AP Fund 3

Evaluation of Organisation and Investment Policy

April 2001

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1 Introduction

1.1 Objective of evaluation

The Ministry of Finance has commissioned William M. Mercer Ltd to evaluate each AP Fund. The objective of the assignment is to evaluate each Fund's organisational structure in light of the mandate it has been given. Particular focus will be placed on the risk controls and the Fund's ongoing compliance with the objectives set by its Board. The evaluation of the Investment Policy will cover overall methodology, objectives and assumptions used when performing the Asset Liability Study.

Our review has been based on a review of working papers and documents provided by the Funds, telephone conversations and an onsite visit. We would like to stress that our mandate was limited to carrying out a high level review of the Funds, and not a detailed due diligence of the organisation and the investment policy setting.

1.2 Summary of the AP Funds' respective mandates

The First to Fourth and Sixth AP Funds have mandates to manage the buffer funds in the new reformed pension system. As from the start of 2001, new investment rules came into force for the First to Fourth AP Funds, and as result each are initially managing approximately SEK 134 billion. According to legislation, the First to Fourth AP Funds must manage the assets in order to provide a high long-term return, satisfactory liquidity, good risk diversification and a good margin of security.

1.3 Summary of key responsibilities of each AP Fund Board

Each AP Fund has a team of permanent staff responsible for putting into effect the decisions taken by the Fund's governing Board.

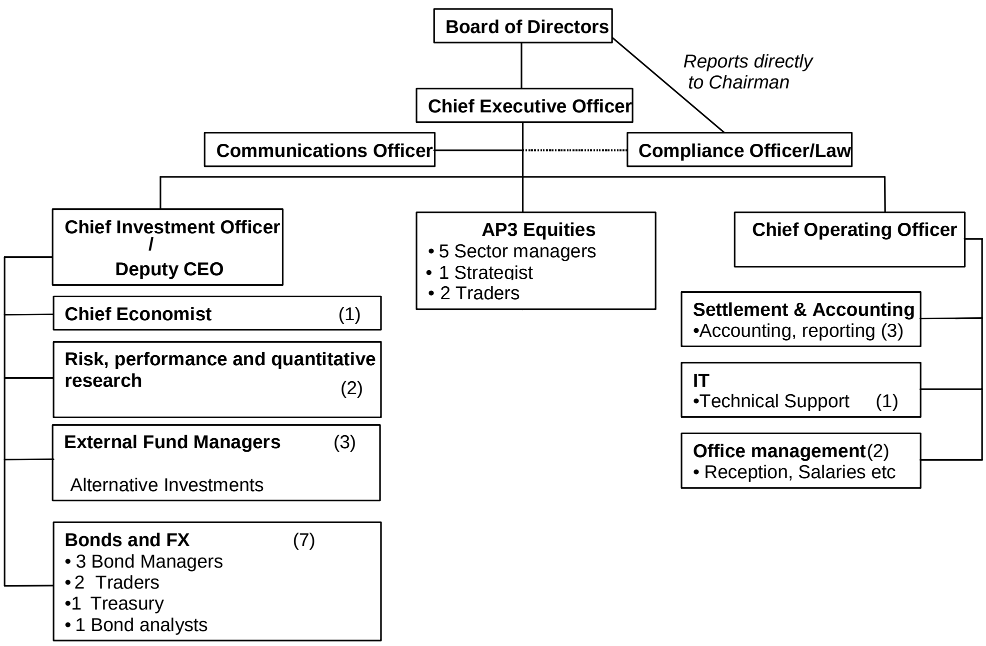
The number of Board members for each Fund (with the exception of the Sixth AP Fund) is set to 9 members. The Government nominates all members of each Board. Two of these members are nominated from employer organisations and two are nominated from employee organisations. The Board's main responsibilities are to establish the investment policy, governance policy and Risk Control Plan for the Fund in question. The Board can delegate responsibilities to the MD/CEO according to the law.

Stephen Woodcock	**Johan Sidenmark**
For and on behalf of **William M Mercer Limited**	**For and on behalf of** **William M Mercer Limited**

2 Review of organisation

2.1 Organisational Structure

The organisation is divided into three business units (the Internal Equity team, Internal Bond and Currency team and the External Management team) and a Business Administration team. Both the Internal Equity and Internal Bond and Currency teams include traders. In addition there is a Quantitative Research team responsible for asset/liability modelling, risk control and performance measurement. The aim has been to create a flat organisational structure with a team focus. The CEO and the Deputy CEO work in both multiple and overlapping roles. The Internal Equities team reports directly to the CEO. The CEO is directly involved in the management of assets with particularly close involvement in the domestic equity portfolio. The Internal Bond and Currency team, the Quantitative Research team and the External Management team report to the Chief Investment Officer who is also the Deputy CEO. The business administration team reports to the Chief Operating Officer. The organisational chart below illustrates personnel reporting lines and some of the functional responsibilities as at the start of 2001.



This structure was largely put in place over 1999 and 2000. The Fund brought in a consultant to advise them on organisational matters in 1999. At the start of the re-organisational process, the Fund tried to establish a “corporate” philosophy. A number of key themes were identified as follows:

- Professionalism.

- Focus: the Fund should identify the areas in which it can genuinely expect to add value. Tasks should only be performed internally if suitable skills exist. In other areas the Fund should be prepared to outsource to external firms.

- Continuous development of both employees and the organisation.

- A team-based structure: each staff member should be trusted to accept responsibility and it should be clear that each member's contribution is valued. Work undertaken should be freely available to other staff.

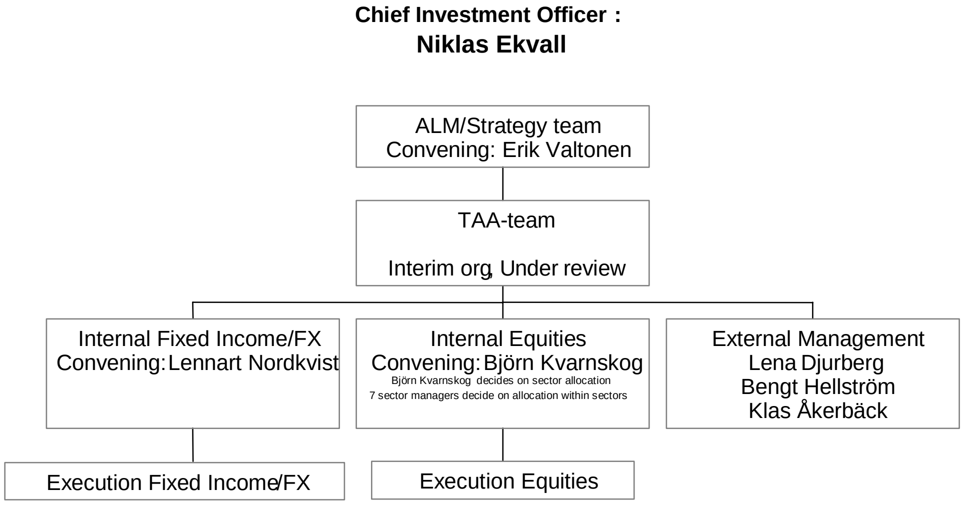
- Openness within the organisation: staff to be involved in the decision-making process and trusted with confidential information. This also to extend externally, except where information is market-sensitive.

- Enjoyment.

2.2 Management of Assets

- The philosophy of the organisation is to take risk only where it can be expected to add value, and to apportion assets internally or externally according to competence.

- The Fund's investment process is team driven and is only partly captured by the organisational chart describing the personnel reporting lines. The following chart describes to investment decision-making structure:



- The establishment of investment policy begins with the Fund's Board. Based on advice from the CEO, CIO and the ALM/Risk team, they reach a decision on the Fund's strategic or benchmark portfolio. The Board is then also responsible for setting parameters and restrictions for the management of the Fund's assets relative to the strategic portfolio. In particular they consider the extent to which risk may be accepted relative to the benchmark in pursuit of additional value.

- The CIO then allocates the allowable “risk budget” to the different areas of the organisation responsible for implementation.

- An interim team takes responsibility for tactical asset allocation, although this area is under review; there are separate internal equity and bond teams; and there is a team responsible for the appointment and monitoring of external investment managers for areas of the strategic portfolio not covered by the internal equity and bond teams. External managers are used where the relevant competence is judged not to exist internally.

- The Fund is judged to have sufficient competencies in Swedish and European Equities and sovereign debt (Sweden, Euro, UK, Japan, US) plus high quality credit. At present, all external mandates are passively managed. The team responsible for external managers will try to identify those areas where active management could be expected to work. The use of external active management appears likely in due course for more areas of the Fund’s strategic benchmark.

- The average experience level for members of the Internal Equity and the Bond & Currency teams is 14 years, and for the Traders is 16 years.

- The structure for risk control/monitoring is defined in the Risk Control Plan. The Chief Investment Officer is responsible for risk management/budgeting and is monitored by the Compliance Officer who reports directly to the Board. The Fund uses an independent consultant (Deloitte & Touche) for performance evaluation and the auditors (KPMG and PwC) provide the Board with reports.

- The strategic or benchmark portfolio is defined by the ALM. In the long-run, the goal is to out-perform the strategic portfolio with an information ratio of 0.2. The tracking error should not exceed 4%. Over 2001, interim arrangements are in place… (sekretessbelagt). The outperformance target for 2001 is 0.3%.

- Swedish equities are managed actively. The equity team also covers around 10 sectors within European markets and these are managed actively with the other sectors managed passively. The decision on which sectors to manage actively is in part a reflection of the existing skills within the team and in part a judgement on the capacity to add value within different sectors (some being regarded as driven by factors beyond the scope of the team to predict, such as the oil price). The equity team currently numbers 10, including the CEO and the CIO who both have responsibilities as sector managers. The team also includes two traders who perform sector manager tasks. The team is supported by a quantitative analyst and a part-time macro analyst.

- The bond team numbers 7 people at present. In addition to the team leader, there is one portfolio manager focusing on sovereign debt (Sweden, Euro, UK, US and Japan) and one on credit, three traders who also provide back-up to the portfolio managers and a quantitative analyst.

- The Fund has 3 employees for hiring and monitoring external managers. Tendering for mandates will be done in accordance to standard procedures for placement of Government contracts. Having received tenders, the External Manager team will make a proposal. The CEO and CIO will jointly make the final decision on the appointment of the external manager. The External Managers team will use consultants for peer review and data provision.

- At present the bulk of the risk budget is allocated to the internal equity team. All external management is, for the moment, passive, and the bond team is relatively new. (sekretessbelagt).

- Risk management reports come from the Business Administration team, under the Chief Operating Officer, from the custodian, Northern Trust, and from a separate outside provider, MPIR, affiliated with Deloitte. Northern Trust also enables the Fund to constantly monitor its overall currency exposure, which is partially hedged in-line with current regulations covering the AP Funds. More active currency bets may be taken in the future.

- According to the new investment rules, external managers will manage a least 10% of the Fund’s assets. External managers (State Street and Merrill Lynch) have been retained for passive management at present, including US, Japan and European equities. Active mandates are now being considered.

2.3 Operational

- The Fund uses Northern Trust Company as custodian bank.

- The Fund has invested in a new IT system for both the Investment Organisation and its Business Administration. They have settled on Advent, which they tell us is working well. They note that although TMS 2000 has been adopted by the other funds, it would appear to them that it is costly in its implementation, having a greater need for support staff. Advent is basically a portfolio administration system and does lack risk analytical functions. For this reason, they have also added BARRA.

2.4 People

- In order to evaluate the organisation's strength and consistency we need to define the officers' job descriptions with emphasis on responsibilities, adequacy of resources and incentives.

- The Board takes responsibility for the following:

  – deciding the strategic asset allocation (the benchmark)

  – appointing and determining compensation for CEO

  – ensuring that the Fund's activity is conducted according to the applicable legislation

  – deciding investment objectives in accordance with the applicable legislation

  – report to the government according to the applicable legislation

- CEO responsibilities:

  – secure that the ongoing management and activities are in compliance with the law, instructions and action plans

  – implement Board decisions

  – report to the Board

  – recruit and determine compensation for employees

  – secure compliance with Board instructions and action plans

  – acceptance of all responsibilities delegated by the Board

- The Deputy CEO is also the Chief Investment Officer with responsibility for risk management/budgeting.

- The Compliance Manager is responsible for monitoring risk and compliance and reports directly to the Board of Directors.

- Since 1998, the Fund has had an incentive program for all its employees, with the exception of the Compliance Manager. In 2000, the incentive program was revised to reflect the Fund's new mandate. The objective has been to link the Fund's recruitment and retention.

- The incentive program is linked to five objectives, four of which are linked to the Fund's investment performance and one to the individual's performance. The incentive program is consistent with guidelines covering employees in state-owned companies.

2.5 Mercer overall view

- The organisational structure and philosophy makes sense. The two key individuals have complementary strengths (equity/fixed income) and the organisation is in effect structured around this. In this respect it is not a conventional structure and problems may arise if either left the organisation for whatever reason. As an illustration, the internal equity team does not report to the CIO but directly to the CEO, albeit that the CIO still retains responsibility for risk management over all the investment teams.

- The relatively small size of the organisation permits a flat structure and allows the senior staff to disseminate information across the teams without difficulty. As we have not met the great majority of the staff, we cannot comment on whether the culture meets the original aims when the structure was designed. We see no reason, however, why it should not.

- The upfront emphasis on the need to establish a strong culture for the Fund shows a good understanding of one of the most important criteria for success in asset management. The choice of another system than TMS 2000, would appear to indicate an independence of view which is not unwelcome. The only potential concern, which is common to many of the AP Funds, is the ambition to accomplish so much at once: internal management, external management, numerous asset classes, TAA, currency overlay etc.

- The approach to internal investment management is complex but well thought out in terms of a logical series of decision points and a systematic challenge system. A decision in principal has been taken… (sekretessbelagt).

- One relatively unique feature of this Fund is a dedicated team of three, with the support of the quant team, to monitor the external managers. In other Funds it is a combination of the internal managers and management who accomplish this function. In our view, the Fund's approach has certain advantages in terms of monitoring external managers and reacting appropriately to any slippage in risk adjusted performance.

- As we have not met the internal investment teams themselves, we are not in a position to comment on their effectiveness and therefore the extent to which they might be expected to add value in comparison to either a passive or active external alternative.

- As with other AP Funds, there is a question in our minds over the extent to which the Fund will be prepared to respond to sustained underperformance by its internal teams. Any radical response might be particularly divisive, especially in the context of an organisation whose culture is designed to be open and inclusive.

3 ALM

3.1 Introduction

- The Fund's investment strategy was determined with the assistance of an asset/liability modelling exercise conducted jointly with Watson Wyatt during 2000, using demographic scenario data provided by the National Social Insurance Board ("RFV").

3.2 Objectives

- The Fund concluded that identifying a single objective by which to measure different investment policies and thereby to set investment strategy was not possible. Instead, several variables were considered describing both the overall state pension system as well as the buffer fund system:

  – The measure used to describe the broader state system was termed the "System Surplus", defined as the sum of Contribution Capital and the Buffer Funds less the Pensions Debt.

  – To describe the buffer funds themselves, a "brake" measure was used in the form of the ratio of the Balance Index to the Income Index; net cash flows relative to the size of the Fund were also modelled; and Fund strength was modelled, being the number of years' pension payments that the buffer funds could meet on a stand-alone basis.

- As the Fund had no data on the strategic policies of the other AP Funds, it was not possible to model it in isolation. It was instead necessary to model the buffer funds as a group and assume that they behaved in a similar fashion.

- The year 2024 was identified as providing a suitable projection period. This was favoured because it represented a long-term assessment that included a period of expected strain to the buffer funds (when cashflow is expected to be negative). Analysis of projections to other dates was also carried out.

3.3 Methodology/Assumptions

- Apart from the difficulty in identifying a single objective against which to optimise investment strategy, the complexity of a pure optimisation process, even on the basis of a limited asset/liability linkage, was a further constraint. In consequence, the asset/liability modelling process was conducted in two stages.

- First, an asset-only optimisation was conducted using mean/variance analysis on real returns. This was used to identify 10 portfolios representing a wide risk/return range and which conformed to both the formal investment constraints imposed on the buffer funds together with a number of additional constraints identified by the Fund itself.

- To these 10, a number of other portfolios were added for consideration in the second stage, including the initial portfolio (the expected distribution of the portfolio to be received at 31 December 2000).

- In the second stage, a range of measures (including those identified above) were then modelled under each of the portfolios and tested in terms of both expected development and risk. Risk was quantified in terms of a “worst case” outcome taken to be the 5^{th} percentile (in other words, 95% of outcomes are expected to be better than the worst case).

- The asset model used was the Wilkie model.

- Assets were divided into the following classes: Swedish equity, European (ex Sweden) equity, global (ex Europe) equity, Swedish fixed income bonds, global (ex Sweden) fixed income bonds, Swedish inflation-linked bonds, real estate and cash.

- Return assumptions for the different asset classes were based on a survey of forecasts from 5 different organisations, with the final assumptions used being close to the average in each asset class. Domestic Swedish equities were assumed to have higher expected returns than international markets (risk was also assumed to be higher to ensure a consistent risk/reward balance).

- Modelling of asset returns, price inflation and wage inflation were the only stochastic elements of the projections. All demographic elements (apart from inflation) were projected deterministically, based on the RFV projections. The main analysis was undertaken on the central (or “base case”) RFV projection.

- The capacity did not exist to model all factors relevant to the inter-relationship of assets and liabilities beyond price and wage inflation. For example, while a Swedish recession might reasonably be expected to have an impact on Contribution Capital, Pensions Debt and the assets of the buffer funds, the dynamics of such a link were unknown. Even so, an attempt was made to tie different asset assumptions to liability scenarios within the stress testing analysis (mentioned below).

- Projections were made on the base case RFV demographic scenario plus a further four scenarios. Each of these five scenarios was considered on three bases for labour force participation. In other words, a total of 15 demographic scenarios were considered.

- In addition, the central asset class return assumptions were adjusted to produce a further 7 sets of assumptions for stress testing purposes.

3.4 Analysis of Results

- The first stage of modelling produced 10 portfolios… (sekretessbelagt).
- The second stage concluded… (sekretessbelagt).
- The study suggested that diversification of equity exposure away from Sweden, on a partially currency hedged basis, was advantageous.
- More modest holdings of Swedish real estate and cash were found to have risk reduction benefits and found a place in low risk portfolios.

3.5 Mercer View

- The Fund's strategic analysis has been detailed, however as with all the AP Funds, the process was to a certain extent hampered by uncertainty as to the investment objectives.
- It is seldom possible to say definitively that an investment strategy decision is incorrect as it is a judgement entirely dependent upon risk tolerance and the need to accept risk. Very high equity weightings could be justified in the context of the AP Funds as could very low weightings. No real guidance is given to the AP Funds in quantitative terms on the acceptable level of risk in the context of the broader state pension system. The need to compete with other AP Funds naturally drives funds towards high equity weightings, although such considerations were not necessarily explicitly factored in to the Fund's analysis.
- The Third Fund… (sekretessbelagt).
- The analysis resulting from the ALM does appear to justify the strategic decision taken. Certain assumptions were stress-tested in reaching the conclusion.
- However our mandate does not extend to replicating the modelling process ourselves and so it is not possible to draw firm conclusions on the reliability of the analysis. The model used is widely (although certainly not universally) accepted and the work was carried out by a reputable firm . While our analysis might have yielded different results, this would most likely be driven by more subjective judgements on the mechanics of markets and so would not, of itself, invalidate the analysis used by the Fund.
- The most prominent deficiency in the ALM process, and one that all the Funds faced, was effectively modelling a link between assets and liabilities beyond purely inflation. It is this area in which we believe risk is most likely to be understated. A link between recession, reduced contribution income and poor equity returns is highly plausible and it is precisely this sort of scenario that will adversely affect an equity-biased AP Fund to a potentially substantial degree. More work needs to be undertaken in this area. In fairness to the Fund, they are well aware of this and have identified it as an area for further research in the future. Their analysis did make some attempt to introduce a link within their scenarios.

- The decision to… (sekretessbelagt) makes intuitive sense from a risk diversification perspective. We are less comfortable with the allocation to non-Swedish government bonds, even on a currency-hedged basis. In our view, Swedish inflation-linked bonds are the least risk asset for the AP Fund’s liabilities. Liquidity is, of course, a constraint on substantial exposure to these assets.

4 Overall Assessment

4.1 This section is intended to be an overall assessment based on our discussions with all the Funds. Some of the points are more relevant to some Funds and less to others.

4.2 We have been impressed by the overall quality, experience and motivation of the professionals that we met. Hard work has accomplished a great deal in a relatively short time span, either to create a totally new organisation or to undertake a major re-structuring of existing funds.

4.3 In spite of new Board of Directors that include a varying proportion of non-initiated people, they have also clearly risen to the challenge and have worked diligently with management to set the framework for operating the system. To ensure their continuing support, and although we understand the spirit of public service in Sweden, we wonder if their remuneration could not be raised from the current SKr. 50,000 p.a.

4.4 We have the same kind of concerns regarding the compensation of the fund professionals. While we can understand the attraction of the challenge of these new funds for investment professionals, with the focus on hands on investment management and an absence of bureaucracy compared with the mega-financial institutions of today, at one point money does talk. Our concern is mostly on the bonus side where the 6 months salary cap is clearly not in line with industry practice. Personnel retention may become a real issue, especially as other third party managers will come to view these people as providing an entry point into these funds. Although we must emphasise that we have in no way detected this, it might be natural for investment professionals to view a couple of years at an AP Fund in the same light and good on a resumé. This is some thing we have observed with the investment teams of Central Banks or Generational Funds. If this were to occur, it would clearly be detrimental to the long term performance of the Funds.

4.5 Another aspect to this, is that it seem to us that the intent of the legislator in setting up these competing funds was to generate a healthy competition to boost the overall risk adjusted return of the buffer fund system. This would be better accomplished by a clear linkage between value creation and remuneration, including short and longer term incentives. The opposite risk in the absence of this linkage is that all the funds will basically revert over time to a peer group average.

4.6 We have found all the funds to place risk control at the forefront of their concerns which is clearly within their mandate. By and large this is monitored in an appropriate fashion in terms of its independence from investment management, reporting lines to the CEO/Board and the type of reports. The only fundamental observation for possible review, is that risk management cannot be condensed into one statistic, notably tracking error, but must be reviewed in multiple cuts to understand the type of risk the overall fund is taking and whether these are consistent with the house view or among the various internal/external mandates. We suspect that for the most part this is being done, (for example some of the Funds are using BARRA type analysis) but our cursory review of necessity could not reveal this in detail. We would also suggest that risk management become fully integrated as part of the investment management process (some of the funds do this already).

4.7 The Funds tend to use domestic custodians (some use domestic and non-domestic custodians). Although we did not have an opportunity to review this in detail, our sense is that the risk and compliance services provided by custodians (the global players) may be under utilised.

4.8 Another observation for at least careful debate is whether the overall implementation of tactical asset allocation overlay programs, with the notable exception of one of the Funds, is necessarily appropriate given that this is an activity that requires skills that are difficult to find and in which it is difficult to, consistently, add value.

4.9 What is also interesting to us is that while the Funds have easily turned to external managers to complement their internal expertise, this has not been the case for tactical asset allocation, at least to gain an insight into some highly specialist managers are doing in this area. This would seem to be the approach of some of the long standing, sophisticated, in-house pension fund teams around the world, who do internal modelling but benchmark their approaches with outside TAA managers as well

4.10 A similar comment as in the previous paragraph, could cover the intent expressed in most instances to make more active currency bets, especially as the currency exposure regulations become more liberal over time. This is also an area of quite specific expertise.

4.11 In fact a general observation is that the Funds might be trying to do too much, especially in such a short period. It is sometimes better practice to implement a few steps at a time, checking the procedures and finding the flaws in periods of difficult market conditions. A related point is that a number of the Funds have devised structures/process on the basis of their perceived investment management strengths. This is only natural, we would however urge the Funds to consider carefully the full investment opportunity set and the best way of accessing this.

4.12 Those Funds which have carried out the strategy setting exercise have done so, in general, thoroughly. The areas that we feel are worthy of further analysis are strategies that provide for less correlated exposure to the fortunes of the Sweden economy. A number of the strategies have a bias to Swedish equities on the ground of a link between wage growth and the Swedish equity market, it would be interesting to explore whether there is any evidence for this.

4.13 We would concur with an observation which was often made to us, that the Public Authority status of the funds, on balance was not helpful. This touches on the compensation issues mentioned above, but also the everyday regulatory burden that this imposes. A particular aspect of this is the somewhat uncertain mandate of AP6 which in limiting its private equity investments to Sweden, might imply a social responsibility to assist Swedish start-ups whatever their merits. This is being resisted, as illustrated by the number of deals offered to the fund and the high number that are being turned down, but there is the perception of political sensitivities that at one point might be detrimental to the performance of the fund.

4.14 It might be a good idea to introduce some economic measures of how the AP Fund organisations are accomplishing their mandate. This implies the active monitoring of internal versus external asset management, but also the “bottom line” of the funds themselves. In our experience there is no clear cut model of in-house versus total outsourcing, and various combinations, as in Sweden, are generally accepted , at least in the public area, like the State pension funds in the US or the generational funds (ADIA, MAS, Norway Oil Fund). There has been a trend away from in-house in the private sector but mostly because of focus of resources or the desire to unlock value.

Appendix A

Risk Warnings

- Past performance cannot be relied upon as a guide to future performance.
- The value of stocks and shares, including unitised funds, can go down as well as up and you may not get back the amount you have invested.
- The value of bonds and other fixed income investments including unitised funds can go down as well as up and you may not get back the amount you have invested.
- Investments denominated in a foreign currency will fluctuate with the value of the currency.
- The value of investments in real property can go down as well as up, and you may not get back the amount you have invested. Valuation is generally a matter of a valuer's opinion, rather than fact. It may be difficult or impossible to realise an investment because the property concerned may not be readily saleable.