

dutch fund and asset

MANAGEMENT ASSOCIATION

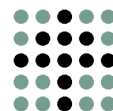


Active investing and index investing

dutch fund and asset

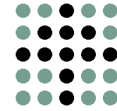
MANAGEMENT ASSOCIATION





Copyright DUFAS 2010

In case of distribution or reproduction of the information contained in this publication the information has to be accurate and DUFAS must be mentioned as the source. If the user changes or transforms the information, this has to be stated explicitly, while naming DUFAS as the source. If the information is used in documents for commercial use, the user should mention to the buyer before the contract is entered into that the information is freely available for DUFAS members.



Preface

The Hague, May 2010

I take great pleasure in introducing this report on the benefits of active investing and index (passive) investing which has been compiled by the Dutch Fund and Asset Management Association (DUFAS). The content has been composed with great care by DUFAS in close collaboration with a selection of market parties.

We hope that this report will contribute to the on-going debate about the comparative benefits of active investing and index investing and any combinations thereof.

If you have any comments to make, we would be happy to receive them and use them in the updating process.

We hope that you find this report interesting and useful in your professional practice.

The Dutch Fund and Asset Management Association

Hans H.M. Janssen Daalen
General Director

dutch fund and asset

MANAGEMENT ASSOCIATION

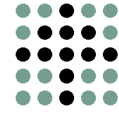


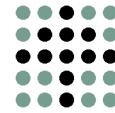


TABLE OF CONTENTS

	Summary & Conclusions	7
1.	Introduction	11
2.	DUFAS starting points	12
2.1.	Index investing has as much right to exist as active investing	12
2.2.	Social merit	12
2.3.	Symbiosis	12
2.4.	Needs of the client	13
2.4.1.	Needs of the institutional investor	14
2.4.2.	Convictions of the investor	14
3.	Expenses	14
3.1.	The importance of expenses: performance	15
3.2.	Total Expense Ratio \neq total costs of ownership	15
3.2.1.	Transaction costs	15
3.2.2.	Dividend tax	16
3.2.3.	Cost of advice	16
3.3.	Short term and long term performance	17
4.	Risk	17
4.1.	Correlation between sources of return	17
4.2.	Market value weighted indices	17
4.3.	Tracking error	18
4.4.	Index arbitrage	18
4.5.	Liquidity and tradability	18
4.5.1.	Small size	18
4.5.2.	Bond index trackers	19
4.5.3.	Leveraged index trackers	19
5.	Simplicity	20
5.1.	Index funds are often a sample of the index/market	20
5.1.1.	Sampling strategies	20
5.1.2.	Indices do not reflect the whole market	21
5.1.3.	Indices over-weight and under-weight certain stocks	21
5.2.	The universe is enormous	22
5.3.	Consequences for the investor	22



6.	Scientific research	23
6.1.	A lot of performance research is not suitable for the selection of funds	23
6.1.1.	Methodological criticism	23
6.1.2.	Epistemological problems	23
6.1.3.	Averages do not mean much	24
6.1.4.	Classification and the weighting of funds	24
6.1.5.	Total costs of ownership	24
6.1.6.	Practical objections	24
6.2.	The efficient market hypothesis: the theory behind index funds	25
6.2.1.	Empirical evidence against the efficient market hypothesis	26
6.2.2.	The Adaptive Markets Hypothesis	27
6.2.3.	Markets are broadly speaking efficient, but there are exceptions	28
7.	How to select the right active manager?	29
7.1.	Sustained out-performance	29
7.2.	Averages say nothing about the choice of an individual fund	29
7.3.	Costs are not a reliable indicator of performance	29
7.4.	Due diligence	30
7.5.	Outsourcing	30
	Notes	31



Summary & Conclusions

Index investing (passive management) means investing in an index; active management means that the manager pursues extra return above the return on the index.

From time to time, the debate about active vs. passive investing flares up, sometimes in one country, sometimes in another, sometimes among investors and asset managers and sometimes financial supervisors or regulators become involved. Sometimes passive investing or index investing is advised as a default option by government agents, primarily because of cost considerations.

Obviously, to a client the costs of managing his assets is important; but other aspects play a part as well. It is all too easy to reject active management because of the costs involved. Apart from that any argument based on costs alone needs to be sound.

DUFAS does not believe that index investing is simply a default option. Index investing requires a good choice of fund manager and an index in which the investments can be made, in just the same way as actively managed funds do. DUFAS believes that there is a role to be played in society by both active and passive management strategies. In compiling this report, DUFAS hopes to make a constructive contribution to the debate on the comparative merits of both forms of investing.

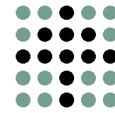
It is vital that other relevant factors besides costs are not overlooked in this debate. These are:

- ❖ The function of capital markets and active investing in society;
- ❖ The decision-making process which a client undergoes while compiling his investment portfolio;
- ❖ The simplicity or complexity of both forms of investing;
- ❖ A good grasp of the (types of) risks of active and passive management; and
- ❖ Recent advances made in scientific research on active and passive asset management.

It is often assumed that the last three factors play out in favour of index investing (simpler, less risky and scientifically superior). It is debatable, however, whether that is true.

Expenses

Proponents of passive investing make a valid point where expenses are concerned. A major difference between the cost structure of an index fund and an actively managed fund is the distribution fee, which includes the costs of investment advice. Using the business model developed in Europe in the 1990s, active managers have to charge investment costs to the management fee, whereas index funds do not incur them. But this does not mean that good investment advice can be dispensed



with for index funds. And good advice costs money.

When comparing expenses, it is also necessary to look at the real net returns (i.e. after all the costs have been deducted) of both active and passive management. In this way one can avoid the Total Expense Ratios (TER) of index funds (which do not include all cost components) from becoming a yardstick for evaluating the total expenses related to active and passive investing. Examples of expenses which are not included in the TER and return components which function to make the return on passive funds drop behind the index are: the transaction costs, the buying and selling costs of units of the fund itself, the non reclaimable dividend taxes and the stock price disadvantages caused by the transaction price of ETFs deviating from the net asset value of the ETF. Active funds have to deal with these issues as well. But they are the cause of the substantially larger underperformance of index funds (versus their index) than is generally assumed, based on their performance minus the TER. What is important is that the comparison is honest and based on a (net) comparison of all the costs, not just those in the TER.

Needs of the client

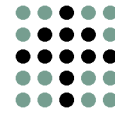
The needs of the client are more important than the costs incurred. The client, retail or professional, first indicates his risk appetite and his goals, knowledge, experience and financial situation. The asset manager or investment adviser should then look for products and services that match the client and his characteristics (asset allocation). The key question at this point in time is whether the products and services are suitable for the client in terms of the risk and cost / benefit relationship. Often a mix of actively and passively managed funds is better than choosing only one of them.

Additionally a role is played by the fact that clients increasingly prefer investments that meet socially responsible investing standards. In general, active investments are able to meet these requirements more closely because, in the case of index investing, the investor cannot exert any influence on the degree of socially responsible investing.

The functioning of the capital markets

The capital markets have a function in society. They form the market place where the supply of, and demand for, capital meet and the price for capital originates. This function can only be fulfilled if there are active investors. After all, without active investors, who study fundamental expectations related to the future of companies, the discovery of realistic prices would not occur. Moreover the founders of index investing, the proponents of the efficient market hypothesis, recognize the need for active investors. Index investors need active investors to make the rational price discovery happen. Having only index investors would be undesirable.

Socially responsible investing is also relevant within the framework of the functioning of the capital markets. It is a form of active investing, where external effects,



however difficult to measure, can be weighted in the investment decision. An investor who invests in index funds will have little awareness of subjects such as corporate appointments, remuneration policy, balance sheet ratios, dividend policy, let alone social, governance and environmental issues related to the companies in which his index fund invests. He also has no influence on the composition of the index in which he invests.

Simplicity

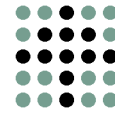
Proponents of index investing say that index investing is simple. They mean the process that determines the composition of the index fund. The simplicity that clients seek is not only transparency in the investment process, but also in the preceding asset allocation. Choosing the right active funds from a universe of several tens of thousands of funds is not an easy task. But the fast growing supply of index funds makes choosing the right index fund almost as hard, and opting for index investing does not make the process of well-considered asset allocation redundant.

There is transparency in index funds which invest in the exact contents of the index (*full replication*). There are a lot of other techniques varying from *representative sampling* (which involves investments in e.g. futures and options) and *aggressive sampling* (which involves investments in only a small part of the index) to *synthetic indexing* (which involves mainly derivatives) and *enhanced indexing*, which strives to outperform the index. In active management, some funds stay so scrupulously close to their benchmark, that they could better be qualified as index trackers (*closet indexers*). These developments have ensured that the totality of index investing and active investing has become a continuum, where index investing is no longer purely passive and many forms of active management are more transparent than some forms of index investing. The distinction between passive and active asset management is, in practice, not always sharp, but more of a sliding scale.

Risks

A marked difference between index investing and active investing is the relative difference with the index, the tracking error. This indicates the measure of deviation between the return of an investment portfolio and the development of the value of the index. Investment risk, however, consists first and foremost of market risk, also called absolute risk: the probability of profit and loss, volatility. This is where active and passive management do not differ. Index funds are not less risky than active funds.

The risk involves more than a tracking error or volatility. In the same way as some of the active funds, index funds use derivatives and activities such as securities lending to improve results. There are risks attached to these instruments and activities, such as the counterparty risk and liquidity risk. The risks observed in active and passive investing are largely comparable. Index funds that invest completely synthetically have large counterparty risks, where the counterparty is often the fund promoter.



In certain respects index funds carry more specific risks. An investor in a stock index fund stays close to the index and therefore invests in past winners. In bond indices, the companies and countries which are most heavily indebted are weighted heaviest. These are two examples which should make one wonder whether it is wise to take this form of concentrated risk. Active funds may also involve specific risk.

Scientific research

Scientific research has been conducted on the subject of active/passive investing. There are purely theoretical approaches, such as the efficient market hypothesis (the theory behind the index funds) and theories such as the ones promoted by the *behavioural finance* school and proponents of the *Adaptive Markets Theory*. The empirical research conducted on these theories has not generated unequivocal results. Research has also been completed on the performance of active funds, where various prominent researchers have arrived at different conclusions. Research into the January effect and many other anomalies has suggested that the index can be systematically beaten, but only a significant sizable minority has succeeded in doing this consistently.

Scientific literature is far from unequivocal about whether passive or active investing is preferable. In a public debate it is impossible to ally oneself based on unchallenged scientific research to any one of these forms of investing.

Conclusion

Active investors pay distribution fees which give them a cost disadvantage vis-à-vis index funds. A debate on the distribution model is necessary to resolve this inequality. Apart from that the stance of the proponents of index investing (who say that this passive form of investing is cheaper, simpler, less risky, and scientifically superior) can be challenged on good grounds and the (scientific) debate remains undecided.

In advisory services the needs of the clients are paramount. Often a mix of actively and passively managed funds is better than selecting just one of these options, and while only active investors play an indispensable role in the functioning of capital markets, there is a role to be played by both active and passive investing. It cannot be argued that one form of investing is better than the other.



I. Introduction

Index investing (passive management) means investing in an index; active management means that the manager pursues extra return above the return on the index.

The debate on active investing v. index investing, originated by macro-economic scientists, began in the asset management industry in the early 1990s, when the first index funds were introduced, and has recently flared up again. This is related to the absence of or modesty of the out-performance of many active funds in some investment categories in the period 2002-2007 and the huge market correction after the downfall of Lehman Brothers on the 15th of September, 2008.

Sometimes passive investing or index investing is advised as a default option by government agents, primarily because of cost considerations. A major difference between the cost structure of an index fund and an actively managed fund is the distribution fee, including the costs of investment advice.

This report analyses the arguments that proponents and opponents of active investing and index investing use by examining scientific literature research. This debate has centred on the following points:

- ❖ **Costs**
Proponents of index investing are of the opinion that the costs of index investing are lower than those of active investing. This point is analysed in Chapter 3 of this report.
- ❖ **Risk**
Proponents of index investing are of the opinion that the risk of index investing is lower than the risk of active investing. This point is analysed in Chapter 4 of this report.
- ❖ **Simplicity**
Proponents of index investing are of the opinion that the index investing is simpler than active investing. This point is analysed in Chapter 5 of this report.
- ❖ **Scientific research**
Proponents of index investing are of the opinion that scientific research repeatedly demonstrates that active investing is not capable of beating the benchmark or the index. This point is analysed in Chapter 6 of this report.



2. DUFAS starting points

2.1. *Index investing has as much right to exist as active investing*

Index investing is not superior to other investment styles, but it may have a natural role to play as part of an investment strategy, depending on the needs and desires of the client. In other words: a mix of active investing and index investing is often better than opting for just one of them. The scientific originator of the efficient market hypothesis¹ and its most important proponent² are both no longer convinced of the superiority of index investing, but recognize that active investing and index investing have equal rights to exist.

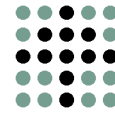
2.2. *Social merit*

The capital markets have a function in society which can only be properly fulfilled by active investors. They immerse themselves in the fundamental values and expectations which are related to the future of companies and try as much as possible to act rationally. But not everyone needs to invest actively. If there were no movements in the market because of active investors, index investors could not move with them and prices would no longer be related to the underlying reality of the company. A new company that wants a stock market quotation needs active investors who study the prospects of the company and determine what they are willing to pay for a share. Index investors will only buy a share when it is incorporated into the stock market index. If there were no new entrants to the stock market (and thus to the index), the index would slowly deflate because there are corporations in the index which will, at some point, cease to exist. If there were only index investors in the world and no active investors, the only thing that would move stock prices would be the stream of money in and out of the stock market. And the prices of the stocks would always move in the same direction.³

It is active investors who occupy themselves with subjects such as socially responsible investing in all of its aspects.⁴ Socially responsible investing is a form of active investing, where external effects, however difficult to measure, can be weighted in the investments decision. An investor who invests in index funds will have little awareness of subjects such as corporate appointments, remuneration policy, balance sheet ratios and dividend policy, let alone social, governance and environmental issues related to the companies in which his index fund invests. Such a passive investor, out of cost considerations alone, will not participate in, for instance, votes in shareholder meetings, nor will his fund manager.

2.3. *Symbiosis*

Active investors and index investors profit by each other's existence. Index funds can be useful building blocks in clients' investment portfolios. But more fundamentally: as more and more investments are made by index investors, there are greater chances of human errors occurring in the discovery of the market price.⁵ As more people start following the index, more investors will start investing in popular



stocks, which may then become overvalued. This creates opportunities for active investors who look rationally at the value of the investment, based on the company figures, the quality of its management, its competitive position and the markets in which it is active (the *fundamentals*). Meanwhile active investing becomes increasingly more difficult. The easier methods of evaluating stocks are becoming so widely used that the insights derived from them are most likely included in the stock price. Scientific research leads to the discovery of new phenomena which the market reacts to, sometimes causing these phenomena to disappear again.⁶ The active manager, therefore, always has to develop better methods. Finally it may be expected that underperforming active managers will be driven from the market by the better ones – with the support of the index funds.

2.4. Needs of the client

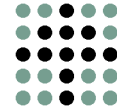
The desires and needs of the client are more important than the costs of the investment solution that is chosen. The decision-making process does not work in such a way that costs are considered first and the wishes and needs of the investor afterwards, not even under the MiFID rules.⁷ The client, institutional or retail, first indicates his risk appetite – and his goals, knowledge, experience and financial position. The asset manager or investment adviser then has to search for products and services with properties that are appropriate for the client (asset allocation). At that time, the primary concern is whether the products and services match the clients' needs in terms of risk and it is only a secondary concern as to which investment products are possible in terms of costs-benefits.

Additionally a role is played by the fact that clients increasingly prefer investments that meet socially responsible investing standards. In general, active investments meet these requirements more closely; with index investing the investor exerts no influence on the degree of socially responsible investing.

2.4.1. Needs of the institutional investor

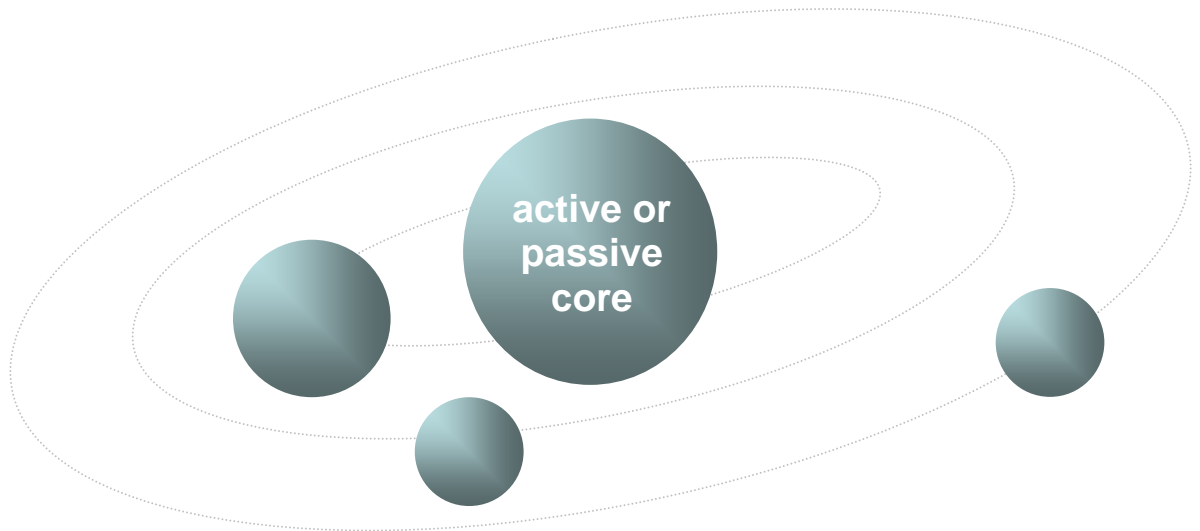
Those who invest other peoples money, such as, for example, the boards of pension funds, have to invest the monies entrusted to them like a “prudent man”⁸ would, taking into account (1) the needs of the beneficiaries, (2) the need to preserve as much of the capital as possible and (3) the size and frequency of the income from that capital. In other words: the institutional investor is accountable to the ultimate interested client for the changes in value of the investments. It is human nature not to be concerned if the financial markets go up, and the institutional investor lags behind slightly, but if the institutional investor lags behind strongly, that is more difficult for him to explain.

It is also more difficult for institutional investors to beat the market if they are bigger. The bigger the investor, the more every movement of the market affects him and the more difficult it becomes to diversify, because the market impact becomes bigger. In those circumstances the costs component becomes more important. That is one of the reasons why many asset managers recommend a *core-satellite* approach⁹ where certain investments have to be of lower costs and other satellite in-



investments can have higher costs, provided that their extra return justifies it.

Figure 1: Core-satellite strategies



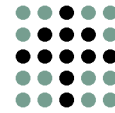
2.4.2. Convictions of the investor

In the case of index investing it is certain that the value of the investments move along with the financial markets. Active management offers an opportunity to protect oneself against losses – but not absolute certainty. This is important because making up for losses of, for example, 50% requires a 100% return in the next period. The choice is therefore also of importance with respect to the needs of many investors. The question here is whether the client accepts losing money because the entire market is going down, or whether he believes that an active attitude could limit his losses.

The investor's convictions (if any) also play an important role with regard to his investment decisions on asset classes, regions, sectors, and on investment strategies too. A client, who simply does not believe in index investing or active investing, will not *have to* do it as a consequence of the duty to care.

3. Expenses

Proponents of index investing most frequently cite expenses as the reason for their choice. They say that in view of the higher costs and risks related to active investing, opting for passive investing is obvious. This chapter analyses the scientific literature and explores whether the cost difference is indeed as large as the proponents of index investing say it is. The conclusion is that, generally speaking, the expenses of active funds and index funds differ a lot less than they appear to at first glance, judging by a comparison of the TERs alone.



3.1. *The importance of expenses: performance*

It is indeed important to look at expenses, because expenses are more or less fixed and return and risk are more uncertain. Expenses are important, because they are charged to the client and reduce his net return. And, of course, there is no sound reason to choose a more expensive fund (or other product) if there is an equivalent product with almost the same risk and lower costs. But two different products with different costs often also differ in other respects which are reflected in the risk and the gross return that may be expected. The client is interested in the risk adjusted return after expenses, the net return. It is, therefore, reasonable to require the advisor, when asked, to explain and justify why he has chosen a more expensive active fund when there is also a cheaper passive fund available.

3.2. *Total Expense Ratio \neq total costs of ownership*

It is often said that the absence of active management makes for lower costs and that the level of costs determines the underperformance of funds relative to the benchmark. Because actively managed funds require more hands-on research and because they trade more frequently, the TER is often higher than it is in passively managed funds.

But, in choosing between active investing and index investing, one should not become obsessed with the TER. Costs encompass more than just the Total Expense Ratio (TER). The TER consists mainly of the management fee and the other services which the fund pays for, such as custody fees for the depositary or custodian, accountancy fees, legal fees, supervisory expenses and other operational expenses. For active funds the TERs usually amount to between 1% and 2%, but there are exceptions, both higher and lower. In index funds the TER's are often between 0.2% and 0.7%, but in this case they most certainly do not tell the whole story.

The most important expenses that are not included in the TER, but which the investor also has to pay, and which therefore form part of the “*total costs of ownership*” are:

- (1) the transaction costs of the financial instruments which the fund buys and sells;
- (2) the subscription and redemption fees for units of the fund itself, which the investor buys and sells;¹⁰ and
- (3) the dividend tax.

As the TER of index funds is significantly lower than the TER of active funds, the influence of the costs that are not included in the TER on the *total cost of ownership* for the investor is greater in the case of index funds. A comparison between active investing and index investing has to be balanced. The TER of an index fund cannot be compared to the real average underperformance of an active fund, which contain many more expenses and performance-related factors.

3.2.1. *Transaction costs*

The transaction costs consist of the broker commissions, the bid-ask spread and



the market impact costs. These transaction costs may vary from 5 basis points (0.05%) for an American large cap index fund, to 90 basis points (0.9%) for an emerging market index fund. Research shows that, because of the often much lower TER of index funds, transaction costs can amount to one third of the total costs that the investor has to pay annually and can sometimes even cause a trebling of the total cost of ownership.¹¹ In Europe, where all fund types are generally smaller than in America, these effects are usually larger.¹²

As a rule of thumb it can be said that active funds trade more often than index funds and therefore have more transaction costs. But that is not always the case. With an active fund, transaction costs also depend on the investment strategy, whereas the manager of an index fund exerts no influence over the transaction costs because they are determined by changes in the index. In a value strategy for instance, undervalued stock is bought in order to sell it at a much later date when its value has improved; because so much time lapses between the two transactions, on an annual basis the transaction costs are lower.

3.2.2. *Dividend tax*

Scientific research¹³ shows that returns of index funds are generally lower than their TERs would lead one to expect. In the case of European index funds this is largely due to the negative effects of dividend withholding tax. Companies who pay out dividends to foreign investors have to withhold dividend tax. The rates for this vary from country to country, but are generally between 15% and 30%.

Major suppliers of indices recognize the substantial influence exerted by dividend taxation on performance, and supply net indices, corrected for dividend withholding taxes, alongside the gross indices. In most fund performance literature these net indices are, however, not used in the comparison of the performance of the funds with their benchmark.

Comparing the performance of actively managed funds with net indices instead of gross indices and the performance of passively managed funds with net indices is therefore advocated. It would be even better to compare the performance of active and passive funds directly, without using a benchmark.

3.2.3. *Cost of advice*

Where actively managed funds are concerned, the adviser is paid out of the management fee which the fund manager charges to the client. This is part of the TER. Index funds have no in-built fee for advice and these charges have to be added to the total costs for the investor, because advice costs money.

To compare active funds to index funds, one would have to compare either an active fund (excluding its distribution fee) to an index fund, or an active fund (including its distribution fee) to an index fund, plus a reasonable fee for advice.



3.3. Short term and long term performance

There is scientific research¹⁴ which suggests that the returns of index funds and active funds don't differ much in the long run, but that in the short run active funds score better – after deducting expenses. In this respect one must also conclude that active funds and index funds do not exclude each other, but complement each other.

4. Risk

Proponents of passive management argue that the risks of index investing are significantly smaller than those of active investing, because the divergence from the benchmark is smaller for index funds than it is for active funds. However, this position is incorrect. Risk is more than merely the tracking error or the volatility. Investment risk is first and foremost market risk, also called absolute risk, the possibility of profit and loss, the volatility. Active and passive funds do not differ from each other in this respect. The risks of index investing and active investing can both be managed well, and can be mitigated and hedged when an investor combines an index strategy with active investing. Whether the investor actually wants to do that is also dependent on his risk appetite.

4.1. Correlation between sources of return

To measure the total investment performance correctly, the total portfolio return must be corrected for the total risk taken. The total risk is reduced enormously when the active manager ensures that the investments in the portfolio are not correlated (or are only correlated minimally) with the benchmark. This can be illustrated in the following way: Let us suppose that an index investor, because he is not fully invested, either temporarily or not, in his benchmark, has an active risk/tracking error of 2%. His active return will, by definition, be perfectly correlated with the benchmark. As a consequence, when the benchmark risk is 10%, his total risk is 12%. Conversely, if another (active) investor with the same benchmark also has a tracking error of 2%, but his return is not correlated at all with the benchmark, then his total risk is not 12%, but just 10.2%.¹⁵

4.2. Market value weighted indices

Most indices are market weighted: the stocks are included at a weight which approximates their market capitalisation. This causes the index weights to move automatically with the price movements of the stocks in the index. One can interpret this as a convenience for the client, but at the same time it is a fluctuating risk. The total risk of the index fluctuates, because the weights of, for example, the stocks, the regions, the sectors, fluctuate in time, without anything changing in the name of the index or the index tracker.¹⁶

Those who invest in market weighted indices are investing in the winners of the past. An MS World Index fund, for example, invested 27% in financial companies in 2007, but by 2009 this had dropped to only 15%.¹⁷ At the turn of the century,



benchmark investments were heavy in information technology and telecom. In the early 1990s almost 50% of the MSCI benchmark was in Japan, but investments there gave poor returns thereafter. The mounting debt of Greece means that Greece's weight in a Euroland Bond Index has increased significantly. An active investor, in comparison with an investor who invests exclusively in indices, can extract himself from the extra risk that emerges from this situation. Those who combine active and passive investing can hedge the risks they observe in their passive portfolio through their active portfolio.

Because of these drawbacks, smart indexing has recently been developed. See paragraph 5.1.3. of this report.

4.3. Tracking error

Where exchange traded funds are concerned, which many index funds are, the tracking error¹⁸ doesn't say much about the real risk that the investor is running, because the tracking error only measures the divergence of the investment portfolio from the return of the benchmark, based on the net asset value (NAV) of the investments in the fund, i.e. before trading expenses and other expenses have been deducted. When a tracking error for an ETF is 20 basis points (0.2%), it can increase to more than 4% based on real exchange prices of the ETF.

An index fund can beat the index with a low tracking error, if it can obtain extra return through securities lending. However, securities lending also involves risks,¹⁹ which are not incorporated in the tracking error. When a fund outperforms, this is generally accompanied by a relatively high tracking error.

4.4. Index arbitrage

The literature has shown that one of the disadvantages of index investing is that those who follow the index have to adapt their portfolios when the index is changed, but they are not allowed to do that until the announced change is implemented. But by this time the index arbitrageurs have already traded, for example, at the time the index change was first announced, which is usually weeks in advance. This practice is called index front running.²⁰ The consequence of this is that index funds lose performance because they have to buy the new stocks too expensively and sell the old investments too cheaply.

4.5. Liquidity and tradability

Apart from the normal risks described above, which all index funds share, in the universe of index funds there are certain types with particular risks which deserve the active attention of the investor before he invests in them.

4.5.1. Small size

ETFs may have few assets under management, irrespective of the type of index fund. This may create a liquidity and tradability problem and, in this case, it may not always be in the interests of an institutional investor to invest substantial sums in such a fund.²¹



4.5.2. Bond index trackers

Index funds which invest in less liquid markets, such as the bond market, have their own particular problems too. Bond index trackers – just like active bond funds – are generally not as liquid as the market in which they invest, because the investor trades with the open end investment fund itself, or (in the case of an ETF) on the stock exchange, where the current and historic prices are available for all investors, not just institutional investors. But the lack of liquidity in the bond market (it is not uncommon for bonds not to be traded for days or weeks on end) makes it difficult for the index tracker to have enough liquid bonds to be able to track an index. This problem is greater for corporate bonds than it is for sovereign bonds. The problem is often solved by using *representative sampling* (see paragraph 5.1.1). Generally speaking the selected bonds in the representative sample will be the largest and most liquid ones in the index.²²

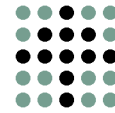
In extreme market conditions it has become clear that the trackers in liquid bonds in many cases offered insufficient liquidity to their investors, often because they tapped into other (more risky) sources of income to ensure that they matched the performance of the index and met expenses.

The lack of frequent trading leads to outdated trading prices for individual bonds and therefore an outdated index. So index providers try to interpolate more recent prices using complicated techniques (*matrix pricing*). Thus large, liquid index trackers can exist which follow an index consisting of several “real” prices and some estimated ones. This may lead to a tracking error, which can manifest itself as a discount or surcharge on the net asset value or on the performance, which is different from the performance of the index. But who is right in that case, the index or the fund?

4.5.3. Leveraged index trackers

Leveraged index trackers invest, partially with borrowed money in the shape of derivatives (such as options, swaps and index futures), to achieve a return which corresponds with the index. These investment methods are also available separately to the individual investor, but are more complicated than the traditional method of buying shares and they require a larger amount of capital. The advantage of leveraged index trackers is that buying them is less complicated and that less capital is needed, which is certainly of interest to the retail investor.

But retail investors often do not see the disadvantages connected with this type of investment. Whilst the profit of the underlying financial instruments is magnified, the loss is also magnified to an even greater extent.²³ Apart from this, the transaction costs of a fund such as this are enormous because the leverage ratio (which moves because the market moves, but the fund manager has a fixed target for it, for example 50%) has to be managed.²⁴ It is a form of investing with borrowed money, which is something regulators warn against.²⁵



5. Simplicity

Proponents of index investing say that the investment goals of index funds are easy to understand. It is transparent from the composition of the index in which assets the investments will be made. It is claimed that it makes a complicated asset allocation process superfluous. Asset allocation is the process of determining the mix of stocks, bonds and other asset classes to match the level of risk that the investor desires and includes the risk attitude, net return, net value, knowledge of investment concepts and time horizon. According to the proponents of index investing, a combination of a number of index funds can be used to implement a full range of investment strategies, from high to low risk.

Selecting the right active fund from the universe of several tens of thousands of funds is not an easy task. Proponents of index investing are right about that. But the analysis of the market of index funds below illustrates that selecting the right index fund is not any easier. This is because:

- (1) index funds are not always a copy of the index, and
- (2) there are many different index funds for many different markets.

From the analysis conducted in this chapter we can conclude that a well composed “passive” portfolio of only index funds also requires active choices to be made. There are no real differences between index investing and active investing in this respect.

5.1. Index funds are often a sample of the index /market

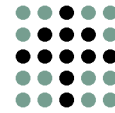
Index funds are often a sample of the index instead of an exact copy of it. Index trackers try to replicate the performance of an index with an investment portfolio which contains the exact contents of the index (*full replication*), or a representative sample thereof (*sampling strategy*).²⁶ Adaptation of the holdings is only done when companies leave the index or are incorporated into it. This is called *passive sampling*.

5.1.1. Sampling strategies

Other index trackers use a more active selection strategy of *representative sampling*, investing 80-95% of their money in the financial instruments in the index, and the remaining 5-20% in other things, such as futures, option contracts, swap contracts and financial instruments that are not in the index, but which the fund manager believes will help the index tracker to achieve his investment goal.

Index trackers which invest in indices with thousands of underlying financial instruments sometimes use *aggressive sampling*, which means they invest in only a very small proportion of the underlying financial instruments.²⁷

There is also *synthetic indexing*: a modern technique of using a combination of stock index futures and investments in bonds with low risks to replicate the performance



of comparable investments in stocks that are in the index. While maintaining the futures position involves a somewhat higher cost structure than passive sampling, it can be tax efficient, especially for international investors who are subject to the American dividend withholding tax for their investments in the US. This does, however, involve the counterparty risk which derivatives have.

Finally there is a strategy called *enhanced indexing* in the market place, which is really a form of active investing. Enhanced indexing is the collective name for improvements in the management of index funds which are aimed at increasing return. This type of fund uses a wide range of techniques, including made to measure indices (instead of relying on commercially available indices), trading strategies, exclusion rules and timing strategies. Some argue that the cost advantage of the indexing method may be reduced and even disappear when this type of active management is employed.

5.1.2. *Indices do not reflect the whole market*

Index funds make interesting and often exotic investment opportunities accessible to the retail investor, because they offer easy access to more exotic markets such as the Taiwanese or Egyptian stock exchange or the Global Clean Energy index. But the indices which are used by index investors do not cover the entire market for which they are an indicator.

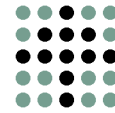
Country indices give the impression that the investor, by investing in them, is exposed to the economy of that country. However, that is not always the case, because the index usually contains the companies quoted on the stock exchange of that country, and these are generally the larger enterprises. Scientific research²⁸ demonstrates that listed companies in a country generally underperform compared to the growth of the national economy.

Besides that, the MSCI World Index for example covers 70% - 90% of the global stock market. The FTSE 100 is still regarded by many retail investors as a reflection of the British economy, but it hasn't been that way for a long time now.²⁹ And it is also not very clear why certain stocks are included or excluded in indices, especially in stock market indices.

5.1.3. *Indices over-weight and under-weight certain stocks*

Many indices are market capitalisation weighted. That means that overpriced stock is by definition weighted (too) heavily and that underpriced stock is weighted (too) lightly. The active investor then concludes that this means an investor is buying the past winners, not the future ones. In bond indices, the most heavily indebted companies are weighted the heaviest; these are not the type of investments you want in a recession.

Because of these drawbacks, *smart indexing* or *fundamental indexing* has recently been developed where the weight in an index is not determined by market value but by other characteristics (for example, the book value of the stock, the total



dividend, or the risk of the stock). The index suppliers show that the historical relationship between risk and return is more favourable in these smart indices when compared to the naive market value weighting. This strategy reduces the volatility and may give a higher return in world wide indices, but not in country-specific ones.³⁰ What corresponds with passive investing is that these smart indices are often broadly diversified and the transaction costs incurred following the index are relatively low. These smart indices often play into known quantitative factors which predict abnormal returns, and therefore resemble systematically executed active investment strategies.³¹ According to some, this form of index investing is more like active investing than passive investing, because they assume that certain stocks will outperform the market as a whole.³²

5.2. *The universe is enormous*

The Dow Jones Industrial Average, the S&P 500, the Nasdaq Composite, the Wilshire Total Market Index, the Russell 2000 and the Morgan Stanley Capital International (MSCI) are important indices. The total number of indices is estimated to run into the thousands, and there are several index investment products listed per index. By the end of July 2009 there were some 1,680 exchange traded funds available worldwide,³³ with some 3,100 listings. Of those, 753 were European funds with US\$ 183 bn assets under management and 706 were in the United States with US\$ 582 bn assets under management.³⁴ By the end of 2009 there were 1,939 ETFs by 109 providers, with 3,775 listings on 40 exchanges and US\$ 1,032 bn assets under management.³⁵

The first index funds held a basket of financial instruments which represented the components of the major stock exchange indices. Many of the more recent index funds are based on more specialised indices (related to specific industries or market sectors), including indices that have been specially designed for a specific index fund, bond indices and international indices. There are indices for a large number of markets, including broad indices, international and country specific indices, industry specific indices, bond indices and commodity indices. The supply is immense, which, by the way, is also true for active funds.

5.3. *Consequences for the investor*

It is, therefore, sensible for the investor to study the composition of the investment portfolio of an index fund. Because some indices, such as the S&P 500 or the FTSE 100 are dominated by stocks of large companies, an index fund may have concentrated a large percentage of its investments in a few major corporations. This position reduces diversification and may increase the volatility and the investment risk, which is of importance to an investor who is looking for a diversified fund.

With the more exotic products, in particular, it is possible for the fund to invest in a small number of companies, of which a small part comprises most of the investment portfolio. When those few stocks which comprise the larger part of the investments of the fund are well known S&P 500 names, the investor has to wonder whether the tracker in question is more worthwhile than investing directly him-



self.³⁶ Many financial instruments reduce volatility, by reducing the influence of large price fluctuations below or above the average return of one of those instruments.³⁷

If an investor wants to incorporate several index funds in his portfolio, he should compare the composition of all the desired index funds, because they may overlap and/or contain correlations. Several index funds may invest in the same corporation, for example, if that corporation has a listing on more than one exchange. Correlations exist, for example, when companies from one index are suppliers or buyers of companies in another index.

The investor should also make an analysis of this type in the case of active funds; the above merely illustrates that index investing is not simpler than active investing.

6. Scientific research

Proponents of index investing say that scientific research shows that index investing, corrected for expenses and risk, generates at least as good a performance as active investing, and often an even better performance. In this chapter this position is approached in two ways. In the first place, the question is examined as to whether the research method employed is suitable for answering the question about the superiority of index investing vis-à-vis active investing. In the second place, we examine scientific literature to determine whether the efficient market hypothesis, the foundation stone of index investing, has an absolute and universal validity or not.

6.1. A lot of performance research is not suitable for the selection of funds

The research that index investors do into the tracking error of their own funds is part of their quality control. After all: the closer the fund is to the index, the better it fulfils its promise to its investors.

Proponents of index investing often quote economic research into the efficient market hypothesis. But that research is not suitable for fund selection purposes. The reasons for that are as follows:

6.1.1. Methodological criticism

Most research suffers from confirmation bias,³⁸ which is the phenomenon that most people usually look for proof that their hypothesis (in this case the efficient market hypothesis) is valid, while it is much easier to try to falsify the hypothesis.³⁹

6.1.2. Epistemological problems

Active managers, who have found an investment strategy which beats the market, are not likely to make that strategy public for reasons of competitive advantage. That is why the scientific literature is awash with research into investment strategies that apparently do not work.⁴⁰

Also, the particular time period analysed, the benchmark that is used and the se-



lected funds all influence the outcome of most of the research.

6.1.3. Averages do not mean much

The performance of all active investment funds combined is such a large part of the performance of the total market that together they will, on average, hardly deviate from the market at all. All the investors together are the market and together they achieve the market return (zero sum game).⁴¹

Scientific research⁴² which breaks down active funds in closet indexers, factor bets, concentrated stock pickers and diversified stock pickers, shows that the performance of the whole group is negatively impacted by the closet indexers and that the diversified stock pickers, in particular, show sustained outperformance after the deducting of expenses.

6.1.4. Classification and the weighting of funds

Much of the research does not classify funds objectively but classifies them as active or passive because they have labelled themselves that way. Many funds which call themselves “active” stay so scrupulously close to their benchmark, that it would be more accurate to classify them as index trackers (*closet indexers*). These contaminate the performance figures of the really active funds. According to the Vanguard Group, a well-managed S&P 500 index fund should have a tracking error (which is the extent to which returns deviate from the return of the index) of 5 basis points or less, but Morningstar research showed an average of 38 basis points for all index funds together.⁴³ When the tracking error is, on average, very high, the index fund deviates so far from the index that the risk that the investor is avoidably disappointed is very real. Funds are in reality only active or passive when their average *tracking error* or *active share* (the measure in which investments deviate from the index weighting) indicates it.

In most research every fund gets the same weighting, regardless of their size, which is why the larger added value of active funds that show sustained outperformance is not expressed in the results. Such funds in practice draw in new investors and new inflows, thus increasing their added value.

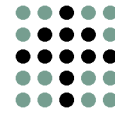
6.1.5. Total costs of ownership

A lot of research does not take the costs which are not included in the TER into account, and these can be substantial. They concern the transaction costs of the fund itself (broker commissions, the bid-ask spread and market impact costs), the dividend tax and the costs of advice. See also Chapter 3 of this report.

6.1.6. Practical objections

Many of the research papers give theoretical answers to a practical question. Active funds are compared to indices, but you can't buy indices.

The time horizon of most research is also much longer than that of the investor. Most research covers several market cycles, but a lot of investors adapt their strat-



egy in response to a single market cycle. In other words: the research tries to draw conclusions about how the market behaves, but does not take into account how the individual investor behaves. See also the *adaptive markets theory*, as described in paragraph 6.2.2.

A manager who manages a €5 billion fund and succeeds in improving performance by 0.1% per year, generates €50 extra million. This active investor is worth his salary to the investors in his fund, even if that salary is a (small) percentage of the extra return. But this contribution to the performance of the fund is probably not measurable on an aggregate level, because the extra return is lost against market volatility.

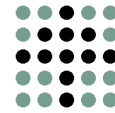
Many of the research papers focus on the North American fund market, but research into European funds gives significantly different results.^{44 45}

6.2. *The efficient market hypothesis: the theory behind index funds*

The efficient market hypothesis can be regarded as a reaction to Keynes' theory that the stock exchange is a casino full of irrational gamblers. From a modern perspective, Keynes' theory⁴⁶ is somewhat of a caricature, but it does explain the extreme reaction to it by proponents of the efficient market hypothesis. Keynes assumed that investors had a short investment horizon and that returns were a consequence of short-term price changes. He also assumed that the investor was predominantly confronted with uncertainty about the future, not so much with risk. Keynes explained that uncertainty is different from probability. In roulette you can calculate what the probability of each outcome is, but it is impossible to calculate whether there will be another war in Europe, even though another war is a possibility. To Keynes there was, therefore, no objective evidence on which expectations for the future with regard to stock prices could be based. Intuitively individuals would base their opinions on those of others in the group, which would subject the stock exchange to waves of optimism and pessimism, without there being any solid basis for them. These waves are caused by changes in the perceptions of investors in general and by ignorant speculators in particular.

The economist Eugene Fama, who is generally regarded as the father of the efficient market hypothesis⁴⁷ said that the price of the stocks reflects all the available information. A prior condition is, however, that information and transaction costs, the costs that ensure that the price does indeed reflect that information, are always zero. In a somewhat weaker phrasing, the efficient market hypothesis says that prices reflect the information up to the point where the marginal advantages of trading on that information (the resulting profits) no longer outweigh the marginal costs.⁴⁸

The theory was popularised by Malkiel⁴⁹ in 1973. Economists see the efficient market hypothesis as the fundamental premise behind the making of index funds. The hypothesis implies that fund managers and stock analysts are constantly looking for stocks that can beat the market and that that competition is so effective that any



new information on the fate of a company is very quickly reflected in the price of its financial instruments. It is, therefore, very difficult to say beforehand which stocks will beat the market.

The efficient market hypothesis states that an active investor can beat the market but, on average, extra returns will be lower than, or equal to, the extra costs of beating the market (including wages, information costs and transaction costs). That is why most investors would allegedly be better off with an index fund.

6.2.1. Empirical evidence against the efficient market hypothesis

Although there is theoretical criticism of the efficient market hypothesis,⁵⁰ in the debate on active versus passive investing, empirical research is more important. Empirical scientific research shows that the efficient market hypothesis is not universally valid and that there are active investors who can persistently beat the market.⁵¹

Besides that, there are anomalies which cannot be explained by the efficient market hypothesis. Prices of stocks on exchanges sometimes show evidence of *irrational exuberance*⁵² – people get excited by booms and bubbles (housing market prices, dotcom bubble, etc.):⁵³ the market is then driven by buyers and sellers who pay too little attention to fundamental value. Bubbles such as these are generally followed by an overreaction of frenzied selling, which allows smart investors to stock up at discount prices. Rational investors though, will hesitate to profit by these irrational bubbles and by going short on them, because, as Keynes said: “Markets can remain irrational longer than you can remain solvent.”⁵⁴ Sudden stock market crashes (1929, 1987) cannot be explained away by the efficient markets theory – at most they are considered a statistical coincidence. In 2008, Richard Thaler wrote about herding behaviour: “There can be wisdom in following the crowd, but be careful if the crowd is headed towards a cliff”.⁵⁵

There are also several statistical anomalies which cannot be explained very well by the efficient market hypothesis, such as the January effect (the average return on stock investments is higher in January than it is during the rest of the year),⁵⁶ the July effect,⁵⁷ and the November effect,⁵⁸ the weekend effect or the Monday effect (returns are negative on Mondays),⁵⁹ ⁶⁰ the end-of-the-month effect (returns are higher at the end of the month),⁶¹ the holiday effect (returns are higher the day before the holiday starts),⁶² and the small-cap effect (small companies generate relatively large returns).⁶³ Some of these effects also disappear after they have been demonstrated scientifically (see also paragraph 6.2.2.). Another anomaly is the index effect: when a stock is included in an index, its value immediately goes up significantly, and vice versa.⁶⁴

Scientific research has also shown that stock price movements of individual stocks over a 6-12 month period have a predictive value with regard to future price movements in the same direction (*price momentum*).⁶⁵ Scientific research also shows that companies who unexpectedly report high results will do much better over the



following 9 months than companies who unexpectedly report poor results (*earnings surprise*).⁶⁶ Both of these effects are linked, by the way.⁶⁷

It is also well known that *value strategies*⁶⁸ can beat the market. Scientific research has demonstrated that this is because the strategy exploits the mistakes made by the typical investor and not because it is fundamentally more risky.⁶⁹

Another well-known empirical phenomenon is the tendency for investments which have done well for several years, to do worse over the next few years and vice versa (*reversal*).⁷⁰ The negative influence of investment returns of the non-cash component of earnings growth, for example the reappraisal of stocks in trade (*accruals effects*)⁷¹ is yet another example of an anomaly.

There are all kinds of psychological effects too. Whether there is a sunny sky or a cloudy sky affects whether the market goes up or down.⁷² Of course, prices of financial instruments may also be dependent on the weather for other reasons.⁷³ Scientific research has demonstrated that there is often a *home bias*: investors tend to invest more in stocks from their own country or currency area.⁷⁴ Investors can also be trend followers,⁷⁵ instead of anticipating trends (*herding*). Finally there is the disposition effect⁷⁶ (the tendency for investors to sell stocks which have gone up relative to the purchase price and to keep stocks whose price has gone down since the time of purchase).

Behavioural finance school scientists say imperfections in financial markets are due to a combination of overconfidence,⁷⁷ overreaction,⁷⁸ representativeness bias,⁷⁹ information bias,⁸⁰ loss aversion,⁸¹ anchoring,⁸² framing⁸³ and several other predictable human mistakes in reasoning and information processing and biases. This has been investigated by psychologists such as Daniel Kahneman and Amos Tversky, Richard Thaler,⁸⁴ and Paul Slovic. These mistakes in reasoning cause most investors to avoid buying high value stocks. In stead they buy highly priced growth stocks, which allows logical and rational investors to pick up bargains in the less popular value stocks and from an overreaction in the sale of growth stocks.

Another mistake in reasoning is the use of *hyperbolic discounting*. That is the phenomenon that most people who are offered two rewards which, at first glance, appear equivalent in value, will prefer the one that pays out the soonest, but will value future rewards differently from simply calculating their net current value. In hyperbolic discounting the value drops quickly over short periods of time, but slowly over very long periods of time, while the net current value method shows a steadier decline, regardless of the length of the period.⁸⁵ If there were hyperbolic discounting in the price of bonds, mortgages, annuities etc. in a competitive market, arbitrage would ensue, which would cause the bias to disappear.

6.2.2. *The adaptive markets hypothesis*

Over the last decade economic science has developed the adaptive markets hypothesis as a synthesis of the efficient market hypothesis and the scientific criticism



of it, in for example behavioural finance theory. The traditional models of modern financial economic science can thereby co-exist with behaviourist models.

Scientific research has demonstrated that, stock brokers as a collective, behave as an “efficient adaptive system”.⁸⁶ Stock brokers were compared with a continuously evolving eco-system consisting of several competing trading strategies. This theory assumes that different people hold different convictions about the future (and, therefore, about future developments in the financial markets as well) and that people have “adaptive belief systems”, in other words: they can adapt their beliefs to current developments. This is in sharp contrast to the efficient market hypothesis which assumes that all stock brokers are identical and their future expectations are homogenous.⁸⁷ The theory goes on to say that simple technical trading rules (rules of thumb) can even survive in the long run in an evolutionary competition in a heterogeneous world where prices and beliefs evolve together.⁸⁸

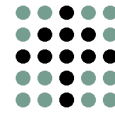
Andrew Lo has called this theory the *adaptive market hypothesis*. What behaviourists see as examples of the opposite of economically rational behaviour (see paragraph 6.2.1. of this report), is actually consistent with an evolutionary model of individuals who adapt to a changing environment by means of simple rules of thumb.⁸⁹ According to Lo the key to survival is innovation.⁹⁰ And, as time passes by, the market price can be influenced significantly by the market mood and evolutionary adaptations made by traders and investors.⁹¹

6.2.3. Markets are broadly speaking efficient, but there are many exceptions

This does not prove that financial markets are casinos, as Keynes said, but it also does not mean that they are completely efficient either. Market prices can certainly contain pricing mistakes, simply because they are the handiwork of human beings. And even if, on a macro level, prices are generally on average correct, there will always be overvalued and undervalued stocks.

Paul Samuelson considers finding these stocks to be like searching for a needle in a haystack, but after conducting an overview of the performance of leading investors such as Peter Lynch (Fidelity), Warren Buffett (Berkshire Hathaway), John Templeton (Templeton), Bill Miller (Legg Mason) and John Neff (Vanguard), he concludes that there are people who can persistently beat the market, but not with simple strategies.⁹² Other scientific research demonstrates that these people are not just a small collection of well known names, but that there is a “significant minority”⁹³ of fund managers who are able to beat the market.

Having an overly doctrinaire faith in the efficient market theory blinds people to the opportunities that active investing offers. There is enough empirical evidence that anomalies occur to justify the search for undervalued and overvalued investments. But this search is no longer simple: the market is efficient enough to ensure that only the very best information and analysis techniques deliver added value.



7. How to select the right active manager?

An – at least partly – inefficient market is a necessary condition for making active investing useful. But it is not enough. If markets are not efficient it is only useful for an individual investor to buy an active fund (or invest actively by himself) if there are other investors who consistently exploit that inefficiency and the individual investors cannot simply trace these superior investors but can have access to them as well.

Although it is clear that all active managers together cannot beat the market, it is also clear that there are, in practice, some managers who can achieve this. There are even managers who can achieve this over longer periods of time. The relevant question for the investor is, therefore, whether it is possible for him to select in advance managers who have a better chance of delivering a superior risk-adjusted return, compared to a passive strategy.

Even with passive funds there is no escaping active management. After all: which (combination of) passive funds is the right one? How do you select them? The existence of passive funds does not mean that there is no added value in active management. Passive funds are often part of a larger whole. And there are, as yet, insufficient indices for socially responsible investors, but there are active managers who can offer suitable products of this kind.

7.1. Sustained out-performance

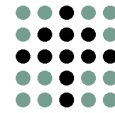
In the academic world, this is called *performance persistence* and there is some evidence of this in scientific research.⁹⁴ Good investment funds continue to do better than average and bad funds continue to do worse (the latter having an even stronger effect). It must be said though that these studies follow a rather naïve strategy of selecting funds which have done well in terms of a (risk adjusted) return over a selected period. Investing based on past performance can be compared to using the rear view mirror instead of the windscreen when driving a car.

7.2. Averages say nothing about the choice of an individual fund

The statement made by proponents of index investing that fund expenses are inversely related to performance of a fund,⁹⁵ is misleading. The assertion means that future performance is supposed to be greater when the TER is lower. This might be valid for the whole universe of funds on average, but the investor is not investing in that. He chooses one or more particular funds from that universe. It is important for him to think that through thoroughly or make sure he gets good advice.

7.3. Costs are not a reliable indicator of performance

Scientific research does show⁹⁶ that especially in the case of index trackers the performance relative to the benchmark can be predicted very accurately based on the expenses of the index trackers – much better than it can be predicted in the case of active funds. When the index fund is more expensive, its performance is more disappointing, but it is not true that the cheapest index fund delivers the best per-



formance.⁹⁷ The predictive powers of the TER do not exist in such a powerful manner in the case of active funds; there are, for example, expensive active funds which perform badly, but there are also a lot which persistently perform very well.

7.4. *Due diligence*

When an investor selects an active manager, there are a number of questions he should ask.⁹⁸ The first question regards the source of *alpha*⁹⁹ and how it is related to the historic performance of the investments. The answer could involve the generation of better information than the market has, excellent analysts, better fund managers,¹⁰⁰ etc. Subsequently, more detailed questions can be asked. Then one can ask why the active manager expects that particular source of alpha to work in the future.

Apart from that, one can also derive selection methods from the scientific literature. One method is, for example, to look at the *Active Share* of a fund. This number is determined by the difference between the weights in the investment portfolio and the benchmark: by adding up all the over-weightings and under-weightings without paying attention to the pluses and minuses. The sum is then divided by two. According to scientific research, the funds with the highest Active Share perform better than the benchmark, both before and after expenses. This allows the investor to make a pre-selection from the universe of funds, filtering out the *closet indexers* and thereby reducing the chance of avoidable disappointments. This method, however, is not suitable for the selection of individual funds, only for the filtering of groups of funds.¹⁰¹

7.5. *Outsourcing*

Proponents of passive investing admit that there are some active funds which do perform well, but that these are very hard to find. DUFAS is of the opinion that making sound investment choices is, for most people, such a complex issue, that obtaining professional investment advice is indispensable.

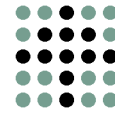


Notes

- ¹ Eugene F. Fama, Kenneth R. French, *Disagreement, tastes and asset prices*, November 2005. Fama recognizes here that there are not only “informed investors”, who act rationally, but also “misinformed investors”, who act irrationally, based on their own preferences which are not related to returns or incorrect information. If these misinformed investors all buy index funds, in principle no more than one “informed investor” is necessary to make the efficient market hypothesis work. Fama expects that the problem of the misinformed investor will disappear automatically because “misinformed investors should eventually learn they are misinformed and switch to a passive market portfolio or turn portfolio management over to the informed”.
- ² Burton G. Makiel, *A random walk down Wall Street*, W.W. Norton & Company, Inc. 1999, p. 194: “Although ... the pros do not consistently beat the averages, I must admit that exceptions to the rule of the efficient markets exist”.
- ³ Based on *Active management, a market equilibrium*, ABN-Amro Asset Management, July 2000, p. 8.
- ⁴ E. Fama supports the view that there is no room for socially responsible investing in the efficient market hypothesis and in index investing. See Eugene F. Fama, Kenneth R. French, *Disagreement, tastes and asset prices*, November 2005, p. 2.
- ⁵ James Surowiecki, *The wisdom of crowds: Why the many are smarter than the few and how collective wisdom shapes business, economies, societies and nations*, Little, Brown, 2004.
- ⁶ See also paragraph 6.2.2. of this report.
- ⁷ Directive 2004/39/EC of the European Parliament and of the Council of 21 April 2004 on markets in financial instruments amending Council Directives 85/611/EEC and 93/6/EEC and Directive 2000/12/EC of the European Parliament and of the Council and repealing Council Directive 93/22/EEC and Commission Directive 2006/73/EC of 10 August 2006 implementing Directive 2004/39/EC of the European Parliament and of the Council as regards organisational requirements and operating conditions for investment firms and defined terms for the purposes of that Directive.
- ⁸ Samuel Putnam, an American Judge at the Massachusetts Supreme Judicial Court, introduced the prudent man rule in 1830 (*Harvard College vs Armory*, 9 Pick (26 Mass) 446, 461 (1830)). The prudent man rule is the guiding principle for those who invest other people’s money. Putnam said: “Trustees should model their stewardship on how men of prudence, discretion, and intelligence manage their own affairs, not in regard to speculation, but in regard to the permanent disposition of their funds, considering the probable income, as well as the probable safety of the capital to be invested”, and in other words: “Do what you will, the capital is at hazard. All that can be required of a trustee to invest is that he shall conduct himself faithfully and exercise a sound discretion. He is to observe how men of prudence, discretion and intelligence manage their own affairs, considering the probable income as well as the probable safety of the capital to be invested.”
- ⁹ Derived from the brochure *Core – Satellite Investing* by Black Rock.
- ¹⁰ When trading fund units is done through an efficient trading platform such as the Euronext Fund Service, transaction costs are negligibly small, because they consist of only brokerage costs and market impact costs. In the case of *exchange traded funds* (ETFs) the difference between the purchase price and selling price (*bid-ask spread*) is bigger.
- ¹¹ *When is a total expense ratio not a total expense ratio*, Frontier Capital Management 2007.
- ¹² Financial Services Authority, *The price of retail investing in the UK.*, Londen, 2000.



- ¹³ David Blitz, Joop Huij, Laurens Swinkels, *The performance of European index funds and exchange-traded funds*, 2009.
- ¹⁴ David Blitz, Joop Huij, Laurens Swinkels, *The performance of European index funds and exchange-traded funds*, 2009.
- ¹⁵ *Active management, a market equilibrium*, ABN-Amro Asset Management, July 2000, p. 12-16.
- ¹⁶ Harry M. Kat, *Why indexation can be a dangerous strategy*, Alternative Investment Research Centre Working paper 0012.
- ¹⁷ Gerben de Zwart, Ronald van Dijk, *Actief omgaan met risico*, VBA Journaal, nr. 3, autumn (najaar) 2009, p. 39-45.
- ¹⁸ Tracking error is the root of the square of the difference between the investment portfolio and the index.
- ¹⁹ Such as the risk that the borrower does not repay the stocks (credit risk), or that he does that (partially) later than agreed (liquidity risk), the risk that the borrowing conditions become less favourable due to market developments (market risk), a bankruptcy of a borrower can result in an uncovered market position for a lender, or it can result in a market position in which he has to forego unrealised profits (counterparty risk), or the risk that the custodian of the financial instruments goes bankrupt, that he makes mistakes or that fraud is committed by the custodian (custodian risk). In the case of cash as collateral, there is the risk that either the duration or the interest rate does not correspond to that of the cash (interest rate risk). See for an overview of the risks and risk management techniques BIS/IOSCO, *Securities Lending Transactions: Market Development and Implications*, July, 1999, p. 40-47; International Securities Lending Association, *An introduction to securities lending*, March 2004, Chapter 5.
- ²⁰ *Understanding index front running*, The Trade Magazine, Oct-Dec, 2007
- ²¹ Rory Tobin, CEO of I-Shares, in the *Financieele Dagblad* of 1 March 2010.
- ²² Scott Burns, *Our take on the bond ETF dilemma. The problem is in the index, not the ETF*, www.morningstar.com, 28 October 2009.
- ²³ When, on a particular day, the market rises by 10% and goes down by 10% the next day, the loss for the index for those two days is 1%, but the loss for the leveraged ETF is 4%. This works as follows:
 Index: $(1 + 10\%) \times (1 - 10\%) = 1.1 \times 0.9 = 0.99$, which is a 1% loss
 Leveraged ETF: $(1 + 20\%) \times (1 - 20\%) = 1.2 \times 0.8 = 0.96$, which is a 4% loss.
 A consequence is that such a fund, even when it performs extremely well in good years, suffers disproportionately in bad years. If the fund is started at the wrong time or if the investor subscribes at the wrong time, it becomes extremely difficult to make up for losses suffered (see Tristan Yates, Lye Kok, *The case against leveraged ETFs*, www.seekingalpha.com, 17 May 2007)
- ²⁴ To achieve a doubling of the performance of the index a leveraged ETF such as this always needs to borrow half its invested assets; the leverage ratio therefore has to be 0.5. Every day the market moves, therefore the value of the investment changes, and the leverage ratio too. At the end of a trading day the leverage ratio will usually be either too high or too low. The ETF then has to sell or buy financial instruments, thus increasing costs (transaction costs and under US tax law also capital gains tax) and increasing the underlying volatility. Apart from this, one may wonder whether this is a sound investment strategy, because when the market goes down sharply, the ETF sells financial instruments and reduces its debt to maintain the 0.5 leverage ratio. This materialises losses and reduces the invested assets of the fund, thus making it more difficult to profit from market recovery. This situation is called the Constant Leverage Trap.



- (See Tristan Yates and Lye Kok, *The case against leveraged ETFs*, www.seekingalpha.com, 17 May 2007.)
- ²⁵ See the AFM report *Aandelenlease, niet bij rendement alleen*, 24 October 2002, and *Beleggingshypotheek en risico*, 26 March, 2003.
- ²⁶ <http://www.sec.gov/rules/concept/ic-25258.htm>
- ²⁷ Stacy L. Fuller, *The evolution of actively managed exchange-traded funds*, Review of Securities & Commodities Regulation, 16 April 2008.
- ²⁸ Elroy Dimson, Paul Marsh, Mike Staunton, *Will the cult of the equity die? Shares are poor long term bet*, and *Economic growth bad for equities*, Investment Management review, Vol. 5, Issue 1, Autumn 2009; Jay R. Ritter, *Economic Growth and Equity Returns*, Pacific-Basin Finance Journal, Vol. 13, No. 5, November 2005, p. 489-503; William J. Bernstein, Robert D. Arnott, *Earnings growth: the two percent dilution*, Financial Analysts Journal, September-October 2003.
- ²⁹ The index is dominated by oil and mining companies some of which have only very limited ties to the United Kingdom. For large foreign corporations that are big enough to end up in the FTSE 100, a stock exchange listing London is attractive, because the presence of many index funds guarantees them a strong demand. See also Neil Collins, *Beursindex FTSE 100 zegt weinig meer over de Britse economie*, NRC Handelsblad 10 March 2010.
- ³⁰ Christian Walkshäusl, Sebastian Lobe, *Fundamental Indexing Around the World*, 25 August, 2009
- ³¹ See D.C. Blitz, L. Swinkels, *Fundamental indexation: an active value strategy in disguise*, Journal of Asset Management, Vol. 9, 2008, no. 4, p. 264-269.
- ³² Dieter Bardy, Gross, *Sauter speak at Morningstar conference*, 24 June 2005; Tom Lauricella, Diya Gullapalli, *Not all index ETFs are what they seem to be*, Wall Street Journal. 21 July, 2006.
- ³³ In 2008, the American Securities and Exchange Commission (SEC) started allowing actively managed ETFs (*Federal Register/Vol. 73, No. 53/Tuesday, March 18, 2008/Proposed Rules*). These actively managed ETFs have had a lukewarm reception, possibly because of the credit crisis, but possibly also because they trade less frequently, they do not have a performance record yet and they do not offer any new solutions to problems of investors (Ian Salisbury, *'Active' ETFs get a passive response*, Wall Street Journal, 22 May 2008).
- ³⁴ David Blitz, Joop Huij, Laurens Swinkels, *The performance of European index funds and exchange-traded funds*, 2009.
- ³⁵ Deborah Fuhr, *ETF Landscape, Industry Preview, Year End 2009*, Black Rock, p. 3. The European ETF sector had US\$ 223 bn assets under management by end 2009, in 821 ETFs with 2,359 quotations by 32 providers on 18 exchanges.
- ³⁶ Tim Bennett, *Exchange traded funds: profit from the City's best-kept secret*, 18 February 2008.
- ³⁷ John C. Bogle, *As the index fund moves from heresy to dogma . . . What more do we need to know?* 13 April 2004.
- ³⁸ Jonathan Baron, *Thinking and deciding* 3rd ed., 2000, New York: Cambridge University Press; Margit E. Oswald, Stefan Grosjean, *Confirmation bias* in Rüdiger F. Pohl, *Cognitive illusions: a handbook on fallacies and biases in thinking, judgement and memory*, Hove, UK Psychology Press 2004.
- ³⁹ Karl R. Popper, *Die beiden Grundprobleme der Erkenntnistheorie*, 1933; *Logik der Forschung*, 1934. Peter C. Wason, *On the failure to eliminate hypotheses in a conceptual task*, Quarterly Journal of Experimental Psychology, 1960; J. Klayman, Y. Ha, *Confirmation*,



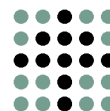
- disconfirmation and information in hypothesis testing*, *Psychological Review* 94, 1987, p. 211-228. Klayman and Ha do not call it *confirmation bias*, but a *positive test strategy*, a rule of thumb people use because it will generate the correct answer in most cases. Klayman and Ha say that the question as to whether one can deduce meaningful information from the positive test depends on the question as to what the initial probability is of a positive answer; the higher that probability, the smaller the information value of the positive test or hypothesis.
- ⁴⁰ Zvi Bodie, Alex Kane, Alan J. Marcus, *Investments*, 8th edition, McGraw-Hill 2009, p. 357.
- ⁴¹ It has to be noted that a zero sum game requires (1) one single period, (2) one single benchmark and (3) two types of investors, i.e. active and passive ones. When investors have different time zones, different access costs, different risk appetites, different tax regimes and different investment goals (absolute return investing, hedging, etc.) and there are several benchmarks, there is no zero sum game. See Joanne M. Hill, *Alpha as a net zero sum game, How serious a constraint?* 2006.
- ⁴² K.J. Martijn Cremers, Antti Petajisto, *How active is your fund manager? A new measure that predicts performance*, Yale, 31 March, 2009.
- ⁴³ Anne Tergesen, Lauren Young, *Index funds aren't all equal*, *Business Week*, 19 April 2004.
- ⁴⁴ Research by the British Investment Management Association (IMA) into the performance of British active funds and index funds compared to the London financial markets over the last five to ten years shows that the average active fund performs better after costs than the index funds. The 10% best active funds showed an outperformance of 3% or more per year over the last 5 to 10 years. The 10% worst active funds performed 3-4% worse than the stock exchange index measured over 5 years and 1.6-2.4% worse than the stock exchange index measured over 10 years. (See *Fund management costs and performance*, IMA, October 2009).
- ⁴⁵ Roger Otten and Dennis Bams conclude in *European mutual fund performance*, *European Financial Management*, Vol. 8, nr. 1, p. 75-101 that research into European funds leads to different results compared to research into American funds. They conclude that European active funds deliver added value both before and after costs.
- ⁴⁶ John Maynard Keynes, *The general theory of employment, interest and money*, 1936; R.F. Harrod, *The life of John Maynard Keynes*, 1951; J. Crotty, *Keynes on the stages of development of the capitalist economy: the institutionalist foundation of Keynes's methodology*, *Journal of Economic Issues*, Vol. 24, 1990, p. 761-780; David Chambers, Elroy Dimson, *Keynes the investor*, 16 December 2007.
- ⁴⁷ See E.F. Fama, *The behaviour of stock market prices*, *Journal of Business*, January 1965 and abridged in the *Financial Analysts Journal* of September 1965. Fama was not the first one to describe this theory. He was preceded by the Frenchman Louis Bachelier, who wrote in his thesis at the Sorbonne in 1900: "Past, present, and even discounted future events are (all) reflected in market price" and: "The mathematical expectation of the speculator is zero." Paul Samuelson discovered the forgotten French thesis in 1965 (see John C. Bogle, *As the index fund moves from heresy to dogma, What more do we need to know?*, 13 April 2004).
- ⁴⁸ M. Jensen, *Some anomalous evidence regarding market efficiency*, *Journal of Financial Economics*, 1978, 6, p. 95-101.
- ⁴⁹ Burton G. Malkiel, *A Random Walk Down Wall Street*, W. W. Norton, 1996. It was Malkiel who came up with the well known comparison of the professional investments expert and the blindfolded monkey: "A blindfolded chimpanzee throwing darts at the



- Wall Street Journal can select a portfolio that performs as well as those managed by experts”.
- ⁵⁰ The Grossman-Stiglitz paradox says that when a market is efficient in terms of information, meaning that all information is factored into the market price, no one will have a sufficient incentive to collect information on which a price is based. In other words: if the efficient market hypothesis is true, it would logically not be rational for people to spend money on research – and yet they do. See Sanford J. Grossman, Joseph E. Stiglitz, *On the impossibility of informationally efficient markets*, *American Economic Review*, 1980, 70, p. 393-408.
- ⁵¹ Robert S. Carlson, *Aggregate performance of mutual funds 1948-1967*, *Journal of Financial and Quantitative Analysis*, 1970, p. 1-32; B. Lehmann, D. Modest, *Mutual fund performance evaluation: A comparison of benchmarks and benchmark comparisons*, *Journal of Finance*, 21, 1987, p. 233-265.; Mark Grinblatt, Sheridan Titman, *The persistence of mutual fund performance*, *Journal of Finance*, 1992, p. 1977-1984; S.J. Brown, W. Goetzmann, R.G. Ibbotson, S.A. Ross, *Survivorship bias in performance studies*, *Review of Financial Studies*, December 1992, p. 553-580; D. Hendricks, J. Patel, R. Zeckhauser, *Hot hands in mutual funds: Short-run persistence of performance in relative performance, 1974-1988*, *Journal of Finance*, March 1993, p. 93-130; Mark Grinblatt, Sheridan Titman, *Performance measurement without benchmarks: an examination of mutual fund returns*, *Journal of Business*, 1993, p. 47-68; W.N. Goetzmann, R.G. Ibbotson, *Do winners repeat?*, *Journal of Portfolio Management*, 1994, nr. 2, p. 9-18; S.J. Brown, W.N. Goetzmann, *Performance persistence*, *Journal of Finance*, 1995 p. 679-698; Mark Grinblatt, Sheridan Titman, Russ Wermers, *Momentum investment strategies, portfolio performance and herding, a study of mutual fund behavior*, *American Economic Review*, Vol. 85, nr. 5, p. 1088-1105, 1995; Edwin J. Elton, Martin J. Gruber, Christopher R. Blake, *The persistence of risk-adjusted mutual fund performance*, *Journal of Business*, Vol. 69, no. 2, April 1996, p. 133-157; Mark M. Carhart, *On persistence in mutual fund performance*, *Journal of Finance*, 52, 1997, p. 57-82; Roger G. Ibbotson, Amita K. Patel, *Do winners repeat with style? Summary of findings*, Ibbotson Associates, 2002; Russ Wermers, *Is Money really smart? New evidence on the relation between mutual fund flows, manager behaviour and performance persistence*, November 2003; Keith Cuthbertson, Dirk Nitzsche, Niall O’Sullivan, *Mutual fund performance: skill or luck?*, February 2005; R. Kosowski, A. Timmerman, R. Wermers, H. White, *Can mutual fund ‘stars’ really pick stocks? New evidence from a bootstrap analysis*, *Journal of Finance*, December 2006, p. 2551-2595; Jeffrey A. Busse, Quing Tong, *Mutual fund industry selection and persistence*, August 2009.
- ⁵² The expression is Alan Greenspan’s from a 1996 speech: “But how do we know when irrational exuberance has unduly escalated asset values, which then become subject to unexpected and prolonged contractions as they have in Japan over the past decade?”
- ⁵³ Justin Fox, *The myth of the rational market: a history of risk, reward, and delusion on Wall Street*, Harper Business, 2009.
- ⁵⁴ <http://www.maynardkeynes.org/>
- ⁵⁵ R.H. Thaler of Fuller & Thaler Asset Management in his report on the third quarter of 2008. James Surowiecki (*The wisdom of crowds: Why the many are smarter than the few and how collective wisdom shapes business, economies, societies and nations*, Little, Brown, 2004) studies situations such as “rational bubbles” in which the crowd does not take the right decision and argues that in this type of situations their cognition or cooperation failed, because in some way the members of the group were too conscious of the opinions of others and started adopting them instead of thinking independently. He says this is because the systems for making decisions contain systematic errors.



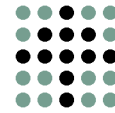
- ⁵⁶ See for example, S. Wachtel, *Certain observations on seasonal movements in stock prices*, Journal of Business, 1942, 15, p. 184-93; Michael S. Rozeff, William R. Kinney, Jr. *Capital market seasonality: the case of stock returns*, Journal of Financial Economics, Volume 3, Issue 4, October 1976, p. 379-402; Mustafa N. Gultekin, N. Bulent Gultekin, *Stock market seasonality and end of the year tax effect*, Working Paper 10-82, Rodney L. White Center for Financial Research, Wharton School, Philadelphia, 1982; Eric C. Chang, J. Michael Pinegar, *Return seasonality and tax-loss selling in the market for long-term government and corporate bonds*, Journal of Financial Economics, Volume 17, Number 2, December 1986, p. 391-415; Theodor Kohers, Raj K. Kohli, *The anomalous stock market behavior of large firms in January: the evidence from the S&P composite and composite indexes*, Quarterly Journal of Business and Economics, Vol. 30, 1991; R.K. Bhardwaj, L.D. Brooks, *The January anomaly: effects of low share price, transaction costs, and bid-ask bias*, Journal of Finance 47, 1992, p. 553-575; V.R. Eleswarapu, M.R. Reinganum, *The seasonal behavior of the liquidity premium in asset pricing*, Journal of Financial Economics 34, 1993, p. 373-386; Denis O. Boudreaux, *The monthly effect in international stock markets: evidence and implications*, Journal of Financial and Strategic Decisions, Volume 8 Number 1 Spring 1995; W.Maxwell, *The January effect in the corporate bond market: a systematic examination*, Financial Management, Summer 1998, p. 18-30; Bhabra, Dhillon and Ramirez, *A November Effect? Revisiting the Tax-Loss-Selling Hypothesis*, Financial Management, Financial Management Association, Vol. 28(4), Winter 1999.
- Some economists seek the explanation for this effect in the American tax system. Rozeff, Kinney; Banz (1981); Keim (1983); Reinganum (1983); Schultz (1985); Jones, Lee, and Apenbrink (1991). But Werner F.M. de Bondt and Richard Thaler (*Does the stock market overreact?*, Journal of Finance, Vol. XL, no. 3, July 1985; *Further evidence on investor overreaction and stock market seasonality* Journal of Finance, Vol. XLII, no. 3, July 1987) explain it by overreactions of investors. Charles Kramer, *Macroeconomic seasonality and the January effect*, Journal of Finance, Vol. XLIX, nr. 5, December 1994 suggests a connection to macroeconomic fluctuations.
- ⁵⁷ Imad A. Moosa, *The vanishing January effect*, International Research Journal of Finance and Economics, Issue 7, 2007.
- ⁵⁸ Harjeet S. Bhabra, Upinder S. Dhillon, Gabriel G. Ramirez, *A November effect? Revisiting the tax-loss-selling hypothesis*, Financial Management, Financial Management Association, Winter, 1999; Ken Johnston, Chris Paul, *Further evidence of the November effect*, Journal of Economics and Finance, Volume 29, Number 2 / June, 2005, p. 280-288.
- ⁵⁹ Kenneth R. French, *Stock returns and the weekend effect*, Journal of Financial Economics, Volume 8, Issue 1, March 1980, Pages 55-69; Avraham Kamara, 1997. *New evidence on the Monday seasonal in stock returns*, Journal of Business, Vol. 70, No. 1., Jan., 1997, p. 63-84; Anup Agrawal, Kishore Tandon, *Anomalies or illusions? Evidence from stock markets in eighteen countries*, Journal of International Money and Finance, Volume 13, Issue 1, February 1994, p. 83-106; James M. Steeley, *A note on information seasonality and the disappearance of the weekend effect in the UK stock market*, Journal of Banking and Finance, Volume 25, Issue 10, October 2001, p. 1941-1956.
- ⁶⁰ According to Agrawal and Tandon, *Anomalies or illusions? Evidence from stock markets in eighteen countries*, Journal of International Money and Finance, Volume 13, Issue 1, February 1994, p. 83-106, there is a Tuesday effect instead of a Monday effect in eight of the 18 countries they researched.
- ⁶¹ Robert A. Ariel, 1987, *A monthly effect in stock returns*, Journal of Financial Economics 18, 161-174; Josef Lakonishok, Seymour Smidt, *Are seasonal anomalies real? A ninety-year perspective*, Review of Financial Studies 1, 1988 (4), p. 403-425; Charles B. Cadsby, Mit-



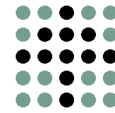
- chell Ratner, *Turn-of-month and pre-holiday effects on stock returns: Some international evidence*, Journal of Banking and Finance 1992, 16, 497-509; Chris R. Hensel, William T. Ziemba, *Investment results from exploiting turn-of-the-month effects*, Journal of Portfolio Management 22(3), 1996, p. 17-23; Robert A. Kunkel, William S. Compton, *A tax-free exploitation of the turn-of-the-month effect: C.R.E.F.*, Financial Services Review 7(1), 1998, p. 11-23.
- ⁶² Robert A. Ariel, 1987, *A monthly effect in stock returns*, Journal of Financial Economics 18, 161-174; Josef Lakonishok, Seymour Smidt, *Are seasonal anomalies real? A ninety-year perspective*, Review of Financial Studies 1, 1988 (4), p. 403-425; Charles B. Cadsby, Mitchell Ratner, *Turn-of-month and pre-holiday effects on stock returns: Some international evidence*, Journal of Banking and Finance 1992, 16, 497-509; Paul Brockman, David Michayluk, *The persistent holiday effect: additional evidence*, Applied Economics Letters, Taylor and Francis Journals, Vol. 5(4), pages 205-09, April 1998.
- ⁶³ R.W. Banz, *The relationship between return and market value of common stocks*, Journal of Financial Economics, Vol. 9, 1981, p. 3-18; Marc R. Reinganum, *Misspecification of capital asset pricing: empirical anomalies based on earnings yields and market values*, Journal of Financial Economics, Vol. 9, 1981, p. 19-46; Marc R. Reinganum, *The anomalous stock market behavior of small firms in January: empirical tests for tax-loss selling effect*, Journal of Financial Economics, Vol. 12, 1983, p. 89-104.
- ⁶⁴ Lawrence Harris, Eitan Gurel, *Price and volume effects associated with changes in the S&P 500 list: new evidence for the existence of price pressure*, Journal of Finance, Vol. 41 (4), 1986, p. 815-829; A. Schleifer, *Do demand curves for stocks slope down?*, Journal of Finance 41, p. 579-590.
- ⁶⁵ N. Jegadeesh, S. Titman, *Cross-sectional and time-series determinants of momentum returns*, Momentum, 1993; M. Grinblatt, S. Titman, R. Wermers, 1995. *Momentum investment strategies, portfolio performance, and herding: A study of mutual fund behavior*, American Economic Review, 1995; L. Chan, Jegadeesh, J. Lakonishok, *Momentum strategies*. NBER Working Paper 1996; K.G. Rouwenhorst, *International momentum strategies*, Journal of Finance, 1998; H. Hong, J.C. Stein, *A unified theory of under reaction, momentum trading and overreaction in asset markets*, Journal of Finance, 1999; T.J. Moskowitz, M. Grinblatt, 1999. *Do industries explain momentum?*, Journal of Finance, 1999; H. Hong, et al., *Bad news travels slowly: size, analyst coverage, and the profitability of momentum strategies*, Journal of Finance, 2000; C.M.C. Lee, B. Swaminathan, *Price momentum and trading volume*, Journal of Finance, 2000; J. Liew, M. Vassalou, *Can book-to-market, size and momentum be risk factors that predict economic growth*, Journal of Financial Economics, 2000; B.D. Grundy, J.S. Martin, *Understanding the nature of the risks and the source of the rewards to momentum investing*, Review of Financial Studies, 2001; N. Jegadeesh, S. Titman, M.P. Page, *Profitability of momentum strategies: an evaluation of alternative explanations*, Journal of Finance, 2001; Prof. Dr. Rudolf Volkart, *Testing of momentum and reversal in the Swiss stock market*, Swiss Banking Institute, University of Zurich, 20 August 2003; Michael J. Cooper, Roberto C. Gutierrez Jr., Allaudeen Hameed, *Market states and momentum*, Journal of Finance, June 2004.
- ⁶⁶ Ray Ball, Philip Brow, *An empirical evaluation of accounting numbers*, Journal of Accounting Research 6, 1968, p. 159-178; G. Foster, C. Olsen, T. Shevlin, *Earnings releases, anomalies and the behavior of security returns*, Accounting Review, 1984, p. 574-603; Victor L. Bernard, Jacob K. Thomas, *Post-earnings-announcement drift: delayed price response or risk premium*, Journal of Accounting Research 27, 1989, p. 1-35; Denis Hew, Len Skerratt, Norman Stromg, Martin Walker, *Post-earnings-announcement drift: some preliminary evidence for the UK*, Accounting and Business Research 26, 1996, p. 283-293; Geoffrey



- G. Booth, Juha-Pekka Kallunki, Teppo Martikainen, *Post-announcement drift and income smoothing: Finnish evidence*, *Journal of Business Finance & Accounting* 23, 1996, p. 1197-1211.
- ⁶⁷ Tarun Chordia, Lakshmanan Shivakumar, *Earnings and price momentum*, 23 May 2005.
- ⁶⁸ In a *value* strategy an investor buys stocks which have a low price relative to the company's profits, dividends, book value of assets or other measures of fundamental value.
- ⁶⁹ Josef Lakonishok, Andrei Shleifer, Robert W. Vishny, *Contrarian investment, extrapolation and risk*, NBER Working Paper W4360, May 1993; *ibid*, *Journal of Finance*, Vol. XLIX, December 1994, p. 1541-1578; Elmar Mertens, *Getting even: contrarian investments and event returns on earnings announcements*, University of Basel, Dept. of Finance Working Paper No. 7/02, October 2002.
- ⁷⁰ Dimitri Vayanos, Paul Woolley, *An institutional theory of momentum and reversal*, 28 November 2008; Werner F.M. De Bondt & Richard H. Thaler, *Does the stock market overreact*, *Journal of Finance* 40, 1985, p. 557-558; Navin Chopra, Josef Lakonishok, Jay R. Ritter, *Measuring abnormal performance: do stocks overreact*, *Journal of Financial Economics* 31, 1985, p. 235-268.
- Fama has explained the reversal effect as a statistical effect of regression to the mean and thereby harmonised it with the efficient market hypothesis. Even when that is correct, it leaves room for active investors, who discover through analysis that there is a deviation from the mean.
- ⁷¹ Konan Chan, Narasimhan Jegadeesh, Theodore Sougiannis, *The accrual effect on future earnings*, *Review of Quantitative Finance and Accounting*, Vol. 22, Nr. 2, March, 2004
- ⁷² David A. Hirshleifer, Tyler Shumway, *Good day sunshine: stock returns and the weather*, March 28, 2001, Dice Center Working Paper No. 2001-3. Psychological evidence and intuition predict that sunny weather can be connected to an optimistic mood. According to this research sunshine is positively correlated with daily stock returns, but precipitation is not correlated. When transaction costs are negligible, it is possible to trade profitably based on the weather. The authors researched this for 26 stock exchanges worldwide in the period 1982-97.
- ⁷³ Richard Roll, *Orange juice and the weather*, *American Economic Review*, Vol. 74, no. 5, Dec. 1984, p. 861-880.
- ⁷⁴ Kenneth French, James Poterba, *Investor diversification and international equity markets*, *American Economic Review*, Vol. 81 (May 1991), p. 222-226; Magnus Dahlquist, Lee Pinkowitz, René M. Stulz, and Rohan Williamson, *Corporate governance and the home bias*, October 2002; Andrew Karolyi, René Stulz, 2003, *Are financial assets priced locally or globally?*, *Handbook of the Economics of Finance*, George Constantinides Milton Harris, René Stulz (editors), North-Holland, p. 975-1020; Xi Dong, *Is information the motive for home bias? A new perspective from trading*, June 2009.
- ⁷⁵ A. Schleifer, L.H. Summers, *The noise trader approach to finance*, *Journal of Economic Perspectives*, Spring 1990, p. 19-33.
- ⁷⁶ M. Weber, C.F. Camerer, *The disposition effect in securities trading: an experimental analysis*, *Journal of Economic Behavior and Organization*, 1998; S.P. Ferris, R.A. Haugen, A.K. Makhija, *Predicting contemporary volume with historic volume at differential price levels: Evidence supporting the disposition effect*, *Journal of Finance*, 1988; R. Dhar, N. Zhu, *Up close and personal: An individual level analysis of the disposition effect*, *Management Science*, 2006; M. Grinblatt, B. Han, *The disposition effect and momentum*, NBER Working Paper, 2002; A. Frazzini, *The disposition effect and under reaction to news*, *Journal of Finance*, 2006; H. Shefrin, M. Statman, *The disposition to sell winners too early and ride losers too long: Theory and evidence*, *Journal of Finance*, 1985; R. Dhar, N. Zhu, *Up close and per-*



- sonal: *Investor sophistication and the disposition effect*, Management Science, 2006; E. Rangelova, *Disposition effect and firm size: New evidence on individual investor trading activity*, Center for Mathematics and Computer Science, 2001; P.M.W. Chui, *An experimental study of the disposition effect: Evidence from Macau*, Journal of Psychology and Financial Markets, 2001; N. Barberis, W. Xiong, *What drives the disposition effect? An analysis of a long-standing preference-based explanation*, NBER Working Paper, 2006.
- ⁷⁷ *Overconfidence* is the phenomenon that the subjective trust of a person in his own judgement is often larger than the objective accuracy of that judgement. One research project showed, for example, that in a spelling exercise the test subjects spelled correctly in just 80% of cases, even when they were “100% certain” that they had spelled correctly. See P.A. Adams, J.K. Adams, *Confidence in the recognition and reproduction of words difficult to spell*, American Journal of Psychology, 73, 1960, p. 544-552
- ⁷⁸ Werner F. M. De Bondt, Richard Thaler, *Does the stock market overreact?*, 1985; Werner F. M. De Bondt, Richard Thaler, *Further evidence on investor overreaction and stock market seasonality*, 1987
- ⁷⁹ *Representativeness bias* is the application of a rule of thumb in which people judge the chance or frequency of a hypothesis by considering how much the hypothesis resembles available data, instead of simply calculating mathematically what the probability is. An example:
Tversky and Kahnemann submitted the following case to their test subjects: a taxi has a hit-and-run accident at night. There are two taxi companies in town, the Green Taxi and the Blue Taxi. 85% of all taxis in town are green and 15% are blue. A witness said that the taxi in question was blue. The court has tested the reliability of the witness under the same nocturnal conditions and determined that the witness saw the correct colour in 80% of cases and the wrong colour in 20% of the cases. The question to the test subjects was: what is the probability that the taxi involved in the accident was blue instead of green, taking into account that the witness said it was blue. Most test subjects gave answers above 50%. A mathematical probability calculation shows that the correct answer is: 12% (15% times 80%) that the witness saw the correct colour of the taxi that was involved in the accident. The probability is 17% (85% times 20%) that the witness mistook the colour of the taxi for blue when it was actually green. The probability is, therefore, 29% (12% plus 17%) that the witness would say that the taxi was blue. The probability that the taxi was actually blue in reality is 41% (12% divided by 29%).
- ⁸⁰ *Information bias* is the conviction that the more information is gathered to make a decision, the better it is, even if that extra information is not relevant to the decision that has to be taken.
- ⁸¹ Daniel Kahneman, Amos Tversky, *Prospect theory: an analysis of decision under risk*, Econometrica, XLVII, 1979, p. 263-291. The prospect theory states that people do not weigh in probable outcomes sufficiently compared to certain outcomes (*certainty effect*). This contributes to risk-averse behaviour in making choices with regard to certain profits and to risk seeking in choices involving a certain loss. People tend to ignore elements which all options (prospects) have in common (*isolation effect*). According to the researchers, attributing too little weight to small probabilities can be the reason why both insurance and gambling can be attractive to people.
- ⁸² *Anchoring* is a cognitive error where people by way of rule of thumb (cognitive heuristics) start at an intuitive point of reference, in order to proceed to reason from there by estimation. Amos Tversky and Daniel Kahneman showed that when subjects were asked to estimate what percentage of African states were members of the United Na-



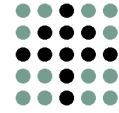
- tions, subjects who were first asked whether it was more or less than 45%, gave lower figure answers to the subsequent question about the exact percentage than people who were first asked whether the number was bigger or smaller than 65%. See A. Tversky, D. Kahneman, *Judgement under uncertainty: heuristics and biases*, Science, 185, 1974, p. 1124-1130.
- ⁸³ *Framing* means a person's decision depends on how a problem is presented to him and therefore can differ from what is rational. Tversky and Kahnemann put two alternatives before a group of test subjects to fight a new dangerous disease. The disease was expected to claim 600 victims. Disease control program A would save 200 people and in program B there would be a one third chance that 600 people would be saved and a one third chance that no one would be saved. 72% of test subjects chose program A. A second group of test subjects was asked to choose between program C, in which 400 people would die, and program D, where there would be a one third chance that no one would die and a two thirds chance that 600 people would die. In this group 78% chose program D. See A. Tversky, D. Kahneman, *The framing of decisions and the psychology of choice*. Science. 1981, p. 453-458.
- ⁸⁴ R.H. Thaler, *Toward a positive theory of consumer choice*, 1980, is seen by Kahnemann as the beginning of behavioural economics (D. Kahnemann, *A perspective on judgment and choice: Mapping bounded rationality*, American Psychologist, 2003, p. 438).
- ⁸⁵ For purposes of illustration, there follows an experiment which Thaler executed: He asked his test subjects what they would prefer to receive: one dollar today or three dollars tomorrow. Most test subjects chose one dollar today. Then they were asked which they preferred: one dollar in a year or three dollars in a year and a day. This time they overwhelmingly chose to wait a day longer to get more money. See R. H. Thaler, *Some Empirical Evidence on Dynamic Inconsistency*, Economic Letters 8, 1981, p. 201 – 207.
- ⁸⁶ Marc Potters, Rama Cont, Jean-Philippe Bouchaud, *Financial markets as adaptive ecosystems*, 6 November 1998.
- ⁸⁷ Cars H. Hommes, *Financial markets as nonlinear adaptive evolutionary systems*, Quantitative Finance Research Paper, Vol. 1, 2001, p. 149-167.
- ⁸⁸ Cars H. Hommes, *Adaptive agents, intelligence, and emergent human organization: capturing complexity through agent-based modelling, modelling the stylized facts in finance through simple nonlinear adaptive systems*, National Academy of Sciences, USA, 14 May 2002
- ⁸⁹ Andrew W. Lo, *The adaptive markets hypothesis: market efficiency from an evolutionary perspective*, 15 August 2004.
- ⁹⁰ Andrew W. Lo, *Reconciling efficient markets with behavioural finance: the adaptive markets hypothesis*, 8 March 2005, p. 28.
- ⁹¹ Roberto Dieci, Ilara Foroni, Laura Gardini, Xue-Zhong He, *Market mood, adaptive beliefs and asset price dynamics*, 1 August 2005, p. 12.
- ⁹² Paul A. Samuelson, *The judgment of economic science on rational portfolio management, Indexing, timing, and long-horizon effects*, Journal of Portfolio Management, Fall 1989, p. 4-12.
- ⁹³ See also R. Kosowski, A. Timmerman, R. Wermers, H. White, *Can mutual fund 'stars' really pick stocks? New evidence from a bootstrap analysis*, Journal of Finance, December 2006, p. 2551-2595.
- ⁹⁴ See note 51.
- ⁹⁵ Financial Research Corporation, *Predicting mutual fund performance II: after the bear*, Boston, Massachusetts, 2002.

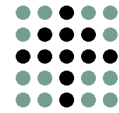


-
- ⁹⁶ E.J. Elton, M.J. Gruber, J.A. Busse, *Are investors rational? Choices among index funds*, Journal of Finance, Vol. 59, no. 1, 2004, p. 261-288.
- ⁹⁷ David Blitz, Joop Huij, Laurens Swinkels, *The performance of European Index Funds and Exchange-Traded funds*, 2009, p. 11.
- ⁹⁸ Derived from Russell J. Fuller, *Behavioral finance and the sources of alpha*, Fuller & Thaler Asset Management, Lugano, June 2000, p. 18-19.
- ⁹⁹ Alpha is the excess return on investments above the reward for risk.
- ¹⁰⁰ There is also scientific research into this issue. See for example Judith Chevalier, Glenn Ellison, *Are some mutual fund managers better than others? Cross-sectional patterns in behaviour and performance*, Journal of Finance, Vol. LIV, no. 3, June 1999, p. 875-899.
- ¹⁰¹ K.J. Martijn Cremers, Antti Petajisto, *How active is your fund manager? A new measure that predicts performance*, Yale, 31 March, 2009. The researchers find that this method works better than the tracking error, the TER or the portfolio turnover ratio. When the active share is 20% or less, the funds are index trackers. The authors consider funds with an active share of 20%-60% to be *closet indexers*. They also say that hedge funds may have an active share of more than 100%, by using leverage and derivatives. According to the authors, one should not only look at the active share when selecting funds, but also at the size of the fund and its returns over the past year.

dutch fund and asset

MANAGEMENT ASSOCIATION







Important information. This material is meant for information and it is not meant to be relied upon in taking any investment decision. This is not investment advice or a general recommendation or an offer or request and it is not the basis for any agreement to buy or sell any financial instrument, or to prepare or enter into any transaction. Neither DUFAS nor its members give any guarantee with regard to the accuracy, reliability or completeness of the information in this document. Except in so far as legal liability cannot be excluded, DUFAS, nor any functionary or employee of DUFAS accepts any liability (whether this ensues from a contract, a tort, negligence or otherwise) for any mistake or omission in this document or for any resulting loss or damage, directly or indirectly, causative or otherwise suffered by the recipient of this document or any other person. The opinions expressed in this document are the opinions of DUFAS at the time of publishing of the document and are subject to change.