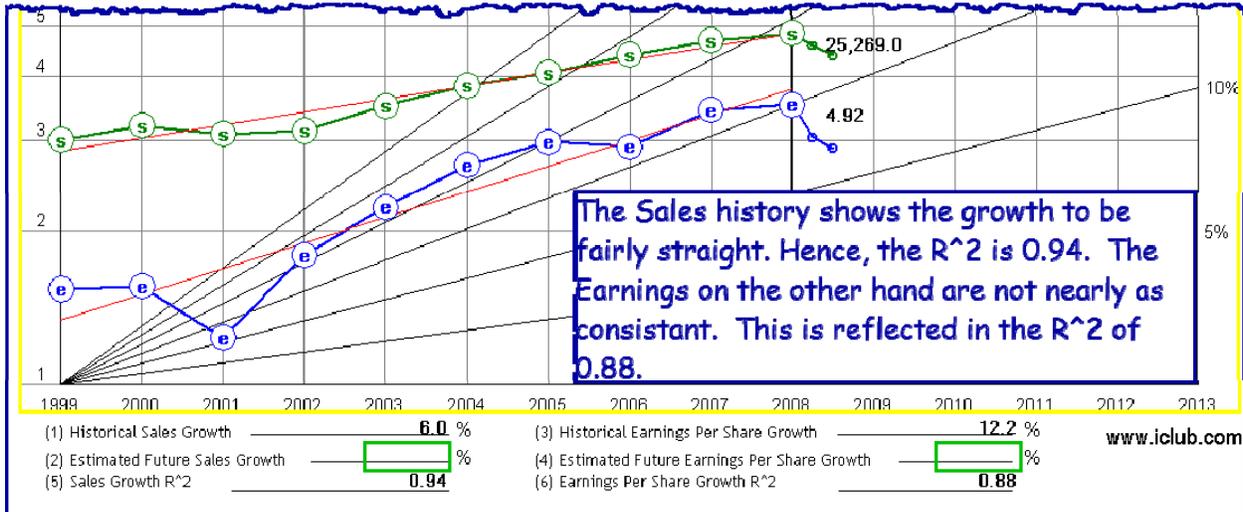


# Tips, Tricks, & Techniques

## R Squared (R<sup>2</sup>)

R Squared (R<sup>2</sup>, R<sup>^2</sup>, or R<sup>2</sup>) is a statistic that will give some information about the *Goodness of Fit* of a model. In regression, the R<sup>2</sup> coefficient of determination is a statistical measure of how well the regression line approximates the real data points. An R<sup>2</sup> of 1.0 indicates that the regression line perfectly fits the data.

Toolkit 6 now shows us the Growth R<sup>2</sup> for both Sales and Earnings at the bottom of the first page in addition to the earlier listing within the Historical Growth Rate Change Graph.<sup>1</sup>



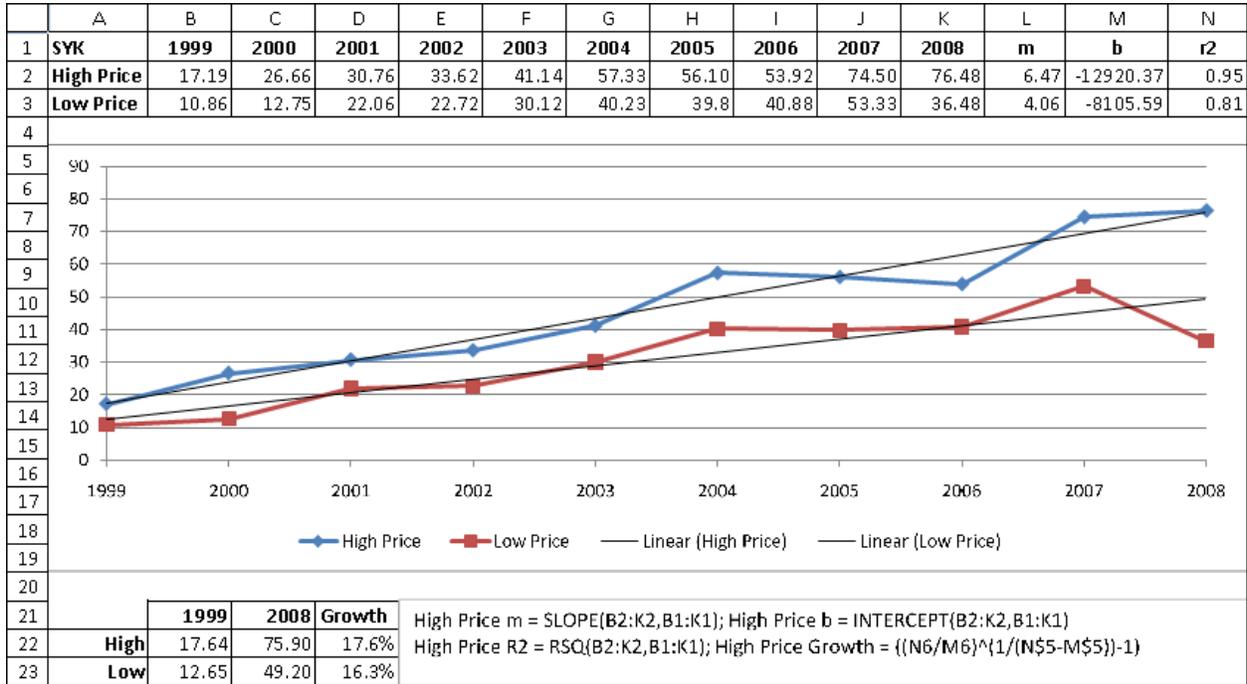
In the Growth Analysis section of our Stock Studies, we use the Regression Line to determine what the past growth rate of Sales and Earnings has been. The R<sup>2</sup> is a metric that tells us just how well we can trust the Growth Rates shown. Values of R<sup>2</sup> greater than 95 are good while we should be suspect of values below 85. Use your judgment in any case.

My suggestion is to accept the numbers calculated by Toolkit 6 and modify the limits that I have stated with your own as your judgment sharpens with experience. Do not bother to read on to the second page.

<sup>1</sup> As of this writing (17 October 2009) Toolkit 6 calculates the R<sup>2</sup> for the full 10 years of data. If outliers are removed the R<sup>2</sup> is not recalculated.

## R Squared (R2) - continued

For the mild geek the following MS Excel worksheet shows how you may plot data, set the trend line, and calculate the Growth Rate. High and Low Price data for Stryker (SYK) was used for this example.



Perhaps the equations are better shown...

	m	b	r2
	=SLOPE(B2:K2,B1:K1)	=INTERCEPT(B2:K2,B1:K1)	=RSQ(B2:K2,B1:K1)
	=SLOPE(B3:K3,B1:K1)	=INTERCEPT(B3:K3,B1:K1)	=RSQ(B3:K3,B1:K1)
	1999	2008	Growth
High	=\$L2*B\$21+\$M2	=\$L2*C\$21+\$M2	=((C22/B22)^(1/(C\$21-B\$21)))-1
Low	=\$L3*B\$21+\$M3	=\$L3*C\$21+\$M3	=((C23/B23)^(1/(C\$21-B\$21)))-1

With respect to this actual Stryker data let us apply some judgment. Do you feel that the high and low prices are diverging or did the 2008 low price affect the trend? Revisit the actual values of R2 to see which one you trust the most.

For the more serious geeks, nerds, and others with more time on their hands than the average bear, you can find much more on this topic by Gogging "linear regression analysis."<sup>i</sup>



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<sup>i</sup> kp091017