Grant Thornton

Insights into MFRS 2

Basic principles of share-based payment arrangements with employees

Share-based payments have become increasingly popular over the years, with many entities using equity instruments or cash and other assets based on the value of equity instruments as a form of payment to directors, senior management, employees and other suppliers of goods and services.

While the general accounting principles have remained largely unchanged since the introduction of MFRS 2 'Share-based Payment' in 2004, the accounting of share-based payments is an area that is not well understood in practice and entities often have difficulty in applying the requirements to increasingly complex and innovative share-based payment arrangements.

Our 'Insights into MFRS 2' series is aimed at demystifying MFRS 2 by explaining the fundamentals of accounting for share-based payments using relatively simple language and providing insights to help entities cut through some of the complexities associated with accounting for these types of arrangements.

As explained in our article '**Insights into MFRS 2 – What is MFRS 2?**', an entity recognises goods or services received or acquired in a share-based payment arrangement when it obtains the goods or as the services are received. Share-based payment transactions can be settled either via shares or cash. This article discusses the basic principles that apply to both equity-settled and cash-settled share-based payment transactions with employees or others providing similar services. A more detailed explanation of the differences between the accounting treatment for equity-settled and cash-settled share-based payment transactions is discussed in our articles '**Insights into MFRS 2 – Equity-settled share-based payment arrangements**' and '**Insights into MFRS 2 – Cash-settled share-based payment arrangements with employees**' which will be released soon.

Fundamental principles

When an entity enters into a share-based payment arrangement with 'employees or others providing similar services', it needs to determine the following:

- whether the transaction is classified as an equity-settled transaction or a cash-settled transaction or a combination of both (as discussed in our article '**Insights into MFRS 2 – Classification of share-based payment transactions and vesting conditions**')
- whether there are vesting conditions and how they are classified (as discussed in our article '**Insights into MFRS 2 –Classification of share-based payment transactions and vesting conditions**')
- the grant date
- the vesting period, and
- the fair value of the award.

"This article discusses the basic principles that apply to both equity-settled and cash-settled share-based payment transactions with employees or others providing similar services."

Who are 'employees or others providing similar services'?

Employees or others providing similar services:

Individuals who render personal services to the entity and either:
- are regarded as employees for legal and tax purposes
- work for the entity under its direction in the same way as individuals who are regarded as employees for legal or tax purposes, or
- render similar services to those rendered by employees.

'Employees' encompasses all management personnel, ie those persons having authority and responsibility for planning, directing and controlling the activities of the entity, including non-executive directors. This definition captures transactions with individuals who are not employees for legal or tax purposes but who provide services under the entity's direction, similar to those services provided by its employees.

For the remainder of this article and in our other MFRS 2 articles, we use the term 'employees' to refer to 'employees and others providing similar services'.

Determining the grant date

Determining the 'grant date' is important when a share-based payment transaction is between an entity and employees as it is the date at which the transaction is measured.

For share-based payment transactions with employees, the grant date is:

Equity-settled share-based payments	Cash-settled share-based payments
The date on which the fair value of equity instruments granted is measured	The date on which the fair value of the liability is *initially* measured

Definition of 'grant date'

Grant date:

The date at which the entity and another party (including an employee) agree to a share-based payment arrangement, being when the entity and the counterparty have a shared understanding of the terms and conditions of the arrangement. At grant date, the entity confers on the counterparty the right to cash, other assets, or equity instruments of the entity, provided the specified vesting conditions, if any, are met. If that agreement is subject to an approval process (for example, by shareholders), the grant date is the date when approval is obtained.

There are two key components in this definition:

1. Both the entity and the employee are required to:

- 'agree' to the share-based payment arrangement, and
- have a 'shared understanding of the terms and conditions' of the arrangement.

2 Necessary approvals should have been obtained, if applicable

When have an employee and employer 'agreed' to the share-based payment arrangement?

The word 'agree' is used in its usual sense, meaning there needs to be both an offer and an acceptance of that offer. For example, if an entity makes an offer of a share-based payment award to an employee on 1 April 20X0 and the employee accepts the offer on 20 April 20X0, the grant date of the award would be 20 April 20X0.

The acceptance by the employee can be explicit or implicit. For example, an employee may explicitly agree to the offer by formally signing a letter of offer and returning it to the employer. In other cases, the agreement might be implicit, such as when employee acceptance is evidenced by starting to provide their services to the entity, thereby confirming the employee has agreed to the share-based payment arrangement.

When do the parties have 'a shared understanding of the terms and conditions'

In order for both parties to have agreed to a share-based payment arrangement, all relevant terms and conditions must be understood by both parties. In some cases, certain terms and conditions could be agreed upon at one date, with the remaining terms and conditions agreed upon at a later date. In these situations, the grant date will be the later date when both parties have agreed to all of the terms and conditions.

Example 1 – Grant date

Entity A issues share options to an employee on 1 January 20X1, but the exercise price of the options will be determined by the entity's Board of Directors on 25 March 20X1.

Analysis

The grant date is 25 March 20X1, the date on which all terms have been agreed to by Entity A and the employee.

Example 2 – Grant date

On 1 May 20X0, Entity B advises its employees of the terms of an award of options with a vesting date of 30 June 20X2. The award is subject to Board approval which is given on 1 June 20X0. However, in giving such approval, the Board makes some changes to the performance conditions as originally communicated to employees on 1 May 20X0. The revised terms of the award are communicated to the employees on 30 June 20X0.

Analysis

In this case, the grant date is 30 June 20X0 as this is the date on which the revised terms are communicated to the employees and there is a shared understanding of the revised terms between Entity B and its employees.

In some cases, each instalment or tranche of a share-based payment award may have different terms and conditions. When those conditions are not finalised until a later date, each tranche may have a different grant date as a result of both parties not having a shared understanding until that later date.

In certain situations, not all terms and conditions must be finalised in order for both parties to have a shared understanding. For example, a share option agreement may include a formula that determines how the exercise price will be established at some future date, rather than specifying the actual exercise price. If the formula contains only objective factors (eg market price of the shares) and can be calculated consistently by both parties to the agreement, then there is a shared understanding when the parties understand the specific formula or mechanism for determining the exercise price, even though the actual exercise price may not be known until the later date. If the formula contains subjective factors (eg the number of shares to be issued is at the discretion of an entity's board of directors), then a shared understanding cannot happen at the agreement date, but instead would be at that later date when the subjective factor is resolved. Another example would be when a share-based payment award is approved in principle by an entity's board of directors, however, the specific allocation of the award to individual employees has not yet been finalised. In this instance, a shared understanding cannot be achieved.

Determining the vesting period in MFRS 2

As explained in our article, '**Insights into MFRS 2 – Classification of share-based payment transactions and vesting conditions**', share-based payment agreements often contain vesting conditions, which are conditions that determine whether the entity receives the services that entitle the counterparty to receive cash, other assets or equity instruments of the entity. Vesting conditions may be either service conditions or performance conditions (which by definition, includes a service condition).

Vesting period:
The period during which all the specified vesting conditions of a share-based payment arrangement are to be satisfied.

Normally, the vesting period is the period between the grant date and the vesting date.

Employees begin providing services prior to the grant date

In some cases, the grant date may be after the employees have begun rendering services (eg the grant must be formally approved by the appropriate committee, such as a remuneration committee, or board of directors within the organisation or shareholders at a later date). As mentioned in our article '**Insights into MFRS 2 – What is MFRS 2?**', MFRS 2 requires an entity to recognise the services acquired in a share-based transaction as the services are rendered. In this case, the vesting period starts when the employees begin to provide services (ie the 'service commencement date').

When the grant date is after service has already begun, an entity needs to 'estimate' the grant date fair value of the award for the purpose of recognising the services received during the period between the service commencement date and the grant date. There is no specific guidance on how to determine this estimate, but a common method is to use the fair value at the reporting date. The earlier estimate is subsequently revised once the grant date has been established so that the amounts recognised for services received in respect of the awards are ultimately based on the grant date fair value of the award. In our view, this revision of the fair value should be treated as a change in estimate.

Example 3 – Services provided before the grant date

On 1 June 20X0, Entity C advises its employees of the terms of a share option award with a vesting date of 30 June 20X2. The award is subject to shareholder approval which is given at the Annual General Meeting on 31 October 20X0. The grant date in this case is 31 October 20X0 as this is when the necessary shareholder approval takes place.

Analysis

Entity C estimates the fair value of the award on 1 June 20X0 and begins recognising the cost of the services received from that date. On 31 October 20X0, Entity C revises the grant date fair value and treats this revision as a change in estimate.

Example 4 – Services provided before the grant date

Entity D has a long-standing practice of granting share-based payment awards to its key management personnel on an annual basis at the end of the first quarter, upon approval by its Board of Directors. The awards are granted in return for services provided during the full fiscal year (ie commencing January 1).

Analysis

The grant date in this case is the end of the first quarter when the Board approval occurs. Given Entity D's history of granting these awards, key management personnel have an expectation they will receive an award, and they began providing services as of the beginning of the fiscal year. In this situation, Entity D estimates the fair value of the award at the beginning of the year on 1 January 20X0 and begins recognising the cost of the services received from that date. On 31 March 20X0, Entity D determines the grant date fair value and treats this revision as a change in estimate.

Immediate vesting

If the employee is not required to complete a specified period of service before becoming unconditionally entitled to the share-based payment, the share-based payment award vests immediately (ie there is no vesting period). In the absence of evidence to the contrary, there is a presumption that services rendered by the employee as consideration for the award have been received and, on the grant date, the entity recognises the services received in full.

Vesting after completion of specified period of service

If the share-based payment award does not vest until the employee completes a specified period of service, the entity should presume that services will be received during the vesting period and so the entity should account for those services as they are rendered by the employee during the vesting period.

Example 5 – Vesting after specified period of service

Entity E grants an employee share options that are conditional upon completing three years of service. Entity E is required to presume that the services to be rendered by the employee will be received in the future, over that three-year vesting period.

Analysis

Accordingly, the fair value of the award at the grant date is recognised over the three-year period.

Vesting after achievement of a performance condition and variable service period

If the share-based payment award does not vest until a performance condition is achieved, and the employee must continue to be employed until that time, the vesting period varies as it depends on when the performance condition is satisfied. In this case, the vesting period must be estimated at the grant date based on the most likely outcome of the performance condition.

If the condition is a market condition (eg achievement of a particular share price), the estimate of the vesting period is not subsequently revised. If the condition is a non-market condition (eg achievement of a particular earnings threshold, the occurrence of an initial public offering (IPO) or another exit event), the estimate is revised if subsequent information indicates that the vesting period differs from original estimates.

Example 6 – Variable vesting period with market performance condition

Entity F grants an employee share options that are conditional upon the share price reaching a certain target at any point during the next three years. The employee must still be employed at the time the target is met. Entity F estimates that the share price target will be met at the end of the second year and, therefore, the fair value of the award at the grant date is recognised over a two-year vesting period. If during the second year Entity F determines the share price target will not be met by the end of the year, it does not revise the vesting period as the performance condition is a market condition.

Despite the above, when a market performance condition is met earlier than the original estimated vesting period, some entities take the view that the recognition of the expense should be accelerated to the date at which the market performance condition is met. This view is intended to reflect the fact that the entity has received all of the services which it is entitled to in exchange for the awards.

Example 7 – Variable vesting period with non-market performance condition

At the beginning of year one, Entity G grants 100 share options to its CEO, conditional upon the CEO remaining in the entity's employ during the vesting period. The shares options will vest:

- at the end of year one if Entity G's earnings increase by more than 15%
- at the end of year two if Entity G's earnings increase by more than an average of 12% per year over the two-year period, or
- at the end of year three if Entity G's earnings increase by more than an average of 10% per year over the three-year period.

Analysis

The share options have a fair value of CU15 per unit at the grant date. At that date, Entity G expects the most likely outcome is that it will achieve the earnings target by the end of year two. However, mid-way through year two, it becomes clear the target will not be met by the end of year two, but instead will be met by the end of year three. The target is ultimately achieved by the end of year three.

Year	Calculation	Remuneration expense for the period CU	Cumulative expense CU
1	100 share options X 15 X 1/2	750	750
2	100 share options X 15 X 2/3	250	1,000
3	100 share options X 15 X 3/3	500	1,500

In practice, the calculations required by MFRS 2 may be more complex than this example. In particular:

- The final number of instruments that vest will not be known until the vesting date (because employees may leave before the vesting date or other relevant performance conditions may not be met), and/or
- The length of the vesting period may be variable (where vesting depends on satisfying a performance condition with a variable or no time limit).

Graded vesting

In some cases, share-based payment awards may vest in instalments over the vesting period (referred to as 'graded vesting'). For example, an entity might grant an employee 100 share options, which will vest in instalments of 25 share options at the end of each year over the next four years (ie 25 share options vest at the end of year one, another 25 share options vest at the end of year two, etc). MFRS 2 requires the entity to treat each instalment as a separate share option grant (or 'tranche'), because each instalment has a different vesting period and therefore the fair value of each instalment will differ.

Applying the graded vesting method results in a greater proportion of the total cost of the award being recognised in the earlier periods.

Example 8 – Graded vesting

At the beginning of year one, Entity H grants 100 share options to an employee, with only a service condition. 25 share options vest at the end of each year over the next four years. Entity H expects that the employee will remain employed for the full four years.

The fair values of each tranche differ due to their different expected lives (refer to "Determining the fair value" below for an explanation) and are estimated as:

Tranche	Vesting date	Vesting period	Fair value of share option on grant date CU	Fair value of tranche on grant date[1] CU
1	End of year 1	1 year	8	200
2	End of year 2	2 years	14	350
3	End of year 3	3 years	18	450
4	End of year 4	4 years	20	500

[1] Year 1 = 25 options X 8 = 200; year 2 = 25 options X 14 = 350; year 3 = 25 share options X 18 = 450; year 4 = 25 options X 20 = 500

Analysis

Assuming the employee remains employed until the end of the vesting period, the cost recognised for each tranche in each reporting period is:

Tranche	Year 1 CU	Year 2 CU	Year 3 CU	Year 4 CU	Total CU
1	200	–	–	–	200
2	175	175	–	–	350
3	150	150	150	–	450
4	125	125	125	125	500
Total	**650**	**450**	**275**	**125**	**1,500**

Attribution to periods

The cost of the award should be recognised over the vesting period on a straight-line basis. This is also true when the share-based payment award contains both performance and service conditions that have different reference periods. For example, when the award contains a performance condition that applies for a shorter period (eg two years) than the service condition (eg four years), the vesting period is the full service period (eg four years). Based on the general principles of MFRS 2, there is nothing to suggest that any specific emphasis should be placed on the performance condition versus the service condition. In addition, it would be difficult to conclude more services were provided in one period versus another, and therefore we believe the cost of the award should be recognised over the vesting period on a straight-line basis. However, if the shorter condition is not met, the award does not vest and no additional expense is recognised for the remainder of the period of the longer condition. So in the example above, if the performance condition is not met at the end of year two, the award does not vest and no expense is recognised for the remaining service period, even though the employee is still employed.

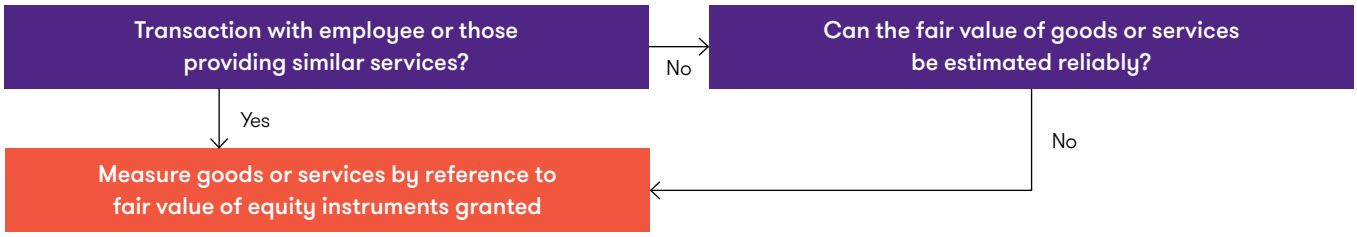
Determining the fair value

Fair value:

The amount for which an asset could be exchanged, a liability settled, or an equity instrument granted could be exchanged, between knowledgeable, willing parties in an arm's length transaction.

MFRS 2 requires that an entity measure share-based payment transactions at the fair value of the goods or services received, unless that fair value cannot be measured reliably. If an entity cannot measure the fair value reliably, it measures the goods or services by reference to the fair value of the equity instruments granted. In the case of transactions with employees, MFRS 2 notes it is usually not possible to measure the services received for specific components of an employee's remuneration package (ie an employee may receive a base salary, bonus, other benefits, and share-based compensation), making it difficult to attribute service to a particular component). Therefore, an entity should measure the fair value of employee services by reference to the fair value of the equity instruments granted as of the grant date.

For share-based payment transactions with parties other than employees, there is a rebuttable presumption the fair value of the goods or services can be estimated reliably. The fair value should be determined at the date the good is obtained or the service is rendered. In the rare circumstances where the entity determines it cannot reliably estimate the fair value of the goods or services, it should measure using the fair value of the equity instruments granted.



The fair value of equity instruments granted is determined as follows:

Market prices are available for equity instruments	Market prices are not available for equity instruments
Estimate of fair value is based on market prices.	Estimate of fair value is determined using a valuation technique.

Note that MFRS 2 has its own requirements for determining the fair value of share-based payments that differ from those in MFRS 13 'Fair Value Measurement' (which specifically excludes share-based payment transactions within the scope of MFRS 2 from its measurement and disclosure requirements).

Valuation of shares

For shares granted to employees, the fair value is measured at the market price of the entity's shares (or an estimate of market price if the shares are not traded), adjusted for any terms or conditions associated with the grant. For example, if the employee is not entitled to dividends during the vesting period or if the shares are subject to restrictions on transfer for a certain period after the vesting date, these factors should be taken into account to the extent it would affect the price a knowledgeable, willing market participant would pay for that share. It is important to note that, if the shares are actively traded in a deep and liquid market, post vesting transfer restrictions may have little, if any, effect on the price a knowledgeable, willing market participant would pay for those shares.

Vesting conditions, or restrictions during the vesting period, are excluded from the measurement of fair value.

Valuation of share options

Share options granted by an entity generally cannot be valued by reference to market prices because it is rare that there are actively traded options over the entity's equity instruments that have the same terms and conditions as share options granted to employees. Therefore, MFRS 2 requires the fair value of options granted to be estimated by using an option pricing model.

Option pricing models reflect that the fair value of an option should take into consideration both its intrinsic value and time value. Intrinsic value is the greater of (i) the share's market (or spot) price less the exercise price of the option (ie the price at which the beneficiary of the option can acquire or sell the shares) and (ii) zero. Time value reflects the potential for the option to increase in value given the expected life of the option and possible changes in the share price during this expected life.

Options are often referred to as 'European', 'American', or 'Bermudan' options. These option categories are defined by their exercisability features:

- European options: exercisable only at the end of its contractual life
- American options: exercisable at any point over its contractual life
- Bermudan options: exercisable at specified periods over its life; employee options are generally Bermudan options because they are usually exercisable at any time after the vesting period has passed until their expiry date.

Entities should consider factors that a knowledgeable, willing market participant would consider in selecting the option pricing model to apply. There are three primary models used to value options:

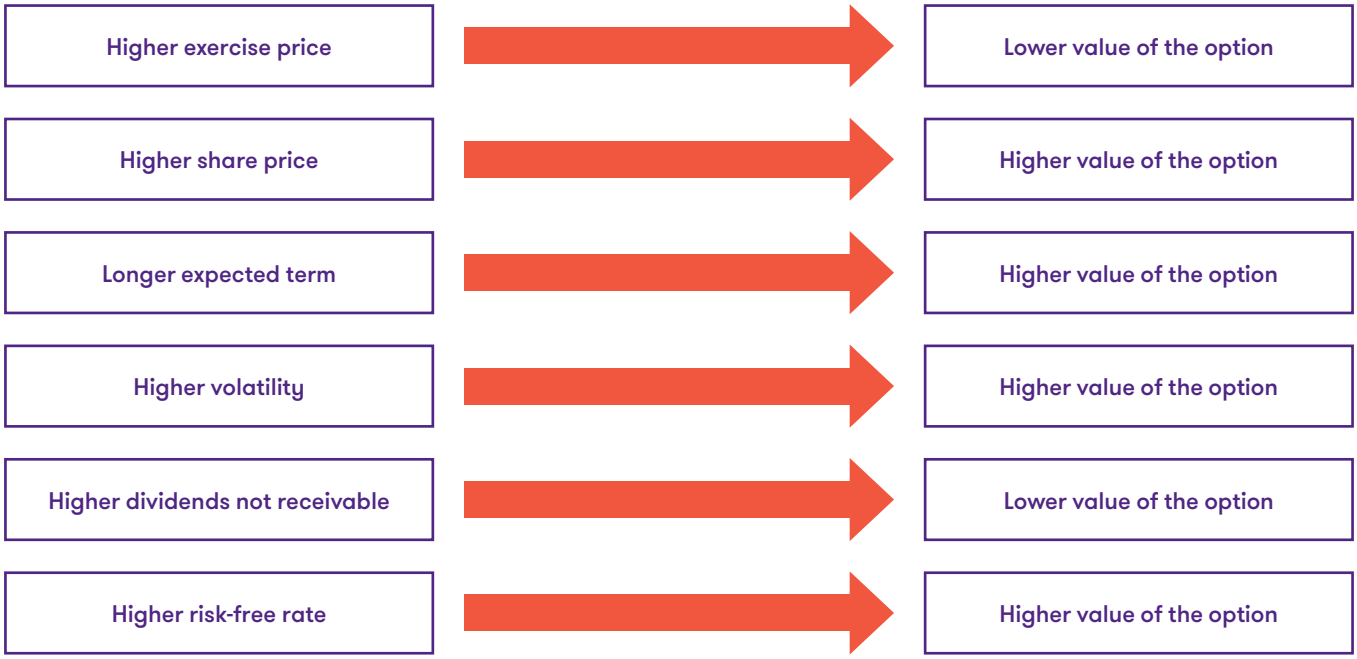
- Closed-form models (eg Black-Scholes-Merton model)
- Lattice models, and
- Simulation models (eg Monte Carlo models).

The fair value determined by these models will be very similar if the same assumptions are used. However, an entity should consider the likelihood of early exercise and complexity of any market conditions or pay-offs when selecting which model to use. For example, closed-form models cannot be used to estimate the fair value of an option with a market condition, and lattice or simulation models are better able to incorporate more complex early exercise behaviour.

All option pricing models take into account, at a minimum, the following factors:

- exercise price of the option
- current price of the underlying share at grant date
- expected term of the option
- expected future volatility of the underlying share price
- expected dividends to be paid on the shares during the life of the option
- risk-free interest rate for the expected term of the option.

These factors have the following impact on an option's value:



Any other factors that a knowledgeable, willing market participant would consider in setting the price should also be taken into account when determining the value of a share option.

Determining the inputs to option pricing models

Of the six minimum inputs used in an option pricing model listed above, only the exercise price of the option and current price of the underlying share can generally be determined objectively. Determining the expected term of the option and expected future volatility can involve significant subjectivity and selecting the appropriate assumption can have a significant effect on the resulting valuation. The objective when estimating the assumptions to be used, is to approximate the expectations that would be reflected in the current market, or that an outside party with access to detailed information would develop. Expectations about the future are generally based on historical experience but should be modified if the future is expected to differ from the past. For example, if an entity disposes of a line of business that was significantly riskier than its other line of business, then historical volatility may not be the best basis for future expectations. When there are a range of reasonable expectations, an expected value should be calculated by weighting each amount by its probability of occurrence.

Appendix A – Determining the inputs to option pricing models

The application guidance of MFRS 2 provides the following additional detail for determining each of the inputs to an option pricing model.

As discussed in the body of this article, all option pricing models take into account, at a minimum, the following factors:

- exercise price of the option
- current price of the underlying share at grant date
- expected term of the option
- expected future volatility of the underlying share price
- expected dividends to be paid on the shares during the life of the option
- risk-free interest rate for the expected term of the option

Exercise price of the option

The exercise price (or strike price) is the price at which the option holder is entitled to acquire the underlying share, subject to satisfying the vesting conditions. In most cases, the exercise price will be a known value defined in the option agreement.

Some entities issue options with a zero exercise price. For zero strike price options, where the holder is entitled to dividends, the fair value will generally equal to the share price and not require the use of an option pricing model. For zero exercise price options where the holder is not entitled to dividends during the life of the option, the fair value of the option will be less than the price of the underlying share because the fair value of a share includes expected future dividends.

Current price of the underlying share at grant date

For a listed entity, the share price used to value an option at the grant date is generally the closing share price on that date. For an entity whose shares are not traded publicly, valuation techniques need to be used to estimate the fair value of the underlying shares by applying MFRS 13.

Expected term of the option

The fair value of an employee share option is based on its expected term (or life) rather than its maximum contractual term. Expected term represents the length of time during which the option is expected to be unexercised and reflects expectations about an option holder's early exercise decisions. Generally, the value of an option is maximised by not exercising until very close to expiry, and therefore employees will not exercise the option until close to the end of the contractual term. However, in some cases, an employee may exercise earlier to take advantage of dividend-paying shares where the dividend payments may be large, or in the case of options for shares with a more volatile share price, the employee may exercise earlier to take advantage of a favourable share price.

In practice, it is common for employees to exercise options early for a variety of reasons, such as the desire to liquidate their position, ceasing employment, risk aversion or wealth diversification. The minimum term of an option is to the end of the vesting period and the maximum term is to the end of the contractual life of the option.

Factors to consider in estimating the expected term include:

- Past history of employee exercise for similar grants
- The period of time between the vesting date and the end of the contractual life of the option
- Expected employee turnover – holders of vested options who cease employment with the entity are generally required to exercise options within a short period thereafter
- The option holder's level within the entity – in general, senior executives can be expected to exercise options later than other employees for several reasons
- The price of the underlying shares – experience may indicate that employees have tended to exercise options when the share price reaches a certain level above the exercise price
- Expected volatility of the underlying shares – options on shares with higher volatility may tend to be exercised earlier than those with lower volatility.

Separating options by groups of recipients with relatively homogeneous exercise behaviour will result in a more accurate estimate of the total fair value of the share options granted.

Expected future volatility of the underlying share price

Expected volatility is a measure of the possible fluctuations in the share price for a given period and has a significant impact on the estimated fair value of an option. It represents the range of possible future returns on a given investment. Zero volatility means that the actual return on an investment will equal its expected return (eg risk-free investments). The higher the volatility, the higher the option value will be as the chances of an option providing a return (ie being in-the-money) increases.

The measure of volatility used in option pricing models is the annualised standard deviation of the continuously compounded rates of return on the share over a period of time. Volatility is typically expressed in annualised terms that are comparable regardless of the time period used in the calculation, for example, daily, weekly or monthly price observations.

The expected annualised volatility of a share is the range within which the continuously compounded annual rate of return is expected to fall approximately two-thirds of the time. For example, to say that a share with an expected continuously compounded rate of return of 12% has a volatility of 30% means that the probability that the rate of return on the share for one year will be between -18% (12% – 30%) and 42% (12% + 30%) is approximately two-thirds. If the share price is CU100 at the beginning of the year and no dividends are paid, the year-end share price would be expected to be between CU83.53 (CU100 × $e^{-0.18}$) and CU152.20 (CU100 × $e^{0.42}$) approximately two-thirds of the time.

The factors to consider in estimating expected volatility may include:

- The implied volatility from traded share options on the entity's shares, or other traded instruments of the entity that include option features (such as convertible debt), if any
- The historical volatility of the share price over the most recent period that is generally commensurate with the expected term of the option (taking into account the remaining contractual life of the option and the effects of expected early exercise)
- The length of time an entity's shares have been publicly traded. A newly listed entity might have a high historical volatility, compared with similar entities that have been listed longer. Further guidance for newly listed entities is provided below
- The tendency of volatility to revert to its mean, ie its long-term average level, and other factors indicating that expected future volatility might differ from past volatility. For example, if an entity's share price was extraordinarily volatile for some identifiable period of time because of a failed takeover bid or a major restructuring, that period could be disregarded in computing historical average annual volatility, and
- Appropriate and regular intervals for price observations. The price observations should be consistent from period to period. For example, an entity might use the closing price for each week or the highest price for the week, but it should not use the closing price for some weeks and the highest price for other weeks. Also, the price observations should be expressed in the same currency as the exercise price.

Expected future volatility for a newly listed entity

As noted above, an entity should consider the historical volatility of its share price over the most recent period that is generally commensurate with the expected option term. If a newly listed entity does not have sufficient information on its historical volatility, it should nevertheless compute historical volatility for the longest period for which trading activity is available. It could also consider the historical volatility of similar entities following a comparable period in the comparable entity's life cycle. For example, an entity that has been listed for only one year and grants options with an average expected life of five years might consider the pattern and level of historical volatility of entities in the same industry (and in the same life stage, such as development) for the first six years in which the shares of those entities were publicly traded.

Expected future volatility for an unlisted entity

An unlisted entity will not have historical information to consider when estimating expected volatility. MFRS 2 states in some cases, an unlisted entity that regularly issues options or shares to employees (or other parties) might have created an internal market for its shares, in which case the volatility of those share prices could be considered when estimating expected volatility. Alternatively, the entity could consider the historical or implied volatility of similar listed entities to use when estimating expected volatility. This would be appropriate if the entity has based the value of its shares on the share prices of similar listed entities.

If the entity has instead used another valuation methodology to value its shares, the entity could derive an estimate of expected volatility consistent with that valuation methodology. For example, the entity might value its shares on a net asset or earnings basis. It could consider the expected volatility of those net asset values or earnings.

Expected dividends to be paid on the shares during the life of the option

The treatment of expected dividends when measuring the fair value of shares or options granted depends on whether the option holder is entitled to dividends or dividend equivalents. An example of a dividend equivalent is a reduction of an option's exercise price by the amount of a dividend, or the issuance of an incremental number of options equivalent to the value of the dividend.

If employees have options where they are entitled to dividends or dividend equivalents on the underlying shares between the grant date and exercise date, the options granted should be valued as if no dividends will be paid on the underlying shares, ie the input for expected dividends should be zero. This is because these options have a dividend protection feature that protects the option holder from the decline in the share price, and therefore the decline in the value of the option, that occurs when a dividend is paid.

Conversely, where employees are not entitled to dividends or dividend equivalents during the vesting period for shares, or between grant date and exercise date for options, the grant date valuation should take expected dividends into account. In this case, the option holder is worse off by the payment of the dividend because the share price will have fallen, therefore affecting their ability to participate in higher returns on the option due to share appreciation. As a result, the fair value of the share-based payment award should be reduced by the present value of dividends expected to be paid during the vesting period.

Option pricing models generally use an expected dividend yield but may be modified to use an expected dividend amount instead. If an entity uses an expected dividend amount, it should consider its historical pattern of increases in dividends. For example, if an entity's policy has generally been to increase dividends by approximately 3% per year, its estimated option value should not assume a fixed dividend amount throughout the option's life unless there is evidence that supports that assumption.

Assumptions about the dividend yield should be based on publicly available information. An entity that does not pay dividends and has no plans to do so should assume an expected dividend of zero. However, a new entity that has no history of paying dividends but plans to start during the life of their employees' options could use an average of their past dividend yield (zero) and the mean dividend yield of a comparable peer group.

Risk-free interest rate for the expected term of the option

The risk-free interest rate used in an option pricing model is usually the implied yield currently available on zero-coupon government issues of the country in whose currency the exercise price is expressed, with a maturity equal to the expected term of the option being valued (based on the option's remaining contractual life and taking into account the effects of expected early exercise).

If no such government issues exist or circumstances indicate that the implied yield on zero-coupon government issues is not representative of the risk-free interest rate (for example, in high inflation economies), it may be necessary to use an appropriate substitute. For example, an entity could use the yield of government issues of another risk-free country, after adjusting for inflation differentials between that country and the country in whose currency the exercise price is stated.

How we can help

We hope you find the information in this article helpful in giving you insight into aspects of MFRS 2. If you would like to discuss any of the points raised, please speak to your usual Grant Thornton contact.

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