

The Norway Model

David Chambers, Elroy Dimson and Antti Ilmanen

This version: 10 October 2011

Abstract: The Norwegian Government Pension Fund Global was recently ranked the largest fund on the planet. It is also highly rated for its professional, low-cost, transparent, and socially responsible approach to asset management. Investment professionals increasingly refer to Norway as a model for managing financial assets. We present and evaluate the strategies followed by the Fund, review long-term performance, and describe how it responded to the financial crisis. We conclude with some lessons that investors can draw from Norway's approach to asset management, contrasting the Norway Model with the Yale Model.

By 2011, Norway's Government Pension Fund Global (GPGF) was ranked the largest investor in the world (Barbary and Bortolotti, 2011). It has for some time been ranked the second-largest sovereign wealth fund, behind the Abu Dhabi Investment Authority whose market value is not publicised (SWFI, 2011). Only 15 years earlier, it had been the smallest. In a short period, this fast-growing fund has become an exemplar for investors around the world. The Norway model has become a coherent and compelling alternative to the Yale model for endowment investment.

The transition from zero to hero has not been smooth, and there has been turmoil along the way. Norway is among the world's most visible investors, and consequently the Fund's rollercoaster experience has been scrutinised closely. Short-term underperformance during the recent financial crisis provoked widespread soul-searching and criticism within Norway. Yet the GPGF fared better through the 2007-08 turbulence than most institutional investors, and by 2010 it had fully recovered the absolute and relative losses it experienced over that period.

Although this outcome was not preordained, the Fund's long horizon and low spending needs equipped it exceptionally well to bear short-term losses. The Fund has enhanced Norway's reputation as an investor. While Yale is often cited as a thought leader for endowment management (Swensen, 2000), high esteem is nowadays expressed for Norway's management of its wealth. In line with the Fund's formidable reputation in terms of structure, governance, transparency, and responsible investing, it has been awarded the highest ranking, a score of 97%, among 53 sovereign wealth funds in 37 countries (Truman, 2010). The GPGF also excels in other important dimensions that are omitted from this scorecard, including investment performance and its degree of professionalism.

The Norway model is virtually the opposite of the Swensen model. Norway has relied almost exclusively on publicly traded securities, it is constrained to a low tracking error, and it has a rigorous asset allocation that allows little deviation from the policy portfolio. More generally, it depends on beta returns, not alpha returns. This contrasts with the Swensen model, which aims for investment managers to bridge their deficit in systematic risk exposure by exploiting market mispricing.

In this article, we describe and evaluate Norway's approach to managing its national endowment. By understanding the strategy, we can learn what might profitably be imitated, and what is

David Chambers (d.chambers@jbs.cam.ac.uk) is Lecturer in Finance at Cambridge Judge Business School. Elroy Dimson (edimson@london.edu) is Emeritus Professor of Finance at London Business School, Visiting Professor of Finance at Cambridge Judge Business School, and Chair of the Strategy Council, Norwegian Government Pension Fund Global. Antti Ilmanen (antti.ilmanen@aqr.com) is Managing Director at AQR Capital Management (Europe) LLP and a Member of the Strategy Council, Norwegian Government Pension Fund Global. This paper was written while David Chambers received support from the Robert Brown Foundation and Elroy Dimson held a Leverhulme Trust Emeritus Fellowship. The authors write in a personal capacity using public-domain data; they have not received any payment, direct or indirect, for this study; and they are solely responsible for any errors. The views and opinions expressed here are those of the authors and do not necessarily reflect the views of their employers, their affiliates or employees. Acknowledgements are at the end of the article.

suitable for Norway but inappropriate for other investors. Our article is structured as follows. We start with some background on the GPF, and then describe the Fund's long term strategy. Next, we discuss its volatile performance, focussing on the recent financial crisis. We then look ahead to ways in which management of the Fund may evolve in the future. We conclude by presenting some lessons from Norway's approach to portfolio management that are relevant for other investors.

BACKGROUND

Norway is one of the wealthiest countries in the world. While shipping had been a mainstay of its export activity, much of the economy's growth has been underpinned by natural resources such as fishing, hydroelectric power and, most importantly, petroleum exploration and production. Hydro power meets virtually all the nation's electricity needs, resulting in a low and stable domestic demand for oil and allowing the export of most of its oil production. Norway was recently ranked as the world's sixth largest oil exporter and eleventh largest oil producer, and as the world's second largest gas exporter and fifth largest gas producer (Nordvik, Verlo, and Zenker, 2010). Oil revenues have enabled Norway to amass substantial wealth, which is channelled into the GPF.

The Government Pension Fund Global was formally set up in 1990 as the Petroleum Fund to manage Norway's resource wealth in a long-term and sustainable manner. The original idea behind establishing the Fund was twofold: First, the Fund was to serve as a long-term savings vehicle which seeks to secure the income from a non-renewable resource by diversifying into a broad portfolio of international securities. There is an ethical obligation to share the wealth from natural resources, developed over millions of years, with future generations and to use these savings to cover government expenditures that will be associated with an ageing population.

Second, the Fund was a device to insulate the domestic economy from the resource curse, known as "Dutch disease". The experiences of other countries have shown that the receipt of a sudden increase in natural resource wealth can rapidly inflate domestic prices and the exchange rate, decrease international competitiveness and result in de-industrialisation. A further potential problem is that this enormous resource wealth could disincentivize citizens from working and developing their human capital. Yet, human capital is estimated to form 82% of Norway's wealth per capita, far exceeding its petroleum wealth (Haugerud, 2011).

Established in 1990, no capital transfers were made from the State budget into the Fund until the budget had turned from deficit to surplus. The initial allocation in 1996 of NOK 2 billion (then equivalent to USD 0.3 billion) was restricted to investment in government bonds. In 1998 the investment universe was widened to allow a 40% allocation to equities. Thereafter, there were further innovations to the strategy in the form of inclusion of new asset classes and an increase in the equity allocation to 60%. New ethical guidelines were also implemented, which led to some companies being excluded from the Fund's investment universe. A more detailed overview is provided by Gjedrem (2010).

Although production has already peaked, Norway is expected to remain a substantial producer of petroleum products for a long time to come. The Fund's security holdings will continue to grow, so long as the sum of oil-based revenues and investment returns exceed spending. At the end of June 2011, the GPF had grown to NOK 3111 billion (USD 580 billion). It is projected to double in size over the next decade, based on assumptions that are detailed in the National Budget (Ministry of Finance, 2010).

The petroleum inflows make the GPF's investment horizon particularly long – well after inflows to the Fund start to decline. Around 2020, the annual withdrawals from the Fund to cover the oil-corrected budget deficit in the state budget are projected to exceed inflows of new money. To the extent that the Fund remains willing to bear risk commensurate with its continuing long horizon, and returns on capital exceed net withdrawals, the Fund will then continue to grow.

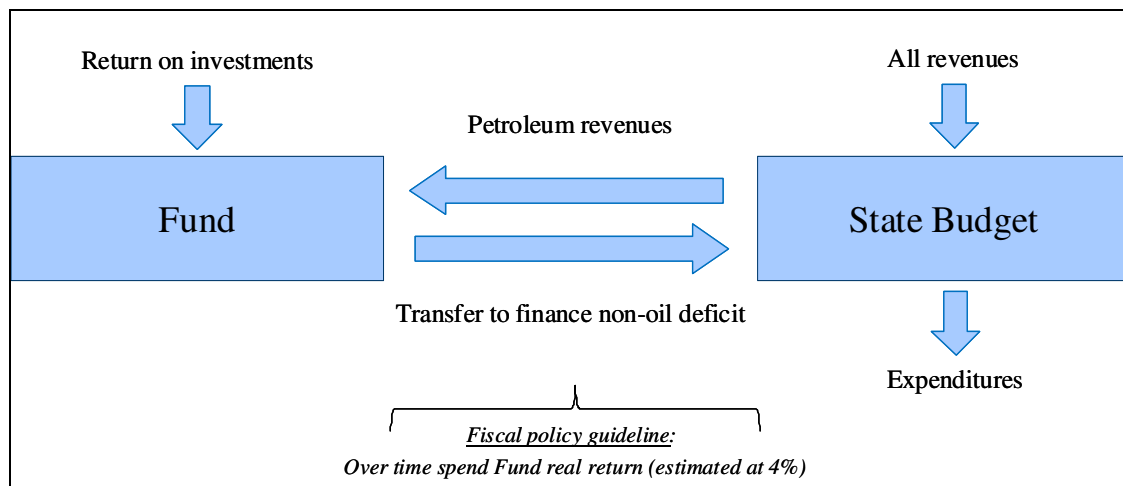
LONG-TERM STRATEGY

Ang (2010) describes the political, economic, governance and professional context in which sovereign wealth funds are managed, while Curzio and Miceli (2010) present a comparative guide to these state-owned investment vehicles. There is increasing scrutiny of the decision-making of these funds (Kotter and Le, 2011) and of their economic impact (Dewenter, Han, and Malatesta, 2010). The fast-expanding literature on sovereign wealth funds is testimony to their distinctive structure, governance and other characteristics.

Structure and governance

GPIF assets are not earmarked for any specific purpose, and no person or organisation has a direct claim on them. Transfers from the Fund can only be made to the state budget and, from there, funds flow into the Norwegian economy. Transfers cover the oil-adjusted budget deficit. The size of any transfer is determined during the preparation of the annual budget according to fiscal policy guidelines. The intention of the guidelines is that, over time, withdrawals correspond to the Fund's anticipated long-run annualised real return of approximately 4%. Therefore, as portrayed in Exhibit 1, the Fund instils fiscal discipline into the government budget. In good economic conditions, when tax revenues are high, less than 4% of the Fund is spent; during bad economic conditions, more than 4% is spent to offset the cycle. By having a long-term commitment to the 4% rule, the Fund restrains the government from overspending. Ultimately, once the Fund has become very large, even this level of spending may be excessive: since 2001, when new monetary policy guidelines and the spending rule were decided, Norway's central bank has periodically warned that 4% spending may become too large.

Exhibit 1: Flows to and from the Fund



Source: Haugerud (2011)

The mandate of the Fund is to maximize international purchasing power, given acceptable levels of risks. The Ministry of Finance is responsible for the long-term management of the Fund. Norges Bank Investment Management (NBIM) – a business unit within Norges Bank, the central bank – manages the assets in accordance with investment guidelines issued by the Ministry. NBIM also manage the foreign exchange reserves of the central bank.

The Ministry of Finance received guidance from Norges Bank from the earliest days, and key elements of the Norway model were in place by the end of the 1990s. By 2005–2010 the Ministry was advised by a six-member Advisory Council (which included one of the current authors). Since 2010, the Ministry has received advice from a four-member Strategy Council (which

includes two of the current authors). The Strategy Council has explicit objectives: to strengthen both the legitimacy and foundation of the Fund's long-term investment strategy; to advise on how to develop the strategy further; and to facilitate transparency and debate on important decisions regarding the investment strategy for the Fund. Naturally, the Ministry also takes advice from external consultants and continues to receive inputs from Norges Bank.

The Ministry decides on the levels of acceptable risks, constructs the benchmark (regional allocation, asset classes), the rules and criteria (e.g. maximum ownership levels), and the overall investment universe. By presenting significant changes to investment strategy to Parliament before implementation, the Ministry effectively seeks to earn support sufficient to help public understanding of Fund performance through subsequent financial downturns. Transparency is underscored by making an extensive list of publications available on the Ministry and NBIM websites, in English as well as Norwegian, and Fund returns are published monthly. The Ministry provides to Parliament detailed annual reports including information on investment returns, strategy, and implementation of ethical guidelines. Norges Bank publishes quarterly financial reports and an annual listing of all investments, including their size and information on voting. Indeed, NBIM has since the first annual report in 1998 provided much more information on strategy, investment philosophy, results and risk than most sovereign funds and pension funds in any jurisdiction. External consultant reports and the Strategy Council's recommendations are also published. This high degree of transparency may be viewed as a means of creating pressure for adoption of best practice in investment management and delivery of satisfactory financial returns. The Fund is now the yardstick against which other sovereign wealth funds are often measured.

Characteristics

As noted by the Strategy Council and the Ministry of Finance, the GPF's long-run investment strategy should reflect its distinctive characteristics and investment beliefs (see Dimson, Ilmanen, Liljeblom, and Stephansen, 2010, and Ministry of Finance, 2011). The distinctive characteristics include the Fund's large size, long time horizon, absence of specific liabilities (apart from the long-term return assumption discussed later), and its ownership and governance structure, including the demand for transparency.

There are at least six factors that should drive strategy: First, the underlying investors have a long time horizon and little need for marketability, which gives the GPF a natural relative advantage for harvesting liquidity premia. Second, this long horizon makes the Fund more tolerant of return volatility and short-term capital losses than most other investors, so it should lean towards earning higher risk premia, notably through an equity focus. Third, whereas institutions with a smaller capital base may be better able to leverage up small risk premia that offer a superior reward per unit of volatility and to harvest liquidity premia in niche markets, the Fund's size makes it impractical to exploit either of these sources of value added. Fourth, capacity issues also favour benchmarks that are, at least loosely, linked to market capitalization.

Fifth, as a large, long-horizon investor with relatively stable risk preferences over time, the Fund may most effectively earn liquidity and other premia by serving as an opportunistic liquidity provider through contrarian transactions in liquid markets, and through buying unpopular asset classes. Sixth, as long as oil remains a significant underground resource, the GPF arguably has less need for inflation-hedging than most investors, and a deflation scenario is a more damaging tail risk than an inflation scenario; since nominal government bonds are the best deflation hedges, it may be reasonable to hold some government bonds despite their low expected returns.

In summary, the long-term objectives of the Fund suggest a tilt towards patient, liquidity-supplying and market-stabilizing value strategies, holding assets that have typically experienced price declines and waning investor interest.

Investment beliefs

The Ministry of Finance (2010, 2011) explains its investment strategy on its website. The strategy is underpinned by several core beliefs: a belief that markets are largely efficient; a commitment to diversification; a focus on earning risk premia; a clearly articulated benchmark; careful selection and monitoring of asset managers, especially for less liquid assets; and a commitment to responsible investing. The latter is integral to the Fund's value system. In addition, certain fundamental requirements must be met: effective control of operational risk; exploitation of the Fund's size and long horizon; and adherence to good governance principles.

This continues a heritage of disclosure and communication by the Fund, in which NBIM describes its investment philosophy and core principles in annual reports, articles and presentations. These include extensive explanations of how the fundamental law of active management (Grinold, 1989) was the foundation of the Fund's investment style.

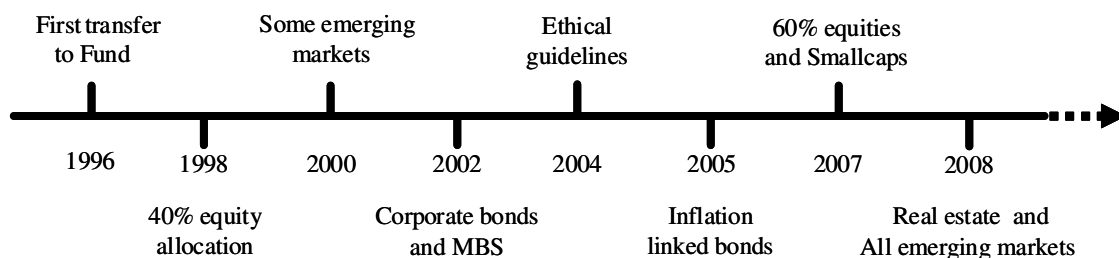
Benchmark: equities and fixed income

The investment strategy of the Fund has two broad elements. The long-term strategy is articulated by the asset mix in the strategic benchmark portfolio, as decided by the Ministry of Finance and Parliament. The benchmark allocation to each asset class defines the Fund's risk tolerance. Second, active management by NBIM is permitted in pursuit of returns in excess of the benchmark. The composition of the strategic benchmark dominates total portfolio risk because active management is constrained by a small permitted tracking error relative to the Fund's benchmark.

The Ministry of Finance sets the strategic benchmark. Major changes are presented and discussed in white papers to Parliament prior to implementation. The benchmark, which specifies the asset mix and regional allocation of the Fund, serves a dual role. First, it is a risk measurement and control tool, reflecting the level of risk, inherent in the asset allocation, regarded as acceptable by the Ministry of Finance in conjunction with Parliament. Second, the benchmark serves as a yardstick, used to measure the performance and incentivize the manager, NBIM.

The benchmark has evolved gradually since inception, as depicted in Exhibit 2. This timeline reports the years when key decisions were made, with implementation taking place over intervals of between one quarter and two years – for example, the increased equity weighting was implemented steadily between summer 2007 and summer 2009. Critics may see the gradualness of this approach as a failure to seize “first mover” investment opportunities. But this overlooks Norway's willingness to give serious study to each strategic investment decision, with expert help and frequently with public dialogue, and typically involving parliamentary debate and approval. The care and transparency with which major decisions are made and implemented has been central to ensuring support, and longevity, for changes in strategy.

Exhibit 2: The Evolving Benchmark



The Fund's strategic benchmark comprises two asset class indices with the equity index constituting 60% and the fixed income index 40% less the exposure to real estate (see below). Each asset class index in turn consists of three regional indices: Europe, America, and Asia, making six sub-indices. Each of the latter is weighted broadly by market capitalization, though with some exceptions.

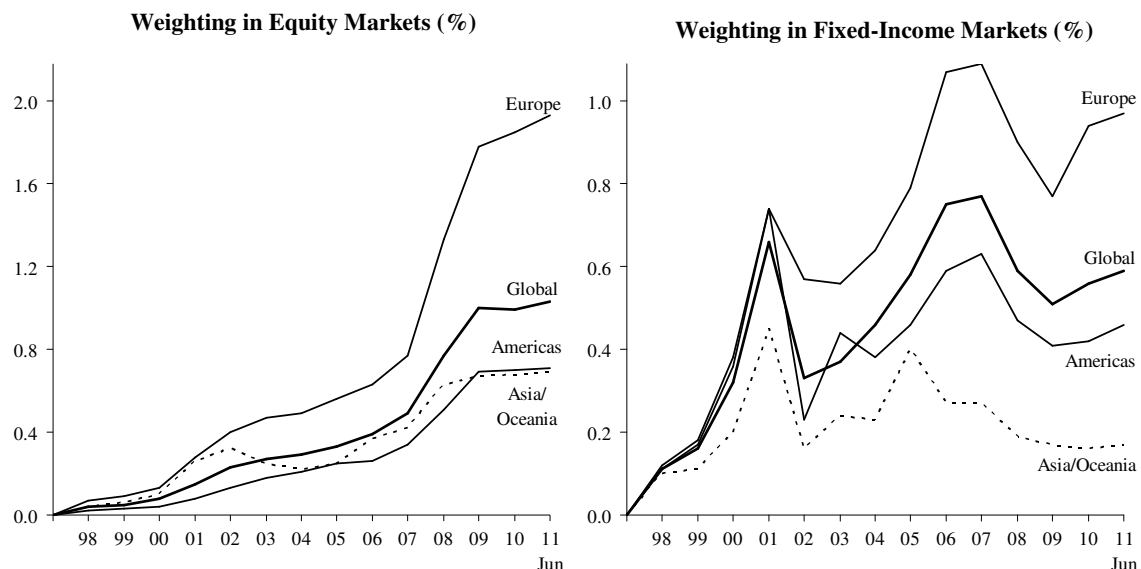
The strategic equity index is the FTSE All-Cap indices for the Developed, Advanced Emerging, and Secondary Emerging markets. The regions have the following weights: 50% Europe, excluding Norway; 35% Americas/Middle East/Africa; and 15% Asia/Oceania. The strategic fixed income index has a 60% weighting in the Barclays Capital Global Aggregate Index and Barclays Capital Global Inflation-Linked Index Europe, excluding Norway; 35% U.S./Canada; and 5% Asia/Oceania.

The overweight of Europe based on market capitalization is partly motivated by currency reasons. All investments are unhedged and the Norwegian kroner exchange rates have in the recent past been less volatile against European currencies than against currencies outside Europe. However, Purchasing Power Parity (PPP) has held better over the long term than over shorter intervals (see, for example, Dimson, Marsh, and Staunton, 2011). This suggests that the tilt towards European neighbors might be reduced, and indeed, the Ministry has sought advice that could underpin revision of the Fund's regional weights.

Wherever possible, portfolio rebalancing is pursued by allocating the monthly revenue inflows to the asset class/region with the largest negative deviation from the benchmark, and operational costs are controlled by adjusting existing positions, when feasible.

In mid-2011, the Fund held shares in 8400 companies worldwide, and was among the largest shareholders in a considerable number of companies. The average equity holdings expressed as a proportion of the FTSE All Cap Index's market capitalization are displayed on the left hand side of Exhibit 3 for each region. On average, the Fund already holds over 1% of every listed company in the FTSE world index, and almost 2% in Europe. The Fund holds 7945 bonds. Its holdings in fixed-income markets, as a proportion of the Barclays Global Aggregate and Inflation Linked indices, represent almost 0.6% of global bond market capitalization, as shown on the right hand side of Exhibit 3.

Exhibit 3: The Fund's Holdings in Global Markets



Source: Ministry of Finance (2011)

Real estate

Most comparable funds invest in illiquid assets such as real estate, infrastructure and private equity, or in other alternative asset classes. With its very long horizon, regular large capital inflows and virtual absence of short-term obligations, the Fund is better positioned than its peers to tolerate higher levels of illiquidity. Yet this challenges the principle of transparency that is also central to the way the Fund has been managed, and it creates a need for a performance measurement system that deviates from the mark-to-market approach that the Fund uses for traded assets.

On advice from its Advisory Council, and consistent with preferences expressed by Norges Bank, the Ministry decided in 2008 to carve out up to 5% from the fixed-income portfolio as a strategic allocation to real estate. In March 2010, Norges Bank was given a mandate to invest in real estate up to this level, and the first purchase, completed in 2011, was an interest in London's Regent Street. Further investments will concentrate on major markets, typically via joint ventures, with the intention of building a well-diversified real estate portfolio over time.

The case for real estate is largely driven by its absolute return nature. At the same time, opacity, illiquidity, tax and leverage present challenges to creating a helpful real-estate benchmark. The four dimensions of market risk currently employed in managing overall Fund risk – benchmark deviation, relative volatility, factor exposure and position liquidity – are inadequate. Additional dimensions consistent with an absolute return and absolute risk focus, will be required – namely, liquidity, credit, counterparty, operational, legal, taxation, technical, as well as environmental issues.

External management and costs

To obtain the highest level of diversification and to gain access to specialised managers, NBIM uses both internal and external investment managers. NBIM believes that internal and external equity rather than fixed income managers are more likely to add alpha. They therefore focus on internal and external equity managers possessing specialist expertise in clearly defined investment areas, covering both developed and emerging markets, and sector and style based approaches. With the exception of one fixed income manager, the external mandates are for long-only equities spread across 44 managers and totalling around 7% of the value of the Fund.

Asset management costs are monitored and reported regularly via the NBIM and Ministry websites. In the 2000s, costs excluding performance-based fees to external managers ranged between 7 and 9 basis points of assets under management. When such performance fees are included, total annual costs have ranged between 8 and 14 basis points. In peer comparisons, Norway's active management costs are exceptionally low.

Responsible investment

The Fund is a professional financial investor and it cannot uphold all of Norway's ethical commitments. Yet the assets belong to the people of Norway, and so the Fund has to take account of important, commonly shared ethical values. After a government commission delivered a comprehensive report in 2003, and after hearings, parliament debate and public involvement, the Fund adopted a framework for responsible investing in 2004.

The Ministry of Finance (2010) cites two obligations for the Fund: it should be managed with a view to achieving a high return for the benefit of future generations, and there should be respect for the fundamental rights of those affected by the companies in which the Fund invests. These activities reflect a belief that, given its long horizon and highly diversified portfolio, taking such

factors into account will ultimately lead to more sustainable long-term, financial results. The Fund's approach to ethical investment is widely referenced, two examples being Myklebust (2010) and Halvorssen (2011).

The mandate awarded to Norges Bank by the Ministry of Finance (2010), and the guidelines followed by the Council of Ethics (2011) when monitoring Fund investments, emphasize the Fund's role as a responsible investor. ESG (environmental, social and governance) aspects are factored into management of the Fund, which may initiate positive actions, through the exercise of ownership rights, or negative actions, by excluding certain companies from the investment universe. These responsibilities are split: the Ministry is involved with screening that takes place outside NBIM, while the manager is concerned with active ownership of Fund holdings.

Six areas are stressed for positive actions: shareholder rights, board responsibilities, well-functioning markets, climate change, water management, and children's rights. In addition to voting, active ownership involves company dialogue, expectations documents, shareholder proposals, legal action and regulatory participation. At the time of writing, 52 companies were excluded from the Fund's universe.

VOLATILE PERFORMANCE

The behaviour and performance of sovereign wealth funds has recently come under scrutiny, especially since the financial crisis (Gasparro and Pagano, 2010). Exhibits 5 and 6 report the performance of the GPF. Changes in the Norwegian kroner exchange rate do not impact the Fund's international purchasing power, and the Fund does not hedge against moves in the kroner. Consequently, the return is given in international currency, based on a weighted combination of 35 currencies in the Fund's benchmark indices. Exhibit 4 (below) shows that until the crisis, investment performance had been commendable. The Fund had suffered negative absolute returns during the 2001-02 equity market sell-off but weathered that adverse experience. Impressively, NBIM's active management resulted in small positive excess returns in eight successive years to 2006.

Exhibit 4: Absolute and Relative Performance by Asset Class to 30 June 2011

Period	All assets (%)		Equities (%)		Fixed income (%)	
	Absolute	Relative	Absolute	Relative	Absolute	Relative
1999	12.44	1.23	34.81	3.49	-0.99	0.01
2000	2.49	0.27	-5.82	0.49	8.41	0.07
2001	-2.47	0.15	-14.60	0.06	5.04	0.08
2002	-4.74	0.30	-24.39	0.07	9.90	0.49
2003	12.59	0.55	22.84	0.51	5.26	0.48
2004	8.94	0.54	13.00	0.79	6.10	0.37
2005	11.09	1.06	22.49	2.16	3.82	0.36
2006	7.92	0.14	17.05	-0.09	1.93	0.25
2007	4.26	-0.24	6.82	1.15	2.96	-1.29
2008	-23.30	-3.37	-40.17	-1.15	-0.53	-6.60
2009	25.62	4.13	34.27	1.86	12.49	7.36
2010	9.62	1.06	13.34	0.73	4.11	1.53
2011 to 30 June	2.36	0.17	2.23	-0.04	2.51	0.52

Source: NBIM (2011)

Performance during and after the recent crisis

The bad news began on the fixed income side in 2007 with underperformance of 1.3% relative to the benchmark. The 2008 crisis period stands out as dreadful for both absolute (-23.3%) and relative (-3.4%) performance. The Equities and Fixed Income blocks of the table show that the Fund's equities fell more than the market, and that the Fund's severe fixed income underperformance more than offset all pre-2007 gains. The losses, especially in active management, generated considerable public outcry. There were calls within Norway for de-risking the portfolio by taking fewer active bets – a topic to which we return below. The most effective response to the Fund's critics has been to cite the sharp performance recovery since 2008. The Fund had already recouped all its previous underperformance against the benchmark by the end of 2009 and continued to perform strongly in 2010.

Longer-run performance

Exhibit 5 summarizes performance over various periods, including returns since inception in the last column. By mid-2011 the Fund had generated favourable absolute returns and an excess return that made a valued additional contribution to long-term performance. Between January 1998 and June 2011, the annual nominal return of the Fund was 5.03% which was 0.31% above the Fund's benchmark. Performance therefore has been volatile but satisfactory over the long-run.

Following the adverse performance of 2007-08, the Ministry of Finance sought external advice. Such advice may have assuaged public criticism by emphasising the need for risk-taking in line with the opportunities offered by the Fund's very long investment horizon. Among the most influential analyses was the AGS Report (Ang, Goetzmann, and Schaefer, 2009), which assessed NBIM's active management both retrospectively and prospectively, and the Strategy Council Report which advised on how to further develop the Fund's long-term investment strategy.

These reports presented several responses to the setbacks of 2007-08 and the public criticism of Fund performance over the crisis period. In particular, they addressed four key issues: First, they defended a continuing commitment to moderate active management. Second, they suggested there might actually be too little risk-taking, instead of too much. Third, they asked how the Fund's long horizon can be maintained in practice. And fourth, they emphasized the importance of measures that ensure the GPFG stays the course, and avoids flipping strategy during a downturn.

Exhibit 5: GPFG Annualized Returns to 30 June 2011

Returns (%)	Last 12 months	Past 3 years	Past 5 years	Past 10 years	Since 1.1.98
Gross return	14.17	5.29	3.86	4.59	5.03
– Benchmark return	13.30	5.01	3.86	4.33	4.71
= Excess return	0.88	0.28	–0.00	0.27	0.31
÷ Tracking error	0.28	1.47	1.22	0.89	0.80
= Information ratio	3.16	0.19	–0.00	0.30	0.39
Gross return	14.17	5.29	3.86	4.59	5.03
– Price inflation	3.09	1.57	2.16	2.05	1.93
– Management costs	0.10	0.12	0.11	0.10	0.10
= Net return	10.66	3.54	1.55	2.38	2.94
Standard deviation	6.74	12.67	10.50	8.24	7.67

Source: NBIM (2011)

External advice

We discuss below each of the issues raised by AGS and the Strategy Council. As we noted, the Fund's performance in 2008 was poor both in terms of total return and relative to the benchmark. Unlike 2002 when critics questioned equity investments in general, public criticism during 2008-09 focused on active management and even called for an end to allowing any deviations from the Fund's benchmark. The AGS report in December 2009 noted that GPFPG's active risks (deviations from benchmark) are constrained to be so small compared to its total portfolio risk that it effectively resembles a passive index fund. Moreover, Ang, Goetzmann, and Schaefer (2009, 2011) argue that a fund of GPFPG's size, resources and distinctive characteristics is among those few investors where it is reasonable to expect active management to add value. The authors recommended the Fund to shift its active management focus from bottom-up security selection toward top-down factor allocation.

Still, there were questions about the Fund's risk-taking profile and active management. The Strategy Council report presented in November 2010 noted that the Fund's 60/40 stock/bond mix was typical among institutional investors, while the Fund was hardly a typical investor. Its distinctive characteristics warrant greater than average risk tolerance, which could help it to achieve a satisfactory real return even in the prevailing financial environment. (This conclusion may not apply nearly as well to other "long-horizon investors" if they have more immediate spending needs than the GPFPG.)

The Strategy Council report highlighted a particular agency problem that may prevent the asset manager NBIM from fully exploiting the asset owner's long investment horizon. A public focus on quarterly performance measures and headline risk aversion reinforced by media scrutiny may induce short-termism and excess conservatism. As a result, the Fund may avoid investment strategies that would be a natural fit for a large long-horizon investor, but that could occasionally result in adverse performance and negative media and political reactions.

Riskier strategies that seek long-run rewards but involve asymmetric payoffs and/or dynamic risk-taking certainly imply new governance challenges. It is important to avoid capitulating at the wrong time, in the midst of a crisis. Thus the Strategy Council stressed that it is crucial to communicate in advance the likely risks (as well as the long-run benefits) of such strategies. Clear communication of past performance particularly during down market episodes should help. The public may recall during the next crisis that listening to popular demands to de-risk the benchmark in 2002 or to wind down active positions in 2008 would, with hindsight, have been poor decisions. Since inception, the Fund has gradually increased its risk profile, and so far the country has been well served by rejecting short-term reactions to adverse performance.

The Norwegian Minister of Finance, Sigbjørn Johnsen (2011), recently signalled the importance of the GPFPG long-term strategy in a presentation to the Storting, the Norwegian parliament: "*The overall results of the last years show that the large losses during the financial crisis have been more than compensated by the gains made in the subsequent market upswing. One important reason is that we held on firmly to the long-term investment strategy.*" The Minister highlights the fact that investment must not only be driven by the right strategy, but there must be a commitment to stick to the strategy even during bad times.

LOOKING AHEAD

GPFPG suffered short-term setbacks during the recent financial crisis and there are lessons to be learned. Looking forward, we first highlight the Strategy Council's advice on the GPFPG's direction for the next decade – harvesting risk premia from multiple sources and exploiting the Fund's natural advantages. We conclude by describing the Ministry's assessments and risk control measures, as well as the Norges Bank Executive Board priorities for the coming years.

Harvesting risk premia

The Strategy Council report (Dimson, Imanen, Liljeblom and Stephansen, 2010) notes that the traditional approach to building investment portfolios has been a simple asset based approach. The building blocks in the portfolio are individual assets such as stocks and bonds, categorized in groups based on instrument type and geographical location. The benchmark relates to such groups of individual assets. Theoretically, this approach is in line with the idea that the only priced risk factor is an asset's beta coefficient – its sensitivity to market movements, according to the Capital Asset Pricing Model (the CAPM) – and that the non-systematic part of the portfolio's total risk can be reduced by diversifying across many individual assets.

But since the 1980s, the CAPM's single-factor approach has been challenged by empirical findings, supporting multiple asset characteristics that are associated with risk premia. These risk factors include value, size, and liquidity, as well as returns to more active styles of investment such as momentum strategies and carry trading. This offers alternatives to the asset based approach: a focus on multiple risk factors, or investment styles, when building a well-diversified investment portfolio with a good return for a given level of risk.

In the light of the setbacks from the financial crisis, it became clear that part of the Fund's performance was attributable to risk factors other than beta risk. AGS estimated in their 2009 report to the Ministry of Finance that more than two thirds of the variation in the Fund's excess return over its benchmark can be explained statistically by systematic risk factors. They also show that factors such as liquidity and volatility have been important, and that the Fund already has a higher exposure to relatively small companies than the benchmark. In the current asset based approach, some of the additional risk exposure has been provided via active management, namely through systematic deviations from the Fund's benchmark. The asset based approach thus does not preclude taking advantage of multiple risk factors and returns to style. When weighing the pros and cons of factor based and asset based approaches, the Strategy Council concluded that the latter is still to be preferred, though performance evaluation and risk measurement should nevertheless take into account multiple risk factors and returns to style.

Traditionally, investors have focused on the equity risk premium as the key source of excess returns. Nowadays, the consensus is that multiple return sources appear to influence asset prices. The main guidance from theory is that required risk premia should be especially high for investments that tend to lose money in "bad times." In the traditional theory, bad times correspond to periods of equity market decline; in more general models, bad times may include recessions, financial crises, liquidity shortages, and so on. Academics still debate whether excess returns are determined by rational or by irrational behaviour by investors. Both sources of return probably matter.

No consensus has yet been formed on which factors, beside the equity premium, drive asset prices. Across stocks, there is little evidence that high-beta or high-volatility stocks earn larger returns than their peers: some studies even report the contrary. The evidence that static subsets of the market, such as particular industry groups, earn superior long-run returns is limited to "sin" stocks (Hong and Kacperczyk, 2009). These do not provide suitable opportunities for the GPF. The same is true for particular countries; in fact, Dimson, Marsh and Staunton (2010) report that even emerging markets as a group have not outpaced developed markets over a multi-decade perspective. Outperformance seems period-specific.

Imanen (2011) and Dimson, Marsh and Staunton (2002, 2011) provide extensive literature summaries on investment style premia. The most prominent source of systematic return is the value premium. Value stocks have market prices that are low relative to fundamentals, such as company earnings, dividends, or book value. The value premium is the long-run outperformance

of value stocks compared to their more richly valued peers.

The size premium has been known for even longer, though historically it has been less consistent. Small-capitalization stocks have tended to outperform large-capitalization stocks, at least on paper. Trading costs on small-cap stocks are higher, which makes it harder to harvest any size premium. This finding leaves open the possibility that the long term outperformance of small-cap stocks may reflect no more than fair compensation for their illiquidity. Yet liquidity is, itself, a multi-faceted concept that is hard to define and measure, and so liquidity-related premia share these features. Liquidity premia reflect compensation for the characteristic of poor marketability, in addition to a risk factor premium for the tendency of illiquid assets to perform poorly during bad times.

In light of the evidence above, the Strategy Council endorsed raising Fund risks, not by further increasing the equity market allocation but by harvesting risk premia from multiple sources. This recommendation can be seen as broadly consistent with “risk parity” investing which should result in more effective diversification and avoid a heavy reliance on the equity premium.

Exploiting natural advantages

Large, long-term investors, such as the GPF, are in a position to exploit the advantages of size and horizon. Excessively pro-cyclical investing is a common error that it is important to avoid. Rebalancing back to a constant asset mix involves locking the Fund into a base-case strategy in order to resist chasing the winning asset classes of recent years. Rebalancing has a contrarian flavour: it implies purchasing an asset class which has become cheaper while trimming holdings of asset classes that have outperformed. But more deliberate contrarian approaches can and should be explored.

At the same time, such investors are naturally suited to writing various forms of insurance. In financial markets, strategies that effectively sell protection against financial catastrophe include selling equity index volatility and buying positive carry. Post-2008, many investors seek tail risk insurance, which should boost the long-run reward for insurance sellers. Litterman (2011), among others, points out that large long-horizon investors are natural sellers of tail-risk insurance. Long-horizon investors could also consider opportunistic provision of traditional insurance, including cover against natural catastrophes.

More generally, investors like the GPF should be reaping rewards in the “good times” in exchange for the risk of paying out (i.e. underperforming) in the “bad times”. A major challenge is to convince five million Norwegians and their politicians of the wisdom of this strategy.

Planning for the future

The Norwegian Government aims for the GPF to be the world’s best managed fund. The Ministry of Finance (2011) has commented extensively on the Strategy Council’s and other advice in its report to Parliament. It concludes that harvesting multiple rewards – such as value and illiquidity premia – and a more countercyclical rebalancing regime are approaches worth exploring further, given their suitability for a large long-horizon investor. It rules out allocations to private equity and infrastructure at this point, but signals it might revisit this question after the Fund has gained experience with real estate. Sticking with the asset based approach, the Ministry plans to review regional equity market allocations – perhaps reducing Europe’s overweight and increasing emerging market exposures – and the fixed-income benchmark – possibly considering the Norges Bank proposal to simplify the latter into a 70/30 Treasury/Corporate index.

In the pre-crisis period, the public had been reassured that the Fund had low active risk. The Fund worked to a mandate with a low tracking error, and this should have ruled out relative

underperformance on the scale that was actually experienced. There had been persistent gains in previous years and there was limited awareness of the systematic exposures in the active strategies. A key reason for the strong negative public reaction to the 2008 underperformance was therefore the element of *surprise*. Looking to the future, more disclosure – as well as constraints on risk exposures – can help reduce the potential for future surprises.

The Ministry revised Norges Bank's mandate for 2011, including new provisions in areas such as risk management and reporting. The manager now has a revised "risk budget" expressed as a cap on tracking error, which is defined as the expected value of the standard deviation of the difference between the annual returns on the actual and benchmark portfolios. This *ex ante* tracking error is limited to 1%, and the interval over which tracking error is measured is now longer than it was before 2011. Assuming that NBIM makes full use of its risk budget, in two out of three years the Fund's return should not deviate from the benchmark by more than one percentage point.

NBIM's strategic plan for the period to 2013 commits it to strengthening its financial theory resources and investment research efforts. In parallel with related work within the Ministry, it plans to reappraise asset-class benchmarks, re-evaluate the Fund's regional distribution and currency composition, review the rebalancing regime, and re-evaluate additional asset classes such as infrastructure, private equity and environmental investments. There will be a greater focus on absolute returns, with a continued emphasis on fundamental research, more concentrated long positions than before, lengthier holding periods, and a greater tolerance for gains and losses on individual positions. NBIM will continue to employ external specialist equity managers, notably in emerging markets, small-caps and selected industries.

In fixed-income, there will be simpler and more concentrated portfolios, with fewer holdings and a lesser role for non-government bonds, greater awareness of the risk of correlated positions, and a focus on the combined exposure of the overall Fund. Trading activity will be reduced, new issues will become more important, and bonds will no longer be systematically sold after downgrade or index exclusion; competence in credit, emerging-market bonds and macroeconomic research will be developed.

Large inflows make efficient trade execution more difficult, and internal pricing has to enable traders to take responsibility for the impact of their transactions. This requires a commitment to high quality data, systems, and technology. The manager aims to concentrate on core activities and to outsource investment services to external providers.

The key challenge for the manager is how to pursue implementation, facilitate success in active management, control risk, and instil continuing high standards of professionalism in the organisation. This involves creating a global investment culture staffed with fewer personnel than comparable funds – NBIM expects to go from 277 employees at the end of 2010 to around 400 by the end of 2013. The manager aims for balanced Norwegian and international staffing at its Oslo, London, New York, Shanghai and Singapore offices, with a doubling to 40% of personnel being based outside Norway.

Building the right culture is critical, and NBIM stresses its commitment to fostering an environment where people thrive on investing. The manager pursues a knowledge-based atmosphere of change and continuing improvement, with a focus on performance via a team approach balancing internal co-operation with the need to be competitive with external investment solutions. Future success is seen as dependent on achieving a blend of specialist knowledge and shared competence. NBIM (2008) recounts the long-term and on-going commitment to developing a truly professional investment organisation.

Transparency remains important, and the Norges Bank Executive Board (2010) writes as follows:

"We will be open about how we evaluate markets, but not about how we regard single

investments. We will express our views on recent market developments, but not forecast the future. We will be open about how we manage the business, build the organisation, and set strategies and policies, but not about individual contracts or business relationships. Our ambition is to be open about all relevant information that does not affect the fund's competitiveness or performance.”

The last sentence reiterates the fact that announcements about positions and trading intentions could be exploited by the Fund's counterparties and competitors. Frank communication with the Fund's owners is important. But even in Norway, there are limits to the desirability of full and immediate transparency.

CONCLUSION

The GPFG is managed along lines that differentiate the Fund from other pools of investment assets. The Fund follows a management style that is sometimes universal, and therefore suitable for adoption by most investors, and sometimes specific to Norway. We draw attention to seven aspects of the Norway Model for endowment asset management: First, the Fund emphasises reducing risk through diversification, limiting itself almost exclusively to publicly traded securities. This approach is easily replicable. Even today, there are still many endowment and other funds that are seriously overexposed to founder-stock and to home-biased assets.

Second, the Fund is committed to building on its long investment horizon. This element of strategy blends harvesting risk premia over time, and a willingness to take contrarian positions in financial markets. Investors with a shorter investment horizon should, of course, pursue different strategies. Third, the Fund emphasises its role as a responsible investor. There are elements of this strategy that very large investors, who are resigned to holding sizeable equity positions, must follow. When a portfolio is really big, there are benefits to a substantial and committed long-term investor creating value by pressing for good corporate governance and by actively engaging with management. Norway aims to have demonstrably high ethical standards of investment.

Fourth, the Fund stresses cost efficiency. There is only one consistent source of performance deviations from the benchmark; it is not stock and sector selection skill but cost drag. Investors would do well to control all elements of fee and cost inefficiency in their portfolios. Fifth, there is a moderate element of active management in the Fund. Major investors have large in-house resources and potential access to the best investment managers. However, superior performance cannot be attained by all, so other investors may defend themselves by investing at minimum cost in passive vehicles.

Sixth, the Fund has a clear governance structure designed to deliver a well-considered investment strategy. Ill-thought and frivolous changes to guidelines are avoided, and there is awareness of the need to mitigate moral hazard and principal-agent problems. This minimises short-termism and maximises the chance of long-term investment success. Seventh, the Fund is committed to transparency and openness. Few investors have put as much effort as Norway into ensuring that public debate is encouraged, strategy is publicly owned, and the organisation remains open to new ideas.

Norway's long term investment success will depend on the Fund's culture and competence; on building and retaining professionalism; on clarity in line structures and delegated responsibilities. It needs to ensure its active management strategies are effective, and needs to exploit the competitive edge of its long horizon in building more dynamic strategies.

There are of course arguments against the universal applicability of the Norway model. First, the Fund claims to be highly diversified; yet while the Swensen (2000) approach was developed as an “extended diversification” model, the GPFG has so far eschewed private equity and has only

recently embraced real estate. Diversification is predominantly limited to traded assets. Second, the Fund is only as patient as its ultimate clients, the Norwegian people, and some might argue that a less transparent model for a sovereign fund allows greater patience. Third, it is not clear whether the Fund's responsible investment strategy adds or subtracts from performance. There are two components, social responsibility and active governance; the former reflects national preferences, and there is as yet little evidence on the efficacy of the latter. Fourth, we do not know how NBIM's trading acumen compares to specialists in factor investing – firms like Dimensional for the size factor, or low-cost index funds for the market factor. Rule-based factor investing can be expensive, a classic case being when a small-cap portfolio keeps selling winners even though the momentum effect can make this costly. Furthermore, even if NBIM successfully harvests factor risk premia at low trading costs, other funds may be unable to follow this strategy efficiently. Fifth, most portfolios have explicit liabilities, and a manager with annual liquidity needs would need to modify the Norwegian model to make it appropriate for such a situation.

The Norway model works for that country for a variety of social, governmental and institutional reasons. This model – or its underlying philosophy – might be a more suitable template than Swensen's Yale model for many other investors. Why could this be? There are three major reasons. First, while there is little long-term evidence of persistent alpha returns, there is ample historical support for beta returns from multiple factors. This can make the Norway Model attractive to many investors since they can also evaluate the potential future performance statistically, rather than relying on an ill-defined and unmeasured "illiquid asset premium." Second, the costs and managerial complexity of the Norway Model are significantly lower. Third, there is much less opportunity for agency problems when portfolio holdings are marked to market, centrally custodied, and observable. The Norway Model has been the subject of much recent discussion. It is likely to be an important contributor to investment thinking over the years to come.

ACKNOWLEDGMENTS

This article draws on three primary sources: First; the report of the 2010 Strategy Council, *Investment Strategy and the GPF* by Elroy Dimson, Antti Ilmanen, Eva Liljebloom, and Øystein Stephansen. Second, three case studies, *The Norwegian Government Pension Fund Global 2011* by David Chambers and Elroy Dimson, *The Norwegian Government Pension Fund Global 2008* by Elroy Dimson, Kamil Hilali, and Ankur Mehrotra, and *The Norwegian Petroleum Fund 2004* by Elroy Dimson and Argiro Papadopolou. Third, it integrates documentary material that is in the public domain. It does not incorporate any non-public or proprietary information.

We have benefited from discussions with Andrew Ang, Sigbjørn Atle Berg, Vibeke Bakken, Stephen Brown, Dag Dyrdal, Thomas Ekeli, Bjørn From, William Goetzmann, Campbell Harvey, Pål Haugerud, Thore Johnsen, Knut Kjær, Eva Liljebloom, Paul Marsh, Richard Maitland, Wilhelm Mohn, Terrance Odean, Stephen Schaefer, Lawrence Siegel, Martin Skancke, Yngve Slyngstad, Mike Staunton, Erling Steigum, Øystein Stephansen, Bjorn Taraldsen, and Vegard Vik.

We have also received helpful comments from seminar participants at BI Norwegian Business School (Oslo), Collier Institute of Private Equity (London Business School), Erasmus University (Rotterdam), ESCP Europe (Paris), Judge Business School (Cambridge), Tilburg School of Economics and Management (The Netherlands), Tsinghua University (Beijing), and Vienna University of Economics and Business (Austria); and from session participants at the Endowment Institute (Yale School of Management), GlobalARC Conference (London), Global Sovereign Funds Roundtable (London), Portfolio Management Conference (Frankfurt), Russell Academic Advisory Board Meeting (Seattle, by video), World Economy and Future Forum (Seoul), and World Investment Forum (Napa).

REFERENCES

- Ang, Andrew, 2010, The Four Benchmarks of Sovereign Wealth Funds, Working paper, Columbia Business School (28 September).
- Ang, Andrew, Will Goetzmann and Stephen Schaefer, 2009. *Evaluation of Active Management of the Norwegian GPF*, Norway: Ministry of Finance.
- Ang, Andrew, Will Goetzmann and Stephen Schaefer, 2011, The efficient market theory and evidence: implications for active investment management, *Foundations and Trends in Finance*, 5(3) 157-242.
- Barbary, Victoria, and Bernardo Bortolotti, 2011, *Braving the New World: Sovereign Wealth Fund Investment*, Monitor (7 June).
- Council on Ethics, 2011, *Annual Report 2010: Council on Ethics for the Government Pension Fund Global*, Norway: Ministry of Finance.
- Curzio, Alberto Quadrio, and Valeria Miceli, 2010, *Sovereign Wealth Funds: a Complete Guide to State-Owned Investment Funds*, London: Harriman House.
- Dewenter, Kathryn, Xi Han and Paul Malatesta, 2010, Firm values and sovereign wealth fund investments, *Journal of Financial Economics*, 98(2) 256-278.
- Dimson, Elroy, Antti Iilmanen, Eva Liljeblom and Øystein Stephansen, 2010, *Investment Strategy and the GPF*, Norway: Ministry of Finance (26 November).
- Dimson, Elroy, Paul Marsh, and Mike Staunton, 2002, *Triumph of the Optimists*, Princeton NJ: Princeton University Press.
- Dimson, Elroy, Paul Marsh, and Mike Staunton, 2010, *Global Investment Returns Yearbook*, Zurich: Credit Suisse Research Institute.
- Dimson, Elroy, Paul Marsh and Mike Staunton, 2011, *Global Investment Returns Sourcebook*, Zurich: Credit Suisse Research Institute.
- Gasparro, Vincent, and Michael Pagano, 2010, Sovereign Wealth Funds' impact on debt and equity markets during the 2007–09 financial crisis, *Financial Analysts Journal*, 66(3) 92-103.
- Gjedrem, Svein, 2010, *Perspectives on Managing the GPF*, Speech at the Norwegian Polytechnic (2 November).
- Grinold, Richard, 1989, The Fundamental Law of Active Management, *Journal of Portfolio Management*, 15(3) 30-37.
- Halvorssen, Anita Margrethe, 2011, Using the Norwegian Sovereign Wealth Fund's Ethical Guidelines as a Model for Investors, *European Company Law*, 8(2) 88-93.
- Haugerud, Pål, 2011, *GPF and the Management of Petroleum Wealth*, Speech at Cambridge Judge Business School (17 June).
- Hong, Harrison, and Marcin Kacperczyk, 2009, The price of sin: the effects of social norms on markets, *Journal of Financial Economics*, 93(1) 15-36.
- Iilmanen, Antti, 2011, *Expected Returns*, Wiley.
- Johnsen, Sigbjørn, 2011, *A Robust Investment Strategy with Good Results*, Presentation to the Storting, Norway: Ministry of Finance (8 April).
- Kjær, Knut, 2006, *From Oil to Equities*, Address at the Norwegian Polytechnic Society (2 November).
- Kotter, Jason, and Ugur Le, 2011, Friends or foes? Target selection decisions of sovereign wealth funds and their consequences, *Journal of Financial Economics*, 101(2) 360-381.
- Litterman, Robert, 2011, Who should hedge tail risk? *Financial Analysts Journal*, 67(3) 6-11.

Ministry of Finance, 2010, *GPII – Responsible Investment*, Norway: Ministry of Finance (10 March).

Ministry of Finance, 2010, *The Management of the Government Pension Fund in 2009: Report No 10 to the Storting*, Norway: Ministry of Finance (26 March).

Ministry of Finance, 2010, *The National Budget 2011*, Norway: Ministry of Finance (10 October).

Ministry of Finance, 2010, *Management Mandate for the Government Pension Fund Global*, Norway: Ministry of Finance (10 November).

Ministry of Finance, 2011, *The Management of the Government Pension Fund in 2010: Report No. 15 to the Storting*, Norway: Ministry of Finance (updated version, 7 June).

Myklebust, Trude, 2010, The Norwegian Government Pension Fund: Moving Forward on Responsible Investing and Governance, *Rotman International Journal of Pension Management*, 20(3) 20-23.

NBIM, 2008, Ten years of NBIM, *Government Pension Fund Global Annual Report 2007*, pp 74-88, Oslo: Norges Bank (4 March).

NBIM, 2011, *Government Pension Fund Global Second Quarter 2011*, Oslo: Norges Bank.

Nordvik, Frode Martin, Signe Berg Verlo and Evy Zenker, 2010, *Facts 2010*, Norway: The Petroleum Directorate (5 July).

Norges Bank Executive Board, 2010, *Strategy for Norges Bank Investment Management 2011-2013*, Oslo: Norges Bank (15 December)

Sovereign Wealth Fund Institute, 2011, *Sovereign Wealth Fund Rankings: Largest Sovereign Wealth Funds by Assets Under Management*, Las Vegas NA: SWFI Inc. (July).

Swensen, David, 2000, *Pioneering Investment Management: An Unconventional Approach to Institutional Investment*, New York: The Free Press.

Truman, Edwin, 2010, *Sovereign Wealth Funds: Threat or Salvation?* Washington DC: Peterson Institute (September).