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Mini-Case: Norwegian Sovereign Wealth Fund

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Norway only started oil exploration in the North Sea off its shores in the 1960s. Norwegian oil production peaked in 2001 at a rate of 3.4 million barrels per day. Since then, the rate of oil production has been declining. By 2017 Norway only produced 1.96 million barrels per day. The main oil fields in the North Sea, the Norwegian Sea and the Barents Sea are viewed as mature by most industry experts. Norway is set to start production in a recently discovered oil field, the Johan Sverdrup field, located in the North Sea, in January of 2020, which is anticipated to raise Norway's production levels back to 2015 levels[1].

In 1990 Norway founded The Norwegian Government Pension Fund (*Statens pensjonsfond Utland*), with the goal of investing the surplus revenue of the Norwegian petroleum sector. In addition, the fund allows Norway to reduce its exposure to oil sector-specific risk.[2] In recent decades, there are increasing concerns in Norway about other governments resorting to global warming mitigation measures that could drastically reduce the value of Norway's existing oil supplies. By extracting the oil and investing the proceeds in other assets, Norway has successfully reduced its vulnerability to stranded asset risk.

The fund currently makes up about ⅔ of petroleum wealth in Norway. In October of 2022, the total market value of the fund was 11,657 billion NOK or $ 1,180 billion. In 1998, the government established the Norges Bank Investment Management (NBIM), a subsidiary of the Norwegian central bank, to manage the Government Pension fund. The NBIM reports on a quarterly basis to the Ministry of Finance, which in turn reports back to the Norwegian Parliament (*Stortinget*). The Finance Minister determines the NBIM's mandate and sets the ethical guidelines. Historically, the fund was committed to contributing about 4% of its market value annually to the Norwegian government's budget, but this number was revised down to 3%.

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[1] Source: FT, December 31, 2019.

[2] The government does not own or exploit the oil reserves, but it mainly raises revenues from taxes and the sale of oil licenses.

Until recently, the fund's strategic benchmark index consisted of a 60/40 equity/bonds split. However, the long-run equity target has recently been increased to 70%. The strategic benchmark index is constructed from the underlying reference indices for equities and bonds. The bond index is split into 70% government bonds and 30% corporate bonds. The reference index for fixed income is based on the Bloomberg Barclays Global Inflation-Linked Bond Index, the Bloomberg Barclays Global Treasury GDP Weighted by Country Index, the Bloomberg Barclays Global Aggregate Bond Index. The FTSE Global All Cap Index is the reference index for equities.[3] These are all investable indices. All of these indices are recomputed to exclude Norwegian securities, because the fund is barred from investing in Norwegian securities.

Given the current size of its portfolio, the NBIM invests close to $355 bn in global bond markets and close to $820 bn in global equities using these indices as its benchmark. The weights in the bond index are tightly linked to a country's GDP. These indices constrain the NBIM's currency allocations. In emerging market fixed income, the NBIM is constrained to small allocations to Brazil and South Africa, two countries with the highest yields. The fund's actual benchmark can deviate from the strategic benchmark index, but the standard deviation of this gap, usually referred to as the tracking error, is limited to 1.25% per annum.

Only 5.3% of the fund's capital is externally managed, exclusively in areas where the fund sees considerable excess returns, but where it does not make sense for the fund to build expertise: mostly public equities in emerging markets and small caps. The externally managed part of the portfolio comprises 92 investments with 81 different GPs; 67 of these were for emerging and frontier equity investments. The fund currently invests almost exclusively in publicly traded equities in 73 countries. The NBIM is only allowed to invest in private companies that have expressed an intention to go public.

In recent years, the NBIM has expressed concerns about the declining number of publicly listed companies in the U.S. and the U.K. The number of publicly listed companies in the US has declined by 50% since 1998. In 2018, the Ministry asked the NBIM to investigate investments into private equity funds. The then CEO of NBIM, Yngve Slyngstad, supported broadening the NBIM's mandate to include private equity investments in light of the NBIM's long-term focus and limited liquidity needs. In April 2018, The Norwegian Finance Ministry decided not to let the fund invest in private equities.[4] The white paper[5] argues that a move into private equity would represent a complete departure from its current approach to investing, which emphasizes low management costs, close adherence to a benchmark and transparency. In August of 2018, the NBIM proposed that it be allowed instead to invest in large companies that are not

[3] The FTSE Global Equity Index Series covers around 7,850 securities in 48 different countries. The Bloomberg Barclays Global Aggregate Bond Index is a flagship measure of global investment grade debt from twenty-four local currency markets. This multi-currency benchmark includes treasury, government-related, corporate and securitized fixed-rate bonds from both developed and emerging markets issuers.

[4] Source: FT, April 10, 2018.

[5] The report estimates that the annual management costs for private equity are close to 600 bps, compared to only 8 bps for the NBIM's overall portfolio. Source: Report to the Storting (white paper), "The Government Pension Fund".

yet listed, voicing a concern that its focus on public markets would constrain it to invest in yesterday's companies[6] . In Sept. of 2020, Nicolai Tangen, a former hedge fund manager, was appointed as the new CEO of the NBIM, effectively the largest passive investor in the world. He has expressed support for more active investing at the fund[7].

The fund also seeks to be a responsible long-term investor and has excluded some industries from its investments. In equities, the NBIM divested from tobacco companies. The fund excludes weapons manufacturers from its portfolio as well. Finally, in March of 2018, the NBIM decided to completely divest from oil and gas exploration companies, but not from the largest energy companies such as Shell and Exxon, in order to further reduce its exposure to fossil fuels. Product-based exclusions have cost the fund 1.8% in cumulative equity index performance between 2006 and 2018, or about 7 bps per annum.[8] In addition to product-based exclusions, the fund also implements conduct-based exclusions, and the fund also votes its shares to support these objectives and will even directly engage with individual companies to raise certain issues.

Based on financial considerations, the fund has divested from companies with elevated long-term risks, and unsustainable or otherwise risky business practices. In 2018, there were a total of 30 risk-based exclusions by the NBIM which contribute directly to the fund tracking error, because these securities are not excluded from the reference index, in contrast with product-based and conduct-based exclusions.

The NBIM's mandate and fluctuations in equity and bond values require rebalancing of its equity share on a regular basis. The limit to deviations of the equity share from its target is set at 4 percentage points. If the equity share exceeds 74% or drops below 66%, then the fund will rebalance its equity share to its 70% target. The rebalancing rule sets a guideline for the allocation. The actual implementation requires discretion because of the potential for market impact. At the start of 2003 and 2009, the fund had to increase its equity share because it had fallen too low.

The NBIM mainly reports returns against a reference currency basket (not in Kroner), because it wants to eliminate the effect of the Kroner's exchange rate fluctuations on returns.[9] Since the NBIM took over, the fund has realized an annual return (CAGR or geometric mean) of 5.81% between January of 1998 and June of 2022 against this currency basket (see Exhibit 1). This means that an investor who invested 1 unit of the basket in January 1998 would have seen his investment grow to 3.98 units of the basket at the end of June 2022. After inflation and management costs, the annual geometric real return was 3.62%. The volatility was only 8.12% over this entire sample. The fund's Sharpe ratio was 0.53 over the same period.[10] The fund's relative return against its benchmark over the entire period was +32 bps per year. In other

[6] Source: FT, August 28, 2019
[7] Source: WSJ, December 19, 2020
[8] Source: Report on responsible investment (NBIM, 2018).
[9] Source NBIM web site: https://www.nbim.no/en/the-fund/returns/
The fund's currency basket currently consists of 35 currencies of countries that appear in the equity and bond indices. Unless otherwise stated in the text, results are measured in this currency basket.
[10] The Sharpe ratio is defined as the arithmetic mean excess return divided by its standard deviation.

words, NBIM produced a total added value of 0.32% of the fund's market value or close to $3.77 billion per annum. The fund's tracking error, which is defined as the standard deviation of the difference between the fund's return and the benchmark, was 0.65% per annum over this sample, but it has been trending lower recently. In 2021, it was only 0.47% per annum. The fund's information ratio, defined as the ratio of relative return to standard error, is 0.50. The annual management cost for the fund is about 8 bps per annum.

Coda: In December of 2022, the new NBIM CEO Nicolai Tangen announced that the sovereign wealth fund would start to "vote against companies that fail to set net-zero targets", adding the company wanted to take a more active role on all ESG issues. [11]

	Since 01.01.1998	Last 15 years	Last 10 years	Last 5 years	Last 12 months
Fund return (percent)	5.81	5.51	7.51	5.48	-10.43
Relative return on fund (percentage points)	0.32	0.2	0.38	0.5	1.54
Annual price inflation (percent)	2.04	2.18	2.19	3.08	7.77
Annual management costs (percent)	0.08	0.07	0.05	0.05	0.04
Net real return on fund (percent)	3.62	3.19	5.15	2.28	-16.94
Key figures for risk and risk-adjusted return					
The fund's actual standard deviation (percent)	8.12	9.55	8.52	10.54	9.82
Standard deviation difference. Fund versus benchmark index (percentage points)	0.29	0.37	0.04	0.02	-0.26
The fund's Sharpe ratio (percent)	0.53	0.55	0.83	0.47	-1.08
Sharpe ratio difference. Fund versus benchmark index (percentage points)	0.02	0	0.04	0.04	0.14
The fund's tracking error (percentage points)	0.65	0.77	0.38	0.38	0.47
The fund's information ratio (IR)	0.5	0.29	0.96	1.24	3.63

Exhibit 1: Sharpe ratio is a measure for risk-adjusted return. The fund's information ratio (IR) is the ratio of the fund's average monthly relative return to the fund's tracking error. The IR indicates how much relative return has been achieved per unit of relative risk.

[11] Source: FT, "Norwegian oil fund to vote against companies without net zero targets," December 7, 2022.