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# Valuation of incentive performance rights for financial reporting under AASB2

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# KEY TAKEAWAYS

## Performance rights are all about satisfying performance conditions

Making the vesting of rights/options subject to the satisfaction of performance hurdles lies at the heart of long-term incentive awards. It is imperative that the valuation of awards captures the influence of these hurdles.

While the Black Scholes method is commonly used to value Long Term Incentive (“LTI”) awards, it is not an appropriate methodology if vesting of rights/ options is subject to performance hurdles. This is particularly pertinent when performance conditions are written around market-based hurdles (e.g., Total Shareholder Return (“TSR”) and share price uplift).

We therefore recommend a Monte Carlo (“MC”) approach which captures the influence of the all-important performance hurdles that are written into the remuneration plans.

## It is important to get the valuation right up front

Since Black-Scholes ignores performance hurdles like TSR, it inevitably overvalues the LTI awards. As such, this not only fails to capture the fair value as required by AASB 2, but also results in an overstatement of share-based payment expense.

Further, when performance hurdles are market-based conditions (e.g., TSR), AASB 2 (paragraph 23) does not permit subsequent accounting adjustments if rights do not vest.

Accordingly, it is imperative to get the valuation right at the outset on grant date.



# AASB2 AND OPTIMAL VALUATION METHODS

Accounting Standard AASB2 Share Based Payment requires an entity to reflect in its profit or loss and financial position the effects of share-based payment transactions, including expenses associated with transactions in which share options are granted to employees.

AASB 2 (paragraph 17) requires the fair value of share-based payments to be estimated using a valuation technique which indicates what the price of those equity instruments would have been on the measurement date in an arm's length transaction between knowledgeable, willing parties.

The valuation technique must be consistent with generally accepted valuation methodologies for pricing financial instruments.

# SHARE BASED PAYMENTS

## Share based payments

Share-based payments offered under employee incentive schemes may include options, shares and performance rights.

Performance rights are the most common form of share based payment in Australia, because they require the employee to meet certain criteria before the rights can be exercised, thereby (hopefully) driving the desired performance.

## Valuation approaches for different share based payments

Under AASB2, the valuation technique must be consistent with generally accepted valuation methodologies for pricing financial instruments.

- For shares, the company's share price is used, or, where no reliable share price data is available, a share value is typically determined using the discounted cash flow ("DCF") approach.
- For simple European-style options, the Black Scholes method may be applicable. However, if the options have market-based vesting conditions (such as total shareholder return hurdles), the Black Scholes approach is inappropriate. In such cases, MC simulation is required.
- Performance rights have unique characteristics which make it difficult to use standard valuation approaches, such as performance hurdles. We therefore recommend a MC simulation approach to value performance rights.



# PERFORMANCE RIGHTS

## Performance rights

A performance right is similar to a zero exercise price option (“ZEPO”) because it is a right to acquire shares for no payment. It is different to a ZEPO however, because it contains vesting conditions which must be met in order for the right to be exercised. AASB 2 (paragraphs 19-21) describe how vesting/performance conditions should be treated in the valuation. It distinguishes between “market-based” vesting conditions and “non-market-based” vesting conditions. For the purpose of estimating the fair value of equity instruments granted, AASB 2 treats market- and non-market-based conditions differently.



### Market based conditions

Market-based conditions depend in some way on the market price of the entity’s shares. For example, a performance condition may be written on a target share-price uplift or TSR hurdle for the entity. Further, a market-based condition may also depend on the market prices of other stocks. For example, a relative performance hurdle may compare the TSR of the entity and a group of peer stocks.

The impact of market-based conditions on fair value is incorporated directly in the valuation of equity. *For example, the value of an FY17 performance right is \$50 and 50% are expected to vest.*

When performance hurdles are market-based conditions, AASB 2 (paragraph 23) does not permit subsequent accounting instruments adjustments if rights do not vest.



### Non market based conditions

Non-market-based conditions include all other vesting conditions. Common examples are time-based service conditions, and targets based on accounting numbers (such as earnings per share).

Non-market-based conditions are valued as if no vesting conditions exist (i.e., at their “unhurdled” value), but then the vesting conditions are reflected in estimation of the number of instruments expected to vest. *For example, the value of an FY17 performance right is \$50 and 50% are expected to vest.*

The number of instruments expected to vest can be updated over time.

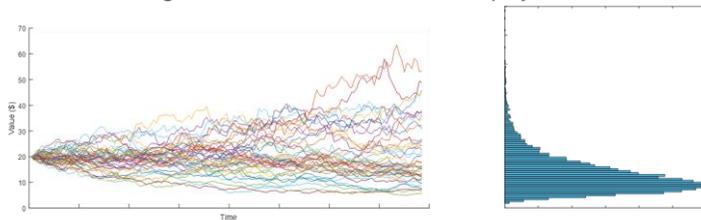
# VALUING PERFORMANCE RIGHTS

## Valuation approach for performance rights

AASB 2 requires the use of a valuation technique consistent with generally accepted valuation methodologies for pricing financial instruments.

For many Performance Rights valuations, the well-known Black-Scholes model is inappropriate. The Black-Scholes formula applies only to call options that cannot be exercised before expiry (i.e., European-style options). The Black-Scholes model does not accommodate a vesting period, a performance hurdle, nor the considerable complexity induced when relative performance needs to be taken into account. As the Black Scholes method does not accommodate a performance hurdle, it tends to overstate value. Therefore, a Black-Scholes valuation is unlikely to be appropriate under AASB 2.

In our view, the Monte Carlo (“MC”) simulation approach is the most appropriate approach to valuing performance rights. MC simulation is a flexible and well-accepted approach to valuing derivative securities, including employee stock options, performance rights and other share-based payments.



## MC Approach

The MC approach simulates many time-series paths of the underlying asset assuming that the share price evolves according to the geometric Brownian motion model.

The simulated price paths are calibrated to historical data (e.g., stock volatility and dividend payments) so that they are a plausible representation of possible future paths. For any given simulated path, one can estimate if the option will be in the money, whether the employee will exercise it, and what the payoff will be. The options are valued for that particular path by discounting the option payoff to present value.

The entire simulation/valuation process described above is repeated many times. Each simulation represents a plausible, yet different, outcome. By simulating many possible paths, the valuer is able to estimate the probabilities and expectations mentioned above. The value of the option is calculated as the average over all simulation runs.

It is important to understand that MC simulation is not an attempt to predict the future share price – this is impossible. Rather, the MC approach simulates plausible future share-price paths. By repeating the simulation process many times, the valuer quantifies the probabilities and expected payoffs highlighted above.

# EXTENDED MC APPROACH

## Valuing performance rights with relative performance criteria

In many cases, the criteria associated with performance rights reflect relative performance. For example, a very common approach in Australia is for listed companies to determine the percentage rights that will vest depending on the total shareholder return (“TSR”) of the company relative to a specified comparator group. In this case, an extension of the MC approach is required.

### Extended MC Approach

When relative performance criteria are applied to performance rights, the statistical questions being asked are more difficult. For example, the valuer must estimate the likelihood that the TSR hurdle will be achieved, the expected proportion of total Rights that will vest (which depends on the benchmark group’s TSR), and the expected value of the underlying shares on vesting.

To quantify these probabilities and expectations, we recommend an extension of the MC simulation approach as outlined by Carrett and Wong (2002), Gray (2006) and Gibson and Hogan (2006).

In theory, simulating price paths for multiple stocks is no more difficult than simulating for a single stock. However, it is crucial that the relationship between the Company and other stocks is plausible/realistic.

## Extended MC Approach, continued

For example, if certain stocks tend to move together in practice, then the simulated prices must also reflect this correlation. This can be achieved by estimating the covariance (or correlation) matrix between the Company and the benchmark group of stocks.

Once the covariance matrix is estimated, the prices of the Company and the benchmark stocks are simulated out to the vesting date.

On any given simulation run, the valuer can assess to what extent (if any) the Company meets the TSR performance hurdle, calculate how many Rights vest, and estimate the Company share price at that date. Hence, the value of the Rights shares can be estimated for that particular simulation run. Repeating this process many times and averaging the estimated Rights value provides the required valuation.

### Conclusion

MC simulation is a popular and well-accepted approach to valuing a wide range of derivative securities. It is sufficiently flexible to accommodate the unique features of the Company’s Performance Rights. By simulating the TSR of the Company and the benchmark stocks, the MC simulation satisfies AASB 2 (paragraph 21) by factoring the market-based vesting conditions directly into the Valuation Approach.

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#### References

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