>algofin ag
consulting and research

# Employee Stock Option Valuation

www.algofin.ch

## Valuation of Employee Stock Options

Algofin AG provides a range of services in the area of valuation and hedging of complex financial derivatives. A particular strength is the field of employee compensation plans, where we have advised and supported numerous listed firms. Our services take place before, at, and post grant (see Figure 1).

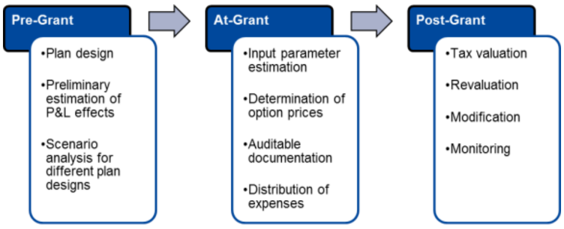


**Figure 1: Algofin Employee Stock Option Valuation**

### Services prior to Grant Date

Algofin AG maintains a focus on the quantitative aspects of grant design. Once the qualitative features have been determined, we offer sensitivity analyses to determine the most suitable and cost-efficient grant design. For some clients, we provide indicative pricings prior to grant date to assist in matching the plan budget with the number of units to be issued.

### Valuation at Grant Date

Algofin AG provides IFRS 2 and ASC 718 (formerly: FASB 123(R)) compatible valuations of employee compensation plans. Our expertise is the valuation of restricted stock units, stock appreciation rights, and employee stock options. We use a sophisticated, in-house developed binomial model, which is capable of accounting for a variety of common plan characteristics. The precise modelling of the plan features generally results in a substantially lower fair value relative to the ubiquitous Black-Scholes valuation.

### Services after Grant Date

IFRS 2 and ASC 718 require that the fair value of restricted stock units and employee stock options be expensed. Algofin AG has developed tools that assist clients in determining period expenses using the modified grant date method. We further provide valuations of stock option plans for tax purposes.

## The EA-Model®

To determine the fair value of employee stock options, Algofin AG employs the Enhanced American Model (EA-Model®) by Ammann and Seiz, which is published in the Financial Analyst Journal (Vol. 60, No. 5, 2004) and Financial Markets and Portfolio Management (Vol. 19, No. 4, 2005), and widely recognized as IFRS 2 and ASC 718 compatible.

The EA-Model® is a flexible lattice model that accounts for a number of features specific to employee stock options. These features include the vesting period, post-vesting employment termination and non-transferability of granted options. All of them affect the early exercise behaviour of plan participants. By properly reflecting early exercise behaviour, the EA-Model® generally attains lower fair values than the standard option pricing models (see Figure 2).

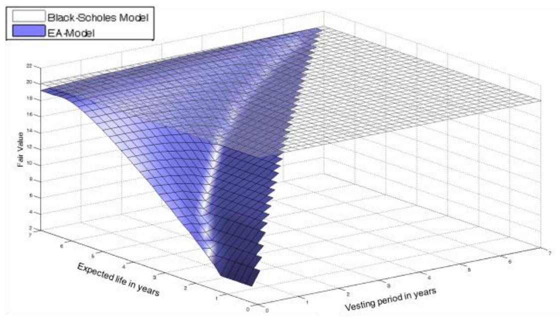


**Figure 2: Valuation with EA-Model® and Black-Scholes Model**

The above figure illustrates the valuation advantage of the EA-Model® over the Black-Scholes Model for a range of vesting periods and expected lifetimes.

## Next Steps

We're looking forward to offering our services at a competitive price. For further information on our services, competences and references, please visit our homepage, www.algofin.ch. For individual requests, please use our e-mail address, info@algofin.ch, or our phone number, +41 71 558 53 30.

**Algofin AG**

| | |
|---|---|
| Partner: | Prof. Dr. Manuel Ammann |
| | Dr. Hagen Wittig, CFA |
| Address: | Webergasse 15, CH-9000 St. Gallen |
| Phone: | +41 71 558 53 30 |
| Mail: | info@algofin.ch |
| Web: | www.algofin.ch |