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Government Pension Fund Global – Investments in infrastructure

In December 2014, the Ministry of Finance announced plans to consider allowing investments in unlisted infrastructure in the Government Pension Fund Global (GPFG). In its letter of 26 March 2015, the Ministry asked Norges Bank for advice and analysis on how investments in infrastructure can help improve the trade-off between risk and return in the GPFG. The Bank's assessments are set out below. The Ministry also asked the Bank to assess the limit for investments in real estate, and how investments in real estate and infrastructure should be regulated in the management mandate from the Ministry. These two questions are addressed in separate letters from the Bank.

On 20 October 2006, Norges Bank advised that up to 10 percent of the GPFG could be invested in real estate and infrastructure.[1] The Bank reiterated its advice that the Fund should be permitted to invest in unlisted infrastructure in two letters on 6 July 2010.[2] We wrote that the Fund was well-suited to such investments, and that increased investment in real assets such as real estate and infrastructure could help reduce uncertainty about developments in the Fund's international purchasing power.

In this letter, we begin by looking at how infrastructure investments might affect the trade-off between risk and return in the Fund. We then describe the market for investments in infrastructure for renewable energy and infrastructure in less mature markets. The Bank's recommendations are summarised in the final part of the letter. The Bank's assessments and

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[1] "Recommendations concerning the investment strategy for the Government Pension Fund – Global", Norges Bank, 20 October 2006.
[2] "Development of the investment strategy for the Government Pension Fund Global", Norges Bank, 6 July 2006, and "An assessment of the basis for unlisted investments focusing on the environment and sustainable growth", Norges Bank, 6 July 2006.

recommendations build on the analysis in three discussion notes to be published on the Bank's website.[3]

Investments in infrastructure – Risk and return characteristics

Infrastructure investments span a broad set of asset types with a long lifespan, such as roads, ports, airports, water and sewage networks, power and telecommunications. The operation of these assets is normally subject to public regulation. The impact of economic growth on the use of these services will vary, as will the impact of growth and inflation on the price users pay for the service. These characteristics mean that the relationship between returns on infrastructure investments and macroeconomic variables such as growth and inflation is not clear-cut, but will depend on the type of infrastructure investment.

The value of global infrastructure assets has been tentatively estimated at around 20 trillion US dollars, of which 75 percent are in public ownership and 25 percent in private ownership.[4] A private investor considering investment in infrastructure may choose from different types of financial instruments. There is a choice between debt and equity, between listed and unlisted, and between direct investment and investment through a fund. The GPFG is already invested in listed infrastructure companies and tradable bonds issued by infrastructure companies. Now that the Bank is asked by the Ministry to assess investments in unlisted infrastructure, the Fund's size suggests that direct investments in debt and equity are the most relevant options.

One possible approach to assessing the risk and return characteristics of direct investments in unlisted infrastructure is to analyse the correlation between the return on these investments and the return on the Fund's other investments using historical time series. Studies based on time series of data for unlisted infrastructure investments reveal limited correlation with the Fund's other investments, and an attractive trade-off between risk and return.[5] However, the available time series for unlisted infrastructure investments cover only a limited number of transactions in a small number of countries. To obtain a broader picture, one alternative is to use time series for listed infrastructure companies. There are, however, few pure-play infrastructure operators. Prices for these stocks will also generally be correlated with movements in the wider stock market and not necessarily represent the characteristics of the type of investment discussed here.[6] We are therefore reluctant to generalise on the basis of such analyses.

Direct investments in infrastructure are large in size and limited in liquidity, and the projects themselves have a long lifespan. Investment opportunities arise at irregular intervals, and investments can be difficult to sell. Investors will normally require compensation for the

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[3] NBIM Discussion Notes 2/2013 *Infrastructure investments*, 4/2015 *Renewable energy* and 5/2015 *Infrastructure investments in less mature markets*.

[4] RARE Guide to Listed versus Unlisted Infrastructure, RARE Infrastructure 2013.

[5] See NBIM Discussion Note 2/2013 *Infrastructure investments*.

[6] Our calculations indicate that the UBS infrastructure index (listed infrastructure companies) has a beta in relation to the overall stock market (FTSE Global All Cap) of 0.8, while unlisted infrastructure indices such as those from CFS and CEPRES have a beta in relation to the overall stock market of 0.

illiquidity of such investments. The GPFG is well-suited to making investments of this kind. The likelihood of large unexpected withdrawals from the Fund is limited, and even then most of the Fund will still be invested in assets that can be sold quickly. The chances of a situation arising where we are forced to sell one of our infrastructure investments are therefore small. The GPFG is also well-suited to investing in projects with a long lifespan.

Investments in unlisted infrastructure entail direct exposure to regulatory risk. This risk needs to be considered carefully ahead of each investment. In principle, the Fund is no better-suited to taking on regulatory risk than other investors. One possible strategy may be to restrict investments to jurisdictions where there is a well-functioning legal system and where the authorities have experience of private ownership of infrastructure.

The number of countries and sectors where private capital plays a major role in funding infrastructure is currently limited.[7] As a result, a portfolio of infrastructure investments will often consist of a relatively small number of investments in a small number of sectors and countries. This means that the risk associated with individual investments will be the dominant risk even in a large portfolio of infrastructure investments. The GPFG is a global investor and can consider investment opportunities independently of the country or currency in which they arise. Because the Fund is effectively invested in all countries and currencies, it will be possible to manage the overall risk in the Fund by adjusting other investments.

The risk and return characteristics of infrastructure investments will generally vary with the type of asset – whether it is a development project (greenfield) or already in operation (brownfield), the country or region in which the investment is made, the design of the contract, and the choice of financial instrument. Limited availability of data means that the decision to allow unlisted infrastructure investments in the GPFG must largely be based on qualitative and forward-looking assessments of risks and returns. It is reasonable to assume that investments in unlisted infrastructure could deliver a stable, inflation-adjusted income over a long period and contribute to better diversification of risk in the Fund as a whole.

The Bank considers it reasonable to assume that investments in unlisted infrastructure could result in a better trade-off between risk and return in the GPFG in the long term. The Fund's size and long investment horizon may mean that the Fund is well-suited to invest in some types of infrastructure.

Investments in infrastructure – Renewable energy and infrastructure in less mature markets

The Ministry has asked the Bank to assess the markets for unlisted investments in infrastructure for renewable energy and infrastructure in emerging markets. These two markets are presented in more detail in NBIM Discussion Note 4/2015 *Renewable energy* and 5/2015 *Infrastructure investments in less mature markets*. We use the term "less mature

[7] Unlisted infrastructure investments to date have largely been concentrated in Anglo-Saxon countries. This may change in the future.

markets" to cover investments in countries classified as low- and middle-income countries by the World Bank.

Local pollution, climate change and a desire to limit global warming have led authorities in more and more countries to set targets for renewable energy as a share of the total energy supply. Annual investment in renewable energy production has been between 350 and 400 billion dollars in recent years and is expected to grow.[8] Most of this has been financed with private capital. The risk associated with such investments appears to be somewhat lower today than when the Bank last considered this question in 2010. The use of renewable energy has accelerated, and costs have fallen substantially as a result of technological advances and economies of scale.[9] Changes to existing rules and subsidies can make investments unprofitable, however, and this is still a substantial risk that needs to be assessed carefully ahead of investments.

Infrastructure investments in less mature markets are estimated at 800-900 billion dollars a year, including private investments of just under 200 billion dollars.[10] Latin America, India and Turkey have all seen substantial private infrastructure investments. The main need in less mature markets is for investment in new infrastructure. An investor must therefore be willing to take on development and project risks. These will often also be countries with weaker institutions and less effective legal systems, with the result that investors must accept higher regulatory risk than for investments in more advanced markets. The risk of corruption may also be greater in these markets. Investing together with institutions with extensive experience in these markets may reduce the risk in these projects to a degree.

The Bank considers it possible to invest in infrastructure for renewable energy with the same required rate of return as for the GPFG's other investments. Infrastructure investments in less mature markets will be more demanding.

Investments in infrastructure – The Bank's recommendations

Infrastructure investment has fallen in relation to government budgets in recent years, and more large projects have been funded with capital from private investors such as large pension funds.[11] There are substantial variations in how much different funds have invested in unlisted infrastructure. Some Canadian and Australian pension funds have up to 15 percent of their portfolio in unlisted infrastructure, while other funds have chosen not to invest in unlisted infrastructure at all.[12] A variety of national, regional and global infrastructure

[8] See *World Energy Outlook 2015*, International Energy Agency (IEA). Note that these figures include acquisitions as well as new investments.
[9] "An assessment of the basis for unlisted investments focusing on the environment and sustainable growth", Norges Bank, 6 July 2006.
[10] Bhattacharya, A. et al. (2013): "Infrastructure for Development: Meeting the Challenge", policy paper, Centre for Climate Change Economics and Policy, Grantham Research Institute on Climate Change and the Environment.
[11] See Inderst, G. (2013): "Private Infrastructure Finance and Investment in Europe", EIB Working Papers 2013/02, for further information.
[12] Della Croce, R. and Yermo, J. (2013): "Institutional Investors and Infrastructure Financing", OECD Working Papers on Finance, Insurance and Private Pensions No. 36.

initiatives have been launched in recent years, and this may result in interesting investment opportunities for a long-term investor.

If the Ministry allows unlisted investments in infrastructure, the Bank will approach investment opportunities and gradually build up its expertise in the same way as when it first invested in real estate. To begin with, the Bank will look at investments in infrastructure where there is a high degree of confidence about future income. The first investments will be concentrated in the most advanced countries, and the Bank will consider direct investment in both debt and equity. GRESB has begun work on developing a global reporting standard for sustainability performance in the market for infrastructure, and it will be natural for the Bank to participate in this process.[13]

It will not be natural for the Bank to make its first infrastructure investments on its own. One possible approach may be to invest together with companies the Bank already knows that are considering sourcing private capital to finance individual projects. Another possibility may be to invest together with other investors, financial institutions or development banks. Partnerships of this kind are often used for large infrastructure investments.

Unlisted infrastructure investments are not standardised, are more cost-intensive than listed investments, and require a different kind of follow-up. Infrastructure investments can be managed with far fewer staff than real estate investments. Unlisted equity investments in infrastructure will be made largely through subsidiaries in order to limit Norges Bank's liability. As far as the Bank has been able to ascertain, investing in unlisted infrastructure will not give rise to any new tax challenges beyond those already familiar through investments in real estate.

The Bank's advice is that the Ministry should allow unlisted infrastructure investments, but that no concrete target is set for their share of the Fund. The percentage of the Fund invested in infrastructure over the next few years will in any case be limited. Investment opportunities will vary over time, and it is not appropriate to commit to a specific schedule for building up the Fund's infrastructure investments.

The Bank believes that the GPFG should be permitted to invest in unlisted infrastructure, and that the allocation to such investments at this stage should be defined as an interval of 0-5 percent of the Fund's total market value. The Bank will be able to build on existing expertise in the operational implementation of unlisted investments in infrastructure.

Yours faithfully

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[13] GRESB aims to establish standards for the measurement and disclosure of sustainability performance in the market for unlisted investments in real estate and infrastructure. See https://www.gresb.com for further information.