



GUIDANCE NOTE 510

VALUATION OF SHARE BASED PAYMENTS

1. INTRODUCTION

Application

- 1.1 This Guidance Note applies to actuaries who are performing valuations of share based payments which include executive and employee share options (ESOs), performance shares or any other payment or form of compensation whose quantum depends on an equity value.
- 1.2 Whilst this Guidance Note applies to all share based payments, the main focus is on executive and employee share options (ESOs), which are currently the most common form of share based payment. However, other share based payment instruments (e.g. performance shares) may also be valued using similar techniques to those used to value options. Reflecting this, we use the term “ESOs” in this Guidance Note to refer not only to executive and employee share options, but also to other share based payment instruments.

Classification

- 1.3 This Guidance Note has been issued to provide assistance to actuaries undertaking work in this area. While actuaries are encouraged to apply the principles set out in the Guidance Note, the Guidance Note is non-mandatory and, accordingly, departure from the Guidance Note is not, in itself, unprofessional conduct. However, where an actuary departs from this Guidance Note, he or she must be able to demonstrate that there were reasonable grounds for such a departure.

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2. BACKGROUND TO GUIDANCE NOTE

- 2.1 There is no single accepted method for the valuation of ESOs. In addition, the valuation of ESOs is an area where active research is continuing and it is envisaged that valuation techniques will continue to develop over time.
- 2.2 The intention of this Guidance Note is to set out the considerations, basic principles and framework that the actuary should follow in undertaking an ESO valuation.

- 2.3 It is noted that there is a substantial body of research and established practice on option valuation which is not intended to be covered by this Guidance Note. Actuaries providing advice in this area should be familiar with relevant valuation practice to an appropriate level.
- 2.4 It is not the intention of this Guidance Note to prescribe a particular method or approach that an actuary should follow when valuing ESOs. The actuary should exercise professional judgement in choosing an approach that he or she feels is appropriate to the circumstances.

3. DEFINITIONS

- 3.1 **Grant Date** refers to the date at which the company and employee enter into a contract that will entitle the employee to receive an ESO either on this date or some future date, provided that certain conditions are met.
- 3.2 **Measurement Date** refers to the date at which the value of the ESO is to be estimated.
- 3.3 **Expiry Date** refers to the latest date at which the ESO is able to be converted to a share.
- 3.4 **Exercise Price** refers to the price paid by the ESO holder to convert the ESO into a share.
- 3.5 **Performance Hurdle** refers to a condition (generally expressed in terms of company share performance) which must be satisfied in order for the employee to become entitled to the ESO.
- 3.6 **Vesting Date** refers to the date at which the employee becomes unconditionally entitled to the ESO. It should be noted that in this context, the Vesting Date may be unknown in advance (e.g. it may depend on the achievement of one or more performance hurdles).

4. PURPOSE OF AN ESO VALUATION

- 4.1 The actuary should clarify the purpose of the valuation prior to commencing. Actuaries may be requested to perform a valuation for a variety of reasons, including:
- Regulatory expensing or disclosure requirements for ESOs awarded to executives or broadly based employee option plans;
 - Calculation of the value of liabilities and changes in liabilities in respect of option plans, for inclusion in financial statements;
 - For design and communication of executive and employee remuneration packages;

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- Determination of compensation to employees affected by company restructuring, or mergers and acquisitions;
 - Individual financial counselling;
 - Taxation purposes; and
 - For the resolution of legal matters, e.g. divorce settlements.
- 4.2 This Guidance Note is intended to cover valuations carried out for many different purposes. As a result, not all sections of the Guidance Note will be relevant in all circumstances. It is expected that Actuaries will refer to those sections of the Guidance Note which are relevant to, or are significant in, the particular circumstances in which they are conducting a valuation.

Other Standards

- 4.3 Where the valuation is performed to satisfy the requirements of an accounting or legislative standard, the actuary should be familiar with the requirements of the applicable standard.
- 4.4 As at the date of this Guidance Note, the following standards or exposure drafts are of particular relevance:
- Australian Accounting Standards Board AASB 1028 'Accounting for Employee Entitlements'
 - Australian Accounting Standards Board ED 108 'Share Based Payments'
 - Australian Accounting Standards Board ED 106 'Director, Executive and Related Party Disclosures'
 - International Accounting Standards Board ED 2 'Share Based Payment'
 - Australian Securities & Investments Commission 'Guidelines to Valuing Options in Annual Directors' Reports'

It is expected that these will be amended and new standards and legislation will emerge in the future.

Measurement Date

4.5 The measurement date for the valuation should be consistent with the purpose of the valuation. Measurement dates commonly used include:

- the grant date
- the vesting date
- the expiry date
- the Company's balance date

4.6 The actuary should consider the effect that the choice of the measurement date has on the valuation method and required assumptions.

5. DATA REQUIREMENTS

Design of the ESO

5.1 The actuary should be familiar with the design of the ESO(s) to be valued.

In particular, design features that should be considered by the actuary include:

- (i) The exercise price at which the ESO holder can purchase shares under the terms of the ESO.
- (ii) The conditions under which the employee becomes entitled to exercise the ESOs.

Typically, employee ESOs are subject to vesting requirements, which can take a number of forms. For example, exercise may not be permitted:

- until a specified minimum period after the grant date;
 - unless the share price passes a predefined price level;
 - unless some internal or accounting measure, such as earnings per share growth, exceeds a predefined level; or
 - unless the total shareholder return exceeds the performance of a specified index or group of individual stocks.
- (iii) The status of the ESOs in the event of termination of employment.

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- (iv) The ESO expiry date.
 - (v) The extent (if any) to which the ESOs can be traded. Generally, employee ESOs are not tradeable. This liquidity limitation, along with wealth concentration and taxation issues mean that the economic value placed on an ESO by the employee may be less than the value from the company's perspective.
 - (vi) Any discretion which may be exercised by the employer.
 - (vii) Any concentration of ESOs in an individual or individuals which may affect the use of general decrement and exercise rates.

Capital Structure

- 5.2 The actuary should be familiar with the capital structure of the company issuing the ESOs. In particular, the actuary should be aware of any intention or obligation of the company to issue new shares during the life of the ESO (for example, to meet existing obligations to employees), which would have a dilutive effect on the ownership rights of existing shareholders.

Other Data

- 5.3 The actuary should also consider the extent to which the following additional data is required:
- Share price and/or Total Shareholder Return (TSR) history;
 - Historical prices and/or implied volatilities of associated exchange-traded options;
 - Dividend history;
 - Dividend forecasts;
 - Membership details (of option plans);
 - Forfeiture history;
 - Early exercise history;
 - The data above, but relating to other companies in the same comparator group, industry, country etc.

The actuary should take steps to ensure the accuracy of any data used in the valuation process.

Interpretation of Data

5.4 As is common in actuarial work, in ESO work actuaries must make assumptions regarding the future value of various modelling parameters after taking into account (among other things) historical data. Actuaries should consider the extent to which such data can be relied upon. In particular, when examining any data described in 5.3 above for this purpose, actuaries should consider:

- Whether any rates of forfeiture or early exercise were influenced by the share price movements over the period examined;
- The period over which the data was collected and the significance of the sample size;
- Whether the business conditions in the option valuation period are expected to be sufficiently similar to that during the period over which the data was gathered.

6. CHOICE OF VALUATION METHOD

6.1 The main methods which are likely to be used by actuaries can be classified as:

- Analytical / formula-based methods (e.g. Black-Scholes)
- Static numerical models (e.g. binomial or lattice models)
- Dynamic numerical models (e.g. Monte Carlo simulation techniques)

Selection of the most appropriate valuation method is a matter requiring judgement, and a working knowledge of each. The actuary should note that there may exist some circumstances in which the method to be used is prescribed by the relevant legislation.

6.2 In exercising this judgement, the actuary should give consideration to the ability of the method to cope with the particular features of the ESOs being valued. Particular factors which should be considered by the actuary include:

- (i) Statutory or legal requirements.
- (ii) How allowance is to be made for any performance hurdles.
- (iii) The term of the ESO, and the need to allow for variations in key assumptions (e.g. volatility, risk-free discount rate) over the life of the ESO.
- (iv) The ability of the method to allow for dividends.

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- (v) The possibility of early exercise of the ESOs, due to termination of employment, optimal exercise strategies, or other factors.
 - (vi) The ability of the method to allow for dilution effects (if these are likely to be significant).
 - (vii) How allowance is to be made for any lack of liquidity (if required).
 - (viii) The ability to reproduce any results obtained.
 - (ix) The level of technical precision that is appropriate for the purpose of the valuation.
- 6.3 The actuary should comment on the appropriateness of the method in the valuation report, having regard to the above factors, and any other factors which the actuary believes are relevant. The actuary should also identify any limitations of the method, taking into account the purpose of the valuation.
- 6.4 It is recognised that in certain circumstances, the actuary may be requested to perform a valuation using a particular method, or may be constrained to use a method by a particular standard or legislation. Where this is the case, the actuary should seek to make the client aware of the fact that the specific valuation being carried out may not be appropriate for purposes other than those specified.

7. ASSUMPTIONS

- 7.1 Regardless of the valuation method adopted by the actuary, there are a number of basic assumptions that will normally need to be considered by the actuary, including the following:
- Interest rate;
 - Dividend allowance;
 - Volatility;
 - Inter-relation of relevant variables;
 - Exchange Rates;
 - Early exercise;
 - Exit/forfeiture rates.
- 7.2 The actuary should ensure that there is consistency between the assumptions and the valuation method, and that the assumptions are internally consistent.

- 7.3 All material assumptions, whether explicit or implicit should be stated, including any assumptions made due to shortcomings in data available to the actuary. The actuary should also describe the approach used to determine the assumptions and any qualifications to their appropriateness.
- 7.4 In setting the assumptions, it is expected that the actuary will have regard to:
- available historical data;
 - current market information (for example, implied volatilities);
 - additional information provided by the company; and
 - changes to the regulatory and/or tax environment.

Where relying on historical data, actuaries should bear in mind the comments made in 5.4 above.

- 7.5 As assumption setting is necessarily imprecise, the actuary should, where appropriate, examine and comment on the sensitivity of the valuation results to changes in the various assumptions.

8. SIMPLIFIED METHODS

- 8.1 It is recognised that there will be circumstances in which it is appropriate to use a simplified method to determine an (approximate) ESO value.
- 8.2 Actuaries will need to use professional judgement to decide whether a simplified method is appropriate, taking into account the circumstances of the valuation and the purpose for which the advice is being given.
- 8.3 Where simplified methods are used, the actuary should make appropriate disclosures, and comment on the expected impact on the results (if this can be reasonably quantified).

9. REPORTING

- 9.1 Where providing a written report on an ESO valuation, the actuary should draw notice to the purpose of the valuation and, where relevant, state that the valuation may not be appropriate for other purposes.
- 9.2 The assumptions and method should be stated clearly and their derivation explained. Any limitations of the method or assumptions should also be clearly stated.
- 9.3 Where the actuary is required to use specific assumptions or methods (other than to comply with specific standards or legislation), the actuary should clearly state the circumstances, discuss whether or not the

assumptions and methods are appropriate, and describe any limitations identified.

- 9.4 The following checklist provides a guide to the matters the actuary would normally consider in preparing a valuation report in this area, but it should not be considered comprehensive.

10. CHECKLIST

1. Identification

- Purpose and circumstances of the valuation
- Date of valuation
- To whom the report is addressed
- Name and qualifications of the actuary
- Date of the report

2. Data

- Design of ESOs
- Company Structure
- Other data
 - Source
 - Accuracy

3. Valuation method

- Description
- Appropriateness
- Limitations

4. Assumptions

- Derivation
- Appropriateness
- Limitations

5. Results

- Valuation results
- Sensitivity to changes in assumptions (if appropriate)

6. Reporting

- Statement of consistency with this Guidance Note (if appropriate)
- Statements required under external standards or legislation.

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