

Demystifying Employee Stock Option Plan (ESOP) Accounting

ESOPs are employee benefit plans under which employees are granted an option (but not the obligation) to purchase their company's shares at a pre-determined price known as the exercise price. ESOPs are usually issued at a price lower than the current market price though sometimes listed companies issue ESOPs at the current market price to link employees' earnings to the organisational goal of increasing shareholders wealth.

By giving an ownership interest in the company, employers use ESOPs as a methodology to align employees interests with that of its shareholders and hence, maximize the overall shareholder's wealth.

Guidance for ESOP valuations in India

The following table summarises the various guidelines issued for ESOP valuations:

Particulars	Guidelines	Applicability	Emphasis – Fair Value/Intrinsic Value Accounting?
SEBI Guidelines	SEBI Employee Stock Option Scheme & Employee Stock Purchase Scheme Guidelines, 2014	Companies whose shares are listed on a recognised stock exchange in India	<ul style="list-style-type: none"> Fair Value or Intrinsic Value accounting. Mandatory disclosures of Fair value impact.
IGAAP	Guidance Note on Accounting for Share-based Payments issued by ICAI, 2020	Companies following Accounting Standards Rules, 2006	<ul style="list-style-type: none"> Fair Value or Intrinsic Value accounting. Mandatory disclosures of Fair value impact.
	Ind AS 102	Companies falling under the purview of Indian Accounting Standards – listed or non-listed	Fair Value Accounting and Disclosures
IFRS	IFRS 2	Both listed and non-listed companies	Fair Value Accounting and Disclosures
US GAAP	ASC 718	Both listed and non-listed companies	Fair Value Accounting and Disclosures

Accounting Valuation methods – Fair Value or Intrinsic Value Accounting?

As per **para 10 and 11 of Ind AS 102**, equity-settled share-based payments are required to be valued on a fair value basis as on the date of grant of such options. The **fair value** is a price at which the option would be purchased in an open market as on the grant date.

To put it simply:

$$\text{Fair Value} = \text{Intrinsic Value (Market Price – Exercise Price)} + \text{Time Value (Potential gain in Share Price)}$$

ESOP expenses are recognised as a charge to the Income Statement over the vesting period on a straight-line basis for the numbers of equity instruments that are expected to ultimately vest.

On the contrary, **Intrinsic Value** is the difference between the fair value (quoted market price) and the exercise price of an option. However, in the case of a non-listed company, the fair value shall be determined by an independent valuer.

Expense recognised using an intrinsic value method will always be lower than the Fair value method, as time value is completely ignored in the Intrinsic value method. Companies following the Intrinsic value method of accounting need to disclose fair value disclosure and impact on EPS if the Fair value method of accounting would have been applied for expense recognition.

Consider an example:

A company grants its employee 1,000 stock options at an exercise price of INR 50 and having a vesting period of 3 years. The current market price as of the date of the grant is INR 70. Thus, the intrinsic value of each option is INR 20. Considering a vesting period of 3 years and expecting all 1,000 options to vest, the company would have to recognise INR 6,667 (i.e., 20,000/3) as ESOP expense in each of the 3 years. Contrary to this, if the current market price of the share would have been INR 50, Compensation expense will be zero as the intrinsic value is zero.

However, in such scenarios, wherein fair value accounting is adopted, expenses would be recorded at fair value which will always non zero number even if the intrinsic value is zero.

Determination of fair value of stock options

As per Ind AS 102, 3 methods can be used to estimate the fair value of the options – **Black- Scholes model**, **the Binomial/Lattice model**, and **the Monte- Carlo simulation model**. Amongst the three, **Black-Scholes model** is a widely applied method by Indian listed and non-listed entities. However, here, we will be focusing primarily on Black-Scholes and Binomial model.

Black-Scholes Model

A closed-form model uses a formula to produce an estimated fair value of the option.

$$C_t = N(d_1)S_t e^{-q(T-t)} - N(d_2)K e^{-r(T-t)}$$

where,

$$d_1 = \frac{\ln\left(\frac{S_t}{K}\right) + (r - q + \frac{\sigma^2}{2})(T-t)}{\sigma\sqrt{T-t}} \quad \text{and}$$

$$d_2 = d_1 - \sigma\sqrt{T-t}$$

S_t = Stock price at time t
 N = Cumulative Standard Normal distribution
 K = Exercise price
 r = risk-free rate of interest
 q = Annualised Dividend Yield
 σ = Annualised volatility
 $T-t$ = Time to expiration

Binomial Model

A more robust method and an iterative procedure that projects the stock prices at each node in the tree and fair value is estimated from node to node.

$$u = e^{\sigma\sqrt{t}} \quad d = e^{-\sigma\sqrt{t}} = \frac{1}{u}$$

$$p = \frac{e^{(r-q)t} - d}{u - d}$$



u = up-factor
 d = down-factor
 p = up-probability
 σ = Annualised volatility
 r = risk-free rate of interest
 $t = T/n$, where T = time to expiration
 & n = no. of steps
 q = Annualised dividend yield

Basis	Black Scholes Model	Binomial Model
Exercise behaviour	Only one point of the exercise is assumed.	The probability of exercise is assumed at each node in the tree.
Assumptions	Assumptions are considered constant over the expected life of the option.	Dynamic assumptions can be used.
American options & European options	Works well with European options only (as an early exercise of the option is not modelled)	Suitable for both types of options.

Data and Assumptions

ESOP valuations require several assumptions to be used which in turn might vary depending on the model being used for the valuation. However, Indian Accounting Standard requires option pricing models to consider the following inputs:

Data

- Grant date
- Strike/Exercise price
- Term of the option
- Vesting date of option
- Share price of the option as on grant date.
- Documented ESOP scheme of the company
- Active employees ESOP data as on grant date

Assumptions

- Expected volatility of the option.
- Expected Dividend yield
- Expected Attrition rate
- Annualized risk-free rate of interest.
- Expected number of years to exercise from the grant date.

Illustration

Consider the following example:

Grant date	01-07-2021
Exercise price	70
Current share price	100
Vesting period	2 years
Attrition rate	10% p.a.
No. of employees	100
No. of ESOPs to each employee	1000

Additional details:

- ESOPs Fair value is INR 40/- as per Black Scholes Method
- Face value per share is INR 10/-
- Accounting as per Fair Value Method
- The actual Attrition rate is in line with the expected attrition rate
- At end of vesting 75,000 vested options were exercised and 6,000 options lapsed.

	Amount in INR
No. of options expected to vest as on 01-07-2023	81,000 $(1000 \times 100 \times (0.90)^2)$
Total expected cost to be recognised	3,240,000 $(81,000 \times 40)$

The expense is then recognised on a straight-line basis over the vesting period.

Year	Calculation	Compensation expense for the year	Cumulative expense
31-03-2022	$3,240,000 \times (0.75/2)$	1,215,000	1,215,000
31-03-2023	$3,240,000 \times (1.75/2) - 1,215,000$	1,620,000	2,835,000
01-07-2023	$3,240,000 \times (2/2) - 2,835,000$	405,000	3,240,000

Date	Particulars	Debit (Rs.)	Credit (Rs.)
31-03-2022	ESOP Expense A/c To ESOP Outstanding Reserve A/c	1,215,000	1,215,000
31-03-2023	ESOP Expense A/c To ESOP Outstanding Reserve A/c	1,620,000	1,620,000
01-07-2023	ESOP Expense A/c To ESOP Outstanding Reserve A/c	405,000	405,000
01-07-2023 (75,000 options exercised)	Bank A/c (75,000 * 70) ESOP Outstanding Reserve A/c (75,000 * 40) To Equity Share capital A/c (75,000*10) To Share Premium A/c (Balance Figure)	5,250,000 3,000,000	750,000 7,500,000
01-07-2023 (6,000 options lapsed)	ESOP Outstanding Reserve A/c (6,000 * 40) To General Reserve A/c	240,000	240,000

Graded Vesting

Employee stock options with a graded vesting schedule (for example, 25 per cent vesting each year over four years) are treated, in essence, like multiple grants and the fair value of each grant is amortised over the respective vesting period (the separate grant approach). Under the separate grant approach, the cost in the first year would include 100 per cent of the costs relating to the 25 options vesting in year 1; 50 per cent of the costs relating to the 25 options vesting in year 2; 33 per cent of the costs relating to the 25 options vesting in year 3; and 25 per cent of the costs relating to the 25 options vesting in year 4.

Expense	Year 1	Year 2	Year 3	Year 4	Total
Vesting Tranche 1	25.00				25.00
Vesting Tranche 2	12.50	12.50			25.00
Vesting Tranche 3	8.33	8.33	8.34		25.00
Vesting Tranche 4	6.25	6.25	6.25	6.25	25.00
Total	52.08	27.08	14.59	6.25	100.00

Thus, approximately 52 per cent of the total cost of the 100 options will be expensed in year 1.

As per the current Guidance Note on Accounting for Share-based Payments issued by ICAI, 2020 and Ind AS 102 for ESOP granted as per graded vesting recognition of expenses needs to be done as per separate grant approach.

Contrary to this, in earlier Accounting for Share-based Payments issued by ICAI, 2005 employee stock options with a graded vesting schedule are accounted for either as separate grants or a single grant, as selected by the entity.

Under the Single Grant approach, the cost is generally recognised on a straight-line basis over the full vesting period. So, only 25 per cent of the total cost will be expensed in year 1 as against 52% recognised in a separate grant approach.

The total cost recognised over the four years remains the same under both approaches.

Conclusion

ESOP Accounting is a two-step process where first we need to determine the Fair value of each ESOP as per the selected method and consider suitable assumptions in discussion with the company and next step is to amortise the expenses of ESOP over vesting period for the numbers of equity instruments that are expected to ultimately vest.

The company should carefully consider the assumptions to be used for ESOP fair value determination. For example, Company A faces a historical behaviour wherein the employees exercise the option as soon as it is vested, whereas, in the case of Company B, employees do not exercise the option until they are about to expire. Thus, both companies would require different assumptions while valuing its ESOP.

As per the internal survey project conducted through Mumbai University Actuarial Students in collaboration with our team, it was seen that from a sample of 50+ mid-cap companies that:

- Approximately 50% companies have issued ESOPs, and almost all companies are equity-settled payments.
- The Black Scholes model is widely used as an option pricing formula compared to Binomial and Monte Carlo simulation.
- In some companies (Banks) Intrinsic value method of accounting was followed.

As the ESOP Expense calculation requires certain scientific tools to be used and other demographic assumptions are applied in estimating expense, companies usually prefer to obtain an Actuarial Valuation for the same.

If you have any queries about this publication or would like to discuss about any employee benefits related matter, such as actuarial valuations and related advice for Pension Scheme, Gratuity and Leave schemes, please get in touch with us at:

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