

Employee Stock Option Cost Optimisation

Given the asymmetric payout possibilities in an “at the money” option, a considerable number of companies in India don’t use “grant date fair value” approach when determining the number of stock options. Instead, they often use an “expected gain approach” which captures the shareholder expectations in the price increase (e.g., share price CAGR at least equal to Cost of Equity). Such scenarios, presents an opportunity for cost optimization on stock compensation expense.

One of the elements in option fair valuation models (e.g., Black-Scholes or Binomial) is volatility of the underlying stock. Volatility stands as a crucial factor in the computation of the fair value of stock options, particularly for at-the-money stock options. The SEBI SBEB and Sweat Equity Regulations, 2021 does not specify which price to use to calculate the volatility. It, however, does require companies to disclose expected volatility and how expected volatility was determined, including an explanation of the extent to which expected volatility was based on historical volatility. Similarly, IND AS -102 require companies to be consistent on price observations but does not specify using the closing price only. Consequently, the question arises regarding the potential advantages of considering Volume Weighted Average Price (VWAP) as opposed to Closing Prices in determining volatility.

After conducting an analysis of data encompassing NIFTY 50 companies, it was observed that, across multiple expected exercise periods, volatility derived using VWAP was consistently lower for all 50 companies in comparison to volatility computed using closing price. The following table shows the average volatility for these 50 companies, derived using VWAP and closing prices.

Expected Option Life	Closing Price Volatility	VWAP Volatility	Differential
4 Years	34.49%	30.30%	4.19%
5 Years	33.50%	29.57%	3.93%
6 Years	32.44%	28.79%	3.65%
7 Years	31.75%	28.28%	3.47%
8 Years	31.62%	28.12%	3.49%

To measure the impact on fair value calculation, the Black-Scholes and Binomial models were used for "at the money" options over various exercise periods. We assumed a dividend yield of 1% for our calculation.

Over various expected exercise periods, we found that the fair value of options, based on VWAP volatility, was on an average 2.3% lower compared to fair value calculated using closing price volatility. This presents a significant cost-saving opportunity for companies that don’t use fair value of an option to determine the number of options (they in-fact may be better off using closing price volatility which can eventually bring down the dilution). Lower fair value valuation is consistent across both Black-Scholes and Binomial models (see tables below).

Expected Option Life	Dividend Yield	Risk-free Rate	Fair Value Black Scholes Closing Price Volatility	Fair Value Black Scholes VWAP Volatility	Difference in Black Scholes fair Value
4 Years	1%	7.34%	35.25%	32.76%	2.49%
5 Years	1%	7.39%	39.01%	36.60%	2.41%
6 Years	1%	6.65%	40.53%	38.15%	2.38%
7 Years	1%	7.45%	45.00%	42.86%	2.14%
8 Years	1%	7.73%	48.47%	46.39%	2.08%

Expected Option Life	Dividend Yield	Risk-free Rate	Fair Value Binomial Closing Price Volatility	Fair Value Binomial VWAP Volatility	Difference in Binomial Fair Value
4 Years	1%	7.34%	35.19%	32.72%	2.47%
5 Years	1%	7.39%	38.96%	36.56%	2.40%
6 Years	1%	6.65%	40.48%	38.11%	2.37%
7 Years	1%	7.45%	44.96%	42.83%	2.13%
8 Years	1%	7.73%	48.43%	46.36%	2.07%

Note: Companies should take view from their accounting advisors before implementing any change in the methodology for recognition of stock compensation cost. This analysis is from academic view only.