The following example shows the result of an exponential curve fit to different durations of calendar year paid frequency, severity, and pure premium data for the 12 months ending each quarter.

6.14 Exponential Loss Trend Example

Year Ending Quarter	Earned Exposure	Closed Claim Count	Paid Losses	Frequency	Annual % Change	Severity	Annual % Change	Pure Premium	Annual % Change
Mar-09	131,911	7,745	$8,220,899	0.0587	--	$ 1,061.45	--	$ 62.32	--
Jun-09	132,700	7,785	$8,381,016	0.0587	--	$ 1,076.56	--	$ 63.16	--
Sep-09	133,602	7,917	$8,594,389	0.0593	--	$ 1,085.56	--	$ 64.33	--
Dec-09	135,079	7,928	$8,705,108	0.0587	--	$ 1,098.02	--	$ 64.44	--
Mar-10	137,384	7,997	$8,816,379	0.0582	-0.9%	$ 1,102.46	3.9%	$ 64.17	3.0%
Jun-10	138,983	8,037	$8,901,163	0.0578	-1.5%	$ 1,107.52	2.9%	$ 64.04	1.4%
Sep-10	140,396	7,939	$8,873,491	0.0565	-4.7%	$ 1,117.71	3.0%	$ 63.20	-1.8%
Dec-10	140,997	7,831	$8,799,730	0.0555	-5.5%	$ 1,123.70	2.3%	$ 62.41	-3.2%
Mar-11	140,378	7,748	$8,736,859	0.0552	-5.2%	$ 1,127.63	2.3%	$ 62.24	-3.0%
Jun-11	139,682	7,719	$8,676,220	0.0553	-4.3%	$ 1,124.01	1.5%	$ 62.11	-3.0%
Sep-11	138,982	7,730	$8,629,925	0.0556	-1.6%	$ 1,116.42	-0.1%	$ 62.09	-1.8%
Dec-11	138,984	7,790	$8,642,835	0.0560	0.9%	$ 1,109.48	-1.3%	$ 62.19	-0.4%
Mar-12	139,155	7,782	$8,602,105	0.0559	1.3%	$ 1,105.38	-2.0%	$ 61.82	-0.7%
Jun-12	139,618	7,741	$8,535,327	0.0554	0.2%	$ 1,102.61	-1.9%	$ 61.13	-1.6%
Sep-12	139,996	7,720	$8,466,272	0.0551	-0.9%	$ 1,096.67	-1.8%	$ 60.48	-2.6%
Dec-12	140,141	7,691	$8,412,159	0.0549	-2.0%	$ 1,093.77	-1.4%	$ 60.03	-3.5%
Mar-13	140,754	7,735	$8,513,679	0.0550	-1.6%	$ 1,100.67	-0.4%	$ 60.49	-2.2%
Jun-13	141,534	7,769	$8,614,224	0.0549	-0.9%	$ 1,108.79	0.6%	$ 60.86	-0.4%
Sep-13	141,800	7,755	$8,702,135	0.0547	-0.7%	$ 1,122.13	2.3%	$ 61.37	1.5%
Dec-13	142,986	7,778	$8,761,588	0.0544	-0.9%	$ 1,126.46	3.0%	$ 61.28	2.1%

Number of Points	Frequency Exponential Fit	Severity Exponential Fit	Pure Premium Exponential Fit
20 point	-1.7%	0.5%	-1.2%
16 point	-1.3%	-0.1%	-1.4%
12 point	-0.7%	-0.2%	-0.9%
8 point	-1.2%	1.2%	-0.1%
6 point	-0.9%	2.5%	1.6%
4 point	-1.5%	3.3%	1.9%

Using statistical methods such as exponential regression also allows for the review of statistical diagnostics. The most commonly used diagnostic is R^2, which is a measure of the reduction of total variance about the mean that is explained by the model.

As demonstrated above, separate exponential models may be fit to the whole of the data and to more recent periods. The actuary ultimately selects the trend(s) to be used to adjust the historical data in the ratemaking experience period to the level expected when the rates will be in effect. If separate frequency