BI NORWEGIAN BUSINESS SCHOOL

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NOU 2016:20 Aksjeandelen i Statens pensjonsfond utland

Høringsuttalelse from the Department of Finance and the Department of Economics, BI

NOU 2016:20 is an extensive and impressive report. The Asset Management Department at the Ministry of Finance deserves praise for having appointed this committee and for soliciting our opinions in this *høringsrunde*.

The importance of this report could not be understated. The strategic portfolio is the decision with respect to the management of the GPFG that will have by far the largest welfare and fiscal consequences for Norway. It will almost completely determine both how the fund is used to hedge domestic consumption and welfare and, if the fund were to be considered in isolation, what the risks and returns of the fund will be.

The report is a huge improvement on previous strategy documents. The most important contribution of the report is that it establishes a few obvious, basic principles and that it outlines the basic frameworks for analyzing asset allocation.

However, the report falls short of actual quantitative analysis. Time should, preferably, be allowed to permit such analysis to be completed before the decision on the strategic bond-equity allocation is made. These outstanding questions may be technically challenging, but they are of immediate practical relevance and answering them will lead to a more informed and, potentially, better decision. Further, the owners' representative and custodian of the GPFG, the Asset Management Department at the Ministry of Finance, should initiate a process for strategic analysis and research going forward.

We will provide comments on the four main chapters of the report, which are Chapters 6, 7, 8, and 9. Among these, Chapters 6 and 7 are the most important.

1 Risk-bearing capacity and wealth management (Chapter 6)

Financial wealth is only a part of total wealth. An individual or a nation care about total wealth and not only about the financial part in isolation. Financial markets allow risk

sharing between individuals and nations and finance is, essentially, the study of risk and how risk can be shared such all agents are *ex ante* better off.

As the report rightly points out, a rationale for establishing the fund and the main reason for its financial success has been that the reallocation of wealth from oil and gas reserves to a global portfolio of stocks and bonds, which has improved the risk-return trade-off of total wealth.

The fact that tradable financial wealth is a part of total wealth and that tradable financial wealth should be allocated with the risk-return tradeoff of total wealth is basic finance. The Committee's report does, however, deserve praise for stating what should have been obvious.

- The part of the report that describes the analytical framework should preferably be improved upon. The essence of this part of the chapter is common sense. The references given in the report may serve as a good starting point.

The Committee's recommendations seem based on qualitative assessments. These qualitative assessments are permissible as long as the Committee compare the allocation against a given benchmark, which may be assumed to be optimal. The Committee based its recommendation on a comparison of the current national balance sheet with the balance sheet in 2006, when the Strategy Council recommended to increase the equity share from 40% to 60%.

Even though it is more challenging there should also be attempts to decide what the optimal allocation is in an absolute sense, and not only relative to a benchmark. Since allocating tradable financial wealth in order improve the risk-return tradeoff of total wealth is so essential to finance and the financial success of the fund is primarily due to the improvement in the risk-return tradeoff of total wealth, these allocation decision warrant the resources such quantitative analysis would require.

Among others, the following questions should be carefully answered:

- What are the (stochastic) properties of the nation's revenues from oil and gas production? How do these revenues relate to the price of oil and gas? This should be described not only in terms of period-by-period variance and higher-order moments, but also in terms of covariance with equity and bond returns and in terms of probabilities of large and almost discrete price movements.

- What are the (stochastic) properties of the nation's revenues from future labor income and its fixed capital stocks? How do these revenues relate to the price of oil

and gas? This should be described not only in terms of variance and higher-order moments, but also in terms of covariance with equity and bond returns and in terms of long-run trend risk.

The Committee used the national balance sheet, and not the government's balance sheet, to analyze the allocation decision for the financial wealth part. This seems like the only right choice for at least three reasons: (i) looking back, the rationale for establishing the fund was to diversify national wealth, and the economic gains have primarily come from improving the risk-return tradeoff of total national wealth; (ii) it is consistent with economic analysis: the objective function is an aggregate of household welfare – a government is a coordination tool for the households in a society; and (iii) looking ahead, there are huge potential gains from allocating financial wealth to improve the risk-return ratio of total wealth. These are evidently hard problems, but it is important to articulate the framework such that resources are allocated to (partially) answer the outstanding questions.

The liability side of the GPFG is the net present value of future private and government consumption and investments. Since the unconditional expected rate of return of the financial fund is channelled into the domestic economy through an annual transfer to the government, the level and dynamics of government consumption and investments is particularly important.

It is a robust result that portfolio allocation decisions and spending decisions should be made as a joint decision. The Committee conjectures that for a given spending rule, the higher share of annual government budgets that are covered by the financial fund, the lower is the risk bearing capacity of the fund.

- This conjecture is almost surely right, but it should be more carefully analyzed

The transfer from the fund will cover the business-cycle adjusted difference between the government's expenditures and the government's non-financial revenues. It is therefore crucial that the following questions are addressed:

- What are the (stochastic) properties of the government's non-financial revenues? How do these revenues vary with the business cycle? This should be described not only in terms of variance and higher-order moments, but also in terms of covariance with equity and bond returns and in terms of long-run trend risk.

- What are the (stochastic) properties of the government's expenditures? How do these revenues vary with the business cycle? This should be described not only in

terms of variance and higher-order moments, but also in terms of covariance with equity and bond returns and in terms of long-run trend risk.

- How would these results change if business cycles in Norway become more synchronized with global business cycles? It is reasonable to believe that as Norway becomes less oil dependent, business cycles will look more like neighboring countries. This scenario should be described in terms of variance and higher-order moments, in terms of covariance with equity and bond returns, and in terms of long-run trend risk.

The Committee makes a distinction between applications of finance and business ventures in financial markets. Finance is essentially the study of risk sharing, and hence win-win situations. Business ventures in financial markets, such as e.g. fundamental analysis of individual stocks and bonds, investment analysis of private equity and other unlisted assets, management of unlisted assets, and so on, are, in contrast, closer to a zero-sum game. The Committee states that applications of finance – ie. improvements in the risk-return trade-off for national wealth and risk sharing with the rest of the world – has formed the basis for the management of the GPFG as well as providing the leading ideas for the establishment of the GPFG and the fiscal-policy framework surrounding it. In contrast, attempts at business ventures in financial markets neither have been nor should be an essential part of the management of the GPFG.

The Committee emphasizes that systematic strategies and risk taking are fundamentally democratic in the sense that they are based on publicly available and scrutinized research. The risk associated with systematic strategies may be communicated and democratically anchored *ex ante*. There is also negligible operational risk associated with such strategies so the political risk is minimized. The recommendation of the majority of the Committee to increase the (listed) equity share is therefore conditional on that the extent of traditional active management and investments in unlisted assets is kept to a minimum.

Both pedagogically and operationally, we believe it may be important to distinguish between systematic risk exposure and business ventures in financial markets. We would also like to add that in delegated asset management, the ability to monitor the manager should affect target and actual allocation. Portfolio returns should be measured accurately and often. It is important to get both level and volatility right. Accuracy of benchmark returns is almost as important. Benchmarks should be transparent, investible, and liquid. For this reason, attempts at business ventures in listed markets

may be clearly preferable to business ventures in opaque, unlisted markets and private investments. Also, the Committee or the Asset Management Department at the Ministry of Finance should

- Elaborate further on this issue and relate it closer to research. In particular, given the obvious benefits, economies of scale, and low costs of the application of finance theory (risk-return trade-off) the Ministry of Finance should provide sound scientific evidence for using resources to invest in costly business ventures. In particular, the Ministry of Finance needs to show that such business ventures produce after-cost value creation for the fund.

Both the *ex ante* and *ex post* gains from improved risk sharing must have been substantial. To our knowledge, they have, however, not been accurately estimated or communicated

- What were the *ex ante* gains from the improvements of the risk-return tradeoff of national wealth from reallocating wealth from oil and gas reserves to a globally diversified portfolio of bonds and stocks? What have the *ex post* gains been?

2 Expected returns and risks in financial markets (Ch. 7)

This is an important chapter. It is well written and referenced, but should, however, be improved and extended along several dimensions.

The chapter starts out by decomposing expected returns of any portfolio into the risk-free component and an expected compensation for risk exposure. The Committee then rightly and importantly states that changes in expected returns due to changes in risk-free compensation should *not* have any implication for risk taking. So-called "search for yield" is a grave fallacy.

- In the international press, after the presentation of the report, the majority's recommendation was referred to as increasing the equity share in order to increase expected returns. Almost ironically, this message was almost the same as what the report had characterized as a fallacy. The Committee and/or the Ministry of Finance may therefore reconsider the communication strategy for the report.

The chapter is called Expected Returns and Risks in Financial Markets, but is mainly concerned with expected returns. As this chapter states, asset prices are not determined in vacuum. The previous chapter stated that risk and risk-bearing capacity is a function of other non-financial assets and spending plans

- When documenting expected returns, this chapter should not only have reported expected returns and period-by-period variances but should also have documented the risks associated with risky investments in terms of covariances with the owners' non-tradable assets and the spending plans.

The discussion of approximate risk-free rates and decline in global interest rates is good.

- It should, however, have included a more careful discussion of the relevant long-run approximately risk-free rate. Is the relevant risk-free rate the 30Y inflation-indexed bond yields from large and advanced economies? Or is it the average market duration yield from the same group of countries?

The analytical organization of this chapter has improvement potentials. There seems to be a tension between the decomposition of the expected returns into the risk free rate and risk premia and the mandate of the Committee to give advice on the bond-equity split. The bond portfolio of the current portfolio is far from risk free.

- It is correct to decompose expected returns into the risk-free rate and expected compensation for risk exposure. The Committee or the Ministry of Finance should then either treat risk exposure in the bond portfolio as part the risk premia or rewrite the decomposition such that it would be have separate terms for expected risk compensation in bond markets, in equity markets, and the covariance between these.

The expected equity premium is an important input to compute expected portfolio returns. The Committee concludes that it has not seen convincing evidence to update and change the expected equity premium.

- The Committee's conclusion is reasonable, but it should have been (or should be) documented and the assumptions and measurements on which the estimate of the equity premium has been based should be written out.
- Risk should not only be reported as period-by-period fluctuations, but also as co-variances with the owners' other assets and the spending plans.

There should also have been a more careful description of risk premia in bond markets, such as bond-credit risk and duration risk

- Is the credit risk premium just another manifestation of the same systematic risk factors as the equity risk premium?
- How are expected bond risk premia computed? Like equity risk, bond risk should not only be described in terms of variance period-by-period, but also in terms of covariance with other nonfinancial assets, with spending plans, and with equity returns.

The covariances between nominal and real bond returns, on the one hand, and stock returns, on the other, have varied substantially over time and have changed sign. Lower (or negative) correlation between bonds and stocks make bonds relatively more valuable as a hedge. For given risk premia, that may be an argument to increase the bond allocation and decrease the equity allocation.

- What are the correlations between bond and equity returns? How stable is this correlation? If it has varied substantially over time and has changed sign, what is reasonable to expect going forward?

One reason financial crises had relatively small impact on the management of the fund was the depreciation of the NOK versus other larger currencies such that the decrease in fund value measured in NOK was smaller than measured in GPFG's currency basket. There is, however, hardly any discussion of exchange risk (or hedge) in the report.

- What effect does the exchange rate have on the riskiness of the equity and the bond portfolio? To what extent is it a hedge on other nonfinancial assets and spending plans? Is it reasonable to expect that historical correlation patterns between NOK and other currencies will be robust as oil and gas revenues decline and Norway becomes more similar to other (Northern) European countries?

3 Simulations (Chapter 8)

Chapter 8 contains various simulations. It seems surprisingly disconnected from the two preceding chapters. Chapter 6 ("Risk-Bearing Capacity") states that optimal financial-markets risk exposure is a function of the size and covariances of nonfinancial assets and consumption plans. Chapter 7 ("Expected Returns and Risk in Financial Markets") states that asset markets do not operate in vacuum and that risk premia in competitive markets must be a function of systematic (macro) economic risk. However, the simulations in Chapter 8 seems to be based on a model where financial markets operate in a

vacuum, and without even a metric to evaluate and compare possible future paths. As such they are, as the report admits in the introductory chapter, mere illustrations.

- The simulations must be documented. In the report, they are a "black box". What exactly are the processes? How have these processes been estimated?
- In order to elevate the simulations and make them useful for policy analysis they should relate to the owners' other assets, their spending plans, and the model should be able to account for asset prices. Ideally, models used for analysis and simulations should be able to account for the joint dynamics of key variables, such as economic growth, government spending, and asset returns.

4 Other key choices (Chapter 9)

The bond-equity allocation is only one of many choices that has to be made for the strategic reference portfolio. The remaining questions are mainly concerned with the compositions of the bond and equity portfolios. Chapter 9 outlines a subset of these. Chapters 6 and 7 provided a unified framework to answer these questions.

These strategic choices differ fundamentally from choices made under "active management". "Active management" are trades based on private information or sentiment. Choices regarding the strategic composition of the bond and equity benchmarks can be made based on systematic and publicly available information, which can be democratically scrutinized.

There is a large number of questions. They fall into mainly three categories: (i) composition of the bond portfolio, (ii) composition of the equity portfolio, and (iii) rebalancing between bonds and equities.

Market weights should be the starting point because that is the market. Arguments exaggerating the differences in free-float adjustments of eg. FTSE's and MSCI's global market-weighted indices miss the point. That is merely a technical challenge, not a reason to deviate from an operational set of market weights.

Among the questions that follows naturally from the analytical framework used by the Committee but have not been asked are, for example:

- What is the optimal regional allocation of the bond portfolio? How do the returns on holding eg. bonds of other commodity exporting countries covary with national wealth in Norway?

- When determining the regional weights of the equity portfolio, should we only look at period-by-period correlations, or also analyze potential cointegrated, long-run relationships?

- Are there potential gains from overweighting sectors that have a low or negative correlation with national wealth and underweighting sectors that are highly correlated with national wealth?

The rebalancing rule is not well understood.

- What is the rationale for the rebalancing rule? Is it simply a mechanical rule to keep the weights of the reference portfolio? Is it to keep risk constant? Or is it the opposite; countercyclical risk exposure?

- The rebalancing rule also highlights one of the most important tensions identified by the Committee: how to reconcile time variation in the discount factor in financial markets (variations in risks, value of assets, and expected returns) with time-varying government spending needs. Abstracting from the political economy of borrowing constraints, would it be optimal to let the government to borrow in bad times (when both risk and expected equity returns are high) and repay in good times when expected equity returns are low? If so, could the same be attained by a cleverly designed rebalancing rule and at the same time honor the government's borrowing constraint?

5 Concluding remarks

NOU 2016:20 is a huge improvement on previous strategy documents. It presents the key analytical frameworks that are necessary to answer the question of the optimal strategic bond-equity allocation of the GPFG. The report raises the bar for future work on management and asset allocation of the GPFG.

The foundational idea of the GPFG is to apply the basic principles of finance to improve the risk-return tradeoff of national wealth by sharing risk globally. This has allowed higher and more stable consumption (public and private) than what would otherwise have been feasible. Further improvements in the risk-return trade-off of national wealth will almost completely be determined by the strategic reference portfolio. So are the risk and returns if the GPFG were to be considered in isolation.

NOU 2016:20 does, however, fall short on actual analysis. This analysis should ideally be completed before any decision on the bond-equity allocation is made. We understand

that this may be challenging before Stortinget is scheduled to make its decision, but it is absolutely essential that the acting owner and custodian of the GPFG (the Asset Management Department at the Ministry of Finance) establishes a process to answer outstanding questions. Some of these questions have been stated in this letter.

The report appears to present the key trade-off facing the management of the fund. In our reading, the entire committee agreed that:

1. on the asset side: decreasing outstanding oil and gas reserves is an argument for increasing the risk exposure and equity allocation of the sovereign wealth fund

2. on the liability side: fiscal policy must be adapted to the fact that an increasing share of government budgets will be financed by returns of volatile financial wealth

3. as long as there is little idiosyncratic risk and the management has limited scope for undertaking business ventures, such as speculative bets and investments in unlisted, opaque markets, the fund can be exposed for more systematic (listed equity) risk.

We found the disagreement within the Committee pedagogical and instructive. We believe it clarifies the choice for the Government and the Members of Stortinget. As far as we read the report, the disagreement concerned the feasibility of substantial adjustments in fiscal policy. The majority considered such changes in fiscal policy feasible and recommended to increase the equity share to 70 percent. A minority of the Committee considered such changes in fiscal policy less likely and hence recommended to decrease the equity share to 50 percent. This underscores a crucial insight from financial research, which is that spending decisions and allocation decisions should be considered in conjunction. It communicates to the Government and the members of Stortinget that they need to approach adjustments to the Fiscal Rule and the strategic financial portfolio composition as a joint decision.

We can't draw any portfolio-allocation recommendations without also making recommendations on how the Fiscal Rule (*handlingsregelen*) should be modified or without further analyses, such as those requested in this letter. We would, however, conjecture that based on further and more thorough analyses it may advisable to increase the listed equity share substantially higher than 70 percent.

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