

Shopify Inc.
Notes to the Consolidated Financial Statements
Expressed in US \$000's except share and per share amounts

is calculated as the difference between the exercise price of the underlying stock option awards and the market value on the date of exercise.

As of December 31, 2019 and 2018, there was \$306,355 and \$227,523, respectively, of remaining unamortized compensation cost related to unvested stock options and RSUs granted to the Company's employees. This cost will be recognized over an estimated weighted-average remaining period of 2.03 years. Total unamortized compensation cost will be adjusted for future changes in estimated forfeitures.

Stock-Based Compensation Expense

All share-based awards are measured based on the grant date fair value of the awards and recognized in the Consolidated Statements of Operations and Comprehensive Loss over the period during which the employee is required to perform services in exchange for the award (generally the vesting period of the award).

The Company estimates the fair value of stock options granted using the Black-Scholes option valuation model, which requires assumptions, including the fair value of the Company's underlying common stock, expected term, expected volatility, risk-free interest rate and dividend yield of the Company's common stock. These estimates involve inherent uncertainties and the application of management's judgment. If factors change and different assumptions are used, share-based compensation expense could be materially different in the future.

These assumptions are estimated as follows:

- *Fair Value of Common Stock.* The Company uses the five-day volume weighted average price for its common stock as reported on the New York Stock Exchange.
- *Expected Term.* The Company determines the expected term based on the average period the stock options are expected to remain outstanding. The Company bases the expected term assumptions on its historical behavior combined with estimates of the post-vesting holding period.
- *Expected Volatility.* The Company determines the price volatility factor based on the Company's historical volatility over the expected life of the stock options.
- *Risk-Free Interest Rate.* The Company bases the risk-free interest rate used in the Black-Scholes valuation model on the yield available on U.S. Treasury zero-coupon issues with an equivalent remaining term of the stock options for each stock option group.
- *Expected Dividend.* The Company has not paid and does not anticipate paying any cash dividends in the foreseeable future and, therefore, uses an expected dividend yield of zero in the option pricing model.

The grant weighted average assumptions used to estimate the fair value of stock options granted to employees were as follows:

	Years ended	
	December 31, 2019	December 31, 2018
Expected volatility	50.7%	54.2%
Risk-free interest rate	2.25%	2.72%
Dividend yield	Nil	Nil
Average expected life	4.77	5.31