BIAS

#14 Ambiguity

I've got a game for you, and you could win $1000! Imagine you have two jars before you and you cannot see their contents. Jar A has 50 red beans and 50 black beans. Jar B has 100 beans, but you do not know the proportion of red and black beans. If you reach into one of the jars and pick a red bean, you will win $1000; and if you pull out a black bean, you receive nothing. Which would be your preference, Jar A or Jar B?

***AMBIGUITY ….. NOT A CLUE***

In the *ambiguity* bias, people avoid options in which the chance of a favourable outcome is uncertain or ambiguous. Their bias is exacerbated by missing or limited information, because it makes the choice seem riskier. Instead, many people show a preference for options where there is a known probability of a favourable outcome. How might this play out? I imagine that most of you chose Jar A. Why? Because it has a known probability; compared with Jar B where the probability is completely unknown, as it could have 50 red beans or 99 red beans or 1 red bean.

Ambiguity is more about uncertainty than chance. For example, there is a chance porosity will be too low and that would constitute a reservoir failure. The ambiguity is that I do not know the exact porosity of my reservoir and given the uncertainty I should produce a range as my prediction. People often mix up the two terms, chance and uncertainty. Many also interchange the terms chance and risk (*that's a blog article for another day!*).

Because most of us struggle to characterise uncertainty, we try to avoid it where we can. We will instead seek opportunities where the probability is better defined or collect more data before making a decision. This is known as the Ellsberg Paradox, named after Daniel Ellsberg who popularised the concept in 1961 (later famous for leaking to the press the top-secret Pentagon Papers).

Even if data or probability support choosing the more unknown quantity, people will often prefer the known option. This prevents us from giving equal consideration to two viable options. Simply, people dislike uncertainty, and the *ambiguity* bias is a demonstration of this trait.

The *ambiguity* bias is similar to the concept of risk aversion (see earlier blog article #11) and is distinguished by how much information one has. Risk aversion is often seen when we know the probability and value of both options. We often tend to choose the option with a higher probability of success but might have a lower payoff (or one that might avoid a loss). In contrast, the *ambiguity* bias is where you know the probability of one outcome but not the other and gravitate to choosing the option with the known probability.

Let's consider a modern example of this bias. A consumer seeks to make a purchase from an online retailer. The individual is faced with two similar products: one with many reviews averaging 3.0 out of 4.0 stars, and one that has not been rated yet. The tendency will be to buy the rated product. Even

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though the rated product has a mediocre rating, we feel more secure purchasing the known item. However, we may be missing out on a phenomenal product.

Often, we seek additional information, even if it is not relevant or does not particularly add much to the decision. More is not necessarily better!

The *ambiguity* bias is related to both the *information* (i.e., data and probability) and *availability* (i.e., your experience) biases; see Blogs #2, #3, and #4.

***AMBIGUITY BIAS INFLUENCES CAN BE CONSIDERABLE***

The *ambiguity* bias has a wide reach. It can influence our small choices (e.g., which television to buy), but can also have an impact on decision-making on a much larger scale.

We see the ambiguity bias in financial decisions. For example, people will tend to choose a fixed-rate mortgage, rather than a variable rate. They might invest in low risk, low return investments such as bonds, instead of more volatile investments such as equities. The former choices have a known return and are considered 'safe'; the latter are much less predictable and thus considered riskier. In both cases the more uncertain options may yield better returns over the long (and uncertain) term.

People and business often struggle with change. Even in cultures in which change is viewed positively, people are reticent to make a change. In business, this can be devastating. The *ambiguity* bias is one reason governments and companies do not change policies, even if the current system is far from optimal ("better the devil you know"!). For example, consider a company whose sales are declining. Ten years ago, they were a leader in their industry, but now they are not performing well. Senior management decided they needed to tackle the problem, so they go out to tender with two business consultancy firms.

- Consultancy firm #1 recommends a series of rigorous initiatives and improvements on the current business practices, which they show will improve sales.
- Consultancy firm #2 suggests that their current business model is no longer appropriate in the current environment and recommend a completely different model, which they show will improve sales.

The company must decide which option to execute. The *ambiguity* bias will lead management to choose consultancy firm #1 as their proposal has the appearance of certain results building upon known business practices. A couple of companies that should have chosen consultancy firm #2 include Blockbuster and Kodak. Both missed how the advent of digital media (streaming movies for Blockbuster, digital images for Kodak) would dramatically change business models, allowing other companies to replace them in the marketplace.

***EXAMPLES IN THE HYDROCARBON INDUSTRY***

We can find many instances of the ambiguity bias in the oil and gas industry. For example,

- Choosing to explore in a known, proven basin vs. a frontier area with unknown potential
- Preferentially drilling a well where you understand the petroleum system and the probability of 'success' over a well where there is uncertainty about some of the chance elements (e.g., at 50%), even if the overall chance of success for both is the same
- Appraising a more updip location in order to improve your success probability rather than seeking a more downdip location which would tell you more about the overall potential but has greater uncertainty (be sure to check out the latest article on down dip chance and size calculations by Mark Schneider and David Cook)
- Preferring areas with a greater amount of data

- Equating lack of or poor-quality data with low chance of success
- Facilities are often sized smaller than they could be, ultimately due to concerns about the uncertainty of the underlying resource (e.g., volumes or the ability to obtain the higher rates needed to fill a larger facility)

***EMBRACE UNCERTAINTY***

Uncertainty is a state of the universe, so learn to accept ambiguity and work with it.

Ensure you are informed and seek out more information if it will help you make a better decision. Be open to new concepts and ideas. Embrace change and tolerate uncertainty, even if feels uncomfortable. For the ambiguous option, consider not only the negatives, but also why it could be a better choice. Understand the difference between risk, chance, and uncertainty.

Often when making decisions under conditions of uncertainty, one technique is to frame the unknown action against the one that you are familiar with. For example, a new play by definition will have a great deal of uncertainty, so one could compare attributes of the new play with those of other successful new play entries. You can also use statistics to support your decision. For example, in deciding whether to invest in bonds or stocks, you can show the differences in the long-term performance of both options and not just the immediate payoff.

As a final word, remember that "the absence of evidence is not evidence of absence"! (quote attributed to cosmologist Martin Rees and popularised by Carl Sagan).

***UNTIL NEXT TIME***

The next article in the series will explore an aspect of the *overconfidence* bias known as the *planning fallacy* and why so often our plans usually do not turn out as expected.

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