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Norges Bank Investment Management

Management strategy of large foreign funds

By Norwegian standards, the Government Petroleum Fund is a very large fund. But internationally, there are many funds with long-term management strategies that are considerably larger and have been managed for many years. This article presents key strategy choices made by other large funds, with particular focus on US pension funds. The different choices are outlined, including the size of the share invested in stock markets, and the conditions that may explain these choices are presented. Differences between these funds and the Petroleum Fund are discussed in the final section.

Introduction

Various types of large institutional asset manager use long-term management strategies. The most common categories are pension funds and life-insurance companies. Institutions that manage other countries' accumulated surpluses, such as the Government of Singapore Investment Corporation [1)], are another category. Other such funds, where the source of accumulated capital is more akin to the Petroleum Fund, include the Alaska Permanent Fund, the Alberta Heritage Savings Trust Fund and the oil funds in Kuwait and Oman. Some foundations and endowment funds that support specific causes also manage considerable resources in accordance with a long-term strategy.[2)]

For a number of these funds, little information is available regarding the composition of portfolios. Of those mentioned that manage accumulated government surpluses, only the Alaska and Alberta funds publish information on portfolio composition and performance. For pension funds, however, ample information is available.

The Petroleum Fund has a long investment horizon, as do pension funds. A certain degree of similarity in asset composition can therefore be expected. But for several reasons, there will also be considerable differences between the Petroleum Fund and pension funds, and between the various pension funds.

1) According to the information available on its website, GSIC manages a fund of over USD 80 billion.
2) For example, the Wellcome Trust, which finances medical research, manages a fund of over USD 20 billion. The Harvard Endowment Fund, which is an important contributor to the budget costs of various faculties at Harvard University, amounted to just under USD 15 billion on 30 June 1999.

Table 1: Country distribution of large pensions funds			
Country	> USD 40 billion	> USD 80 billion	> USD 120 billion
US	25	8	1
Netherlands	2	1	1
Sweden	2	0	0
Japan	2	0	0
UK	1	0	0

Pension funds – size and domicile

Eleven of the twelve largest pension funds in the world are in the US.[3)] The largest is the California Public Employees' Retirement System (CALPERS), which managed USD 170 billion at end-October 2000. At the same time, the public employees' pension fund in the Netherlands, ABP, managed assets with a value of USD 125 billion[4)], making it the second largest pension fund ranked by size.

3) Source: International Pension Funds and their Advisors 2000. Aspire Publications.
4) Valued at the exchange rate between the euro and the USD in October 2000.

Table 1 shows the country distribution of pension funds that manage more than USD 40 billion, USD 80 billion and USD 120 billion respectively. By way of comparison, the Petroleum Fund managed assets totalling just over USD 43 billion at end-2000.

The world's largest manager of pension assets, the US Teachers Insurance and Annuity Association – College Retirement Equity Fund (TIAA-CREF) is not included in this overview. TIAA-CREF manages pension assets for teachers/professors,

etc. at colleges and universities throughout the US. Officially it consists of two separate companies that are regulated by different legislation. TIAA is organised as a life insurance company, whereas CREF is a management company that is monitored by the US supervisory authority, the Securities and Exchange Commission (SEC). TIAA primarily offers lifetime annuity products with a guaranteed return, where underlying investments are fixed-income investments. On the other hand, CREF offers long-term saving in the stock market with no guaranteed return. Even though legally TIAA-CREF is two separate companies and not a pension fund, the entities are still comparable with such funds. TIAA-CREF is generally viewed as one company that offers defined contribution pension savings in fixed income and equity instruments. The entities share the same head of investment and some management structure[5)] and a single management organisation has operational responsibility for investments. At end-December 2000, TIAA-CREF managed assets valued at just over USD 275 billion, of which a good USD 150 billion was invested in listed equities in the US and the rest of the world.

5) Seven people comprise both companies' Board of Overseers, but fulfil different responsibilities for TIAA and CREF. In both companies, the Board of Overseers is responsible for changes in the articles of association. In the case of TIAA, the company's Board of Trustees, or management, is appointed by the Board of Overseers, whereas in CREF, they are appointed directly by the members.

Strategic asset allocation is important

Strategic asset allocation can be defined as the long-term distribution of capital in a fund over different asset classes: domestic and foreign equities, domestic and foreign bonds, cash, real estate and alternative investments (eg private equities). Strategic decisions regarding the allocation of assets will be fixed for a long period. Large pension funds often define targets for the proportions of the various asset classes. Such targets are directly comparable with the distribution of equities and fixed income instruments in the Petroleum Fund's benchmark portfolio.

A completely passive management style would involve simply buying securities to match the fund's benchmark portfolio, but this is a very unusual choice of management style. Moreover, in some asset classes, such as real estate and alternative investments, it would be nearly impossible to define a completely passive management style. Nearly all pension funds include an element of active management. Tactical asset allocation is one example of active management, ie short-term deviations between actual asset allocations and allocations in the benchmark portfolio. In addition, active management also generally entails a choice of management style in each asset class and security selection.

Studies of US data show that strategic asset allocation explains around 90% of the variation in funds' performance over time. In other words, long-term asset allocation is a dominant factor in every fund's absolute risk. On the other hand, attempts to explain differences in funds' performance show that active decisions have been more important. Only around 40% of the difference in funds' performance is explained by their having different long-term asset allocations.[6)]

6) See Brinson, Hood & Beebower: "Determinants of Portfolio Performance", *Financial Analyst Journal* July/Aug 1986, and Ibbotsen & Kaplan: "Does Asset Allocation Policy Explain 40, 90 or 100 per cent of Performance?", *Financial Analyst Journal* January/February 2000.

Defined benefit and defined contribution pension schemes

A pension fund's management strategy will be influenced by whether it is organised as a defined benefit or a defined contribution scheme. A prevailing share of pension funds in the US and other countries are defined benefit schemes. In this system, pensioners are guaranteed a given benefit that is usually a percentage of their final wage. The benefit level and current return on assets will determine the size of annual contributions. In the 200 largest pension funds in the US, 81% of capital was placed in defined benefit schemes in 1999.[7)]

7) Source: Pensions and Investments 1000: issue 24 January 2000.

The remaining 19% was placed in defined contribution schemes. In these schemes, the size of the contribution and the return on savings capital determines the benefit. The pensioner is not guaranteed a set benefit level. In defined contribution schemes, individual members of a pension scheme often have a say in investment decisions regarding their own savings. For example, the pension fund may set up a number of portfolios in different asset classes and allow each member to distribute their savings over the different asset classes.

In a defined benefit scheme, the distribution of capital over asset class is decided by the pension fund. In principle, there is nothing to stop the fund deciding asset distribution in a defined contribution scheme either, but as mentioned, asset distribution in these schemes is often the result of each participant's choice. It seems only fair that the person who assumes the risk in connection with the choice of asset allocation should also make that choice.

Asset allocation in large defined benefit pension schemes

A pension fund with defined benefit schemes allocates its assets on the basis of its pension obligations. In a defined benefit scheme, it is possible to calculate when these obligations mature, and the real value of the payments at that time.

The least risky investments that such funds can make are investments with a known cash flow that coincides with the time of payments. Examples are long inflation-linked bonds that are issued by the authorities in the country or countries where the fund has its pension obligations. As the name implies, issuers of real return bonds offer a return which, in addition to a specified real yield, also takes account of inflation.

The nominal yield will therefore vary in line with inflation. If a pension fund still chooses to invest substantial portions of its portfolio in other instruments, it is because not even long real return government bonds have a repayment profile that fully matches the pension obligations. Furthermore, this is not a realistic alternative for the larger funds in particular, as the market for real return bonds is still relatively limited.

More importantly, other investments, equities in particular, have a higher expected return in the long term than government bonds, in comparison to both real return bonds and the larger market for government bonds with a fixed nominal coupon. A pension fund's expected returns increases if government bonds are replaced by equities. Uncertainty regarding the size and timing of cash flows increases, but in the longer term, the expected higher return will reduce the contributions that are necessary to finance the pension scheme's obligations. Alternatively, the higher expected return will contribute to higher coverage (the ratio of the estimated net present value of the fund's investments to the estimated net present value of the fund's pension obligations), which in turn secures future payments to pensioners.

Chart 1: Average capital-weighted asset distribution, 200 largest pension funds in US, defined benefit schemes

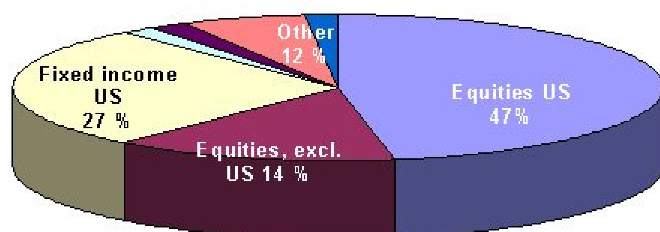


Chart 1 shows the average, capital-weighted asset distribution of defined benefit schemes in the 200 largest pension funds in the US in 1999.[8)] The dominant asset classes are equities in the US and the rest of the world, and domestic bonds. Other asset classes shown in the chart are fixed-income investment outside the US (2%), cash (2%), private equities and real estate (6%) and other investments (2%).

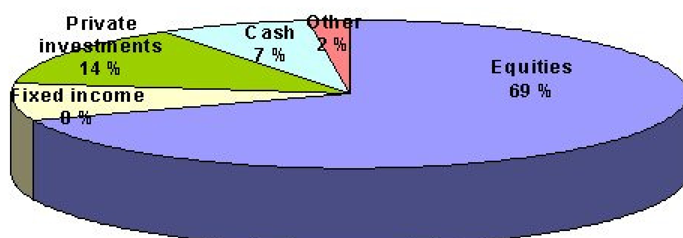
The chart does not show the spread of asset allocations among the funds covered by the data. The equity allocation varies from 55 to 74% among the ten largest pension funds with defined benefit schemes.[9)] When the highest and lowest recordings are excluded, the equity allocation is somewhere between 63 and 71%. It is worth noting that the average equity allocation in the ten largest funds is still higher than the average for the 200 largest funds as a group. However, one should not draw the conclusion that there is a positive relationship between the size of the fund and the equity allocation. If the equity proportion of the 200 largest funds is compared with the next 800 funds, the difference is marginal.

8) Source: Pensions and Investments 1000 issue, 24 January 2000.
9) Excluding General Motors' pension fund, as there is no data available.

Asset allocation in defined contribution pension schemes

Not only does the volume of assets under management differ between defined benefit and defined contribution pension schemes; asset distribution in the two types of pension fund also differs (see Chart 2).

Chart 2: Average capital-weighted asset distribution, 200 largest pension funds in US, defined contribution schemes



The chart does not show one important difference between two categories of defined contribution scheme: private sector and public sector pension funds for employees and pensioners. In 1999, the private sector accounted for 39% of defined contribution pension funds and the public sector for 53%.

In the private sector, company equities constitute an important part of pension assets. In 1999, 36% of total assets in private sector defined contribution pension funds was invested in company equities, ie a good 50% of the total equity capital in these pension funds. The equity allocation in private sector funds is higher than in public sector funds as a result of investment in company. Consequently, the equity allocation in defined contribution schemes is generally higher than that in defined benefit schemes in the US. If defined contribution schemes in the public sector are compared with defined benefit schemes, the differences in asset allocation are only minor.

In the chart, 'private investments' is the term used for real estate and private equities. As the term indicates, market prices for these investments are not quoted on a daily basis. It would therefore appear that volatility is lower in these investments. However, this would be misleading as regards the true risk, especially for private equities.

Asset allocation in pension funds outside the US

In a number of countries in Europe, asset distribution is strongly influenced by limits set by the authorities for equity exposure in pension funds. Comparisons between US and European funds may therefore be of little value (see feature article in the Government Petroleum Fund's Annual Report for 1998).

ABP is Europe's largest pension fund and is registered in the Netherlands, where the authorities have not set any limits for asset allocation in pension funds. Dutch pension funds therefore have a higher equity allocation than the average in Europe (45% compared with 36%).[10)] However, ABP has a lower equity allocation than the norm in the US (see Chart 3). A small share of investments in private equities is also included in the equity allocation.

Similarly, the UK does not have set limits for pension funds' equity allocation. UK pension funds also have a long tradition of investing large portions of pension capital in the stock market. The average equity allocation in UK pension funds was over 70% in 1998.

Table 2 shows the average equity allocation in pension funds in some European countries according to surveys that were largely carried out in 1999.[11)]

10) Source: Greenwich Associates: "Investment Management, Continental Europe", October 2000.
11) Source: Greenwich Associates: "Investment Management, Continental Europe", October 2000.

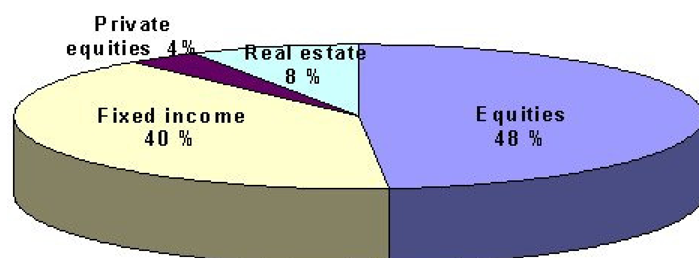
Table 2: Average equity allocation in European pension funds. Per cent		
Country	Equity allocation	Share of foreign equities
Belgium	53.0	42.8
Denmark	37.5	20.5
France	27.6	3.5
Netherlands	50.7	38.5
Spain	26.1	16.1
UK	74.2	22.6
Switzerland	37.6	15.3

Data for large countries such as Germany and Italy are not presented in the table. In these countries, the bulk of pension assets has traditionally been invested in fixed income instruments. However, according to surveys carried out in the market, the equity allocation in pension funds in these countries increased substantially last year.

In contrast to these two countries, pension funds in Sweden have traditionally invested a large proportion of their capital in equities. For example, the largest pension premium fund in the new Swedish pensions system, the seventh AP fund, had an 85% equity allocation in its portfolio, and 65% of the fund was invested in foreign equities.

In the Netherlands and on the Continent in general, there is a clear trend towards increasing the equity allocation at the expense of bonds, and investments are being moved from the domestic market to international stock and bond markets. According to market surveys, the average equity allocation in European pension funds was higher in 2000 than in previous years. This may be due to the easing of regulations in some countries and lower current returns on bond investments than previously.

Chart 3 ABP Pension Fund's asset distribution



The authorities in most European countries have set limits that restrict the possibility of further growth in pension funds' equity allocation. However, the EU Commission has proposed a directive that may allow pension funds greater flexibility in their choice of asset distribution in the longer term.[12)] If this proposal is accepted, there is reason to expect an increase in the equity allocation in pension funds in EU countries.

After the US and Europe, Japan is the third largest market in the world for long-term saving. As in Germany and Italy, Japanese pension funds have traditionally invested the bulk of their portfolios in fixed income instruments. According to OECD figures, just over 14% of assets in Japanese pension funds were invested in equities in 1998.[13)] The average equity allocation in Japanese life insurance companies, which play a far more important role than pension funds in terms of institutional saving in Japan, was only marginally higher.

12) The EU Commission's proposal for the European Parliament and Council's directive on market-oriented pension funds' activities, 11 October 2000. The proposal is part of an action plan for financial services to be implemented by 2005. Deliberations on the proposal are scheduled for 2002.
13) Source: OECD Institutional Investors, Statistical Yearbook 2000.

What is the explanation for funds' asset allocation, and how do companies differ?

All investors face a fundamental problem when deciding on their asset allocation: how to distribute capital over the various asset classes to achieve the optimal trade-off between expected return and risk. The most fundamental risk for a pension fund is that of being unable to pay out pensions when they fall due.

Pension funds have different repayment profiles. Some funds have a predominance of younger workers in their membership, so that on average, pension payments lie far in the future. In other pension funds, older workers and pensioners predominate, so that the average payment time is much closer. It is often assumed that investment in a broad equity portfolio is less risky when the time horizon is longer.[14)] The longer the time horizon is, the less likely it is that the real value of the equities will fall. On the basis of this theory, pension funds' equity allocations must be expected to differ, depending on their repayment.

14) This is an important conclusion reached in Jeremy Siegel's well-known book, "Stocks for the long run", McGraw-Hill, 1998 (2nd edition).

There may also be a connection between pension funds' coverage and equity allocation. Coverage is the ratio between the value of the fund's investments to the estimated net present value of pension obligations undertaken by the fund. Over shorter periods, for example one year, there is a real possibility that stock markets may fall sharply and reduce the fund's coverage. If a fund's risk tolerance is such that a 5% (for example) decrease in coverage is found to be more detrimental if there is initially 100% coverage than if there is 120% coverage, then coverage itself will influence asset distribution.

Allocation should also take account of other factors, such as changes in the distribution of pension obligations over time. It is a very complex task, and this complexity may result in emphasis also being placed on simpler, less relevant considerations, such as the average asset allocation of other pension funds. Although asset allocation should ideally differ from fund to fund, in practice other funds' asset allocations may play a major part in a particular fund's choice of allocation. By choosing the same allocation as other funds, a fund reduces the likelihood of a substantially weaker performance than other funds over a period of time.

Company equities constitute an important part of pension assets in defined contribution pension funds in the private sector. These investments are an obstacle to a broader equity portfolio and other asset classes. Asset allocation in defined benefit and defined contribution pension schemes must be expected to differ in other ways too. Defined contribution schemes provide no guarantee of future benefits. From the pension fund's perspective, equity investment therefore appears less risky and is more attractive in this type of scheme than in a defined benefit scheme. This is discussed in more detail, with additional empirical evidence from markets outside the US, in a feature article in the Government Petroleum Fund's Annual Report 1998. The article shows that apart from investment in company equities, differences between the two types of scheme are minor.

In defined contribution schemes, members are often given the right to make individual investment choices. Members choose the asset classes in which they wish to invest and (to a more limited extent) if any party other than the pension fund is to manage portions of the pension capital. Once participants have decided on the asset allocation (choice between equities, bonds and other asset classes) and the geographical or sector spread within these asset classes, the most important factors determining the return on pension capital have been established. The choice of manager or managers in each asset class will have less impact on the return. Whether a member has the opportunity to choose a management company for each sub-portfolio, or whether this is done by the pension fund, will vary from fund to fund.

A closer look at asset classes

Investments in domestic and foreign listed equities and bonds account for the bulk of pension funds' total investments. Nearly 90% of domestic equity investment in the US is in companies described as "large cap", ie large companies that are often listed on the New York stock exchange.[15)] The remainder is invested in "small cap". Small technology companies that are listed on the NASDAQ are generally included in this group. As a rule, the return on pension funds' domestic portfolios is measured against the best-known equity indices, such as S&P 500 (large cap) or Russell 3000/Wilshire 5000 (total market). The figures in the index name refer roughly to the number of equities included in the index, and indicate that these benchmark indices cover a large number of companies.

The dominant benchmark index for US pension funds' investments outside the US is Morgan Stanley/Capital International (MSCI) which covers 22 developed stock markets in Europe, Australia/New Zealand and Asia (EAFE).[16)] Together with Canada, these countries comprise the investment universe for investments in international developed stock markets. Just under 10% of international investment is in emerging stock markets, and then primarily in South America and Asia.

15) Information taken from Cost Effectiveness Measurement's report on asset allocation in US pension funds in 1999.
16) The EAFE index was expanded to include 23 countries on 1 April 2001, following the reclassification of Greece from an emerging to a developed market.

In US pension funds, domestic investments account for a considerably larger share of fixed-income portfolios than of equity portfolios. Chart 1 shows that a good 23% (14/61) of total equity capital in US defined benefit schemes is invested outside the US. By comparison, 6.5% of bond investments have been made internationally. Long-term investments with a fixed cash flow in the same currency as a fund's obligations will be the investment alternative that most appreciably reduces the fund's risk. Pension funds therefore have a greater incentive to favour domestic securities in the bond than in the equity market.

Domestic government bonds do not account for a dominant share of the US bond market, as they do in Europe and Japan. US pension funds' domestic fixed-income portfolios are generally measured against broad bond indices such as Lehman Aggregate Index or Salomon Brothers Broad Investment Grade Index. These indices all cover government bonds, bonds issued by financial institutions with formal or actual links to federal authorities ("agencies"), corporate bonds issued by companies with high credit ratings or mortgage-backed securities with guarantees from federal agencies - all of which will be included in pension funds' fixed-income portfolios. Some funds also invest in corporate bonds issued by companies with low credit ratings, where a higher current return compensates for the greater risk of default.

In general, all investments in listed equities and bonds are regarded as investments in negotiable securities. Chart 1 shows that US funds have a small share of capital invested in securities with low or zero marketability. These are primarily investments in private equities and real estate, as well as direct loans.

By investing in private equities, pension funds form limited partnerships with other investors and with a leading partner that has discretionary power to invest the capital that is made available. By means of acquisitions and active management, the leading partner seeks to achieve a return from companies in the partnership's portfolio that is higher than the return that investments in a portfolio of listed equities would generate. One common strategy is to finance and guide a company through the start-up and development phases until they achieve a listing. Another strategy is to purchase existing companies, preferably listed companies, and restructure them with a view to selling at a profit. The US is the dominant market for such investments, but pension funds also finance acquisitions in Europe, in developed economies in Asia and Australia and in emerging markets.

Investments in real estate are made through the purchase of shares in shopping centres, office buildings, etc. Other alternatives used to achieve higher liquidity for property investments include acquiring shares in funds or in special, listed unit trusts, both of which invest in property.

Differences in asset allocation between the Petroleum Fund and pension funds

The Petroleum Fund is not a pension fund. When a budget deficit arises, it is to be covered by the Storting (the Norwegian parliament) with transfers from the Fund, irrespective of the cause of the deficit. The Fund therefore functions as a buffer against fluctuations in those factors which determine the budget balance, such as oil prices and petroleum extraction, and changes in the oil-adjusted budget deficit. In the next few years, it is more than likely that the Fund will accumulate assets rapidly. In the longer term, however, pension obligations in the public sector in particular, and higher expenditure in the health and welfare sector are likely to deplete the Fund. In the future, the volume of assets will place an ultimate limit on the amount that can be appropriated from the Fund. Although the Fund is not a pension fund in a legal sense, it does share many characteristics with defined contribution pension funds, in particular, as regards the future disbursement profile.

The equity allocation in the Petroleum Fund is lower than in US, UK and Dutch pension funds. US pension fund investment has a broader spread across the market than the Petroleum Fund. They have more companies in their equities portfolio, and have invested in a larger share of the aggregate bond market in the US. In addition, US pension funds invest in asset classes in which the Petroleum Fund does not.

As mentioned earlier, US pension funds invest a substantial share of assets in domestic capital markets. The Petroleum Fund is only invested abroad, for reasons that are discussed in detail in several of the Ministry of Finance's budget documents.[17)]

Equity allocation is primarily a question of risk tolerance. The Fund's current equity allocation (40%) is a compromise between the goal of high returns in the long term and the wish to avoid substantial variations in the annual return, measured in international purchasing power. With the current asset allocation, a negative return can be expected on the Petroleum Fund in one of every 5 years, assuming that risk and covariation between the various asset classes and regions remain the same in the future as they have been over the past 20 years. In addition, it is assumed that the return on equities and bonds will be lower than in the previous 20-year period.[18)]

17) See, for example, the Norwegian National Budget 1998.
18) For more detailed documentation of why historical returns are not a good estimate of future returns, see the speech delivered by Central Bank Governor Svein Gjedrem to the Polytechnical Society on 28 November 2000. The speech is available on Norges Bank's website: www.norges-bank.no.

The likelihood of a year with negative returns is a consequence of the asset allocation stipulated by the Ministry of Finance after consultation with the Storting. It is not influenced by Norges Bank's decisions as manager of the Fund. If the equity allocation was in line with the average in large US pension funds, the likelihood of a negative return in a given year would be greater. The expected return in the longer term would also be higher. However, there is no reason to expect that if assets are moved from international bond markets to stock markets in the future, the excess return would be as substantial as it has been in recent years up to end-1999.

The Petroleum Fund's benchmark portfolio for equity investment is based on FTSE indices in the relevant countries. Even though the investment universe is larger, the definition of the benchmark does have a considerable influence on which companies the Petroleum Fund invests in. The FTSE index contains fewer, and on average larger, companies than, for example, the Russell 3000 index, which is a more common benchmark index for major US investors. The Petroleum Find will therefore be more exposed to developments in large companies. This must be viewed in relation to the Petroleum Fund's global profile and the desire to have a benchmark index that is constructed on the principle of identical criteria for all

countries. Even though US pension funds as a rule have equity investments in more countries than the Petroleum Fund, they also have a dominant share invested in domestic equities across the US. It is therefore more natural for these funds to use the broadest possible benchmark index for the US, and a narrower benchmark index for international investments. The Petroleum Fund will also be invested in some emerging equity markets from 1 February 2001 (see separate feature article). This will have the effect of reducing the difference in terms of diversification of equity instruments between the Petroleum Fund and large US pension funds.

As regards bonds, US pension funds and the ABP in the Netherlands are exposed to a far greater part of the market than the Petroleum Fund. As a rule, the return on government bonds, ie general changes in yields, will determine the return on bonds issued by other parties. This is partly because credit risk in connection with these other bonds is assumed to be low. Although a broader benchmark index may result in a better spread in terms of risk than the Petroleum Fund's government bond index, the gain is not likely to be substantial.

US pension funds and the ABP have chosen to allocate parts of their capital to illiquid investments such as private equities and real estate. These investments are assumed to improve the trade-off between expected return and risk. These markets are less efficient than, for example, the equities in the Petroleum Fund's benchmark index for the US. As prices for illiquid investments are by definition not quoted regularly, it is difficult to measure the true, underlying risk attached to these investments and their covariation with more liquid investments. As capital which is allocated to private equities and real estate is tied up for long periods, substantial demands are placed on the choice and control of investment alternatives. In the case of the Petroleum Fund, existing resources were prioritised to ensure high quality when equity investment was introduced. In distributing investment over equities and bonds, the most important means of diversifying market risk has been used. Box

What is strategic asset allocation?

Strategic asset allocation can be defined as the long-term distribution of capital in funds among different asset classes: domestic and foreign equities, domestic and foreign bonds, cash, real estate and alternative investments (for example, private equities). Strategic decisions regarding asset allocation will be fixed over long periods. Strategic asset allocation explains roughly 90% of the variation in returns between different funds over time.

How large is the equity allocation in large pension funds?

Pension funds' management strategy will be influenced by the extent to which they are organised as defined benefit or defined contribution schemes. A dominant share of pension funds in the US and other countries are defined benefit schemes.

In large, defined benefit pension funds in the US, over 60% of assets are invested in domestic or foreign equities. The equity allocation is even higher among defined contribution pension funds (69%). When the effect of investment in company equities in private sector defined contribution schemes is excluded, the difference between the average equity allocations in defined benefit and defined contribution schemes in the US is minimal.

In Europe, equity allocation is in part determined by the limits set by the authorities in each country for the portfolio composition of pension funds. In the UK and the Netherlands, which have no such limits, the average equity allocations in pension funds are more than 70% and 45-50%, respectively. By contrast, the equity allocation in pension funds in Germany is very low, though a rising trend has recently been noted.

Japanese institutional investors' equity allocation is generally low by international standards.

What determines a pension fund's management strategy?

A pension fund's distribution of capital over different asset classes depends on how they evaluate the trade-off between expected return and risk. The most fundamental risk for a pension fund is being unable to pay out pensions when they fall due. A fund's risk tolerance may be influenced by:

- The fund's disbursement profile
- The fund's coverage (ratio of the market value of the fund's investments to the estimated net present value of the fund's pension obligations).

What are the most important differences between the Petroleum Fund and large, international pension funds?

The Petroleum Fund is not a pension fund. When there is a budget deficit, it is to be covered by the Storting with transfers from the Fund, irrespective of the cause of the deficit. It may, however, be interesting to compare management strategies, as the long-term management horizon is the same for all funds.

The Petroleum Fund has a lower equity allocation than pension funds in the US, the UK and the Netherlands, but is roughly on a par with the average among European pension funds. The Petroleum Fund has a narrower distribution of investments than is normal among large pension funds, particularly in terms of investments in US capital markets. In addition, the Petroleum Fund concentrates on international investment in bonds and listed equities, whereas large pension funds often have a certain share invested in private equities and real estate.

By distributing investments between equities and fixed-income instruments, the Petroleum Fund, like other funds, has made use of the most important means of diversifying market risk.

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