently 'answers' the debate stating that '[b]ecause active and passive returns are equal before cost, and because active managers bear greater costs, it follows that the after-cost return of active management *must* be lower than that from passive management' (Sharpe, 1991: 7).

In arguing the case for index-tracking strategies, Samuelson and Sharpe allude to the maxim that the average actively managed *dollar* will always underperform the average indexed *dollar*, after the fees of active managers and other costs are taken into account. This argument only holds, however, if the empirical methodology adequately measures the return of the average dollar invested in a market: a theoretical abstraction. In practice, it is the average performance of *portfolios* rather than the average *dollar* which is measured, and this perpetuates the debate. The debate can be surmised as a misunderstanding between the theoretical return on the average dollar invested, and the average portfolio return observed and measured in practice.

Explaining the debate's 'anomalies'

A corollary of Samuelson and Sharpe's logic is that actively managed portfolios can beat a market average, but that this phenomenon must be attributable to a range of measurement errors and data biases. For the sake of completeness, the task remaining for empirical researchers is to explain *why* these studies have generated favourable outcomes in the period. These answers lie in the data and the methodologies of the experiments. Aside from intermediary costs and taxes, financial markets are a zero-sum game producing a winner and a loser from each transaction. It is therefore possible to deduce that any observed outperformance of market averages must occur only at the 'expense' of underperforming portfolios, also invested in a market, but omitted from the survey. These portfolios are the assets of day traders, other managed funds and offshore investors, which will be shown in this scenario to underperform the market during the measurement period.

In practice, it is common for researchers use arbitrary rolling periods (eg 1, 3 or 4 years) for performance measurement purposes (BIS, 2003: 21). This measurement methodology is date-dependent and can capture favourable 'windows' in a portfolio's life. Making generalisations about a single portfolio (or group of managers) relying on this approach, however, may be misleading. For example, a portfolio shown as a market beater in one period can also often be shown as a loser in the next.

The compilation of fund surveys can introduce a range of biases, which can produce a distorted picture of investment outcomes. These biases are exacerbated where there is a high turnover of index constituents or truncation of the portfolios measured by the peer survey.¹ Because portfolio surveys are based on restricted populations, and funds managers may choose whether or not to report their returns, the average active portfolio return provided by these surveys can be affected by selection and survivorship biases. For example, conclusions

¹ Such as hedge fund indices

based on the performance of a portfolio which ‘survives’ to be measured in a survey, while its contemporaries have disappeared (or chosen not to report their results), cannot be considered as being representative of the average performance outcomes of all portfolios of its era.

On the other side of the debate’s measurement equation, errors can result where the proxy of performance (eg the market index) used does not accurately reflect the aggregate return generated by all securities listed on a market. For example, if a portfolio invests in securities which are not included in the index, or where the proportionate market value of a security is different to its index weighting, a portfolio may show apparent outperformance (or underperformance) relative to the market. This measurement error commonly occurs with free-float adjusted indices because the performance contribution of securities in the index is ‘discounted’ from the actual economic return achieved by portfolio investors.

For advocates of active management, examples of prescient investors who have soundly beaten market averages are typically presented as important evidence that active management is indeed superior. Whether you prefer Samuelson’s argumentative logic or Sharpe’s elementary mathematics, however, there is no debate: properly measured, the active management proposition cannot ever be ‘proven’ empirically using this research methodology.

At this juncture, it should be recognised that the debate only deals in outcomes and does not provide any insights into the sources of return or risk. The anomalies generated by the debate’s methodology cannot be offered as evidence affirming or dismissing the merit of active management. Additionally, while this methodology is often used to infer skill, these performance outcomes are not adequately distinguished from chance. On a per dollar basis, there are equiprobable opportunities for profit or loss from each transaction; therefore, it can

be argued that these empirical studies do not provide a rational basis for the premise that active managers must always underperform (see Keynes, 1963: Chs I, VI).

The debate's contribution to economic theory

Modern portfolio theory assumes that rational participants are involved in the process of price discovery, and that fair values are reflected in conditions of market equilibrium. In reality, markets are populated by a broad spectrum of participants with differing motivations, perceptions, risk preferences, time horizons, and legal constraints. For investors whose faith in financial markets and investment theory has been tested by recent corporate collapses and market integrity issues, the debate is used as a powerful placebo.

The theory of 'efficient markets' posits that markets generally reflect all available information about each firm and therefore no economic advantage can be derived from attempting to predict security prices or second-guess the market on 'fair' value. Accordingly, investors are compelled to suspend their judgement, ingenuity and intuition to rely upon financial markets to price their securities fairly. Perhaps the strongest affirmation of informational efficiency has been the inability of active managers to outperform market averages. As noted above, however, any experiment measuring markets and portfolios properly will also generate this outcome: on this score, all markets *must* be informationally-efficient. So do markets really reflect all available information? Since informational efficiency is measured using pricing *outcomes*, it is impossible to determine what (if any) information investors relied upon, nor anything about their motives (rational or otherwise). Rather than being concerned with the notion of market efficiency, it should be recognised that market prices simply reflect rates of exchange at any point in time; fair values remain an abstract ideal.

Notwithstanding these practical hiccups, a robust economic rationale for indexing (that is, constructing a portfolio which blindly tracks the market with minimal operating costs) is

firmly established because it appears to provide the best economic outcome based on fair values. Index-tracking strategies are predicated upon market prices reflecting fair values which must result from the analysis and trading of active market participants. Proponents of indexing strategies claim that a 'free rider' benefit therefore accrues to index-tracking investors who do not pay any fees for research or human judgement, but benefit from the market pricing function provided by 'smart' active investors. In reality, since every transaction, regardless of its rationality, can affect prices, it is impossible to discriminate between smart investors, overenthusiastic speculators, or insightful market trackers; consequently, it is unreasonable to expect market prices will always reflect fair values. Nonetheless, for index-trackers, market prices are assumed to always be fair. Accordingly, analysing the merits of individual securities, or any attempts to 'time' the market are considered futile and wasteful. By contrast, the index-tracker transacts in markets according to cash flows (into and out of its portfolio), and its only motivation for trading is to satisfy portfolio quotas determined by the constituents and weightings of the index tracked.

Supported by the theory and the empiricism of the debate, it is little wonder that many financial pundits are evangelists for indexing.

More on the practical effects of the debate and indexing strategies

Within the confines of the debate, researchers have provided numerous instalments and rebuttals based on date-dependency, duration of measurement or selectivity. This research appears to be circular in nature and does not consider the appropriateness of index-tracking strategies (eg, see Minor, 2001; compare Bogle, 2002). Other writers maintain that the debate has deterministic value and attempt to elicit greater understanding of the motivations and behaviours of participants from ex post empirical results (see Treynor, 1999).

More recent research however, has by-passed the debate's performance impasse to highlight the incontrovertible economic impacts created by the increasing proliferation of index-tracking schemes. Woolley and Bird (2003) outline the resultant economic impacts of implementing insightful index-tracking strategies and the potential for misallocation of capital to index constituents which receive favoured access to capital from investors.

Overall, the debate has provided a significant diversion from examining the suitability of indices tracked, or the attendant risks and opportunities they present to investors. Given that indexing products are commonly described as 'passive' investment strategies, the phenomenon of active index constituent management deserves examination. It is also instructive to consider how the debate, in the guise of industry performance measurement practices, creates convergence in portfolios and removes incentives from active funds managers to make portfolio judgements.

Active index management

In contrast to the depiction in theoretical and industry literature, indexing is not necessarily a passive strategy. Indices represent actively managed instruments, rather than 'buy-and-hold' strategies, familiar to most investors. A market index is simply a view of the market compiled and branded by index's publisher and compilers actively manage the rules (and thus constituents) of indices with the objective of ensuring that they remain 'representative' of the market.² Indices are also rebalanced and reconstituted periodically in accordance with these rules. The management of indices therefore is not necessarily based on any philosophical or

² For example, over the period 1 January 2000 to 31 December 2003, excluding name changes, the US S&P500 index had 124 constituent additions and 124 constituent deletions (source: <www.sandp.com> accessed 24 April 2004), while the FTSE100 had 88 constituent additions and 88 constituent deletions (source: *FTSE UK Index Series Notes 2000-3* <www.ftse.com/research_analysis/index_notes.jsp>)

theoretical foundation, but rather, it is driven by both the commercial imperatives of the compiler and market events.³

A growing body of research documents the costs of active index management for investors tracking broad equity benchmarks, and resultant profit opportunities that are presented to unconstrained market participants (see Madhavan, 2003; Beneish and Whaley, 2002). The information effect of constituent changes in market indices has also been examined and the writers suggest that index management effects are potentially powerful signals about prospective earnings (see Dennis *et al*, 2003). Other research suggests that price distortions created by index events have no long-term impact, despite that in reality, investors pay the price of these distortionary events in cash, and suffer depressed portfolio returns (see Malkiel and Radisich, 2001).

This research literature indicates that the process of investment is not random, given that indices are actively managed, and that index-tracking investors are subject to losses from unconstrained market participants who are able to preempt their transactions.

The debate's impact on the investment management industry

Despite that the debate itself does not offer insights into the sources of investment risks and opportunities, it has a profound bearing on the behaviour of funds managers, and thus asset pricing. Like any business, the economic imperative of institutional funds managers is profit maximisation, which is primarily achieved by increasing the volume of client funds under management and achieving economies of scale on business operations.

³ In the case of the FTSE100, over this period, on average 22.9% of index events arose from market deletions or additions: the balance of turnover was attributable to changes in firm size and/or compiler rules.

Although offering a complex service proposition, the primary differentiation between these firms is their investment performance. Because researchers and market ‘gatekeepers’ such as asset consultants continually measure returns relative to the market (and form their opinions and recommendations according to relative performance), funds managers must ensure that their returns remain reasonably consistent with the market and their peers. Volatile returns are hard to sell and persistently poor returns relative to the market typically generate adverse recommendations from gatekeepers, which damage sales and profitability. Conversely, strong performance relative to peers is positively correlated with net funds inflows (eg, see Sirri and Tufano, 1998). Within this highly regulated and competitive industry, therefore, the investment process is likely to be defined by its measurement benchmarks – indices comprising of peer portfolios and the market.

As a direct consequence, funds managers overtly or surreptitiously track market or peer portfolio indices to ensure their survival, even though these benchmarks are unconcerned with investment merit. The debate’s methodology therefore creates significant practical disincentives for managers to make any significant judgements in their portfolio selections which consequently results in the convergence of active portfolios with the market index and consequent performance clustering (see Blake *et al*, 2002). The pervasive effect of performance benchmarking and the reluctance of funds managers to invest outside of the universe of securities comprising these benchmarks has been documented in the United Kingdom (see Brealey, 2000; Myners 2001) and in other competitive financial services markets (see BIS, 2003).

The industry’s structural forces clearly have potential to create market misalignments and thus asset mispricings. However several global industry trends have been identified as likely to ensure the proper functioning of financial markets: viz. the increasing use of market indices (rather than peer-based performance benchmarks); the emergence of unconstrained financial

products such as hedge funds controlled by ‘well informed active asset managers’; and, the shifting of responsibility for asset allocation from plan sponsors to beneficiaries (BIS, 2003: 26-7).

Prudential constraints and corporate governance concerns

While the debate presents highly stylised performance outcomes, perhaps the most fundamental issue ignored by institutional and fiduciary investors, is the mismatch existing between the objectives of index compliers and investors. Although indices are the basis of indexing schemes, they do not pretend to measure investment merit or quality: their publishers explicitly disclaim them as self-contained strategies.

The purpose of an index as an arbitrary market measure, contrasts sharply with the burdensome duties imposed upon fiduciaries (such as superannuation trustees and investment advisors). These fiduciaries are required by law to exercise their investment powers ‘prudently’⁴, a term connoting care, caution and frugality. Since fiduciaries are prohibited from investing blindly (this arguably equates with speculation) it is disturbing that the mismatch existing between indices and the objectives of prudent investors attracts so little scrutiny within scholarly and professional circles.

Index-tracking strategies can always operate where there is an index to follow, however their inability to deliver meaningful risk/return trade-offs should concern investors. For those investing on faith in market efficiency, close scrutiny of the construction methodology of the index tracked is required. Since the market value of a firm is typically the primary selection criterion used for indices, only the largest firms are included in leading market indices (and therefore index-tracking strategies). Given the increasing calls for improved standards of

⁴ For an examination of the so-called “prudent investor rule”, its implications for index-tracking strategies and the mechanics of index construction in major common law jurisdictions, refer to Ali, Stapledon and Gold (2003), Ch 4.

corporate governance and propriety, those investors who blindly track market indices cannot complain they have been taken for granted by issuers, or financial markets generally, where the indices they track focus on size, but do not consider investment merit, standards of corporate governance, or other criteria unrelated to financial outcomes.

Summary and conclusions

This paper has sought to put the debate into clearer context by examining its methodology, its impacts on funds managers, and the functioning of financial markets. Despite its apparent exactitude and rigour, the debate itself cannot be expected to deliver any scientific answers to investors because it reveals nothing about the sources of performance or risks: we already know its answer.

Without scrutiny of the debate, the trend to index investment appears to be self-fulfilling. A strong imperative exists for investment practitioners to highlight the inadequacies of the debate with respect to the mistaken rationale it provides for index tracking strategies. In highlighting the interrelated aspects of index-tracking schemes, and convergence effects occurring within the investment industry, this article suggests that the relative performance debate has ramifications extending far beyond the business model and vested interests of active managers.

While it is apparent that relative measurement is a driver of contemporary investing, a more fundamental question that needs to be answered is the whether indexing is an appropriate strategy given the objectives of most investors. Although the debate has proven to deliver convergence in investment portfolios and characteristics, it remains to be seen whether greater pressure will be exerted upon advisors and sponsors to more closely align asset portfolios to the underlying liability structures and true objectives of the beneficiaries.

The presence of market proxies and relative performance studies can confuse and mislead investors about the sources of return and risk. Therefore, investors looking to this research for a scientific answer to improve their odds of achieving a fair bargain from financial markets will be disappointed. Beating the market is simple: the only ingredient required is to adopt positions different from the market; it is only in retrospect that these decisions will be revealed as prescient or poor.

References

- Ali, P., Stapledon, G., and Gold, M., (2003) *Corporate Governance and Investment Fiduciaries*, Thomson, Sydney.
- Blake, D., Lehmann, B. and Timmermann, A. (2002) 'Performance Clustering and Incentives in the UK Pension Fund Industry', *Journal of Asset Management*, 3, 173-94.
- Bogle, J. (2002) 'An Index Fund Fundamentalists', *Journal of Portfolio Management*, Spring.
- Brealey, R. (2000) 'Stock prices, stock indexes and index funds', *Bank of England Quarterly Bulletin*, 40(1), 61-69.
- Beneish, M. and Whaley, R. (2002) 'S&P500 index replacements', *Journal of Portfolio Management*, 29(1): 51-61.
- BIS Committee on the Global Financial System (2003) *Incentive structures in institutional asset management and their implications for financial markets*, Bank for International Settlements, Basel.
- Dennis, D., McConnell, J., Ovtchinnikov, A. and Yu, Y. (2003) 'S&P500 Index Additions and Earnings Expectations', *Journal of Finance*, 58(5): 1821-41.
- Keynes, J.M. (1963) *A treatise on probability*, Macmillan, London.
- Minor, D. (2001) 'Beware of Index Fund Fundamentalists', *Journal of Portfolio Management*, Summer 2001.
- Myners, P. (2001) *Institutional Investment in the United Kingdom: A Review*, HM Treasury: London (the "Myner's Review").
- Samuelson, P.A. (1974) 'Challenge to Judgement', *Journal of Portfolio Management*, 1(1): 17-19.
- Sharpe, W.F. (1991) 'The arithmetic of active management', *Financial Analysts Journal*, 47(1): 7-10.
- Sirri, E.R. and Tufano, P. (1998) 'Costly search and mutual fund flows', *Journal of Finance*, 53(5): 1589-621.
- Treynor, J. (1999) 'Zero Sum', *Financial Analysts Journal*, 55(1): 8-12.
- Woolley, P. and Bird, R. (2003) 'Economic implications of passive investing', *Journal of Asset Management*, 3, 303-12.