

Passive Investment Strategies and Efficient Markets

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Abstract

This paper presents the case for and the evidence in favour of passive investment strategies and examines the major criticisms of the technique. I conclude that the evidence strongly supports passive investment management in all markets—small-capitalisation stocks as well as large-capitalisation equities, US markets as well as international markets, and bonds as well as stocks. Recent attacks on the efficient market hypothesis do not weaken the case for indexing.

Keywords: *passive investment strategies; efficient markets.*

JEL classification: G11, G14.

1. Introduction

This paper presents a defence of passive financial investment (or indexing) strategies in all types of investment markets both nationally and internationally. I justify the case of such strategies by relying first on the theory of efficient markets. Recent attacks on the efficient market theory do not in my judgment weaken the case for indexing. I indicate, however, that passive investment strategies can be justified even if markets are less than fully efficient.

The body of the paper presents the evidence in favour of indexing and examines the major criticisms of the technique. I conclude that the evidence strongly supports passive investment management in all markets—small-capitalisation stocks as well as large-capitalisation equities, US markets as well as international markets, and bonds as well as stocks.

2. Why Does Indexing (Passive Management) Work?

(a) *Markets are efficient*

Indexing is a sensible strategy because our security markets appear to be remarkably efficient in digesting and adjusting to new information. When information arises about individual stocks or about the market as a whole, that information is generally reflected in market prices without delay. While it is true that a number of anomalies have been isolated by researchers and that a number of predictable patterns appear to

exist, including some evidence of underreaction to news events, none of this evidence persuades me that the efficient market hypothesis ought to be abandoned. Anomalies are generally very small relative to the transactions costs required to exploit them. Under reaction to news events appears as frequently in the data as over reaction to events, as has been stressed by Fama (1998). Many of the predictable patterns seem to disappear soon after they are discovered, as has been emphasised by Schwert (2001). Moreover, the patterns that have been isolated are not robust and dependable in different sample periods and some may simply reflect better proxies for measuring risk rather than inefficiencies.

No one denies that some market participants act irrationally and that behavioural financial economists and psychologists have very interesting things to say about the systematic errors that some investors make.¹ Moreover, it is clear *ex post* that the market can make large errors in the valuation of certain classes of securities.² But people like myself who believe that markets are by and large efficient do so because *ex ante* no clear arbitrage opportunities exist. There appear to be no trading strategies based either on a variety of valuation ratios or on the pattern of past returns that will enable investors to beat a passive buy and hold strategy. As Ross (2002) has suggested, despite attempts to tease some predictability out of asset return data, returns on financial assets are very close to being serially uncorrelated.

(b) *Passive management is effective even if markets are inefficient*

But passive management would still be a winning strategy even if markets were inefficient. This is so because winning performance must be a zero-sum game, as is shown in Figure 1. Clearly all stocks have to be held by someone and if certain investors achieve above-average returns, then it must be the case that other investors are achieving below average performance. It is clear that all investors cannot be above average.

As Figure 2 shows, however, it must be the case that after accounting for the additional expenses of active management, most investors must underperform the market average. The exhibit assumes a 10% market return and 120 basis points of

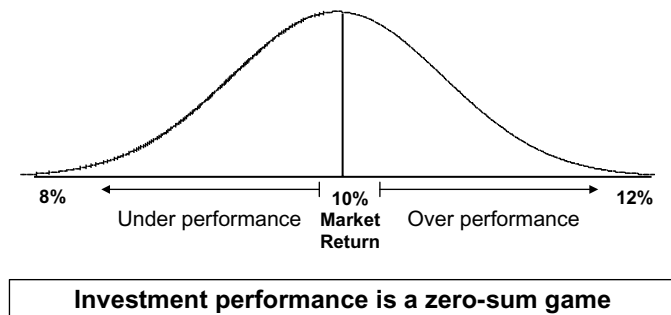


Fig. 1. Distribution of returns.

¹ See, for example, Odean (1999) and Kahneman and Riepe (1998).

² Consider, for example, the worldwide exuberance for TMT (technology, media, and telecommunications) stocks during 1999 and early 2000 as analysed by Shiller (2000).

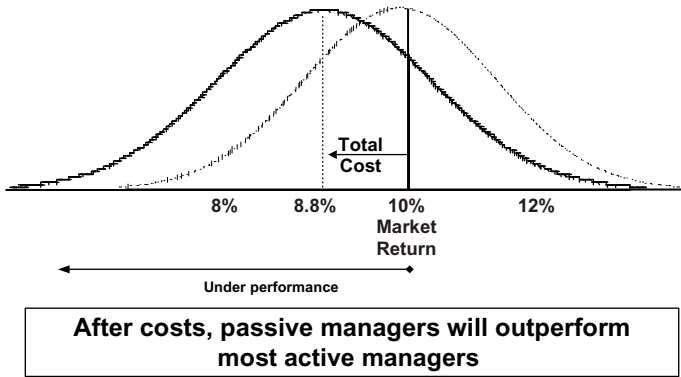


Fig. 2. Distribution of returns after expenses.

added expenses from active management. These expenses involve management fees, which are considerably higher for actively managed funds. For example, the typical actively managed equity mutual fund in the USA has an expense ratio over 140 basis points. Low cost index funds are available at expense ratios between 10 and 20 basis points. And it is precisely this extra 120 basis points (or more) of extra expense that causes the typical actively managed equity fund to underperform its benchmark index by approximately that amount.

There are still more reasons to employ a more passive investment management technique. For the taxable investor, a passive strategy tends to minimise taxes and minimise turnover. High turnover involves not only brokerage costs (which are the smallest part of trading costs) but, more importantly, the spread between bid and asked prices and the negative market impact from trading as blocks of securities are bought or sold.

Despite the theoretical and practical agreements in favour of passive investing, the only true test of the strategy’s validity is to look at the evidence. Surely, if at many times prices in markets are set by irrational traders, as Shiller (2000) suggests, then rational professional investors, who are richly incentivised to outperform the market, should be able to record superior results. By this argument, professional investors as a group will outperform because irrational ‘noise traders’ will find themselves in the bottom part of the distribution of returns. The facts, however, are devastating—there is no evidence that professionals are able to beat the market in any national stock or bond market or in any sector of the market. The most convincing evidence, in my judgment, that markets must by and large be efficient and that profitable arbitrage opportunities are not readily available is that professional investors are unable to outperform the collective judgment of the market as a whole.

3. The Record of Passive versus Active Management

The exhibits that follow present the investment results for mutual fund managers of both stocks and bonds in the USA and Europe. Figure 3 shows the percentage of general equity mutual funds in the USA that have been outperformed after expenses by the Vanguard (S&P500) Index Fund, the largest index mutual fund available to the public. Over the 10-year period ending 31 December 2001, 71% of actively managed equity funds have produced total returns (including dividends and capital changes)

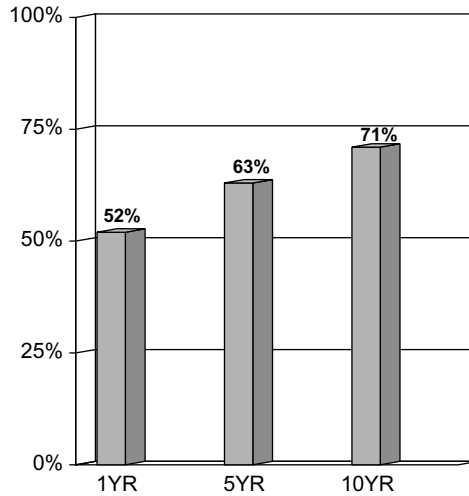


Fig. 3. Percentage of general equity funds outperformed by the S&P500 Index ending 31 December 2001.

that were inferior to the returns achieved by the index fund, after expenses. Even during the falling US stock market of 2001, when the index fund was disadvantaged by being fully invested while the typical actively managed fund held between 5 and 10% of its assets in cash, more than half of the actively managed funds were outperformed by the fully invested index fund. The same kinds of results have obtained for earlier decades.

Table 1 indicates that the median actively managed mutual fund has produced total returns that have been more than 175 basis points lower than the returns from the index after expenses. Expense ratios for the Vanguard S&P 500 Index Fund have been at or below 20 basis points per annum. The results hold over all periods.

Figure 4 shows how few mutual funds have achieved above index returns over the period from 1970 through 2001. In 1970, there were 355 equity mutual funds holding broadly diversified portfolios. Excluded from the analysis are specialised funds such as those which hold stocks in particular industry groups or market sectors or which hold international equities. Note that more than half of these funds did not survive over the 32-year period. We can be sure that the non-survivors had even poorer records than the surviving funds, as has been documented by Malkiel (1995). Funds with particularly poor records are difficult to sell. Therefore, mutual fund complexes tend to merge these funds into more successful ones, thus burying the records of the very

Table 1
Median total returns (%) ending 31 December 2001.

	10 years	15 years	20 years
Large cap equity funds	10.98	11.95	13.42
S&P500 Index Fund	12.94	13.74	15.24

Source: Lipper Analytical, Wilshire Associates, Standard & Poor's, and The Vanguard Group.

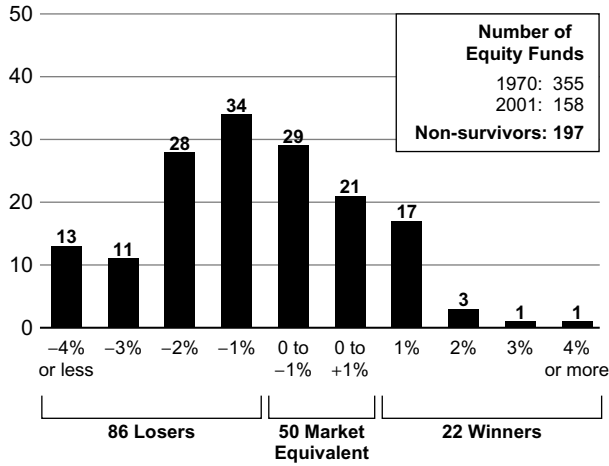


Fig. 4. The odds of success: returns of surviving mutual funds 1970–2001.

Source: Bogle Research Institute.

Table 2

How the top 20 equity funds of the 1970s performed during the 1980s.

Fund name	Rank 1970–80	Rank 1980–90
Twentieth Century Growth	1	176
Templeton Growth	2	126
Quasar Associates	3	186
44 Wall Street	4	309
Pioneer II	5	136
Twentieth Century Select	6	20
Security Ultra	7	296
Mutual Shares Corp.	8	35
Charter Fund	9	119
Magellan Fund	10	1
Over-the-Counter Securities	11	242
American Capital Growth	12	239
American Capital Venture	13	161
Putnam Voyager	14	78
Janus Fund	15	21
Weingarten Equity	16	36
Hartwell Leverage Fund	17	259
Pace Fund	18	60
Acorn Fund	19	172
Stein Roe Special Fund	20	57
Average annual return:		
Top 20 funds	+19.0%	+11.1%
All funds	+10.4%	+11.7%

poor performers. Note that of the remaining 158 funds, only five produced returns that were two percentage points or more in excess of the index fund returns. Clearly, trying to select a winning fund is like picking a needle in a haystack. The likely result is to achieve well below average returns.

Moreover, there is not sufficient persistence in fund returns to enable an investor to select superior funds by examining the past fund records. In Table 2, I rank the top 20 general equity funds during the decade of the 1970s. We see that the top 20 funds achieved returns almost double the average for all funds. But during the next decade, these same funds earned below average returns. To be sure there was one exception—the Magellan Fund, which remained a top performer, but as will be seen in Table 3, its return reverted to the mean in the next decade.

Table 3 repeats the exercise for the decades of the 1980s and 1990s. Again, the top funds achieved returns almost four percentage points greater than the market during the 1980s. But those same funds produced well below market returns during the 1990s. In Table 4, we see how the top 20 funds in the first half of the 1990s underperformed the market during the last half of the decade. What is clear is that an investor cannot expect to achieve higher than index fund returns by confining his or her purchases to

Table 3
How the top 20 equity funds of the 1980s performed during the 1990s.

Fund	Average return (%) 1980–90	Average return (%) 1990–2000
Fidelity Magellan	24.94	15.68
Dresdner RCM MidCap	19.66	16.19
Phoenix-Engemann Capital Growth A	18.63	13.03
CGM Capital Development	18.56	16.80
Oppenheimer Quest Value A	18.25	10.19
Lindner Large-Cap	18.19	1.59
Janus	17.58	17.41
AIM Weingarten A	17.33	15.43
American Century Select	17.27	11.91
AXP New Dimensions	17.16	17.53
Davis NY Venture A	17.15	15.52
Fortis Capital A	16.95	13.39
Fidelity Destiny	16.95	15.85
Vanguard Windsor	16.93	8.86
Fortis Growth A	16.92	13.87
Stein Roe Disciplined	16.89	6.58
Nvest Growth A	16.87	14.21
United Vanguard A	16.74	13.25
Washington Mutual Investors	16.69	11.21
Sequoia	16.41	13.27
Average	17.99	13.68
S&P 500 Stock Index	14.14	14.91

Mutual funds data source: Morningstar, Inc. Includes all domestic diversified stock funds.

Table 4

How the top 20 equity funds of the first half of the 1990s performed during the last half of the 1990s.

Fund name	1990–94		1995–99	
	Rank	Avg. return	Rank	Avg. return
Oppenheimer Main St Growth & Income	1	25.03	129	24.27
CGM Capital Development	2	24.76	134	24.09
PBHG Growth	3	24.37	261	15.43
American Cent Ultra Inv	4	23.05	21	33.78
Kaufmann	5	22.36	210	19.92
Berger Growth	6	21.25	53	29.28
AIM Constellation A	7	19.99	183	22.05
Fidelity Blue Chip Growth	8	19.77	105	25.32
Parnassus	9	19.50	275	11.45
Fidelity Adv Equity Growth Instl	10	19.49	54	29.01
Chase Vista Capital Growth A	11	19.32	245	17.66
MainStay Capital Apprec	12	19.19	31	31.32
Fidelity Contrafund	13	19.01	150	23.59
Westcore Midco Growth	14	18.87	233	18.40
INVESCO Dynamics	15	18.22	61	28.26
Van Kampen Emerg Growth A	16	17.78	56	28.87
Brandywine	17	17.60	236	18.15
Fidelity Destiny II	18	17.14	4	39.06
Delaware Trend A	19	16.94	170	22.54
Chase Vista Growth & Income	20	16.79	224	19.30
Average of 20 Funds		20.02		24.09
Overall Fund Average		10.37		23.83
S&P 500		10.85		26.17
Number of Funds in Sample		283		283

those funds that get publicised in the financial press as the top performing funds. While there will undoubtedly be a number of funds that will beat the index during the first decade of the twenty-first century, an investor cannot know in advance which funds they will be.

In Table 5, we show the 10-year performance advantage of indexing by various style categories. Funds are classified into nine boxes by Morningstar, Inc. Funds are first designated by the size of company in which they invest, from large capitalisation companies to small capitalisation ones (usually considered companies with capitalisations under \$1 billion). Funds are also classified by the kinds of stocks they own within each capitalisation category. Some funds invest in stocks which promise relatively high growth rates. Others invest in 'value' stocks—typically stocks selling at low ratios of price to book value or price to earnings multiples. The table shows that in eight of the nine 'style' boxes, the selected index outperforms the actively managed funds. Only in the small-capitalisation growth style box do the active

Table 5

The passive management advantage ten year performance through 30 June 2000 of various style categories.

		Growth		Blend	Value
Large cap					
	102 funds		126 funds		129 funds
Category average	17.89%	Category average	15.60%	Category average	13.37%
Index benchmark (S&P500 growth)	19.92%	Index benchmark (S&P500)	17.55%	Index benchmark (S&P500 value)	14.70%
Index advantage	+203BP	Index advantage	+195BP	Index advantage	+133BP
Mid cap					
	63 funds		36 funds		48 funds
Category average	18.14%	Category average	14.10%	Category average	12.77%
Index benchmark (Russell mid-cap growth)	19.52%	Index benchmark (Russell mid-cap)	16.29%	Index benchmark (Russell mid-cap value)	13.96%
Index advantage	+138BP	Index advantage	+219BP	Index advantage	+119BP
Small cap					
	33 funds		22 funds		23 funds
Category average	17.12%	Category average	12.99%	Category average	11.74%
Index benchmark (Russell 2000 growth)	13.01%	Index benchmark (S&P600 growth)	13.73%	Index benchmark (Russell 2000 value)	12.91%
Index advantage	-411BP	Index advantage	+74BP	Index advantage	+117BP

managers outperform. In examining the 33 funds, however, we find that the average capitalisation of the stocks held by the funds is larger than the average capitalisation of the funds in the index. During this period, small companies tended to underperform larger companies. A more appropriate index would have been the Russell 2500 index but that index is not broken down into growth and value components. Therefore the benchmark shown in the table is probably an inappropriate one.

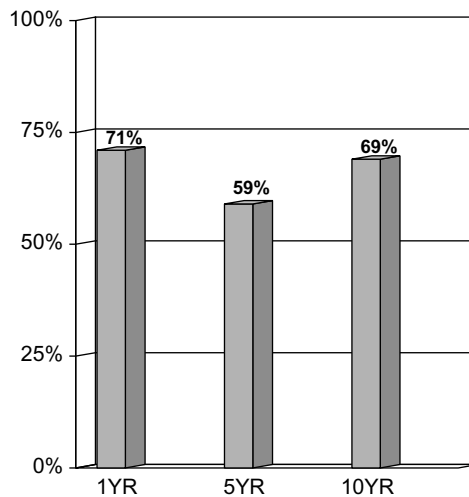


Fig. 5. Percentage of European funds outperformed by MSCI-Europe Index. Periods ending 31 December 2001.

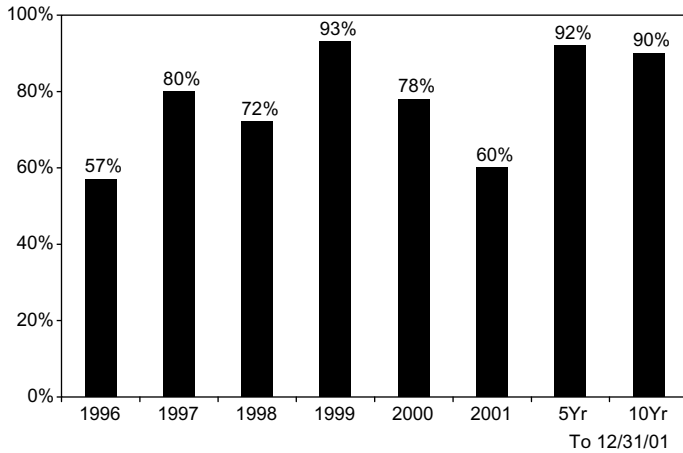


Fig. 6. Percentage of global bond funds outperformed by the Salomon World Government Bond index.

Source: The Vanguard Group, based on filter of more than 3,900 funds for portfolios with beta of between 0.9 and 1.0 and R^2 above 0.9 (final universe included 68 portfolios).

Indexing appears to be a winning strategy in European as well as US markets. In Figure 5, we see that 69% of the funds invested in European securities were outperformed by the Morgan Stanley Capital International Europe Index in the 10-year period ending 31 December 2001. Moreover, the advantage of indexing is particularly large in the bond markets. Active bond managers tend to have more similar investment results than is the case for equity managers. Moreover, returns have tended to be lower for bonds during the decade in question making the low expense advantage of passive management particularly useful for bond investors. During the 10 years ending 31 December 2001, 90% of active global bond managers were outperformed by the Salomon World Government Bond Index, as is shown in Figure 6.

4. Concluding Comments

A considerable body of academic work on asset pricing during the past 15 years has stressed that stock markets are somewhat predictable and, in some circumstances, inefficient. In their survey of the econometrics of financial markets, Campbell *et al.* (1997), for example, conclude that stock markets are at least partially predictable.

DeBontd and Thaler (1995) survey the body of work on behavioural finance and suggest that stock prices often deviate substantially from fundamental values. In their view, such deviations can be used by investors to fashion winning investment strategies.³ Shiller (2000) documents the behavioural factors that lead to investment bubbles and also argues that future stock prices are to some extent predictable. Lo and MacKinlay demonstrate that there is momentum in the stock market and that the random walk hypothesis can be rejected.

³See also Hawawini and Keim (1995) for worldwide evidence on the predictability of stock returns.

This paper has shown that whatever predictable patterns may exist and whatever inefficiencies may occur, they do not give rise to profitable investing strategies. John Cochrane (2001) has suggested that many of the empirical papers documenting predictable patterns only 'amount to clever magnifying glasses, ways of making small facts economically interesting'. The record of professional equity investors certainly does not suggest that sufficient predictability exists in the stock market to outperform a passive portfolio with equivalent risk. Moreover, there appear to be no recognisable anomalies or irrationalities to enable professionals to take advantage of exploitable arbitrage opportunities. Investors are likely to achieve far higher returns by employing a passive indexing strategy than they are likely to achieve from active portfolio management.

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