

Recommendation on investments in real estate and infrastructure by the Government Pension Fund – Global

1. Introduction

The Ministry of Finance's Advisory Council on Investment Strategy (the "Strategy Council") was established to assist the Ministry of Finance in its work on the general investment strategy of the Government Pension Fund – Global (the "GPF"). The Ministry of Finance has in a letter of 11 December 2006 to the Strategy Council requested the Council to assess whether the return and risk characteristics of real estate suggest that such asset class should be included in the Fund's portfolio and, if in the affirmative, what portion of the portfolio such class should account for. In its letter, the Ministry notes that Norges Bank recommends, in a letter of 20 October 2006, that real estate be included in the portfolio, and that it should account for a portion of 10 percent.

The deliberations of the Strategy Council have been based on both Norges Bank's analyses of the real estate and infrastructure market¹ and a report prepared for the Strategy Council by Colin Lizieri and Martin Hoesli.² This report provides a summary of available research findings on real estate investments. The Strategy Council also refers to the Council's letter of 2 June 2006 to the Ministry of Finance about increasing the equity portion of the GPF from 40 to 60 percent.

The present letter is organised as follows: Section 2 provides an overview of the global real estate and infrastructure market and the allocations made to such investments by other funds. Section 3 contains a discussion of the characteristics of real estate and infrastructure investments, and how such investments may affect the return and risk on the part of the GPF. Section 4 addresses the issue of management costs. Section 5 discusses how investments in real estate may be implemented. Section 6 contains the recommendation of the Strategy Council.

2. Investments in real estate and infrastructure

Investments in real estate are made by acquiring ownership interests in land, buildings or parts of buildings. These investments generate a return that depends on the price developments of, and rent incomes from, office buildings, shopping centres, industrial buildings and, to a certain extent, other types of property as well.

Investments in real estate may be grouped into direct and indirect investments. Direct investments are unlisted, whilst indirect investments may be made in both listed and unlisted instruments. Indirect investments may, for example, be structured through partnerships, trusts and various forms of real estate companies. Ownership interests in such structures offer exposure to an underlying

¹ Norges Bank Staff Memos (6/2007 and 1/2007), and letter of 20 October 2006 to the Ministry of Finance.

² Hoesli, M. and Lizieri, C. (2007), *Real estate in the investment portfolio*. Report commissioned by the Strategy Council.

portfolio of direct real estate investments. Examples of listed indirect investments are listed real estate companies and so-called real estate investment trusts (REITs)³.

Infrastructure is a related asset class. This encompasses both economic infrastructure, such as port facilities, roads and hydropower plants, and investments in school buildings and hospitals. Such investments are, in the same manner as with real estate, offered through several types of instruments. A distinction is made between infrastructure projects that are in a development phase ("greenfields") and projects that are in operation. The latter group is most relevant to institutional investors. When compared to real estate, the market for infrastructure may be characterised as less mature and the investments as more regulated. Estimates for the correlation between the return on infrastructure and that on traditional real estate differ widely. The Strategy Council is of the view that the differences between real estate and infrastructure may make it appropriate to treat infrastructure as a separate asset class⁴.

2.1 Management of real estate on the part of other funds

The Government Pension Fund – Global has no separate real estate allocation. Nevertheless, the Fund has exposure to the real estate market. As per yearend 2006, in excess of two percent of the market value of the Fund's benchmark portfolio for equities was accounted for by entities classified as real estate companies. Most large institutional investors hold significant investments in the real estate market. CEM Benchmarking⁵ has defined a peer group for the GPF, comprising the 19 largest pension funds in the world. Table 1 provides an overview of the real estate allocations of these funds. On average, the weight for real estate in these funds was 6 percent as per yearend 2005. 4 percent was in the form of unlisted real estate investments. The highest overall real estate allocation registered in the peer group was 11.5 percent.

The average real estate portion varies between countries. There are even large differences between the US, the Netherlands and the UK, all of which countries have had a significant number of large pension funds for a long period of time. These differences may be caused by a number of circumstances, such as history, culture, competition between pension funds, differences in terms of the structure and size of each country's real estate market, as well as actuarial and accounting standards⁶. The asset allocations of the US university funds ("endowment funds") differ from those of the pension funds inasmuch as they feature a low bond portion and large holdings in private equity and miscellaneous alternative investments. However, as may be seen from the table, the real estate allocations of the endowment funds do not differ all that much from those of the US pension funds.

³ REITs are real estate companies that are exempted from corporate tax in return for distributing most of their profits in the form of (taxable) dividends. REITs are typically listed, and tend to be leveraged.

⁴ ABP is an example of a fund that has thus far included infrastructure investments in its real estate portfolio. In the fund's strategy plan for 2007-2009, infrastructure has been classified as a separate asset class, with an allocation of 2 percent, as compared to 9 percent for real estate.

⁵ The Ministry of Finance has for several years commissioned CEM Benchmarking to compare the management of the GPF to that of other funds.

⁶ Mark Griffin (1998), A Global Perspective on Pension Fund Asset Allocation, *Financial Analyst Journal*.

Table 1. Real estate allocations on the part of pension and endowment funds.

Funds	Number of funds	Average size (NOK billion)	Portion of the portfolio (%)		
			Real estate		Bonds
			Listed	Unlisted	
CEM's group of funds ⁷	19	670	2	4	29
Government pension plans (US) ⁸	125	85	5		28
English pension funds ⁹	240	23	7		15
Dutch pension funds	65	52	13		44
Endowment funds (US) ¹⁰	56	23	1	3	14

Many large pension and reserve funds make both indirect and direct investments. Analyses of the organisation of other funds show that there has been a trend away from direct investments involving labour-intensive internal management, towards various forms of indirect investments, such as listed equities, real estate funds and joint ventures.

Direct investments imply that the investor itself owns the real estate. Nevertheless, it is common practise for large parts of real estate management – such as the operation of the real estate – to be outsourced to external service providers. Buy and sell decisions may also be outsourced through discretionary management mandates. Several pension and reserve funds have outsourced many management tasks to real estate companies in which they hold major ownership stakes. ABP, for example, holds major ownership stakes in Vesteda, Corio and KFN, which have a total of about 600 employees. Another example is the Ontario Teachers' Pension Plan ("OTTP"), which in 1999 acquired Cadillac Fairview and delegated its real estate management to that company. Cadillac Fairview has about 1,500 employees, most of whom are involved in the technical operation of the real estate.

The advantages of direct management are a high degree of control over the investments and lower costs associated with portfolio management. To a long-term investor it may also represent an advantage that direct real estate investments tend to have a longer duration than indirect ones. This means that the turnover is less, the number of transactions is lower and the costs associated with portfolio maintenance are reduced.

Various forms of indirect investments and the scope for outsourcing management tasks to subcontractors have meant that most large pension funds currently have a relatively limited number of in-house personnel engaged in managing the real estate portfolio. ABP, for example, has 30 employees. Another large Dutch pension fund, PGGM, has 10 employees engaged in managing the real estate portfolio. Both of these funds have 11 percent of their portfolios invested in real estate.

⁷ CEM Benchmarking Inc (2006). *Defined Benefit Investment Cost Effectiveness Analysis for 2005*. Benchmarking company. Listed real estate equities are limited to REITs in this report.

⁸ Wilshire Research. (2007), "Wilshire Report on State Retirement Systems: Funding Levels and Asset Allocation". The figures refer to 2006.

⁹ WM Performance Services (2006). Data commissioned by the Ministry of Finance.

¹⁰ TIAA-CREF Institute (2006), Trends and issues, 2005 NACUBO Endowment study: Highlights and trends. The figures pertain to funds in excess of USD 1 billion.

2.2. Management of infrastructure on the part of other funds

Several large funds in Canada, the Netherlands and Singapore have in recent years made investments in infrastructure internationally. At the same time, the CEM survey shows that, on average, the reference group has only 1 percent of assets allocated to so-called "other assets", which includes, *inter alia*, infrastructure.

Many expect the market for infrastructure investments to grow considerably in future. Developments in the Australian market, where the privatisation of infrastructure has been going on for more than 10 years, are often used as a point of reference. In Australia it is customary for large pension funds ("superannuation funds") to allocate 5 percent or more of their assets to infrastructure. Certain funds have allocated as much as 20 percent.¹¹

The management of infrastructure portfolios may be organised in the same manner as that pertaining to real estate. Several large players like OTPP in Canada, IFM¹² in Australia and GIC in Singapore have chosen to invest directly, whilst many others opt to invest indirectly through listed companies or funds. Individual infrastructure investments tend to be much larger, more heterogeneous and more complex than real estate investments. The investments are often of a very long duration, and are less liquid than real estate. Institutional investors therefore often join forces through various forms of consortia.

2.3 The size of the market

When analysing real estate as a separate asset class, the real estate market's share of the world market portfolio is relevant. For purposes of such calculations it is important to distinguish between real estate that is owned by those using it (for example businesses that own their own office buildings), and the remainder of the market, with the latter forming the investable part of the market. The size of the investable part of the global real estate market is significantly less than the potential market value of all real estate in the world.

Estimates as to the size of the global investable real estate market vary from 8,000 billion dollars to 17,000 billion dollars (EPRA 2007), and as much as 22,000 billion dollars in the most recent report from La Salle Investment Management (2007). These discrepancies can mainly be attributed to differing market definitions. The 8,000 billion dollar estimate reflects a regional distribution of 42 percent in North America, 7 percent in the UK, 29 percent in Continental Europe and 22 percent in Asia/Oceania. Hoesli and Lizieri (2007) conclude that the real estate market's share of the world market portfolio is in the range of 10 – 15 percent.

For the GPF, with a capital in excess of 300 billion dollars, a 10-percent allocation for real estate would correspond to 0.15 – 0.4 percent of the global investable real estate market. The Council is of the view that such a share should be achievable over time.

The infrastructure market's share of the world portfolio is even more difficult to estimate than the share comprising real estate. In its report, Norges Bank refers to estimates as to the overall value of infrastructure projects in the range of 17,000 – 23,000 billion dollars, but large parts of the infrastructure projects will be funded over government budgets, and will therefore not be available to institutional investors.

¹¹ Kurt Wright (2006), "Infrastructure Investing: The Australian Experience." IFE paper, (www.ifecorp.com).

¹² Industry Funds Management. Wholly-owned subsidiary of Industry Fund Services, which is owned by nine superannuation funds in Australia and which manages, *inter alia*, infrastructure investments representing an AUD 1.3 billion investment.

3 Return and risk

3.1 Return and risk characteristics of real estate investments

Poor data quality and limited access to indices with a sufficiently long history make it challenging to measure the return and risk associated with investments in real estate. The return and risk characteristics of this asset class may be measured on the basis of indices for accumulated returns on listed and unlisted investments, respectively. Indices for unlisted investments in real estate are either based on appraised values or on actual transactions. Indices based on appraisals, like the NCREIF index¹³ in the US and the IPD indices¹⁴ in many other countries, show accumulated returns on real estate investments that are 100 percent equity financed. These indices provide a measure of developments in the value of a real estate portfolio that is neither traded, nor upgraded. Consequently, transaction costs and investment expenses relating to major upgrades in standard do not influence these index values.

Such indices offer a smoothed impression of developments in the returns on direct investments in real estate. Unless adjusted for this smoothing, they will underestimate the volatility of the returns on real estate and render imprecise estimates for the correlations with the returns on equities and bonds. The returns on unlisted investments without borrowing may also be measured by way of transaction-based indices, for example the TBI index from MIT¹⁵. This is a quarterly index based on the real estate encompassed by the NCREIF index that has been traded.

The return on real estate investments may also be measured by way of indices for listed investments. Such return measurements are more straightforward since the prices of indirect real estate investments are more readily available than are the prices of direct investments. There are indices measuring the returns on real estate trusts – for example the NAREIT index in the US – as well as indices for listed real estate companies or funds. Returns and risks measured on the basis of such indices normally show higher return and risk figures than those based on indices for direct investments. This is caused by smoothing, by leverage differences, as well as by the fact that the prices of listed instruments will in the short run behave more like stock prices.

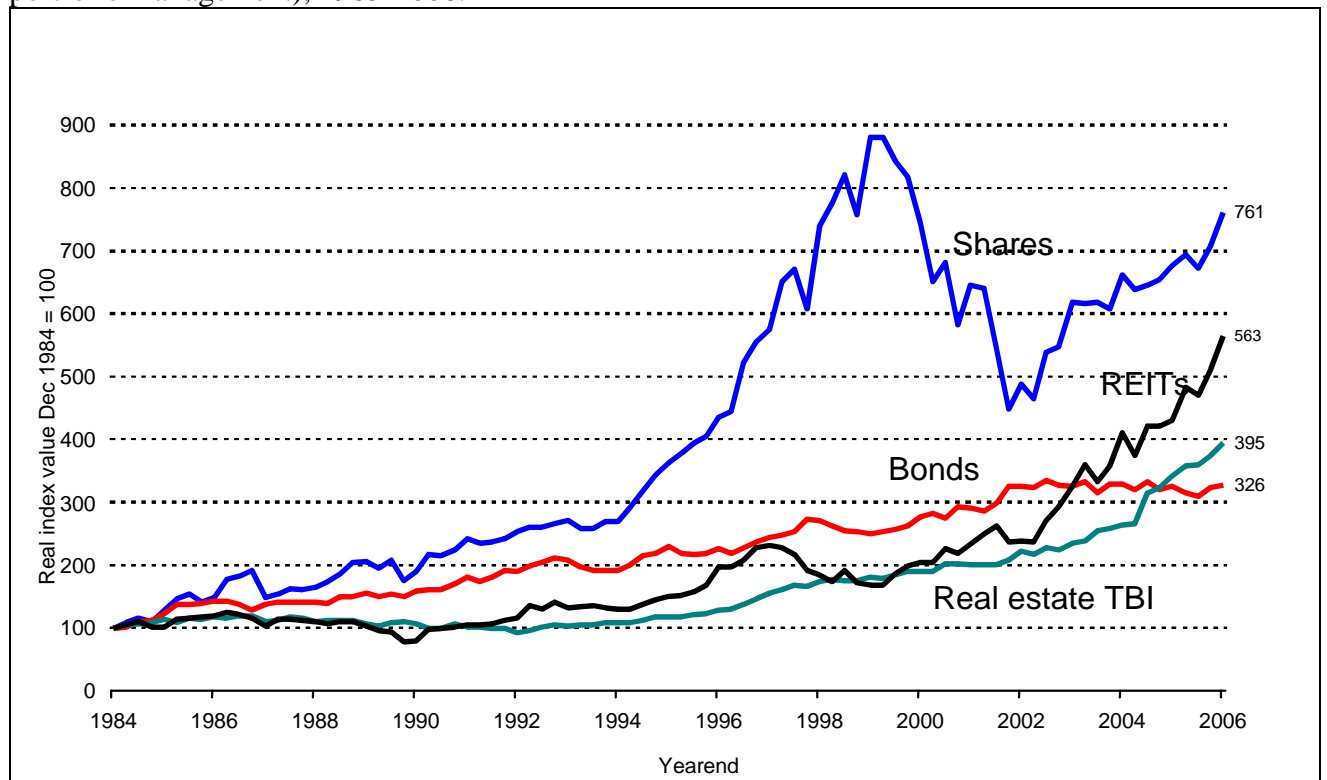
The most developed real estate markets are to be found in the US, the UK and Australia, and these are the countries for which the best data are available. However, most of these data series only extend back to the mid-1980s. The longest real estate time series are indices for direct real estate investments in the US that originate in the 1970s, but the quality of the index figures from the 1970s is poor.

¹³ National Council of Real Estate Investment Fiduciaries. This organisation prepares the NCREIF Property Index, NPI. This index is available on www.ncreif.com

¹⁴ Investment Property Databank. www.ipd.com

¹⁵ The TBI ("Transactions-Based Index") is prepared by the Center for Real Estate at the MIT. See <http://web.mit.edu/cre/research/credl/tbi.html>.

Chart 1. Accumulated gross real returns on US assets (before deduction of costs associated with portfolio management), 1985-2006.



Source: Datastream/MIT.

Chart 1 shows developments in the accumulated real returns on equities, bonds and real estate in the US during the period 1984-2006. The real estate asset class is represented by two indices that leave a somewhat disparate impression. The first of these is the abovementioned TBI index, which is transaction-based and which measures the accumulated return on unlisted investments without leverage. The TBI index suggests an accumulated return up to 2006 that is marginally higher than that on bonds and significantly lower than that on equities. The second index pertains to real estate investment trusts (REITs), and shows an accumulated return that is clearly higher than that indicated by the TBI index. Moreover, Chart 1 shows that equities have generated considerably higher returns than any of the other asset classes, despite the corrections during the years after 2000. Corresponding data from the UK and Australia show that the returns on real estate are closer to those on equities than are the case for the US.

A consideration that may suggest a real excess return on real estate, relative to bonds, is that many investors will require some compensation for the relatively low liquidity of the real estate market. A fund like the GPF, with a long time horizon and expected net cash inflows for many more years, will be well placed to reap such a liquidity premium. Furthermore, several studies conclude that returns in the real estate market are driven by a separate real estate factor. In other words, real estate investments offer exposure to a risk that the Fund would otherwise not be exposed to, and for which it would be compensated in the form of a higher expected return.

The Strategy Council is of the view that it would be reasonable to assume that future cash flows from real estate investments, in the form of rent income and sales values, will be more uncertain than those from bonds, whilst being less uncertain than those from equities. Table 2 presents the

statistical features of the real returns on equities, bonds and real estate in the US during the period 1985-2005 (quarterly data). In contrast to Chart 1, the asset class real estate is also represented by the previously discussed appraisals-based NCREIF index, in addition to the TBI index and the index for real estate investment trusts (REITs). The high serial correlation of 0.7 that characterises the NCREIF index means that this performance measure will for any given quarter be significantly correlated with performance in the previous quarter. This offers a clear indication that developments in appraised values underestimate the volatility of the returns on real estate. In order to produce a new index that may provide a truer illustration of volatility, one has sought to correct the NCREIF. As shown in table 2, the standard deviation of such an Adjusted NCREIF lies between the standard deviations of bonds and equities. Corresponding calculations by Hoesli and Lizieri (2007), based on data from the UK and Australia, conclude with the same ranking of the three standard deviations.

Table 2 Quarterly gross real returns on equities, bonds and real estate in the US, 1985-2005 (percent) and serial correlations.

	Equities	Bonds	REITs	NCREIF	Adjusted NCREIF	TBI
Arithmetic average	2.63	1.33	1.98	1.23	1.39	1.54
Geometric average	2.29	1.25	1.74	1.22	1.29	1.47
Standard deviation	8.17	4.12	6.97	1.71	4.36	3.80
Serial correlation	-0.034	-0.202	0.401	0.705	0.359	0.066

Source: Hoesli and Lizieri (2007).

The contribution to the Fund’s overall risk from including real estate in the portfolio does not depend solely on the standard deviation of the return on real estate, but also on the correlation between a global real estate portfolio and global equities and bonds.

The review of empirical research by Hoesli and Lizieri (2007) shows that one normally finds a low correlation between the returns on real estate and the returns on equities and bonds. Table 3 shows the correlation between the returns on real estate, equities and bonds in the US. These findings are representative of what have been suggested by other surveys, both within and outside the US. The low correlation between real estate, on the one hand, and equities and bonds, respectively, on the other hand, indicates attractive diversification properties.

Table 3. Real return correlations between asset classes. US, 1985 - 2005.

	Equities	Bonds	REITs	Adjusted NCREIF	TBI
Equities	1.00				
Bonds	-0.05	1.00			
REITs	0.43	0.16	1.00		
Adjusted NCREIF	-0.02	-0.10	0.14	1.00	
TBI	0.18	0.01	0.18	0.48	1.00

Source: Hoesli and Lizieri (2007).

The measurement of correlation coefficients is normally based on quarterly or annual observations. It is reasonable to assume that the correlation between asset classes will be higher if measured over many years. This would imply that diversification gains are less than indicated by the short-term correlations. Unfortunately, there exist no time series of sufficient duration to test the hypothesis that the correlations between real returns increase with the duration of the period. The longest time series for commercial real estate is from the US, and originates in 1971, but the quality of the index data from the 1970s is, as previously mentioned, poor.

The short time period makes it difficult to draw any clear conclusions as to the long-term expected real return and risk on the basis of the figures in Tables 2 and 3. Nevertheless, in Table 4 below we have used these figures to illustrate possible implications in terms of overall expected return and portfolio risk if including real estate as a new asset class in the GPFG. The first two rows of numbers in the table show the annualised arithmetic returns and the standard deviations (copied from Table 2) for bonds and equities. The bottom row is the so-called Sharpe ratio, which is the ratio between excess return and risk. The excess return is measured relative to the average risk-free real rate of interest of 1.7 percent (the real return on US Treasury bills) for the period. As the result of prolonged interest rate reductions during the observation period, bonds generated, in historical terms, a very high excess return and Sharpe ratio, but equities nevertheless offered a somewhat better ratio between return and risk (a higher Sharpe ratio) than bonds.

Table 4 Annual real returns (percent), risk (percent) and Sharpe ratios for various portfolios. US, 1985- 2005. Annualised from quarterly performance.¹

	Bonds	Equities	60E	60% E, 30% B and 10% Real estate		
	(B)	(E)	40B	REITs	Adjusted NCREIF	TBI
Return	5.43	10.94	8.71	8.99	8.74	8.80
Risk	8.24	16.34	10.19	10.71	9.99	10.15
Sharpe²	0.45	0.57	0.69	0.68	0.71	0.70

¹ Annualised figures from Table 2 (arithmetic average).

² Sharpe ratio = (Return - real rate of interest 1.7%)/Risk.

The third column of numbers in Table 4 shows computed figures for a portfolio comprising 60 percent equities and 40 percent bonds (the "basic portfolio"). Because the correlation between the real returns on equities and bonds was very low during the observation period (-0.05 according to Table 3 above), a significant diversification benefit is reaped when combining equities and bonds. This translates into a considerably more favourable ratio between return and risk (Sharpe ratio) than for either equities and bonds on their own. The following three columns of numbers show corresponding figures for portfolios comprising 60 percent equities, 30 percent bonds and 10 percent real estate, when applying three different real estate indices. We see from the fourth column that featuring REITs in the real estate portfolio results in both a higher return and more risk than for the basic portfolio. It follows from columns 5 and 6 in Table 4 that unlisted direct investments (Adjusted NCREIF and TBI) would result in a somewhat higher return and somewhat less risk in the portfolio as a whole, when compared to the basic portfolio. In other words, for this historical period a portfolio comprising equities, bonds and unlisted real estate would have offered a higher return per unit of risk than a portfolio comprising only equities and bonds.

3.2 Relevancy to a fund like the GPFG

The Strategy Council is of the view that the return and risk characteristics of real estate investments suggest that a portion of the GPFG should be reallocated from bonds to real estate. This conclusion is in conformity with the assessments expressed by the Council in its letter of 5 June 2006 to the Ministry of Finance concerning the Fund's equity portion. The Council is of the view that a fund like the GPFG, adopting an unusually long time horizon and aiming to maximize the expected international purchasing power of its assets (subject to a moderate level of risk), should keep considerable portions of its investments in equities and other real assets, like real estate, because such investments better protect the long-term purchasing power of the Fund than do nominal bonds. The value of nominal bonds will be more affected by unexpected changes in inflation than will stock prices or real estate valuations.

Hoesli and Lizieri (2007) conclude that research findings indicate that direct investments in real estate actually offer protection against inflation in the long run. This supports the Council's view that real estate investments would be fully compatible with the objective of the Fund.

This is also supported by the characteristics of real estate investments in the short and medium run, cf. Tables 2 - 4 above. Despite the fact that these return series are based on a fairly short period of time, the Strategy Council believes that the findings suggest that real estate investments contribute to a better expected risk-adjusted return on the Fund when measured over periods of a few years as well. The investments of the GPFG are spread across many markets and currencies. As per yearend 2006, the benchmark portfolio encompassed the stock markets of 27 countries and the currencies of 21 countries. Correspondingly, any real estate investments will be spread across many countries. According to Hoesli and Lizieri (2007), research findings show that returns on real estate are less correlated between countries than are returns on equity and bond investments. Although research also indicates a tendency to return convergence between countries over time, it would still appear that real estate markets are less interlinked across international borders than are bond and equity markets¹⁶. This makes it even more likely that real estate investments will offer a diversification benefit for the GPFG in the short and medium run.

¹⁶ Analyses of correlations between direct returns in different countries involve the comparison of indices based on investments that are owned and valued by different owners. There will also be differences, perhaps large ones at times, in the sectoral distribution of real estate in the indices of these various countries. Such differences may influence the analysis of correlations between countries.

Norges Bank mentions, in its recommendation of 20 October 2006 to the Ministry of Finance, that both diversification considerations and the possibility of reaping a liquidity premium in the real estate market favour the introduction of real estate as a new asset class in the GPF. Hoesli and Lizieri (2007) conclude that empirical studies offer some support for the contention that real estate investments offer, because of low liquidity, investors an element of compensation in the form of a liquidity premium. In this respect, the Strategy Council is of the view that the GPF is well placed, because of its long investment horizon and net positive inflow of new capital, to reap any liquidity premiums. However, it is difficult to estimate the size of such a premium, if any.

3.3 Return and risk characteristics of infrastructure

It is difficult to make specific pronouncements as to the return and diversification characteristics of infrastructure investments because of the lack of return data.

Common features of infrastructure investments are, *inter alia*, long durations (often more than 30 years), and a relatively high share of direct returns. These investments are often assumed to have a low correlation with other asset classes. Certain types of infrastructure investments – like roads funded by tolls – will feature inflation-indexed income. These characteristics are similar to those of real estate investments. However, infrastructure projects tend to be bigger than real estate investments (often in excess of USD one billion), and the investments are considerably less liquid. There is also less competition and greater barriers to participation in the infrastructure market than in the real estate market.

In its report on real estate investments, Norges Bank has analysed equity return series for the utility sector. This sector is dominated by companies engaged in electricity, gas and water supply. The historical standard deviation of real returns within this sector is deemed to constitute an upper limit as to what we should assume to be the corresponding standard deviation of infrastructure investments. The standard deviation is calculated to be 10 - 13 percent for the period respecting which data are available, whilst the historical correlation between the utility sector and the remainder of the stock market over the same period has been in the range of 0.4 - 0.7. Norges Bank estimates the correlation with bonds to be 0.2 as far as both real estate and infrastructure are concerned. Mercer (2005)¹⁷ compares global equities and bonds to a recently developed global infrastructure index, Macquarie Global Infrastructure Index¹⁸. The standard deviation of this index over the five-year period from 2000 is about 10 percent. Its correlations with global equities and bonds are 0.5 and 0.3, respectively, whilst its correlation with listed real estate is 0.6. These findings provide a good match with those of Norges Bank.

It can reasonably be assumed that one would achieve a marginal improvement in the trade-off between return and risk by expanding the investment universe to include infrastructure. This effect will depend, *inter alia*, on its correlation with real estate investments. In its strategy report (Staff Memo 2007/1), Norges Bank has assumed a very high correlation between real estate and infrastructure. Such an assumption would indicate that the effect on return and risk from including infrastructure investments in the investment universe will be limited.

¹⁷ Mercer (2005). "Infrastructure – Going Global and Listed".

¹⁸ The MGII was launched in June 2005. Index data have been calculated back to 2000.

4. Management costs associated with a real estate portfolio

The costs associated with managing a real estate portfolio are higher than the current management costs of the GPFG. The portfolio management costs reported for various pension and reserve funds vary considerably. There are economies of scale in capital management, with large funds achieving better cost-effectiveness than do smaller funds. Management cost variations also have to do with how the funds are managed, not least with whether they have opted for internal or external management. Internal management of direct real estate investments may result in low portfolio management costs if the real estate is retained for a long period of time. However, many pension funds pursue more active strategies, which entail higher management costs, the objective of which are to achieve higher net returns after the management costs have been deducted. Active management strategies imply that management costs will include a performance-related fee.

The CEM report for 2005 shows that the median cost of funds that have managed their real estate portfolios internally was 0.3 percent, as compared to 0.9 percent for externally managed portfolios. The latter figure only includes performance-fees to a limited extent, thus suggesting that the cost differences between internal and external management are even more pronounced than indicated by this comparison. However, this survey only covered three funds that had opted for internal management.

The median cost of external management was 0.7 percent for the subset of 19 large funds included in the GPFG reference group, as compared to 0.9 percent for all funds. Since the reference group comprises the largest funds, this indicates that there are economies of scale in the management of real estate portfolios, as in the management of equity and bond portfolios.

The CEM report for 2005 estimates the median cost of external active management of equities and bonds in the US at 0.3 and 0.2 percent, respectively. Unlike the median cost of 0.7 percent for the external management of real estate on the part of the reference group, these figures include performance-based fees. This would indicate that the actual cost differences exceed 0.4 and 0.5 percentage points when compared to equities and bonds, respectively.

The external management of real estate is often subcontracted to real estate funds. Such funds are often classified according to the investment styles "core", "value added" and "opportunity". The purpose of core investments is to achieve a stable, but moderate, level of return, mainly in the form of income streams. Such investments are restricted to the traditional real estate sectors, and are characterised by moderate gearing¹⁹. Value added investments seek to achieve higher returns by assuming somewhat more risk through, *inter alia*, more gearing. Opportunity funds constitute the fund segment with the highest gearing and the most risky projects, for example real estate development.

A 2006 study of European funds shows that the average performance objective was a net (nominal) internal rate of return of about 9 percent for core funds and 17 percent for opportunity funds. Upon the establishment of such funds, investors agree to various incentive structures relating to absolute or relative performance objectives. If the return is high, the costs will also be high. The type of management in the unlisted real estate market corresponds to that found in the venture capital market. Like in the venture capital market, a considerable emphasis is placed on selecting managers in the real estate fund market that have a good performance track record over time.

¹⁹ About 40 percent for European funds. In the US it is more common for core investments to feature a gearing of about 20 percent.

Chart 2 shows annualised 5-year returns for real estate funds in the US. The core funds feature a gearing of up to 20 percent, whilst the funds with the highest risk have a gearing in the 65 to 85 percent range. The chart ranks funds by realised (nominal) returns over the last five years (until and including 2006). The chart shows that there have been large performance variations, particularly amongst opportunity funds that assume high risk. The large variations indicate quality differences between managers.

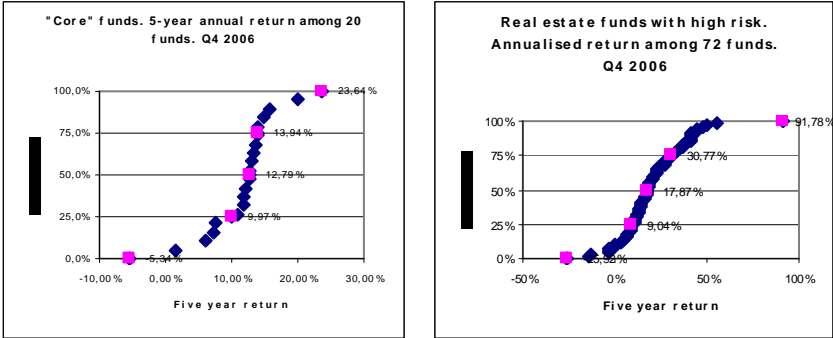


Chart 2 Returns on real estate funds in the US over the last five years.

Source: Townsend, 2007. The figures in the chart show returns for each quartile. For example, the 25 percent weakest high-risk funds generated a return of 9.04 percent or less, whilst the 25 percent strongest funds generated a return of 30.77 percent or more.

This review of management costs shows that unlisted real estate investments involve much higher costs than do investments in the listed market. Moreover, external management is more costly than internal management, but external management is nevertheless, as previously mentioned, the most common choice amongst large funds that may be compared to the GPF. It is likely that this has to do with the need for specialist qualifications and expectations to the effect that specialised management may result in higher net returns.

The GPF may incur considerable costs if the Fund aims to acquire a real estate portfolio within a short period of time. It will be time consuming to develop real estate management qualifications, and the investments, if any, should therefore be spread over many years.

5. Management and evaluation of real estate investments

5.1 Composition of a global real estate portfolio

Direct investments in real estate are characterised by heterogeneity in terms of both types and magnitudes. The size of each transaction tends to be large, investments are not often traded, whilst transaction and management costs are relatively high. Consequently, the typical time horizon for such investments is long, and many investments have to be included in a portfolio in order to eliminate real estate-specific risk by diversification. The real estate portfolio may be diversified across different geographical regions, across different countries within each region, and across different sectors and locations within each country. The fact that the GPF is a large fund that is expected to grow considerably in future makes it easier to reap diversification benefits by spreading the real estate investments across all of the said segments.

5.2 Measurement and evaluation

The development of several indices for unlisted investments – like the NCREIF index in the US and the IPD indices in many other countries – has contributed to improving transparency in the markets for direct investments. Nevertheless, there is still a shortage of indices for less developed markets, and progress in the development of international real estate indices has only taken place very recently.

As discussed in Section 3, the indices for unlisted real estate investments are mainly based on the appraised values of buildings, which provide a smoothed impression of market developments. Correspondingly, the real estate included in an actual portfolio would have to be valued on the basis of appraisals. Moreover, available indices only represent parts of the underlying market. It is not possible for investors to acquire shares of the real estate included in the indices, as would be the case in the market for listed equities. Nor will it be possible to price actual portfolios and benchmark indices according to the same objective criteria, as would be the case for bonds and equities.

The development of a market for indirect investments through unlisted real estate funds has offered investors access to local knowledge and scope for broad diversification of real estate portfolios. Hoesli and Lizieri (2007) discuss several problems relating to the measurement and evaluation of indirect real estate investments. A major problem is the lack of standardisation and consistency as far as the calculation and reporting of fund and management costs are concerned. Other problems have to do with the durations of funds (and possible extensions of durations), option rights vested in other investors in the funds, issues relating to liquidity (particularly in bear markets) and a general lack of transparency. The large demand for shares of unlisted funds recently (both pension funds and endowment funds have invested heavily) highlight the problems relating to performance measurement, evaluation and transparency.

The organisation INREV (“European Association for Investors in Non-Listed Real Estate Vehicles”) plays an important role in the establishment of joint reporting standards, which will mitigate the problems involved in comparing unlisted real estate funds. Although these definitions have no legal or regulatory underpinning, the fact that they are backed by a large group of institutional and professional investors will ensure that most funds will comply with them. The increasing importance of the GIPS standard²⁰ for the presentation of financial performance is also likely to contribute to enhanced reporting standardisation.

A real estate portfolio, if any, held by the GPFM cannot be managed in the same way as its current equity and bond portfolios, using a benchmark index and a limit on deviations from the benchmark. The review of management on the part of other funds shows that unlisted investments are commonly managed by reference to absolute performance measures and real estate indices, or a combination thereof. As far as the listed parts of real estate portfolios are concerned, one commonly uses benchmark portfolios comprising listed real estate companies.

Both CalPERS and ABP evaluate their global real estate investments by reference to unlisted real estate indices, using the US NCREIF and the IPD Netherlands respectively. In addition, CalPERS has stipulated as an *ex ante* requirement that the investments shall achieve a real return of at least 5 percent, net of costs. These preferences should be seen in the context of the fact that both funds hold large real estate investments in their domestic markets.

²⁰ Global Investment Performance Standards. Published by the CFA Institute (Certified Financial Analyst Institute). The GIPS is an international standard for the presentation of financial performance, and includes designated standards for both real estate and unlisted equities (“private equity”).

As far as the listed parts of the real estate portfolios are concerned, it is common to use benchmark portfolios comprising listed real estate companies. The GIC in Singapore has chosen an absolute performance level as a benchmark, as opposed to a market index. This example is of particular relevance to the GPFG because both funds are large players in the global real estate market, holding investments in many different instruments. And, unlike CalPERS and ABP, neither GIC nor the GPFG will hold real estate investments in their domestic markets.

The Strategy Council is of the view that this discussion suggests that one should adopt an absolute, rather than a relative, performance measure for any real estate portfolio to be held by the GPFG. Another conclusion is that the follow-up effort will require the commitment of considerable resources on the part of the Ministry of Finance, in its capacity of owner.

6. Conclusion

The objective of the investments of the Government Pension Fund – Global is to achieve the maximum possible expected real return on assets, given a moderate level of risk. Developments in the international purchasing power of the Fund are of primary relevance in assessing the return and risk of the Fund. The choice of investment strategy should attach decisive weight to the expected return and risk of the Fund in the very long run. At the same time, the strategy needs to be sustainable over short and medium time horizons. This means that the return and risk characteristics of real estate when measured over shorter periods of a few years are also of relevance.

The Council is of the view that the objective of the Fund's investments suggests that a considerable share of its assets should be invested in equities and other real assets like real estate, because such investments protect the long-term purchasing power of the Fund. Such a conclusion is supported by available research findings for the real estate market. At the same time, weight must be attached to reducing risk by spreading the investments across several types of assets. In this context, real estate assumes a special relevance as the main asset class in respect of which the Fund currently has no separate allocation. Besides, this is an asset class held by most comparable funds.

Moreover, the short and medium term characteristics of real estate investments favour the proposed reallocation. Despite problems relating to data quality and time series that are limited to the last 20-30 years, the Strategy Council believes that the available data suggest that the GPFG will achieve a better risk-adjusted return by encompassing the real estate asset class, also when measured over time horizons of a few years. This is primarily caused by low correlations with equities and bonds, which indicate significant diversification gains for an international portfolio.

The Strategy Council takes the view that it is primarily the long-term return and risk characteristics of real estate, and in particular the desire to hold more of the Fund's investments in the form of real assets, that favour real estate investments over bond investments.

The Strategy Council recommends, on the basis of an assessment of the short and long term return and risk characteristics of real estate investments, that this asset class be included in the Fund. The real estate investments should be offset by a corresponding reduction in the Fund's bond portion. A real estate portion in the region of 5 - 10 percent of the portfolio will be in keeping with the norm amongst other large funds. In view of the size and expected growth of the Fund it may be

preferable to aim for an allocation of 5 percent to begin with. When this target has been met, one may examine whether one should define a new and higher long-term target.

The Strategy Council has concluded, after an assessment of the real estate investments of other funds, that the basis for evaluating management performance should, as far as real estate is concerned, be an absolute rate of return requirement, as opposed to a benchmark portfolio with a risk limit expressed by way of tracking error. If real estate is included in the portfolio of the Government Pension Fund – Global one will have to commit more resources to the management of this part of the Fund. This will not only be the case with the operational management of the Fund, but also on the part of the Ministry of Finance.

The Strategy Council is of the view that infrastructure represents a new and relatively immature asset class. The Council believes that it would be premature to allocate a designated portion of the portfolio to infrastructure. Nevertheless, the Ministry may wish to contemplate the inclusion of infrastructure in the investment universe, for purposes of accumulating experience with this asset class, by stipulating designated quotas for limited infrastructure investments within the 5-percent real estate allocation.

The Strategy Council is aware that the Ministry of Finance is currently examining the potential tax position of the Fund in the real estate market. In making the above assessment, the Council has not considered any consequences than may arise from the tax status of the Fund. A designated real estate allocation will also require a more detailed examination of how to organise management, and the limits and guidelines to be laid down in respect of control and follow-up on the part of the Ministry.

Oslo, 18 June 2007

Erling Steigum Bodil Nyboe Andersen Monica Caneman
(Chairman)

Ida Helliesen Thore Johnsen Eva Liljeblom