

Relationship between size, cost and return performance in investmentmanagement

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Extensive data from large North American pension funds show that management costs are lower, as measured by the proportion of capital under management, for larger funds. Moreover, net returns compared with the funds' benchmark portfolios tend to be higher for large funds than for small ones. Paradoxically, performance is on average higher, the higher the proportion of index management is. Norges Bank's management of the Government Petroleum Fund in 1999 is analysed using these data. One conclusion is that management costs for the Government Petroleum Fund were somewhat lower than the average for a group of peer funds.

Introduction

In all businesses higher costs can potentially generate higher income or improve the quality of goods and services. There will always be trade-off between costs on the one hand and income and quality on the other. The management of the Government Petroleum Fund features a very large and easily measured income side. Higher use of resources in investment management could generate substantial income in the form of a higher return on the Fund. The ultimate mission of the Fund is to generate net earnings, and the trade-off between costs and income must thus be assessed on a continuous basis.

One example of the trade-off between costs and income is the scale of active management, i.e. management that actively aims at achieving a higher return than the return on the benchmark portfolio established by the Ministry of Finance. The alternative is index management, which only aims at achieving the same return performance as the benchmark portfolio. Active management is more costly than index management. If active management is chosen, the net expected return must be higher than for index management, i.e. the expected excess return must be positive and higher than the extra cost. When this condition is satisfied, a management organisation must have the freedom to choose active management. This is associated with higher costs, but is acceptable if it implies an even greater increase in earnings.

Norges Bank places emphasis on low investment management costs, and strict rules for cost consciousness apply to Norges Bank's investment management activity. This does not mean that management costs are to be kept to an absolute minimum, as many types of costs are expected to generate a net extra income for the Fund. It does mean, however, that the management style is designed to achieve the lowest possible costs for a given level of expected earnings. It also means that management costs should be as low as possible given the management style that proves to be profitable.

What explains the differences in return performance?

Norges Bank has concluded a cooperation agreement with a Canadian consultancy, Cost Effectiveness Measurement Inc. (CEM), which provides access to information on return performance and management costs in other large investment funds. The firm has a database that comprised 275 North American pension funds and eight European pension funds in 1999. The European component of the database is being developed, but the North American data cover more than 10 previous years. The database includes information on return and cost performance in investment management, and asset mix and management style in pension funds. Cost figures do not include operating costs for pension schemes.

Net excess returns, excluding management costs, vary widely among the funds. CEM has analysed the factors that on average explain differences in return performance. The analysis was presented in an article by Tom Scheibelhut¹ in CEM. A more recent version of thanalysis is used below, but the conclusions are the same as in Scheibelhut's article.

Chart 1: Gross value added and excess costs in 1999. Pensions funds in the CEM database and the Petroleum Fund

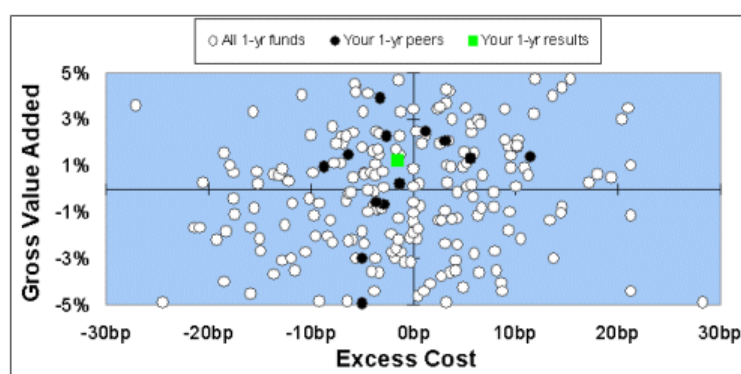


Chart 1 shows the relationship between extra costs and gross excess return in 1999 for the pension funds included in CEM's

database. Extra costs are calculated as the difference between actual management costs and the norm cost that CEM has estimated for the fund concerned. The excess return is the difference between actual return and the return on the fund's benchmark portfolio. There is no systematic correlation between higher costs and higher returns. The chart also shows data for a group of funds (peer funds), which in terms of size are similar to the Government Petroleum Fund.

Chart 2: Net excess returns and implementation risk for the 5 years 1995-99

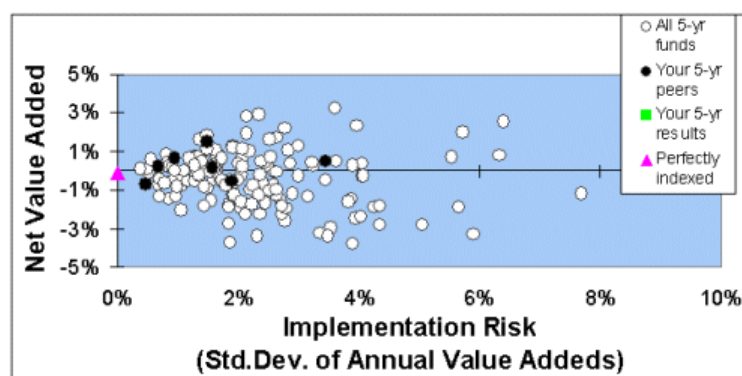


Chart 2 shows the relationship between net excess return and active risk-taking in relation to the benchmark portfolio in the years 1995-1999 for the pension funds included in CEM's database. Risk-taking is measured as the standard deviation of excess return over the period. Net excess return excludes management costs. The chart shows that on average the funds do not outperform their benchmark portfolios over the five-year period. Moreover, the funds that have taken higher risk, i.e. a higher degree of active management, have not achieved higher performance.

The mark in chart 2 that denotes the result of perfect indexing shows a negative return. As shown in a feature article [2](#) in the Government Petroleum Fund's annual report for 1999, there are tax and transaction costs of the management of the Government Petroleum Fund that are not included in the benchmark portfolio return. In years with substantial inflows of new capital to the Fund, these costs are particularly high.

The two charts indicate that two popular explanations for the difference in return performance across the funds are incorrect. Neither high costs nor high risk appear on average to result in higher net returns. CEM has also carried out analyses to identify other factors that may explain why some funds show a higher net excess return than others, and have found interesting relationships.

The size of the fund seems to be important. A fund that is twice as large has on average recorded an excess return that is about 0.2 percentage point higher. This is considerable, and behind the figure there are a number of factors that may be of significance. Large funds have a better basis for acquiring highly skilled manpower, and tend to have better access to relevant market information at such an early stage that the information can be used before it is fully reflected in market prices. Moreover, large funds have the resources required to identify good external managers and to monitor them systematically. On the whole, larger funds are in a better position to establish and maintain solid effective investment processes, and it is natural that the result is higher returns.

The proportion subjected to active management has also proved to be important. Funds with more active management have on average recorded lower net returns. In other words, it has proved profitable to subject a proportion of a fund to index management. This is the management model used for the Government Petroleum Fund since its inception, with a core of index mandates and active management concentrated on a smaller proportion of the portfolio. The result is lower management costs as the cost of active management only accrues for part of the portfolio. In addition, this provides a better overview of risk-taking, partly because it is easier to avoid situations where active managers take offsetting positions.

The proportion that is internally managed has also been an important factor. A fund where internal management accounts for 10 percentage points more of the portfolio has on average generated a net return that is about 0.1 percentage point higher. This is probably because large funds tend to subject a large proportion of their portfolio to internal management, and because on average the cost of internal management is substantially lower. The Government Petroleum Fund is developing its internal management (see article on strategy for the highest possible return in the annual report for 1999). However, the Fund is too small to develop expertise for all types of management. Hence, the Fund will continue to rely on external managers to manage a substantial proportion of its portfolio. Norges Bank's strategy for choosing between internal and external management was described in a submission to the Ministry of Finance in September 2000. The submission is included as an annex in the National Budget for 2001 and is published on Norges Bank's website.

Cost comparisons

Management costs are an important component in the calculation of net excess return. It is important that management is cost-effective, given the management style that the manager finds most profitable. Comparisons with costs in other large funds can provide a basis for evaluating the level of management costs in the Government Petroleum Fund.

The most important criterion for comparability of management costs in different organisations is that the capital under management is of the same size. There are clear economies of scale in investment management, and a large fund will always be able to engage in the same type of activity at lower unit costs than a smaller fund. In its analysis of the Government Petroleum Fund, CEM has selected a peer group of 17 US pension funds with accounting figures from 1999 from its database. These funds' total assets were on average about the same as the Government Petroleum Fund in 1999. The funds' management costs varied from 3.8 to 41.6 basis points of the capital. The average cost was 18.2 basis points (hundredths of a

percentage point).

Chart 3: Total costs as shares of portfolio values

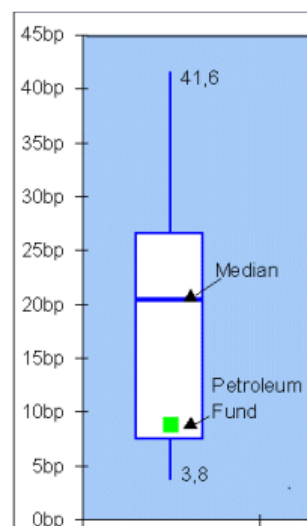


Chart 3 shows the peer funds' and the Government Petroleum Fund's total management costs. The horizontal lines show the quartiles in the cost distribution. The Government Petroleum Fund's costs in 1999 were somewhat higher than what corresponds to the first quartile, but substantially lower than the median, which was at 20.4 basis points.

The wide differences in costs across funds with more or less the same portfolio size indicate that factors other than size are also of significance. The differences partly reflect varying degrees of cost-effectiveness, but primarily reflects different management styles. For instance, the asset mix varies widely.

CEM has estimated a norm cost for the management of the Government Petroleum Fund on the basis of its entire database. CEM has tried to take account of the fact that equity management is more costly than management of fixed income instruments so that funds with a high proportion of equities incur on average higher costs than other funds. The management of private equities and real estate portfolios is particularly costly. The overall proportion of equity management and the proportion invested in the US equity market, in addition to the proportion of private equities and real estate, are the characteristics that CEM uses to adjust management costs to make them more comparable for different funds of the same size.

When CEM adjusts the cost figures in their database in this way, they find that the Government Petroleum Fund has to have a management cost of no more than 10.3 basis points to be more cost effective than the average pension fund in the database. The costs also include return-based fees for external managers. The Government Petroleum Fund's actual management costs stood at 8.9 basis points in 1999. The Government Petroleum Fund pays fees to external active managers on the basis of the excess return achieved. Such fees were not paid in 1999, which was the start-up year for this type of management. But many of the external managers achieved satisfactory results in that year and received fees for this in 2000.

The norm cost for the Government Petroleum Fund is substantially lower than the average management cost for the peer group. This illustrates that the management style chosen for the Government Petroleum Fund is a significant factor behind the low level of management costs. The norm cost is higher than the actual management costs for the Government Petroleum Fund. This illustrates that management appears to be somewhat more cost-effective than the average for the universe of participants.

Characteristics of the peer group

The characteristics that CEM uses to achieve comparability between cost figures for the various funds do not, however, fully reflect the differences between the funds. CEM's database shows wide cost differences for management of the same asset classes. For the peer group, the costs associated with the management of equities varies for example between 1 basis point for the least costly internal management to more than 100 basis points for the most costly external management. This indicates that equity management can be subjected to various styles in various funds and for different components of the portfolios. Such substantial differences in costs are probably reflected in higher expected earnings when using the most costly form of equity management, so that the differences can not only be regarded as differences in cost effectiveness.

CEM has conducted analyses of the average cost of various types of management of equities and fixed income instruments. This information can provide a better basis for evaluating whether CEM's estimated norm cost for the management of the Government Petroleum Fund is reasonable.

The peer group consisting of 17 US pension funds are of more or less the same size as the Government Petroleum Fund was in 1999, i.e. average total assets amounted to about NOK 200 billion. The peer group is still different from the Government Petroleum Fund in several respects, both concerning the asset mix and the management style. The proportion of equities in the Government Petroleum Fund's benchmark portfolio is 40 per cent, whereas the average proportion of listed equities in the benchmark portfolio of the peer group is 58 per cent. Furthermore, the average real estate component in the peer group's portfolio is 5 per cent. The average proportion of fixed income investments is 37 per cent compared with 60 per cent for the Government Petroleum Fund.

Table 1: Peer group's and Government Petroleum Fund's benchmark portfolios (in percentages)

Asset class	Peer group	Government Petroleum Fund
Listed equities in US	42	11
Listed equities outside US	13	29
Private equities	2	0
Total equities	58	40
Fixed income instruments	37	60
Real estate	5	0
Total	100	100

On average the cost of equity management is higher than the cost of fixed income management. This difference in asset mix implies, other things equal, in that average management costs for the peer group should be somewhat higher than for the Government Petroleum Fund. CEM has adjusted for this, but the adjustment may be questioned. The reason is that none of the pension funds in the peer group and very few of the funds in the database features an equity proportion that is as low as in the Government Petroleum Fund. CEM has estimated the average saving associated with lower equity proportions for the interval of the equity proportions that are covered in the database, i.e. roughly an interval of around an equity proportion of 60 per cent. The estimate is not fully reliable for the Government Petroleum Fund's equity component of 40 per cent.

The Government Petroleum Fund's equity portfolio features a good geographical diversification, while the US pension funds are highly concentrated in the US equity market for natural reasons. On average, 72 per cent of the equity portfolio of the peer group was invested in this market, while the figure for Government Petroleum Fund is 29 per cent. Since the cost of equity management in markets other than the US market is higher, this would indicate that the management costs for the Government Petroleum Fund should be higher than for the peer group.

CEM has also attempted to adjust for the fact that the peer pensions funds manage real estate and private equities. The Government Petroleum Fund does not invest in these asset classes, which are associated with relatively high costs. The difference would clearly indicate that management costs for the peer group should be higher than for the Government Petroleum Fund.

Even if an estimated norm cost had provided a correct adjustment for the difference in equity proportions and real estate investments, there are other differences that may influence costs. The calculations do not take account of differences in management style with regard to the equity and fixed income portfolios. A summary of management style for the peer group in 1999 and the Government Petroleum Fund in 1999 and 2000 is provided in Table 2.

The Government Petroleum Fund's equity portfolio primarily comprises ownership interests in large listed companies. In 2000, more than 80 per cent of the portfolio was managed by external managers, while the figure for the peer group was 56 per cent. External management is on average more costly than internal management. This difference implies, other things equal, higher management costs for the Government Petroleum Fund than for the peer group.

Less than 40 per cent of the Government Petroleum Fund's equity portfolio was actively managed in 2000 and less than 10 per cent in 1999. For the peer group, 62 per cent was actively managed, evenly distributed between internal and external mandates. As active management is associated with higher costs than index management, the management costs for Government Petroleum Fund should tend to be lower than for the peer group.

About 8 per cent of the fixed income portfolio in the Government Petroleum Fund was managed by external active managers in 2000, while the proportion was close to zero in 1999. The proportion for the peer group was about 40 per cent. As this form of fixed income management is associated with the highest costs, the Government Petroleum Fund should tend to feature lower management costs than the peer group.

The differences in management style mentioned above point to some factors indicating lower management costs for the Government Petroleum Fund and other factors indicating higher costs in relation to the peer group. In sum, there is no doubt that the cost of the peer group's management style is higher than that of the Government Petroleum Fund. This is reflected in the estimated norm cost for the Government Petroleum Fund, which is substantially lower than the average for the peer group. However, it is difficult to estimate the net effect of the differences that are not taken into account in the estimation of the norm cost.

In addition to the differences in management style, the Government Petroleum Fund was in a start-up phase, especially in 1999 but also in 2000, and extensive resources were used to select and evaluate external managers and to establish an organisation for internal management. This entailed expenses that the peer group did not have and is reflected by the substantially higher level of administration costs in the Government Petroleum Fund.

Table 2: Management style in the peer group and in the Government Petroleum Fund. Proportion in percentage

Actual portfolios	External management		Internal management		Total
	Index	Active	Index	Active	
Peer group 1999					
Listed equities in the US	31	37	13	18	100
Listed equities outside the US	23	56	0	21	100
Fixed income instruments in the US	11	51	9	29	100
Fixed income instruments outside the US	0	86	14	0	100

Government Petroleum Fund 1999/2000					
Listed equities in the US	100/62	0/32	0/0	0/6	100
Listed equities outside the US	90/62	10/32	0/0	0/6	100
Fixed income instruments in the US*	0/0	0/6	90/75	10/19	100
Fixed income instruments outside the US*	0/0	0/6	90/75	10/19	100

* Active internal management is operated on the basis of the index portfolios. The proportions in the table are set to provide an approximate measure of the activity.

Summary

CEM's extensive database on costs, return and risk associated with the management of pension funds show that high costs cannot necessarily be seen as investments designed to insure good results. Value added in management seems to be independent of the cost level. Since costs definitely entail deductions against returns and extra income is uncertain, good cost control is important for long-term returns.

Data also show that the average pension fund is not able to create added value through active management, nor is there any correlation between the degree of active management and the excess return achieved.

Norges Bank has used this knowledge in developing its strategy for achieving the highest possible return in relation to the benchmark portfolio established by the Ministry of Finance. Emphasis has been placed on keeping costs at a low level. Important aspects include differentiating between index management and active management and aiming at the lowest possible transaction costs. Another important aspect is focused active management: active management shall only be used in markets where the probability of success is fairly high. This strategy is described in more detail in a feature article [3\)](#) in the Government Petroleum Fund's 1999 Annual Report.

Comparing the Government Petroleum Fund's management costs with other funds' costs may provide a basis for establishing a norm of the appropriate cost level. However, we see that these kinds of cost comparisons are not easy to make. Fully comparable funds do not exist, and adjustments must always be made for differences in asset mix and management style. In addition, adjustments are never absolutely correct. Ultimately, the norm cost of management must be set on the basis of professional judgement. The norm cost is thus a rough measure of the level of costs that should be permitted.

In any case, the norm cost cannot be independent of management style and will therefore not be fixed over time. In some cases, higher costs will be desirable to achieve higher expected returns. The use of return-based fees for external managers is one such case. These costs only accrue in the event of higher than expected income. Norm costs must take this into consideration. In practice, the trade-off between management costs and expected earnings as a result of these costs is evaluated on a continuous basis. The quality of these trade-off evaluations must be considered in order to evaluate the effectiveness of management. This type of evaluation provides more appropriate incentives than pure cost control.

- 1) Tom Scheibelhut, "What makes a top performing fund?" Canadian Investment Review, Fall 1997, pp 34-35
- 2) Feature Article 3 : "Can index management achieve index returns?"
- 3) Feature article on "Strategy for achieving the best possible performance".



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