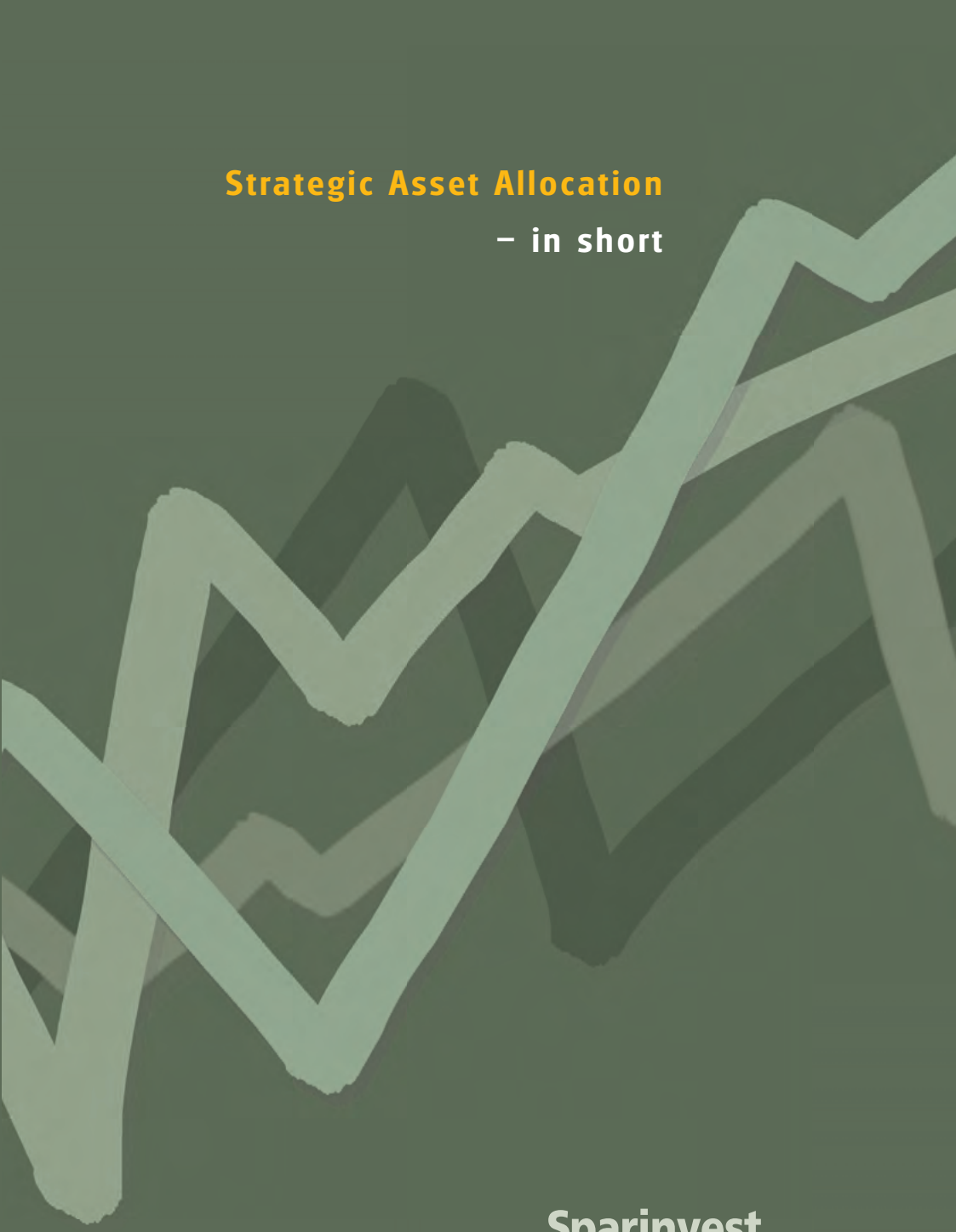
Strategic Asset Allocation

– in short



Sparinvest

Prudent investments...

Strategic Asset Allocation
– in short

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This is the third edition of the book **"Strategic Asset Allocation - in short."**

At Sparinvest, we believe that strategic asset allocation is the key to a prudent investment management strategy.

To find out more about how we apply the academic knowledge outlined in this book, please visit **sparinvest.eu**.

Preface

During recent years, Sparinvest has seen great progress as an advisor to institutional investors. This progress and the achievement of favourable results are due, among other things, to years of focusing on Strategic Asset Allocation as an investment discipline.

For six years, Sparinvest has been working rigorously putting Markowitz' Nobel prize-winning theories into practical models and methods. The research and results have proven to be valuable.

Sparinvest stands today as a strong investment partner with a wish to create value and results for an even greater number of investors in future. The book reveals some of the methods and models used in Sparinvest.

The following pages can show you how Strategic Asset Allocation works and hopefully they can be used as a source of inspiration.

Professor Ole Bjørn
Chairman of the Board of Sparinvest

Introduction

Strategic Asset Allocation – in short is a book we have wanted to write for a long time. During recent years, we have seen a large increase in interest in an investment discipline which is quantitative in its structure, but has the advantage of being both targeted and focused.

This book is written as an appetizer and a brief account of a discipline which is gaining increasing recognition on an international level. For more detailed information about the subject, we refer to the bibliography at the end of the book. *In short* is an uncomplicated account of the procedures behind the administration of institutional funds and an account of the advantages of sticking to a documented, scientific method.

The theories behind Strategic Asset Allocation are not new. But they are continually being developed and refined. Many people have some knowledge of the basic principles but choose to ignore them, however uncertain the alternative may be.

Many institutional investors use beliefs, attitudes and expectations as the basis for predicting the future development of specific securities. Sometimes a belief will pay off. Sometimes the opposite happens. But what about the exposure to risk? What about the match between assets and liabilities? How are these issues managed?

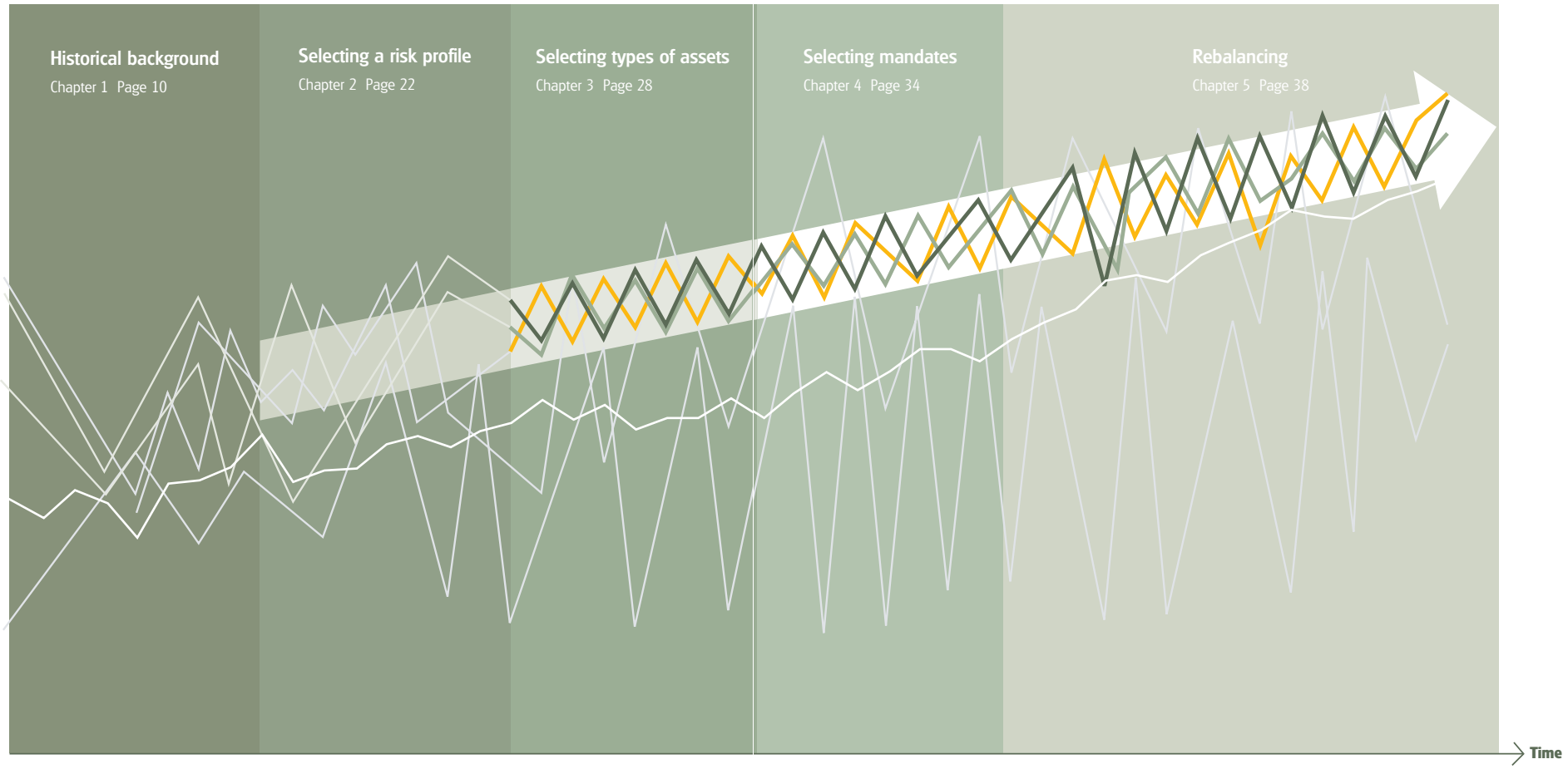
Research has shown that the strategic portfolio – effectively, the investment policy – accounts for more than 90% of the fluctuations in the return.

Some people may be surprised to think of Sparinvest as a spokesman for Strategic Asset Allocation. Not many people know that we were one of the first Danish asset management firms to incorporate this discipline in our investment philosophy. And that we were among the first companies to develop a transparent Asset Liability Management (ALM) model, which is essential in order to be able to find the optimum match of assets in relation to liabilities.

There is no shortage of proof that Strategic Asset Allocation is the best possible way to obtain efficient asset management. And it is no coincidence that this has become the core of our investment philosophy. That is why we wish – through this book – to distribute our knowledge and share our enthusiasm with others. Our aim is to spread awareness of an investment discipline, the results of which are both visible and measurable. This is in perfect keeping with our principal philosophy throughout the years – prudent investments...

We hope you will enjoy reading the book.

Sparinvest
Strategic Asset Allocation Team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Historical background

Moving towards the third dimension
in asset management

Strategic Asset Allocation means accepting that economies have their ups and downs. Types of assets are chosen with a view to obtaining the best possible correlation. The strategy is maintained regardless of market fluctuations. By ignoring the psychological need to adapt to good or bad times, an investor will, in the long run, obtain a more consistent distribution of risk within the portfolio and enjoy a far more stable return. The major advantage lies in the systematic diversification that has its basis in the known correlations between different types of asset groups. Strategic Asset Allocation has the added advantage over Tactical Asset Allocation that the strategic discipline does not try to work with or against the wind. Instead, this method chooses to ignore it.

From the very beginning, investors have understood the principle of diversifying their assets in order to minimise their risk and obtain a more stable return. Then – as now – the portfolio was assessed on the basis of a two-dimensional view of the risk and return characteristics of individual assets, and the assets were then selected on the basis of the investor's attitude towards risk and return. The methods used to assess risk and return are becoming increasingly more subtle. But the basis has not changed: the composition of a given portfolio is still decided by the attitudes and expectations of the individual investors.

In 1952 this basis was questioned for the first time. It happened when the economist Harry Markowitz gave the probably most important contribution to modern portfolio theory in his article Portfolio Selection, in which he described the third dimension in asset management - the diversification effect.

Markowitz found that the different correlations between assets could be utilised to reduce the risk in a portfolio or to obtain additional return without increasing the risk. He developed a model which took into account the interactions between different investment opportunities, and the correlation between them, to optimise the ratio between risk and return.

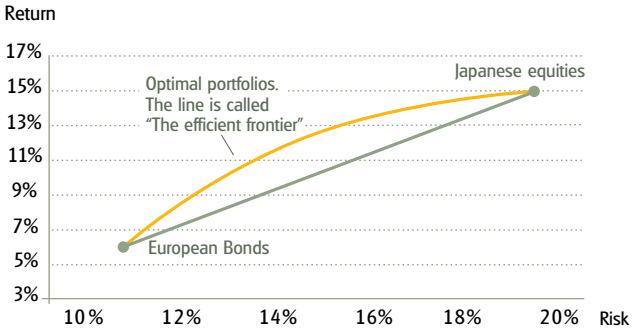
According to Markowitz, a combination of several types of assets may reduce risk, provided that the investor chooses types of assets which move as independently of each other as possible. Once this condition has been met, the best possible ratio between risk and return will be achieved.

For example:

If investors know that the price of Japanese equities will fall when the price of European bonds increases, this knowledge can be utilised to reduce part of the risk attached to the individual asset through diversification. When the investment is divided between Japanese equities and European bonds, the risk is diversified at the same time. Thus, diversification means that the investor can obtain a larger return per risk unit. This means that an investor can choose either to reduce the risk or to obtain increased returns at the same level of risk as before the diversification.

The figure illustrates the situation.

The efficient frontier - highest return at lowest risk



Source: Sparinvest

By combining the two investment opportunities, investors will logically be able to obtain all return/risk combinations on the straight line between European bonds and Japanese equities. But if the markets fluctuate and the development of the two investments is not identical, investors will get the so-called diversification benefit. In the figure, the risk and return level obtained is found in the area to the "north-west" of all the combinations which would be obtained by making both investments. The best possible combination of several types of investments results in what Markowitz calls "The efficient frontier".

> ***Whatever the investment objectives, the investor who is wise diversifies.***
>
> ***Burton G. Malkiel*** – *A Random Walk Down Wall Street*

The theory behind Strategic Asset Allocation is based on keeping the exposure between the different types of assets as constant as possible. This is based upon the theories that the markets are efficient and that no additional return can be obtained in the long run by switching between the individual types of assets (timing). An attempt at timing will, even at the best of times, add considerable trading and transaction costs. Often it will involve high risk or unstable returns as well.

The emphasis is placed on obtaining the best expected returns with respect to the risk. The risk is kept constant and is adjusted to suit the individual investor's time frame and willingness to take risks. Changes to the portfolio will only rarely be made. No attempts are made at timing the ups and downs of the markets, and no changes are made between regions, investment styles, etc. In line with the strategy, most changes in the portfolio will be made in the form of rebalancing if the regional distribution of the portfolio has, for example, become imbalanced because of price movements. Adjustments are also made if the style exposure of the portfolio changes over a period. The most important reason for a change in a strategic portfolio and investment policy is a change to the liabilities because of changes in legislation or, for example, the demographics of a pension fund.

As opposed to Strategic Asset Allocation, Tactical Asset Allocation seeks to take short-term market imbalances into consideration. Tacticians choose to switch allocation in the short term and try to ride the high waves while avoiding the worst part of the lows. If the strategic approach is used, a deviation from the original allocation will equal a deviation from the agreed risk exposure, which must be avoided. In such cases, the investment discipline is no longer used consistently; therefore there is no prospect of achieving the desired advantages. The problem of deviating from the original allocation is that it is necessary to base the investments on analyses and subjective expectations concerning the development of the market. This places heavy demands on information gathering, analyses and interpretation. But the biggest problem in connection with the tactical approach is that most information has already been priced into the markets.

> ***In essence, it is the surprises that no one sees coming that trigger price movements to establish new equilibriums in the markets. These surprises themselves are random events. Occasionally there are more good surprises than bad, and we have a bull market. Other times the reverse is true, and we have a bear market. There will be bulls and bears, but the evidence indicates, that there is no consistent way to predict the turning points.***
>
> ***Roger Gibson*** *– Asset Allocation – Balancing Financial Risk*

Unexpected information may reach the market at any time. This information can, for a short period of time, create imbalances until the new knowledge has been incorporated. However, the basic fact is that any unexpected information can neither be calculated nor predicted.

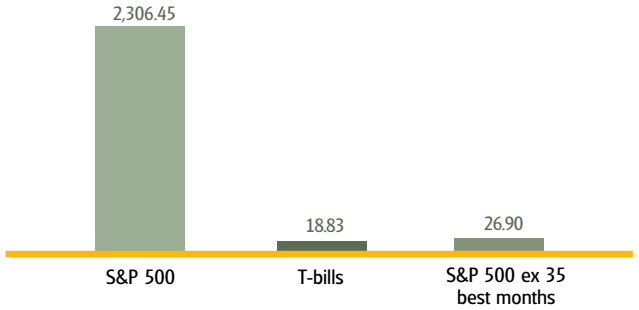
Markets will always have ups and downs, the timing of which we cannot predict. There will always be investors who happen to make the right choice. Good timing will often trigger the idea that it may be possible, after all, to time the investment portfolio to the investor's advantage.

> ***The evidence on investment managers' success with market timing is impressive – and overwhelmingly negative.***
>
> ***Charles D. Ellis*** – *Investment Policy - How to Win the Loser´s Game*

Experience shows that types of assets with a momentum today will not continue to have the same advantage in the future. Similarly, a poor return today will not necessarily mean a good return later. In other words, there does not seem to be any pattern behind the development of the individual types of assets. Furthermore, it also turns out that the additional return sought by tacticians arises during very short periods of time.

The analysis below is a brilliant illustration of this statement.

How much has 1 dollar grown from 1926 to 2006?



Source: Ibbotson Associates

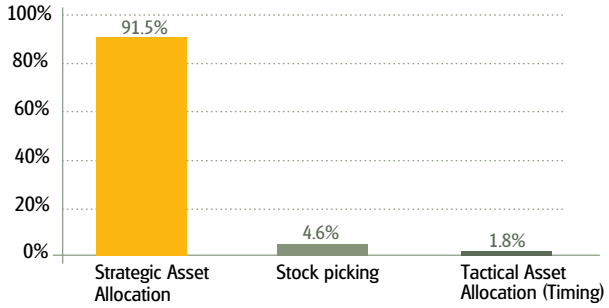
Ibbotson Associates has calculated that 1 dollar invested in the American equity index S&P 500 in 1926 had grown to 2,306.45 dollars in 2006. If the same dollar had been invested in American T-bills (short-term treasury bills), the return would have been markedly lower, i.e. 18.83 dollars. If we discard the best 35 months (i.e. only 4% of the total period), the return is more or less the same as for T-bills. In other words, the growth in return arises in the course of very short periods of time which you must, because of the nature of things, be more than lucky to spot.

Academic surveys show that the advantages gained by using Tactical Asset Allocation models are at best consumed by the costs of these same models. This explains why a portfolio managed with a tactical strategy is likely to underperform its benchmark whereas a strategic approach can provide excess returns. Whilst it is hard to consistently identify the top performing managers, one can gain a lot by avoiding the consistent underperformers whose inclusion in an allocation can drag overall performance down. This means that funds are allocated to managers who are able to choose the right equities (stock picking).

90 percent of the fluctuations in return can be explained as being the results of asset allocation. Two and five per cent, respectively, are due to timing and stock picking. Therefore, the Strategic Asset Allocation is the most important factor regarding risk management for a given portfolio. This means that the general investment policy is of the greatest importance for the fluctuations in the returns of the assets.

The above fact was first proven by an empirical study on US-based institutional investors made by Brinson, Hood and Beebower in 1986. Their research concluded that more than 90 percent of the fluctuations in returns were a direct result of the composition of types of assets in which the portfolios had been invested.

What explains the return fluctuations?



Source: Brinson, et al (1991)

Market timing and security selection are obviously important. The problem is that nobody achieves long-term success in the former, and almost nobody in the latter. Asset allocation is the only factor affecting your investments that you actually can influence.

William Bernstein – *The Intelligent Asset Allocator*

We have tried to uncover some of the many pieces of evidence that prove that Strategic Asset Allocation, and consequently the investment policy, are the key influences on the development of returns on investments. In spite of the overwhelming evidence, many asset management firms still choose to use the two-dimensional approach to asset allocation. The majority of professional asset management is, in other words, based on Tactical Asset Allocation.

Some people may say, "But both principles deal with asset allocation. What is the difference? Is it not just a question of words and does it have any material effect on return and risk if one or the other is used?" We can only say that there is a very large and most often a profound difference between the two methods.

Strategic Asset Allocation's advantage over Tactical Allocation is that the strategic discipline is neither trying to work with nor against the wind. Instead, market movements are ignored, and the fact that economies will have ups and downs is accepted. The types of assets are selected with a view to the best possible correlation. And the strategy is maintained regardless of the market fluctuations.

> ***No matter what happens, stick to your program. I've said "Stay the course" a thousand times, and I meant it every time. It is the most important single piece of investment wisdom I can give you."***
>
> ***John C. Bogle*** *- Common Sense on Mutual Funds*

By ignoring the psychological need to adapt to good or bad times, a more consistent diversification of risk is achieved. And the investor will enjoy a far more stable return. This systematic diversification of risk on the basis of known correlations between different types of assets is the great advantage of Strategic Asset Allocation.

Investing in assets without a thorough knowledge of the correlation between the types of assets can be very risky indeed.

2

Selecting a risk profile

The importance of investors' risk profiles and external conditions

Risk management is the most suitable method of avoiding insolvency. Knowledge of the fluctuations of the assets and liabilities is fundamental. This knowledge is the core of Asset Liability Management and Strategic Asset Allocation. Risk arises when assets do not match liabilities. Therefore, risk should be considered as the fluctuations between assets and the liabilities. The larger the share of unmatched assets, the higher the risk of future insolvency or underfunding.

All Strategic Asset Allocation processes are based on an analysis of the investor's risk profile. Within insurance companies' pension funds and life insurance companies, the risk profile is decided on the basis of an Asset Liability Management (ALM) study for the individual investor. The aim of such an ALM study is to find the best possible Asset Allocation. This means the allocation which allows for, as far as possible, provisions for reserves, legislative requirements, risk profile, bonuses if any, interest guarantees, technical insolvency, underfunding etc.

The process is complex and any allocation is individually tailored to meet the specific requirements and conditions of the investor. It makes no sense to compare one institutional investor's allocation to another's. In the extreme case, an allocation which is perfectly suited for one investor may prove disastrous for another investor.

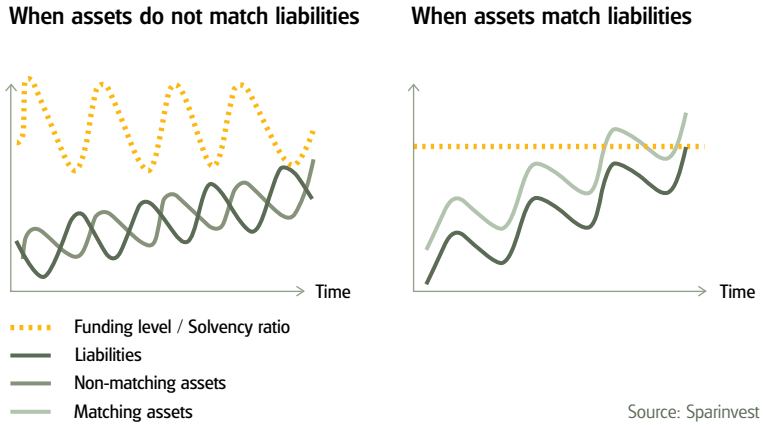
The overall challenge for the investor is to have the assets exceed the liabilities. In other words: Institutional investors - in the form of financial institutions such as insurance companies and banks - must at all times be solvent.

Solvency II regulations, expected in 2010, will make this a legal requirement.

Pan-European Pension Funds are also subject to tougher legislation with the launch of the IAS 19 accounting standard and the EC Pan-European Pension Fund directive which has been in force since September 2005. The time frame for institutional investors is often long term. And that applies to the investors' liabilities as well. According to traditional conventions, the long-term time frame requires a large proportion of equities. The problem is that the solvency requirements create limitations in this respect. Even though an investor, such as a pension fund, has a long-term investment horizon, the purpose of the investments is to provide the funding for the distribution of pensions – both in the short and long run. In addition, the person responsible for the investment is subjected to short-term monitoring by the Financial Supervisory Authority. This restricts the long-term focus and affects the selected risk profile. The aim of the institutional investor is to ensure a stable solvency or funding level.

But how is the solvency level kept stable over a period of time? This is an essential question to most institutional investors. Note that an institutional investor should focus on the difference between assets and liabilities. To maintain a stable solvency or funding level, institutional investors have to choose to invest in assets which are able to match the liabilities. The portfolio of assets must have the same characteristics as the liabilities. If this strategy is implemented, investors have a situation in which the value of the assets will increase when the liabilities increase, and vice versa. The consequences of both matching and non-matching assets appear in the figure.

This set of problems often creates the biggest challenges, as there is a lack of well-developed models which are able to cover these considerations sufficiently and consistently.



Source: Sparinvest

Risk management is the most suitable method of avoiding insolvency or underfunding. Understanding the fluctuations of the types of assets and liabilities is imperative in this respect. This knowledge is at the very core of Asset Liability Management and Strategic Asset Allocation. Consequently, the risk must be measured as the ratio between the fluctuations of the assets and the liabilities.

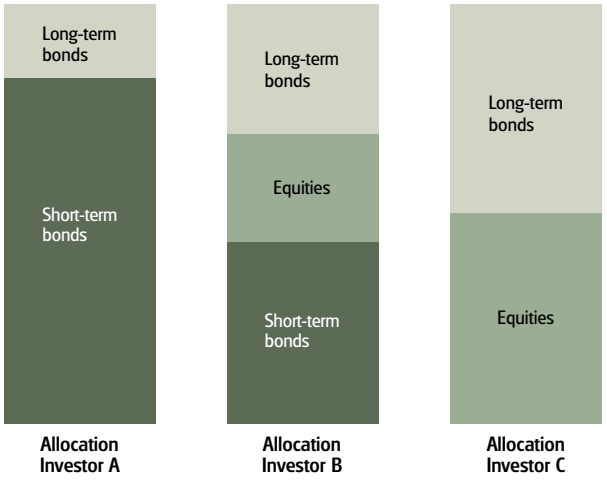
The larger the share of non-matching assets, the higher the risk of future insolvency. However, the risk can be met by having a higher financial buffer. The size of this buffer depends on the size and composition of the assets. Matching assets require a smaller buffer, while the opposite applies to non-matching assets. Thus, the solvency funding level controls the investor's risk profile.

The local Financial Supervisory Authority closely monitors the development of companies' solvency. With the introduction of the Pan-European Pension Fund directive and the Solvency II regulations, a fixed set of rules has been established which contributes to

establishing the amount of risk a specific investor can take. Lower solvency or funding level, i.e. the assets in proportion to liabilities, will limit the number of risky assets allowed. The consequence of this legislation for many investors is a relatively high exposure to bonds. It is necessary to realise that Asset Liability Management will lead to individually tailored allocations.

This means that different institutional investors will have different asset allocations depending on their liabilities and financial buffer, as shown in the figure below.

Different asset allocations for three different types of investors



Source: Sparinvest

The risk profile of the institutional investor is decided on the basis of a matching principle between assets and liabilities. This principle creates the basis for the selected Strategic Asset Allocation. Well-developed Asset Allocation models take into account: the composition of the liabilities; stress test scenarios (such as 'traffic lights') and the financial buffer when calculating optimum portfolios and deciding on investment policy.

3 Selecting types of assets

The correlation between types of assets and liabilities

As a main rule, it is important to include as many asset classes as possible. The more alternatives available in the overall investment universe, the better. But before the assets classes are selected, the risk and expected return of the portfolio are matched to the liabilities and the investor's risk profile. The final choice is always based on a wish to match the assets to the characteristics of the liabilities, and at the same time to create additional returns in relation to the liabilities.

Which types of assets match the liabilities well? It is reasonable to say that bonds must be the foundation in a Strategic Asset Allocation for the majority of institutional investors. The condition exists because bonds share many identical characteristics with liabilities. But of course things are not as simple as that. The duration of liabilities and funding or solvency level will always be individual and specific to the individual investor. It is therefore desirable to allocate types of assets that must, in the long run, be expected to yield additional returns in relation to the liabilities.

Creating the best possible portfolio is a multi-stage process. The most important aspect of this process is undoubtedly the selection of the asset classes. The right composition of assets is of significant importance for the long-term return of the portfolio. As previously explained, this selection must be made taking the following into consideration: liabilities, the risk profile, the investment horizon, the required return, and legislative or subjective limitations, if any.

Before selecting types of assets, the risk and expected returns of the portfolio are compared with the liabilities and the investor's risk profile. As a main rule, it is important to include as many asset classes as possible. The more alternatives in the overall investment universe, the better. The most important criteria for the selection of types of assets are: volatility, returns and correlation. To gain

knowledge about these criteria, empirical data in the form of indices are most often used.

The choice of market index to represent the types of asset selected is of great importance for the final allocation proposal. Not only is the list of index providers infinitely long, each index provider has developed their own unique calculation methods. When implementing Strategic Asset Allocation, it is therefore important to consider thoroughly the demands investors place on the various market indices. An index, e.g. the American stock market, may differ widely as far as returns are concerned, depending on the provider selected.

Besides basic requirements regarding data discipline and consistency in calculation methods, it is also essential that the index composition is representative of the market in question, i.e. that the underlying assets are varied enough to reflect the whole market. To be able to understand and work with these market indices, it is also necessary for the methods to be well-documented and transparent. Only then is it possible to assess whether the index is suitable as a proxy for the type of asset selected.

Apart from the calculation method, it is important to choose data series with as long histories as possible. It is logical that the longer an index has been in existence, the greater the number of risky scenarios that will have been experienced and incorporated into it. This is highly relevant for the calculation of risk and correlation, since these are calculated solely on the basis of the historical performance. It is important to select an index with a data series that is long enough to include major financial events, such as oil crises, stock market crashes, IT bubble, etc. The more of these types of events that are included in the historical data of returns, the higher the statistical significance of the final calculations.

The optimising process is initiated when sufficient return history is available and when knowledge has been obtained about suitable indices on the markets in which the investor has a possibility of investing.

Investment style selection

Once the foundation for a sensible, systematic diversification has been laid, it is equally important for the investor to decide which investment style to use within these types of assets. It is important that diversification is implemented also at this level.

Diversification in investment style is something relatively new in Europe. However, the discipline has been known and used in the USA for many years. For equities, the distinction is made between growth and value equities, as well as small-cap and large-cap equities. Together with other experts in this area, the Nobel Prize winner, William Sharpe has proven that this division of the market has the largest clarification rate and the greatest stability. Dividing the market, for example, according to sectors, is more unstable and the characteristics will change more rapidly.

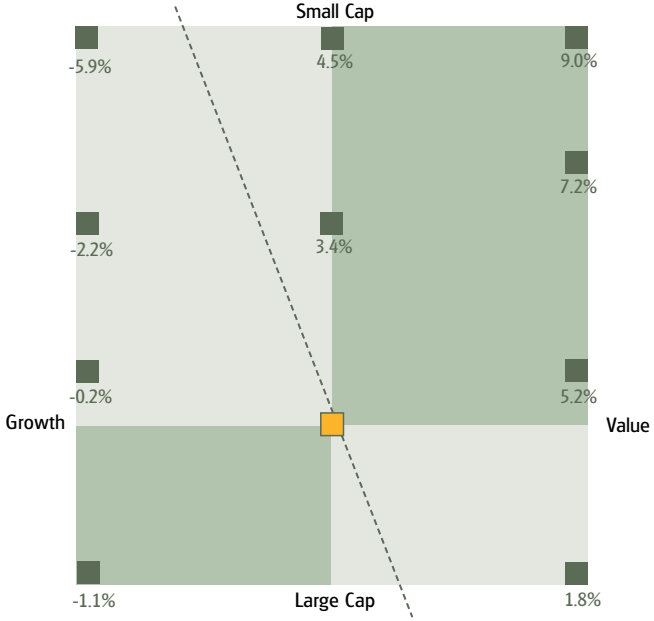
The investor decides on the composition of the portfolio through the above-mentioned investment styles. In order to choose the right style allocation, the use of empirical data is not enough. In a competitive market, an investor must also take into consideration competitor performance and decide what degree of deviation from the market is acceptable. The fact is that the different investment styles act very differently in relation to each other, particularly in the short term.

In 1992, the economists Fama and French demonstrated that value stocks - defined as stocks with a low price/book value – yielded a

considerably larger return than growth stocks in the long term. At the same time, the analysis proved that small-cap equities gave a larger return than large-cap stocks.

Lakonishok has later stated that this is accomplished at a lower risk. This fact has made more investors wonder if it is possible to obtain additional returns on their equity investments by exposing themselves, to a greater degree, to value and small-cap equities.

Examples of investment styles



Source: Kenneth French. Data 1963-2006

The conclusion of the analysis made by Fama and French can be seen in the figure above, which shows excess returns in relation to the market average. The dotted line symbolises the portfolios which are expected to yield a neutral market return. The mutual effect of the two factors will balance each other along this line. Portfolios to the "north-east" of the dotted line will generate excess returns compared to the market. The Fama and French argument for this is that stocks to the "north-east" of the dotted line carry more risk and should therefore also give higher returns. However, Lakonishok and others are sceptical about whether there is an actual additional risk. Therefore, much seems to indicate that a relatively higher return may be obtained in the "north-eastern" square without assuming a higher level of risk. At any rate, there seems to be an argument for having an over-exposure of value and small-cap equities in a portfolio at any time.

After establishing the Strategic Asset Allocation based on investor's risk profile and after deciding the strategic investment style, it is possible to establish a target portfolio that is divided into types of assets and investment style.

The target portfolio is included in an investment policy which is typically approved by the Board of Directors of the institutional investor. For pension funds and life insurance companies, the approval is made after consulting with the responsible actuary. The documentation of the approval covers investment-related objectives, the risk profile, the types of assets selected, handling of currency exposure, criteria for mandate selection, the strategy for rebalancing and a number of other essential conditions. This document consequently becomes central in the further implementation of the selected Strategic Asset Allocation.

4

Selecting mandates

Taking the selected allocation and risk profile all the way through to the final portfolio

It is crucial that the selection of mandates matches the selected characteristics of the types of assets as well as the chosen style exposure. There are several different models for the selection of mandates. The Return-Based Style Analysis is a good tool for screening mandates and rejecting the least suitable options. Furthermore, it is an objective tool for the continuous monitoring of both segregated and non-segregated mandates. Thus, it secures that the selection of mandates and the exposure will not deviate from the preconditions that the optimised portfolio is based on. Consequently, it ensures that the strategy selected is strictly adhered to.

The choice of mandates is essential in order to be able to implement the selected strategy. The concrete allocation and risk profile must be implemented all the way through to the final portfolio. This places certain demands on the mandate selection because it must match the chosen characteristics of the assets classes and the selected style exposure. Also, in the years following the mandate selection, follow-up and maintenance of the portfolio must be guaranteed not to deviate from the original strategy. But how can an investor select the best and most consistent managers?

We do not need to go further back than to the IT bubble to demonstrate that investors deviated widely from sensible allocation and, to a large extent, chose managers and portfolios that focused solely on growth stocks. The mandate selection is therefore critical, just as it is very important to differentiate between, and be familiar with, each mandate's exposure.

The Return-Based Style Analysis is a good tool for facilitating institutional investors' choice and monitoring of external mandates. The method was introduced by William Sharpe in 1992 but attracted little attention at first. Only during the second half of the nineties did the method begin to be widely used by institutional investors

in the USA. The model is primarily used by investors who work with the asset allocation principles introduced by Markowitz. However, it is also used by investors who want an objective instrument for the evaluation of internal and external capital managers.

The method is quantitative and based on return data from a fund or a portfolio. The idea is to uncover the exposure both in geographical markets, capitalisation rates and growth and value stocks. The strength of the method lies in its simple construction as far as theory and calculations are concerned, which – compared to stock-based analyses – focuses only on return figures.

When an investor can choose between hundreds of funds, the Return-Based Style Analysis can help screen the selection in terms of exposure. In this way, the choice of funds can be tailored to match the selected allocation in terms of asset class and style exposure. This consistency is vital for the risk management of the portfolio and necessary for adherence to a strict process.

The Style Analysis ensures that the first step taken in the selection process is pointed in the right direction. Subsequently, the analysis can focus more thoroughly on the funds and mandates that are felt to best match the investor's criteria. Institutional investors will typically deal with those internal and external mandates that best suit them concerning the different markets and asset classes. To implement the selected allocation, it will therefore be necessary to monitor the internal and external mandates. This means that an investor can avoid the consequences of a situation where, for example, the portfolio managers of more than one management firm "fall in love with" the same asset or market. If the investor is not aware of this problem, he may become overexposed to a specific type of asset or investment style.

Style Analysis of the return from the internal and external mandate will also reveal whether the portfolio manager is true to his own strategy or if a so-called "style drift" is taking place. Style drift is unwanted within Strategic Asset Allocation. The consequence of style drift is a change to the risk exposure within the overall portfolio and consequently also a change to the conditions on the basis of which the portfolio is optimised. Therefore, it is imperative to maintain a strict strategy for mandate selection and evaluation.

5 Rebalancing

Maintaining the strategic starting point

It is essential that the portfolio is regularly brought into line with its strategic starting point. This is the only way possible to maintain the originally fixed risk profile. Institutional investors will typically implement semi-annual or annual rebalancing. During the annual analysis of liabilities, any need for adjusting the strategic starting point is revealed.

It becomes necessary to rebalance the portfolio when market fluctuations occur within the individual types of assets; partly due to the limitations imposed by legislation and partly to make sure that the portfolio is regularly brought back in accordance with its strategic starting point. If, for example, the price of equities increases during a period, but bonds remain unchanged, the weight in equities must be reduced and the funds invested in bonds. If this rebalancing is not carried out, the risk associated with the portfolio, in the course of time, will have changed and consequently will be a different profile from the one which was originally selected.

There is no overall accepted, academic rule regarding how often the portfolio should be rebalanced. However, the frequency must of course be related to the costs of converting the portfolio. Many analyses have been made within this area, and the results are almost as numerous. However, most of them point in the direction of rebalancing every six or twelve months.

Institutional investors should use disciplined rebalancing. This will have a stabilising effect on the return and will, at the same time, result in the best possible management of risk and performance in relation to the stress test of the local Financial Supervisory Authority. However, cash-flow during the period will act as a stabilising factor and thus reduce the need for rebalancing. Naturally, payments by members can be used to invest in the types of assets which are underweighted as a consequence of market fluctuations. Otherwise,

rebalancing payments are obtained by selling off investments which form too large a part of the total portfolio because of market fluctuations.

> ***An important assumption underlies all of the portfolio discussions thus far: that at the end of each year, the investor rebalances the portfolio back to the target compositions. If a particular asset has done extraordinarily well, its portfolio weighting will increase; consequently, enough of it must be sold and reinvested in the poorly performing assets, to return to the target composition. [...] You cannot underestimate the amount of discipline and patience required for this process, because it means doing exactly the opposite of what most of the investment world, almost all of whom are professionals and experts, is doing.***
>
> ***William Bernstein*** – *The Intelligent Asset Allocator*

Is it possible to avoid rebalancing? The answer is no. Over a period of time, the portfolio will always change, and the weighting will shift. The portfolio contains the same assets, but the new weighting leads to more instability and increased risk exposure. Rebalancing contributes to bringing the portfolio back to the starting point, thus reducing the uncertainty.

This means that a rebalancing policy is important regardless of the method used. For example, an investor may have a Strategic Allocation +/- a fixed percentage limit. This means an investor could choose a 5 per cent limit or rebalance at a fixed frequency of once a year. If you are working with limits which are too wide or intervals which are too long, the rebalancing policy is blurred and will virtually lose its effect. Too tight limits and too short intervals between rebalancing are definitely not desirable because of the costs incurred in trading.

The figures show the effects of a Strategic Asset Allocation with 20 per cent global equities and 80 per cent Danish bonds. The limit to rebalancing has been fixed at +/- 5 per cent.

As can be seen in this example, the passive rebalancing strategy leads to higher returns and lower volatility than the buy-and-hold portfolio during the same period of time.

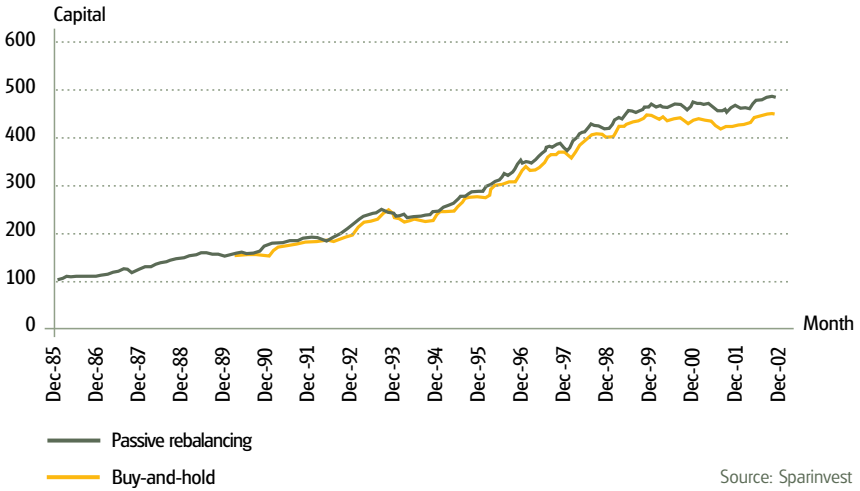
An example of passive rebalancing vs. buy-and-hold

	Buy-and-hold	Passive rebalancing *
Average return	3.59%	3.77%
Volatility	2.65%	2.61%
Sharpe Ratio	1.35	1.44
Number of rebalancings		10

* Transaction net of costs

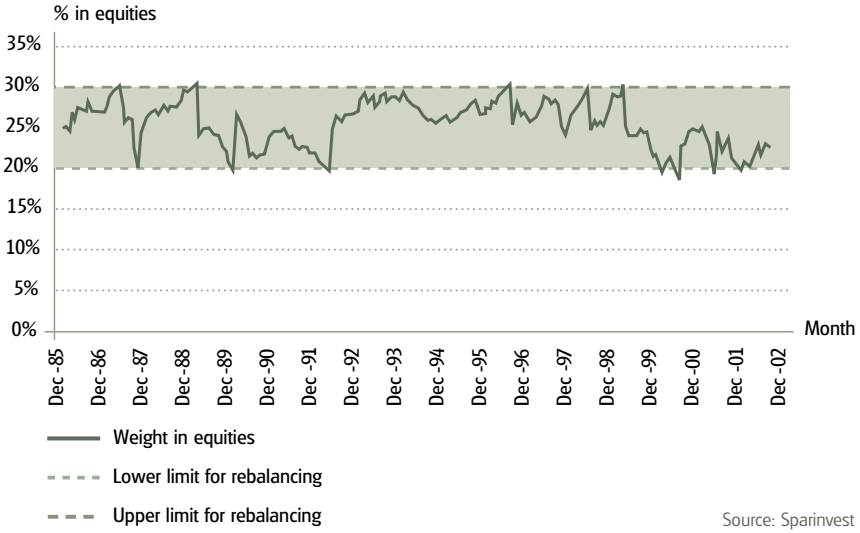
Source: Sparinvest

An example of capital growth with passive rebalancing vs. buy-and-hold



Source: Sparinvest

Weight in equities at passive rebalancing



Source: Sparinvest

The aim of rebalancing is, of course, risk management, but an additional advantage is that rebalancing will lead to additional returns in the long run.

In practice, rebalancing should always be carried out in connection with an annual Asset Liability Management and Strategic Asset Allocation review.

The annual review also includes the development of the liabilities. An analysis of the liabilities may reveal a need to adjust the strategic starting point. Thus, it is not just a question of an annual rebalancing, but possibly also of an adjustment to the selected strategy.

6

Why doesn't everybody use Strategic Asset Allocation?

Should belief and attitude come before knowledge based on theory and practice?

Most investors use some type of risk diversification. However, diversification without consideration of liabilities and without regard to the mutual correlations between the assets classes is, unfortunately, not enough. The diversification must be made on the basis of an overall systematic approach if you wish to obtain the optimum and controlled effect. Looking for tomorrow's new and exiting assets is both fascinating and exciting. But what is the use of excitement, if the gains are at best consumed by costs? And if the risk of underfunding or technical insolvency increases every time security is put at risk by following the "right winds" without consideration for the liabilities. So, why do so many investors choose to be exposed to this risk?

Many investors believe in market timing

There are examples of this, but only very few investors have been consistently successful in "timing" the market over a longer period of time. There is, however, abundant proof to the contrary. There is a substantial risk of ending up with a portfolio characterised by an inadequate degree of stability compared with its risk exposure, perhaps even with a distorted balance between assets and liabilities. Such a portfolio is extremely likely to run the risk of underfunding or technical insolvency.

Many investors underestimate the effect of diversification...

The diversification of risk is not a new concept. Every investor uses some form of diversification. However, diversification alone is insufficient in achieving the optimum, controlled effect of systematic diversification. A sound diversification is achieved on the basis of known correlations between the different types of assets. It makes a big difference when the diversification is made systematically rather than on the basis of beliefs and attitudes - even if those attitudes appear to be well-founded at the time. A correct diversification accounts for the fact that different investment objectives require different allocations, and that the allocation should be established after a full consideration of the liabilities.

Many investors and managers find it boring...

This is an extremely human argument. It is exciting to speculate and have that speculation pay off. The question is, however, whether giving in to this excitement is the right thing to do? Perhaps it is better to be able to explain 90% of the fluctuations in returns and to be enthusiastic about stable, good results.

The aim must be for institutional investors to be able to pay their debts, at any given time, without having to worry about whether this is possible today or in the near future.

Many investors choose to follow the current trends...

Many managers and investors spend their time seeking new and exciting investments. This trend will often draw other managers and investors into their enthusiastic wake. Imagine if they could find the latest "promising type of asset" or the next "exciting product." Few people want to miss out on a promising wave. We only have to look back at the euphoria of the IT bubble to get a clear picture of this. Many investors measure their performances against their neighbour's. Being at the top is gratifying, regardless of the state of market conditions. Unfortunately, this comparison is made without giving sufficient consideration to the fact that investors have different liabilities and therefore place different demands on the individual's allocations and performance.

Doing the opposite of everybody else requires courage. And implementing a pure Strategic Asset Allocation and investment policy requires stamina.

Hopefully, this book has given a brief and interesting overview of the ideas and principles behind Asset Liability Management, Strategic Asset Allocation, and Return-Based Style Analysis.

It is our hope that the ideas presented in this book will have increased your appetite for continuing to work with the principles described herein. And we hope that this will enable us to share our enthusiasm and results with even more people.

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