

NewLeaf Partners View Point

## How Cognitive Biases Affect Sales Forecasting

### Executive Summary

In this paper we will show two cognitive biases that subconsciously influence companies' pipeline forecasts: Overconfidence and Loss Aversion. We describe why they exist, how they function and how they affect forecast accuracy. Finally, we provide some initial thoughts on how their effects can be mitigated.

### Parts of our brain are still in the Stone Age

According to a recent survey, less than 48 percent of more than 2,000 sales managers who were interviewed were able to reach their forecasted numbers in the „forecasted to win” category – an all-time low since the survey's inception. If 2,000 chimpanzees were asked to throw darts at a target on which the left-hand side represents the correct forecast number and the right-hand side the wrong one, the hit rate would be better at 50 percent. Why do chimpanzees seem do a better job at forecasting than highly paid sales managers?

There is a simple answer to this question: Sales managers are human beings and thus make the same mistakes as everybody else when it comes to dealing with numbers, quantities and ratios. Scientists have spent a lot of time and resources on finding out what really drives human decision-making. The answer is sobering: Even today we are still driven by the same basic instincts and fundamental behavioral patterns as our very early ancestors, who lived primitive lives thousands of years ago. Our logical reasoning is unconsciously flawed by thinking patterns that are rooted in the necessities of mankind's early days. The resulting cognitive fallacies cause us to listen to our intuition instead of following the path of logic – and consequently we fail in our decisions and logic. Two of these cognitive fallacies illustrate particularly well how the mental wiring in our ancient ancestors influences the results of our forecasting behavior even today: these are the Overconfidence Effect and Loss Aversion.

### It is just natural to be overconfident

The overconfidence effect measures the difference between what we really know and what we believe we know. When studies show that 84 percent of French men think they are better lovers than the average man and 78 percent of German men say that their driving skills are above average, then we see a classic example of an Overconfidence Effect.

A famous experiment described by Nassim Taleb ("The Black Swan") illustrates the underlying issue. People were asked to estimate the number of lovers that Catherine the Great had in the course of her notoriously amorous life by giving a range of figures so that the correct answer had a 98% likelihood of being within their estimated range, and with only a 2% probability of being wrong. For instance, they could answer "not less than 20 but not more than 70". They could also have said "somewhere between 1 and 1.000", and even this would have represented a correct answer within the scope of this question. However, even with the objectives of this question being so easy to fulfill upon, 40% of those participating in the experiment were wrong; the true number of lovers was outside the range they had defined.

Scientists believe that our tendency to be overconfident regarding our knowledge or competencies is largely rooted in our evolutionary history. Men had to believe in their abilities if they wanted to be successful hunters. Successful hunters had better food, which helped to choose healthier (and more beautiful, one may assume) women and allowed them to grow stronger and healthier children – consequently, in the long run, evolution seemed to reward those who were confident and secure more than those who were careful and correct the whole time.

In forecasting, we all recognize the effects of the Overconfidence Effect when sales management routinely tightens the screws towards the end of every sales period and our forecast collapses like a failed soufflé. Opportunities that seemed so promising and almost a hundred percent likely to be won do not look so attractive any more when we really have to put our money where our mouth is. In this context we are not talking about deliberately inflating one's forecast. We are talking about opportunities that we really believed in – until we had to realize that we may have been too confident about their volume, likelihood to close and timing. But why were we so confident about them? Shouldn't we have known earlier that these opportunities aren't worth a dime? It is the Overconfidence Effect that makes us put too much faith in them.

## Losing is worse than winning

The second culprit for failed forecasts seems to contradict what we just said: Loss Aversion exists because we innately dislike experiencing losses, and, as a consequence we are too little confident to kick this rotten opportunity out of the pipeline even though we know we should have done this ages ago.

This is how Loss Aversion shows in our daily life: Let's assume for a moment that we lost 100 Euros yesterday. But today, we win 100 Euros in the lottery. Do we now feel better or worse than two days ago? Even though we are in the same position economically as we were two days ago, we still feel worse off. Research has shown that people attribute greater weight to losses as compared to gains. The loss aversion ratio (which is the smallest gain that one has to balance a loss against) has been examined in several experiments and is usually estimated to be in the range of 1.5 to 2.5.

Scientists suspect this is the case because human beings have been scraping out a marginal existence during most of their history. Resource losses could easily result in starvation and death for the majority of our ancestors (and, unfortunately, even today in some areas of the world). As a consequence, Loss Aversion, too, was an important element in the psychological disposition that enabled our ancestors to survive.

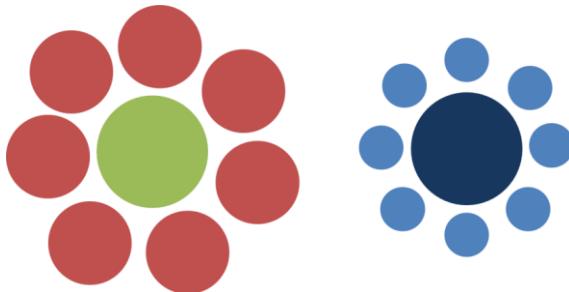
Loss Aversion is the reason why sales executives are reluctant to eliminate from the pipeline many opportunities which are unlikely to be won: they would effectively be realizing a loss. It is the opportunity costs of Loss Aversion that damage the pipeline. Most pipelines are skewed as a consequence of executives' Loss Aversion, and the effort that has gone into these useless opportunities could have gone into more productive engagements..

While the Overconfidence Effect causes salespeople not to realize that there are opportunities in the pipeline which should be eliminated, they are well aware of this fact in the case of Loss Aversion. Nevertheless they cling to them: Who knows - some miracle may still happen so that it is reasonable to keep this opportunity in the pipeline, right?

Loss Aversion is closely related to what scientists call the Endowment Effect. This phenomenon describes how people ascribe a higher value to a good that they own than to a good that they do not own. In the world of forecasting, this means: an opportunity that is in the pipeline is intuitively seen as more valuable than one that is not in the pipeline.

## Statistics help to avoid Overconfidence Effect and Loss Aversion

Once we have become aware of the fact and the origin of the Overconfidence Effect and Loss Aversion, and we understand how they work, can we not just avoid them? The following experiment will show how this proves to be often nearly impossible.



The picture above is unremarkable. Two spots are surrounded by a number of smaller ones. The disk to the right is apparently larger than the one to the left. While most of us have seen this image before and we do know that the spots are exactly the same size, we still perceive the spot in the center of the right image as larger.

This example illustrates that even though we know about the effects of certain behavioral fallacies such as Overconfidence and Loss Aversion, it is nearly impossible to avoid them taking effect altogether. Especially in sales, where many decisions have to be taken under a high amount of time pressure and uncertainty, these ancient wirings of our brain still influence we think and act.

*What can be done to tame these effects when we do our sales forecasts?*

## Statistics provides the measure

Using statistics we can recalibrate our thinking and correct the effects of behavioral tendencies such as Overconfidence and Loss Aversion. Four statistical averages can be used to gain a more consistent and objective assessment of the sales pipeline as well as improve forecast quality:

- 1) Average sales cycle for all deals and
- 2) Average sales cycle for lost deals

The age of an opportunity compared to the average sales cycle for won and lost deals provides a rough idea about the likelihood of winning a specific opportunity.

- 3) Average deal size won

Size has an enormous impact on the likelihood of winning an opportunity. In terms of size each sales organization has its own specific sweet spot. Historical analysis will show what sizes of projects have a higher win rate than the rest. Be especially alert if an opportunity is in your pipeline that is three times the size of the average

of the average opportunities won in the past. These “mega” opportunities usually attract an extraordinary amount of time and investment by the sales force; however, factoring in historical win rates and the frequency of such deals, they may not be profitable and suck energy from more profitable (and more likely) deals.

- 4) Average conversion rate per stage

The goal of pipeline management is to make sure that an opportunity moves continually through the sales process. When opportunities get stuck in certain stages of the pipeline, the reasons for such a behavior need to be uncovered. The best start is to know the average conversion rate and cycle time per stage.

Ideally, when going into a pipeline review or a forecast meeting, sales leaders should have these four averages at hand on an aggregated team level as well as on the level of the individual salesperson.

## Conclusion

The Overconfidence Effect and Loss Aversion represent only two of the numerous cognitive errors that are rooted in the history of mankind and reflect the early days of human brain development. But they still affect the way we think, and they do so much more than we may think. While many of these errors are known, salespeople and their managers fall for them again and again in their daily job – especially in forecasting. Statistics can provide the ruler along which salespeople and their managers measure the real effectiveness and efficiency of their work. Seldom though do standard forecasting tools reveal the truth about where in the pipeline the issues lie. Historical analysis and clustering techniques are an important amendment if companies want to have a reliable pipeline forecast. In our next ViewPoint we will examine how they are used.

### Authors:

Dr. Michael Scherm, m.scherm@newleafpartners.com  
 Andreas Goldmann, ago@newleafpartners.com

#### North America

NewLeaf Partners, Inc.  
 P.O. Box 140878  
 Nashville, TN 37214  
 United States  
[Info-us@newleafpartners.com](mailto:Info-us@newleafpartners.com)

#### Europe

NewLeaf Partners Europe GmbH  
 Rotdornweg 5  
 63303 Dreieich, Frankfurt  
 Germany  
[europe@newleafpartners.com](mailto:europe@newleafpartners.com)

#### Africa

NewLeaf Partners Africa  
 21 A The Cresent rd.  
 Morningside, Sandton, 2196  
 South Africa  
[africa@newleafpartners.com](mailto:africa@newleafpartners.com)