NEW ZEALAND SOCIETY OF ACTUARIES

PROFESSIONAL STANDARD NO. 8

ECONOMIC VALUATIONS

MANDATORY STATUS

1. Introduction

1.1 Application

This Professional Standard applies to any economic valuation of an economic asset performed by a Member of the New Zealand Society of Actuaries in a situation where there are no alternative New Zealand Society of Actuaries (NZSA) Professional Standards that could apply.

1.2 Background

Economic valuations are carried out for many purposes including but not limited to:

- assessing the individual interest in a superannuation or life insurance arrangement;
- providing management information for an organisation;
- contributing to the assessment of the value of a business for the purpose of sale or acquisition;
- disclosure in the accounts of an organisation or elsewhere;
- supporting the cost-benefit analysis of a project or opportunity;
- supporting capital budgeting work; and
- supporting the market valuation of an economic asset.

1.3 Purpose

This Professional Standard sets out the considerations that bear on the work involved in carrying out economic valuations of economic assets. It describes general principles and procedures for carrying out and reporting on the economic valuation.

1.4 Previous versions

This is the first version of the Professional Standard.

1.5 Legislation

The Member must consider the implications of relevant legislation and case law, as well as all relevant professional standards including International Financial Reporting Standards and the Professional Standards of the NZSA.

2. Effective Date

This Professional Standard applies to all work on which a Member initially reports on or after 1 July, 2010.

3. Definitions

For the purposes of this Professional Standard the following terms will be used with the meanings indicated.

Economic asset: Any resource, property, right, interest or liability that can potentially generate future cashflows and/or value (positive or negative).

Economic valuation: A process whereby a Member, at the request of a Client, specifically uses assumptions, methods and/or models to determine the economic value of an economic asset

Economic value: The present value or cash equivalent at the valuation date (allowing for time and risk) of all the future cashflows and/or other measures of value that are expected to be derived from ownership or use of an economic asset for a specified purpose.

Fair value: The price at which an asset could be sold or a liability settled between knowledgeable and willing parties on an arm's length basis.

Material: Important or significant in the professional judgment of the Member and/or in accordance with generally accepted practice.

The following terms are as defined in the NZSA Code of Conduct

- Client
- Member

4. Professional Considerations

4.1 Interpretation of this standard

The degree of detail and precision in an economic valuation performed by the Member must be appropriate to the context in which it is being performed.

4.2 Market valuations, fair valuations and other economic valuation applications

Members may from time to time be asked to provide advice on the market value or fair value of an economic asset or on the economic value of an economic asset in the context of a project evaluation or wider economic appraisal.

A market value may differ significantly from an economic value, with many factors affecting the market value that are not necessarily encompassed within an economic value.

An economic valuation may be an element in determining a market value or fair value, or as part of a project evaluation. Where a Member prepares an economic valuation that may be expected to be used in that way, the Member must take steps to ensure that any qualifications or limitations on the use of the economic value for that purpose are communicated to the Client and disclosed in the Member's written report. The Member must note any material factors which are not considerations in performing the economic valuation but which are likely to be important given the purpose of the assessment.

4.3 Working with others

Where a Member is asked to perform an economic valuation as a component part of a larger exercise, this Professional Standard applies to the component part of the larger exercise for which the Member takes responsibility.

This Professional Standard applies to an economic valuation made jointly by a Member and another person or firm. In such cases the Member retains overall professional responsibility for the economic valuation, including any delegated component, and this Professional Standard applies to the entire economic valuation. This does not preclude the Member from relying on the specific expertise of another professional.

5. General Framework

5.1 Valuation framework

The fundamental steps which are generally undertaken when performing an economic valuation are:

1. Understand the purpose, use and scope of the economic valuation
2. Understand the economic asset
3. Select appropriate methods and models
4. Determine data requirements, research and analyse available data
5. Set the assumptions
6. Build, calibrate and test the valuation models
7. Calculate the results
8. Analyse the results
9. Communicate the results

5.2 Transparency

The methods and assumptions used for the economic valuation must be explicitly stated, enabling valuation results (and sensitivities in the results to changes in particular assumptions, when produced) to be understood by the intended users of the economic valuation.

The Member must be satisfied that the method and models will, if appropriate data and assumptions are used, produce credible economic valuation results given the operating environment of the economic asset being valued.

6. Use and Scope Considerations

6.1 Needs of the Client

Before commencing the economic valuation, as appropriate the Member must review with the Client the purpose and context of the economic valuation and seek to understand the intended uses and users of the valuation results and any constraints the intended uses might impose on the Member in undertaking the economic valuation.

6.2 Scope of economic valuation

The Member must understand the scope of the economic asset that is to be valued. This will usually involve consideration of the components of the economic asset to be valued and the extent to which the economic valuation is to make allowance for the indirect impact of the use of the economic asset on the value of other relevant assets in which the intended users of the report have an interest.

The Member must ascertain the materiality limits that apply to the economic valuation bearing in mind the quality of the data, the intended uses of the economic valuation, the degree of uncertainty and the sensitivity of the overall result to different assumptions.

6.3 Nature of economic asset

The Member must understand the aspects of the nature and behaviour of the economic asset relevant to the economic valuation. This may involve becoming familiar with:

- the financial drivers of the economic asset and its environment;
- the accounting treatment used for the economic asset;
- legislation affecting the operation or treatment of the economic asset; and
- relevant features of the industries in which the economic asset operates.

7. Valuation Methods

7.1 Common valuation methods

Common economic valuation methods likely to be used by Members include Ratio methods, Risk premium methods, Risk neutral or certainty equivalent methods and Asset replication methods

The Member must be satisfied that the methods used to perform the economic valuation are appropriate for the particular circumstances. The methods used will depend on the size and/or materiality of the economic asset, the complexity of the operations of the asset, the quality of data available, the intended uses of the economic valuation and the needs expressed by the Client. The economic value determined must not depend on the methods selected as all methods are ultimately derived from the same theoretical foundation. Certain methods may be easier to apply appropriately in particular situations than other methods.

7.2 Allowing for uncertainty

The valuation methods used by the Member must allow for the impact of uncertainty in realising the projected cashflows on the economic value of the economic asset. The Member must be satisfied that the form of the allowance for uncertainty adopted is appropriate for the particular circumstances and consistent with the type of uncertainty involved.

The value and allowance for uncertainty may vary depending on whether, and the extent to which, the uncertainty can efficiently be diversified. The valuation method and assumptions must have regard to the implied value that markets place on matters such as diversifiable and non-diversifiable risk. Where the assumptions contributing to the allowance made for uncertainty are set to be appropriate in aggregate, the Member's written report must disclose that these assumptions will not necessarily give rise to an appropriate allowance for uncertainty for a specific individual asset or for a segment of the asset.

7.3 Ratio methods

Ratio methods rely on a high level of stability and predictability in the ratio between the economic value and the value driver from past periods to future periods and an ability to derive multiples that adequately allow for growth and uncertainty.

When using a ratio method, the Member must consider the limitations inherent in the method and be satisfied that they are appropriate given the scope of the economic valuation being performed. The Member must be satisfied that any parameter on which the ratio method valuation is based is appropriate and is not unduly distorted as at the valuation date.

7.4 Risk premium methods

Risk premium methods allow for market uncertainty through the interaction of a risk adjusted discount rate, the expected earning rate on capital, and the quantum of capital employed in the economic asset. When using a risk premium method, the Member must be satisfied that the overall allowance for uncertainty in the economic valuation is appropriate given the characteristics of the economic asset being valued and does not produce misleading economic valuation results.

7.5 Risk neutral or certainty equivalent methods

Risk neutral methods allow for market uncertainty in the probability distribution associated with cash flows. Certainty equivalent methods allow for market uncertainty by adjusting the cash flows. In either case, the discount rate used is a risk free rate. Risk neutral methods will not produce cash flow projections on a realistic basis, which means that projected cash flows will not be suitable for other purposes, such as business planning. This also means that the communication of the projection results to users and the validation of the risk neutral cash flows may be challenging, as they will not necessarily reconcile to real world cash flows.

7.6 Asset replication methods

Asset replication methods can be usefully applied wherever a replicating asset, or basket of assets, can be found for projected individual cash flows or a group of cash flows of the economic asset. They may have particular application for assessing the value of market related guarantees or options embedded within the economic asset.

7.7 Approximate valuations

Members may be asked to provide rough indications of economic value, based on a limited analysis of the key drivers of the economic value. Where such limited scope valuations are carried out or approximations are used, the Member must confirm the limited scope of the economic valuation with the Client and must adequately disclose the limitations of the methods, models and data used in the written report.

7.8 Roll-forward valuations

In some circumstances it may be appropriate to provide an economic valuation for a date different to that at which key data has been captured and detailed models produced. Such an economic valuation is commonly referred to as a roll-forward or roll-backward valuation. The roll-forward/roll-backward method must be consistent with the use to which the economic valuation will be put and with the overall materiality requirements of the economic valuation.

8. Data

8.1 Introduction

The data available and its quality will influence the choice of the methods and models used for the economic valuation.

8.2 Relevant data

All data used must be relevant to the timing and purpose of the economic valuation. Where relevant data is not available, the Member must show the effect of any assumptions and explain the implications.

8.3 Data reliance and review

The Member must review the data obtained for reasonableness, internal consistency and completeness. In doing so, the Member must consider whether distortions exist in the data and whether adjustments to the data are appropriate to eliminate possible distortions in the economic valuation or to allow for expected changes in future conditions under which the economic asset will be operating.

8.4 Consistency of data, methods and models

The data used to populate the chosen models must be consistent with the methods chosen and the design of the models used for the economic valuation. If the data does not, or is insufficient to, support the use of a particular method or model, the Member must consider whether a more appropriate approach must be used.

9. Valuation Models

9.1 Choice of models

The Member must:

- choose models for the economic valuation that are appropriate to the valuation being performed and the purpose for which the results of the valuation will be used;
- ensure that there is consistency between the economic framework in which the valuation is being performed and the models chosen;
- understand the limitations of the models chosen for the economic valuation; and
- use models that are consistent within themselves and with each other.

Where models are not consistent and this has the potential to materially affect results, the Member must disclose the inconsistency in the written report.

9.2 Models used to perform an economic valuation

There are four major types of models commonly used by Members in undertaking economic valuation work:

- Cash flow models: A model of the future cashflows expected to be generated by the economic asset.
- Probability models: A model of contingencies that affect the economic asset. These may include models of event occurrence, claim incidence, contract termination and take-up of product features and options.
- Economic models: A model of the economic variables and their interrelationships that are expected to materially affect the economic asset. These typically include factors such as future investment earnings and rates of inflation.
- Risk allowance models: A model used to generate the assumptions required to allow for the impact of uncertainty on the economic value.

The economic valuation of an economic asset is likely to involve the use of a combination of models.

9.3 Cash flow model

The cash flow model chosen by the Member must appropriately reflect all cashflows that are material to the economic valuation. In determining the cash flows to be modelled, consideration must be given to the key drivers of the economic value of the economic asset.

The cash flow model chosen by the Member must appropriately allow for options, guarantees or other asymmetric features of the cashflows, where these are material to the economic valuation. The Member must be satisfied that the cashflows taken into account when performing an economic valuation are consistent.

9.4 Probability model

Some of the cashflows being modelled may be contingent on the occurrence of particular events. This is particularly true for economic assets within the fields of superannuation and insurance. In such situations the Member must be satisfied that probability distributions or point estimates used in the models are reasonable and sufficiently accurate for the purpose of the economic valuation, paying particular attention to outcomes that may have a low probability of occurrence but a high economic impact.

9.5 Economic model

The economic model must, where material to the valuation result, appropriately reflect relationships and correlations between economic and other variables, market volatility and the period over which cashflows material to the economic valuation are expected to occur.

9.6 Risk allowance model

A range of models exist to allow for uncertainty within the economic valuation. These will often be particular to the valuation method chosen. The risk allowance model chosen by the Member must take into account observed market data and relationships, be consistent with the other models and assumptions used in the economic valuation, be appropriate to the nature and extent of the uncertainty, and be appropriate to the business characteristics of the economic asset.

10. Assumptions

10.1 Choice of assumptions

There will often be a range of assumptions that the Member could determine as being acceptable for a particular economic valuation. Prior economic valuations of the economic asset may have used best estimate assumptions. The Member must use a set of assumptions in the economic valuation that is internally consistent, free of intentional bias by the Member and appropriate to the purpose, scope and proposed use of the economic valuation. Material correlations between assumptions must be appropriately reflected.

10.2 Responsibility for assumptions

The Member is responsible for the selection of all assumptions used in the economic valuation, other than those assumptions which are mandated by statute or by regulation or which are set by the Client.

11. Checking and Analysis

11.1 Responsibility for valuation results

The Member must be satisfied as to the material accuracy of the results given the purpose, scope and proposed use of the economic valuation. The Member must perform appropriate validation tests and reasonableness checks on the valuation result and key intermediate results.

11.2 Analysing and portraying uncertainty

The Member must identify the material elements of uncertainty in the economic valuation results.

11.3 Analysis of change in value

Where a prior economic valuation exists and sufficient information concerning its composition and determination is available to the Member, the Member must analyse the change in economic value since the most recent valuation unless the scope of the assignment explicitly excludes this task. The analysis of change would generally identify:

- the change in value expected since the prior valuation date using the methods, data and assumptions that were applied in the prior valuation;
- the effect of changes in the valuation methods;
- the effect of changes in the valuation model;
- the effect of changes in the valuation assumptions; and
- the effect of operating experience during the period.

12. Communication and Disclosures

12.1 General principles

The degree of detail and precision in any report on an economic valuation must be appropriate to the context in which it is being performed.

The Member must take reasonable steps to ensure that the results of the economic valuation are communicated to the Client and intended users in an appropriate manner and not in a manner likely to give a misleading impression. Where the Member expects that the results of the economic valuation may be disclosed to a third party, the Member must take reasonable steps to support disclosure to the third party that will be appropriate given the scope of the economic valuation and not be misleading.

12.2 Written report

If the economic valuation is considered by the Member to be material to the Client, the Member must provide a written report addressing each of the following to the extent that it is material in the context in which the valuation is being performed:

- a statement of the identification and qualifications of the Member and the capacity in which the Member is acting;
- a statement of the purpose of the economic valuation, the identity of the Client and the intended use of the valuation report;
- a description of the scope of the economic asset;
- the valuation date;
- a description of the assignment given to the Member, including reference to:
    - the terms of engagement including relevant instructions given to the member and any limitations imposed by the Client;
    - any aspects of the economic valuation that were explicitly excluded from the scope of the member's work, but which would usually be expected to have been included in an economic valuation;
    - any matters that have come to the Member's attention which may make the economic valuation result inappropriate for the Client's purpose or for that of the intended users, including any explicit exclusions on the scope or other constraints placed on the determination of the economic value;
- identification of all key data used, including disclosure of:
    - the information, documents and data used and upon which the Member relied;

    - the degree of independent verification of the data and any shortcomings or limitations of the data for the purpose of an economic valuation;
    - the extent of reliance on advice prepared by a third party, including advice about matters beyond the training or experience of the Member;
    - any significant data problems that give rise to uncertainty in the results of the economic valuation and assessment of the materiality of that uncertainty;
    - the specification of the extent of and rationale for any material adjustments to the underlying data and discussion of the materiality of such adjustments to the overall results;
- a description of the primary methods and models used;
- a description of the assumptions and the basis of their derivation;
- the results of the economic valuation and of any analysis of change, along with any limitations and/or significant implications attaching to the results;
- a statement of the materiality limits used;
- a description of any material uncertainty surrounding the economic valuation result; and
- a statement of compliance with this Professional Standard or a list of any departures from this Professional Standard.

Where applicable, the written report should also include the following:

- a statement where the methods, models and/or assumptions used were not chosen by the Member but either selected by the Client or required by relevant standards or legislation;
- where the Member believes the economic valuation might be used for purposes other than those intended, a statement of any qualifications or limitations on its usage;
- if data was obtained at a date other than the valuation date, a description of how the data was adjusted to reflect the expected position at the valuation date together with commentary on the effect of any approximations involved; and
- where appropriate given the scope and intended uses of the economic valuation, a separate disclosure of the component parts of the economic value.

If appropriate, some of the requirements of the written report may be omitted where the Member has provided a separate report on the economic value methodology to the Client and that separate report is available to those who receive a copy of the economic valuation.

In some situations the Member may consider it more appropriate to disclose a range in which the economic value may lie rather than a single economic value. Where a range is disclosed, the Member must provide advice on how to interpret the range and must identify any limitations attaching to the economic value range and its interpretation.

12.3 Results and limitations

The Member must consider whether to place any limitations on the distribution or use of the report.

End of Professional Standard