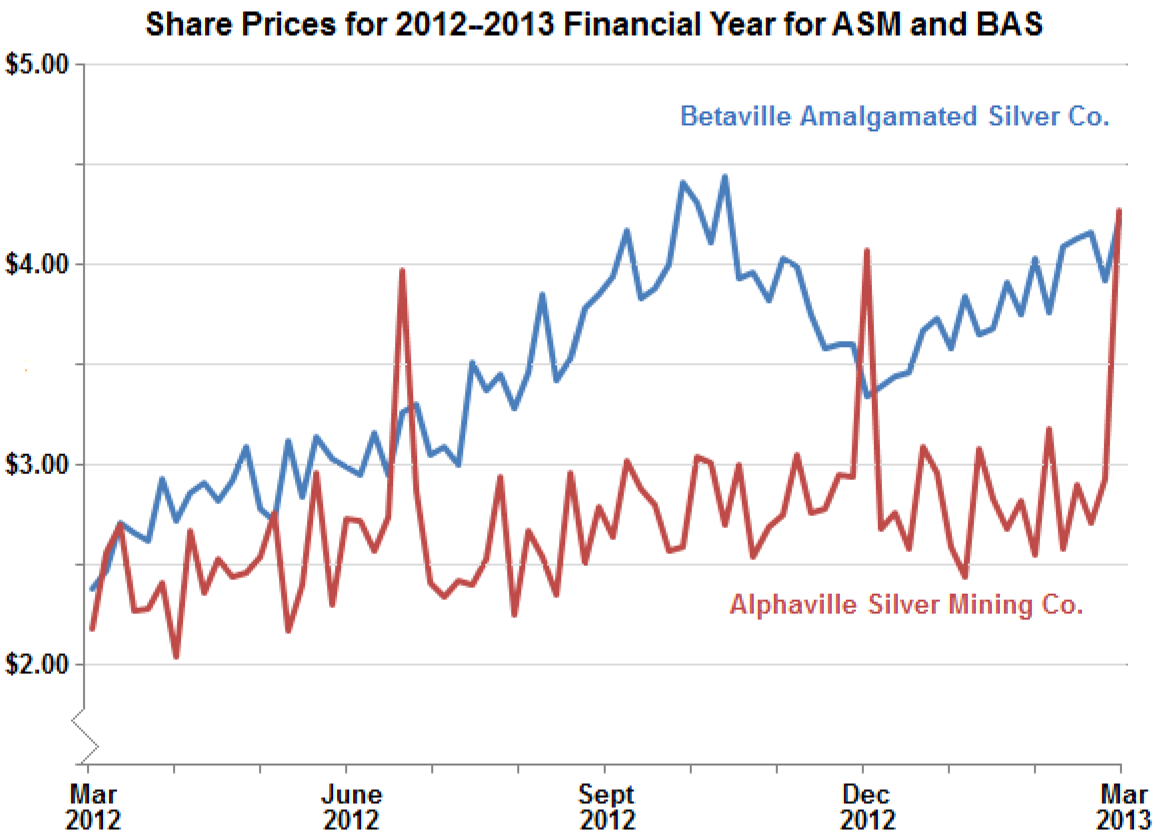
Level 1 Data Practice #9

The graph of share prices for a financial year (which runs 1 April to 31 March of the next year) for two nearby companies which mine silver is shown below.

Investors with shares in a company are interested in share prices, because if they go higher in the company then the investor makes money.



The CEO of Alpha Silver Mining (ASM) claims that because his company's share price started lower and ended higher than Betaville Amalgamated Silver (BAS) that his company is growing more in value, and so is a better investment.

1. Describe any patterns or trends in the data for ASM.
2. Describe any patterns or trends in the data for BAS.

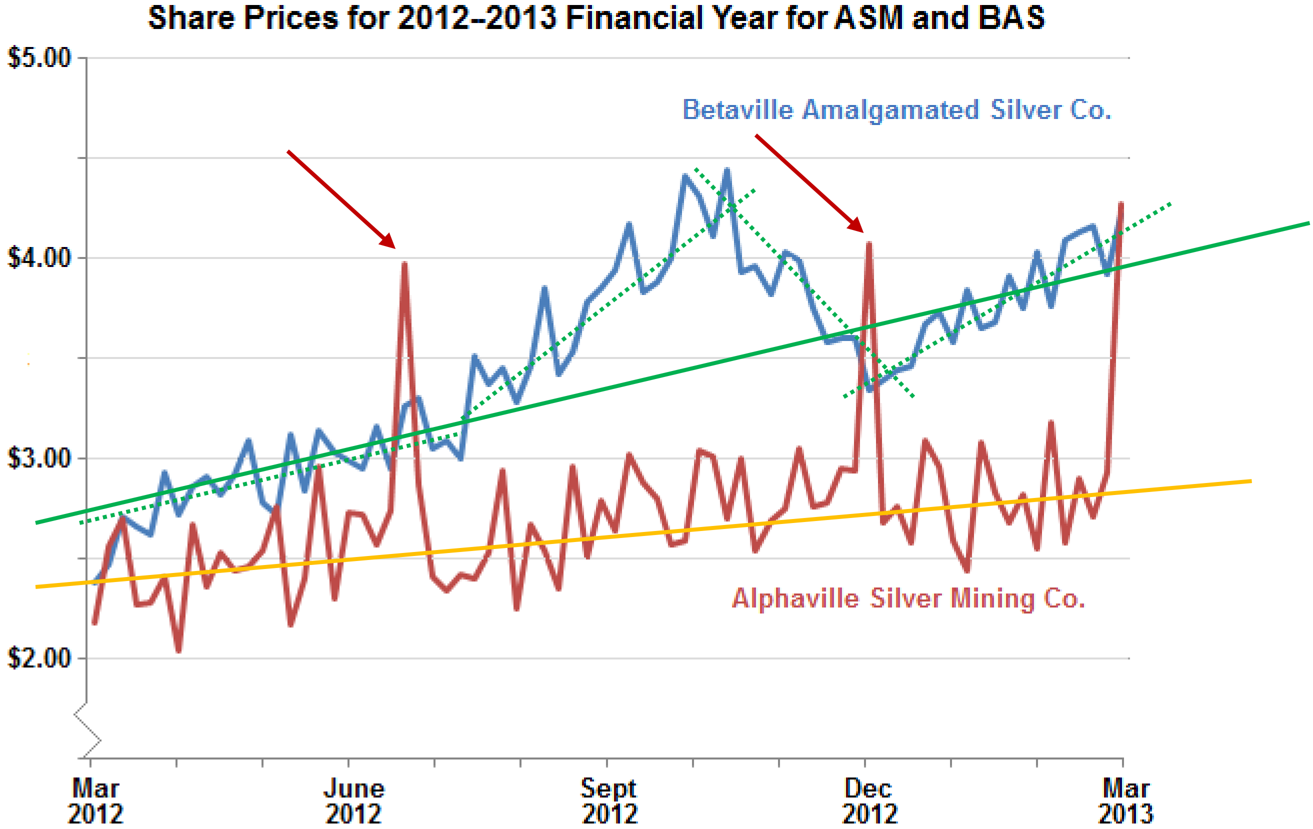
   How has BAS differed over the year compared to ASM?
3. Do you think that that the CEO of ASM is correct, that his company is growing more?

   Explain your answer fully, using correct statistical language.
4. Predict the share price for each by the end of the next financial year (i.e. March 2014).

   How reliable do you believe your predictions are?
5. What company would you advise a long-term investor to put their money in?

   How would that differ from your advice to a short-term investor?

Answers: Level 1 Data Practice #9



Numbers will vary a little bit depending on how students measure. It is wise to draw the appropriate lines on the graph to show the marker where your numbers come from.

1. ASM have a long-term trend upwards of $0.50/year shown with the solid yellow line. There are two sharp spikes after which the value immediately returns back to trend.

2. BAS have a long-term trend upwards of $1.25/year shown solid green line. That is composed of four periods with different linear trends – three up and one down (dotted).

   ASM has the most consistent long-term trend. BAS is much less "noisy" with less jitter around the trend-lines, but has medium term periods of down as well as up. ASM has sharp very-short-term changes and a couple of very strong spikes on top of that.

3. No the CEO cannot say that his company is growing more based on the data. The problem is that ASM is noisy data, and the last gain in ASM's value might well be a spike, which will return quickly. The long-term trends suggest strongly that BAS is gaining value more reliably, even with the period going down in late 2012.

4. Adding on the long-term trend to the previous year would give $5.00 to $5.25 for BAS and about $3.25–$3.50 for ASM. However neither prediction could be considered reliable, as BAS had many changes in trend, and ASM has a lot of variation. To extrapolate a long way based on noisy and constantly changing data is unwise.

5. BAS would appear the better long-term investment, based on the year shown, but without a lot of certainty. Short term investors would be very wise to watch out for buying ASM after a sharp rise, as they do not appear to show increases in value, but are just "noise". Buying on top of a spike would appear to be very unwise.

   Terms to use – short vs long-term trends. Variation. Spike. Noise. Extrapolation.