



# FAS 123R Valuation Consulting Services

Montgomery Investment Technology, Inc. provides a comprehensive range of valuation consulting services for compliance with FASB Standard 123R and SEC Staff Accounting Bulletin 107.

## 1. Fair Value of Share-Based Payment Awards

- A. Employee Stock Options
- B. Restricted Stock with conditions
- C. Market Condition Awards
  - 1. Total Shareholder Return (TSR)
  - 2. Price Target
  - 3. Capped Options
  - 4. Indexed Options
  - 5. Out-performance Options
- D. Performance Condition Awards
  - 1. EPS Target
- E. ESPP Awards with option feature
- F. Warrants

## 2. Valuation Methods

- A. Black-Scholes-Merton
- B. Cox-Ross-Rubinstein Binomial
- C. Lattice (Binomial and Trinomial) with Exercise Behavior overlay
- D. Monte Carlo Simulation (multiple assumptions and unique features)
- E. Gram-Charlier (non-normality)
- F. Ingersoll (executive awards)

## 3. Expected Term

- A. SEC Staff Accounting Bulletin 107 Simplified Formula
- B. Average Time Outstanding
  - 1. Based on historical option transactions to date plus projected transactions
    - a. Exercises
    - b. Forfeitures (post-vest)
    - c. Expires
  - 2. Implied Expected Term using Black-Scholes-Merton
- C. Suboptimal Exercise Factor
  - 1. Based on historical exercise multiple plus projected transactions
- D. Implied Expected Term
  - 1. Derived from Lattice Model
  - 2. Derived from Monte Carlo Method

## 4. Expected Forfeiture

- A. Pre-Vest Forfeiture Rate from historical transactions
  - 1. Required for Net Cost true-up calculation
- B. Post-Vest Forfeiture Rate from historical transactions
  - 1. Required for Fair Value calculations using all models
- C. Expected Forfeiture based on historical transaction plus qualitative factors
  - 1. Annual rate
  - 2. Annual rate applied to vesting schedule to arrive at composite rate



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## 5. Expected Volatility

### A. Volatility Analysis

#### 1. Historical Volatility

- a. Daily, weekly and monthly data collection
- b. Data validation
- c. Dividend adjusted prices
- d. Return basis: Interval vs. Time
- e. Horizon methods
- f. Mean-Reversion
- g. EWMA
- h. Moving Average Volatility

#### 2. Implied Volatility

- a. Short-dated and long-dated expirations
- b. In-the-money and out-of-the money options
- c. Warrants
- d. O-T-C derivatives

### B. Peer Group Volatility

#### 1. Historical Volatility, Implied Volatility, Expected Volatility

### C. Time Series Analysis

#### 1. Identification of Outliers using six statistical methods to highlight:

- a. Unique periods of extreme volatility
- b. Time periods responsible for non-normal returns

#### 2. Qualitative Analysis of data identified by the Outlier statistical tests

#### 3. Test Black-Scholes-Merton assumption for normal return distribution

- a. Skewness, Kurtosis, Autocorrelation

#### 4. Adjusted Historical Volatility

### D. Expected Volatility Analysis

1. Weighted Scenarios based on Historical, Implied and Peer Volatilities
2. Volatility Term Structure

## 6. Price Targets

### A. Probability of Expected Stock Prices on a Given Date

1. Below a specified value
2. Above a specified value
3. Between two specified values

## 7. Expected Growth Rate of Company

### A. Historical return calculations

### B. Capital Asset Portfolio Model (CAPM) estimates

### C. Adjusted CAPM estimates

### D. Beta analysis

*(Growth Rate resulting from Capital Appreciation and Dividend Income)*

## 8. Financial Reporting Services

### A. Fair Value calculation using specified valuation method

### B. Periodic Cost Attribution report

### C. Net Cost true-up report based on pre-vest forfeitures through final vesting date

### D. Stock Option Activity report

### E. Diluted EPS calculation

### F. APIC Pool calculation

### G. Mark-to-Market Fair Value calculation

### H. ESO Hedging program