Thinking – Some Common Traps

Journalists have a penchant for selecting data that supports the opinion that they had already formed. They are not alone. We are all guilty to some extent of selecting the facts that support our pre-conceived views and not looking for, or simply omitting to mention, inconvenient facts.

Before we get too steamed up about this, we should pause to remember that this is a very natural human failing. Behavioural finance has a name for this error in reasoning: confirmation bias. In essence this means that we tend to try to prove whether something is true by finding more and more examples of it.

However, a moment's thought should suggest that the way to prove something is so is to search for situations when it is not true. Find too many non-conforming situations, and the whole thing falls in a heap. On the other hand, if after a diligent search there are few or no non-confirming situations to be found, we can be more confident of our initial conclusions.

So much for the dry theory. To bring it to life a bit, let's look at some of the traps for the unwary.

We are all prone at times to laugh at academics and refuse to accept their research findings. Yet the way a competent academic approaches a problem is based on scientific method. The very first thing an academic will ask about a theory is whether there are a sufficient number of observations. Ideally, over the longest period available, the academic would prefer to be able to tabulate all observations. Where that is not possible, a large sample should be studied.

So, when someone tells us that over the last 50 years, A happened after B happened 12 times, we should be very careful. Twelve observations are not very many for a start. However, there is even more to this. It would be possible for someone to make this claim in all honesty. They found that over 50 years, A happened 12 times. They then looked to see whether B had happened before each of these times and found that it had. Eureka! A perfect score.

But wait a moment here. What the person making this claim also needed to look for was how many times B had happened and A had not followed it. Suppose we went back over the data and found that B had happened 150 times in the last 50 years, but A followed it only 12 of those times. Do you now see this situation differently? You should.

Now, it is not that the person making this claim made a statement that was untrue. They told you a fact. The problem here is that they had slipped into confirmation bias and not examined the whole picture. Specifically, they had not looked to see whether sometimes, or even very often, as it turned out, the opposite result could occur.

Lesson: To be confident about something we need a large number of observations and there should be a much smaller number of times on which the relationship did not hold up.

This raises another question. In most real life situations, it is rare to find that A always follows B. More likely, A will follow B many times, but there will also be times when A does not follow B. This is where academics fall back on statistics. What must be done is to determine whether the number of times A does follow B is more than simple chance.

It is rarely, if ever, possible to say that something is absolutely true and not due to chance. Some results of studies will show that the situation is quite close to being a chance outcome and should not be relied upon except with extreme caution.

On the other hand, there will be times when an outcome happens very frequently compared to times when it does not. Unless it is 100% of the time over a very large number of observations, we still cannot even say that it has always been true up to now. All we can say is what the observation is how significant the relationship is statistically. This may sound weak to the layman, but is simply the way an academic is trying to tell you that the result of the situation is probably true and how much confidence you can have in it being true.

Lesson: It is not a black-and-white world we live in. There are innumerable shades of grey. Sometimes the grey is near black and sometimes it is nearer to white. We need to get used to dealing with ambiguity and probability. There are very few certainties in our world.

The next common problem can appear as a ludicrous claim. If I were to tell you that the stock market rises and falls with the number of people catching the 5.15pm train from Grand Central station in New York, you might probably look strangely at me. Very few people would accept such a claim, no matter how closely related the two data series were. This is because it is fanciful in the extreme to believe that those two sets of events are related. In other words, that one causes the other.

If we try hard enough, we can always find some sets of data, over carefully chosen periods, which have a high correspondence one with the other, by sheer coincidence. What is missing from such claims is that we need first to establish that there is a cause and effect relationship between the two data series.

So, it is possible that two sets of data match closely by sheer chance. However, there is another possibility. The two sets of data may independently be influenced by some other factor or factors. In that case we are wasting our time with the relationship between the two sets of data. Instead we need to take the set of data we are interested in and look for evidence of what might be the cause of the effects which we are studying. Only then, might we discover something meaningful and useful.

Lesson: If something is not caused by another thing, it is a complete waste of time studying the relationship between them. If a salesman trots out such a claim ask the salesman to explain how the effect in question is caused by the other thing and then how such a view might be proven. Be prepared for the salesman to fail to see what you are talking about. If a cause and effect relationship cannot be proven, regard the claim as spurious at best and dishonest at worst.

Now consider another issue. The world is a very complex place. This is especially true of the way a modern economy works. Any given effect in the economy will be caused by multiple factors. Even worse, the effect of these factors will differ from time to time. Moreover, there are time lags between one thing being done and a given effect being observed. The length of that time lag also fluctuates over time. In other words, we are looking at a complex and dynamic system which is rarely stable for long.

There are two very real dangers in this situation. The first is that we all like to have simple explanations for things. It is very natural to try to find in a situation what the prime cause is for the effect we want to study and rely on it for our investment decisions. The trap here is two-fold. Firstly,

the relationship changes over time, so a simple observation is highly unreliable. Secondly, the complexity of the real world demands that we think in terms of a multi-factor situation, where the links between the factors are elastic. A given effect may be due to a certain coincidence of maybe five or more factors in the situation. To rely on a single simple view of two data series may be very dangerous to our wealth.

Lesson: Be aware of the complexity of the modern economy. There are many variables at play in a dynamic system. If someone claims that you only need to be aware of changes in a single variable to know what is likely to happen, be very sceptical. The claim may be based on pure coincidence. It might also be true only some of the time, depending on what else is going on in the economic system. This does not always mean the claim is made dishonestly. Instead you might consider it due to ignorance. Accepting these claims on face value opens us to the risk that we may also act out of ignorance.

In the face of single factor analysis, it is important to study everything which is happening in the economy. Look for all the factors which may have caused something to happen. Look for when it did not have that effect and search for what else was different at those times. This is hard work, which many people shirk in favour of simple and easy shortcuts. The best investors are chronic sceptics and test every claim, looking for a better and deeper understanding. Out of that will come better investment decisions and higher returns.

Finally, look for what may be leading to a permanent change in the whole economy. This is a very difficult area of enquiry. There is a great temptation to accept simple single factor theories that suggest it will be different this time. It might turn out to be different, but any time someone makes that claim I am willing to make a small bet with them that it will not be fundamentally different this time.

Very often, it will be technology which is thought to be going to change the world. In many ways it will. However, if we study the history of market economies, it is littered with technology developments which were going to change the way the economy operates and very few have really changed the cycle of booms and busts. Remember canals, railways, electric light, radio, the telephone, automobiles, television, air travel, computers, the internet, the mobile phone. It goes on and on, but the same cycles repeat relentlessly.

Of course, there will be subtle difference in the way things work out in the future. The real skill lies in studying the various factors in detail and with great sensitivity. Standing over us in this endeavour should be a huge giant who keeps saying that it will not be different and who keeps challenging us to prove why it will be different. The differences are more likely to be in degree than result in a fundaments change in the way the economy works.

Lesson: Study change with great sensitivity to the inherent complexity of our dynamic economic system. Expect the most valuable observations to be subtle and rely on a multi factor analysis. It is even more important to look for the direction in which various data series may be changing. Say, the price of a share is now 70% higher than it was a year ago. That really tells you very little. If you look at the day by day progression of the share price, it may have been $1.00 a year ago and have risen in a straight line, with $1.70 the highest price on the chart. Let us assume that scenario is true and contrast it with another scenario. The price may have been $1.00 a year ago, have risen during the

year to a peak of $3.00 and been falling for the last six months, recently trading at $1.70. So, the same simple comparison of two prices was absolutely true for both scenarios, but I am sure most people who take the trouble to check the charts would see them differently. Acting on the simple two point analysis has a good chance of costing us money. However, the smart investor, who checks the chart to see what the two point comparison really means will do far better in the long run.

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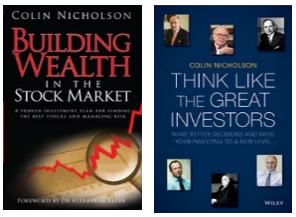

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