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Are Black Swans Real?

Tips for Better Recognizing, Assessing and Responding to Emerging Extreme Events

BY TOM HERGET WITH ASSISTANCE FROM GUNTRAM
FRITZ ALBIN WERTHER AND RONORA STRYKER

ARE THERE TRULY SUCH THINGS AS BLACK SWANS? OR ARE THEY EXTREME EVENTS THAT CAN BE FORESEEN? THIS ARTICLE HELPS YOU DECIDE.

A year ago I was enjoying dinner with a new acquaintance, Professor Guntram Werther. Werther, a strategic management professor at Temple University in Philadelphia, was talking about his experience in consulting with governments, military and industry on … well, let me paraphrase it as predicting the unpredictable. His grasp of current events and their implications made me feel as if I were reading next week's edition of *The Economist*. I mentioned, how interesting, the Society of Actuaries has just posted a request for research project proposals on minimizing, managing, and/or mitigating extreme event risk. When I said the research objectives included how to use the findings in Nassim Nicholas Taleb's book *The Black Swan*, Werther nearly went off the charts. Werther took a strong contradictory viewpoint to the black swan concept, expressing that many of these large-scale, large-impact rare events (LSLIREs) can well be predicted.

With that level of conviction and enthusiasm, I thought it would be good if members of our profession could learn his viewpoints and methods. Werther's livelihood focused on looking at the past to see what would not happen in the future as well as looking at the past to spot what would change in the future. Knowledge of his techniques for spotting emerging risks would benefit all members of our profession.

My role in this research report was to prepare the proposal, guide it into our workspace,

and then ensure that the professor stayed within the bounds of finance.

After six months of focused effort, this research report, "Recognizing When Black Swans Aren't: Holistically Training Management to Better Recognize, Assess and Respond to Emerging Extreme Events," is now ready for perusal by our membership.

Werther expresses his viewpoints in four sections: defining and identifying a black swan, assessing the strengths and weaknesses of Taleb's case, methods for identifying LSLIREs, and techniques for better recognizing LSLIREs.

The research paper includes a four-page glossary of terms to help actuaries and others better understand the terminology used throughout the report.

Not only will you benefit from Werther's experience and outlook, you will also get the flavor of rare event viewpoints from historical figures such as Carl Jung, Aristotle, Isaac Newton, Gottfried Leibnitz, Lao Tzu, Confucius, Nietsche, Albert Einstein, Karl Marx, Adam Smith, Immanuel Kant, Alexis de Tocqueville, Osama bin Laden, Rick Rescorla, Goethe, Donald Rumsfeld, Jack Goldstone, Vaclav Havel and even Inspector Clouseau.

The East German-born professor's writing style is conversational and often reads like an investigative adventure story.

Like a true educator, Werther states the learning objectives for the research paper:

- Black swan definitions currently in use.
- Implications of usage of black swan concepts.
- Taleb's important influence on this topic.
- Criticisms and support of Taleb's concepts.
- Distinguish between true black swan events and the LSLIREs.
- Current methods for trying to detect black swans and LSLIREs.
- Review why some of these methods have failed.
- Review the state-of-the-art for forecasting LSLIREs.
- Consider what a better forecasting solution looks like.

While I will leave the storytelling to Werther, this article provides a brief synopsis of some of the characteristics, attributes, practices and perspectives needed to foresee LSLIREs.

SECTION ONE: DEFINITION OF BLACK SWAN

Werther introduces the reader to many different definitions of a black swan event in use today including Nassim Nicholas Taleb's idea as defined in his 2007 book, *The Black Swan*, which is an event that is outside the realm of regular expectations, carries extreme impact, and can be predicted retrospectively. He further critiques Taleb's concept and shows how others are using

or misusing the term. He points out that many have changed the definition of a black swan from its initial concept, even Taleb himself! While there are many definitions for a black swan event, there are people who predicted such events prospectively while the mass failed to recognize them. Thus, if analysts can be better trained to recognize LSLIREs, where these events are farther out on a probability tail than routine forecasting targets, the timing of the event is harder to identify than routine forecasting targets

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and the qualitative element of judgment increases in importance than routine forecasting targets, the occurrence of black swan events will decrease.

Werther begins to build the framework for LSLIRE emergence recognition, assessment, forecasting and management. While all methods/models are tools that yield a view among many possible views and because every method is a system of bias, they rarely produce the correct answer. Therefore, since each tool is biased, selecting the appropriate tool is important.

In foreseeing LSLIREs, holistic approaches are superior to a single disciplined assessment/model as they bring in human involved factors and synthesize information from multiple bias systems in an iterative process leading to a fusion of the different beliefs/systems in the results. Before LSIREs emerge, there are qualitative changes from

shifting internal and external forces. Holistic approaches are better able to detect these qualitative changes and assess system-specific patterns leading to insights about the shifting forms.

Werther notes that not everyone is good at holistic thinking and assessment needed for identifying LSLIREs. Those that are the better holistic analysts have common characteristics. Among them include a general education in human affairs and knowledge in many things which requires endless learning to keep up this skill.

Being able to perform two-stage thinking is another characteristic. One stage is to think intuitively or fast. For example, being able to recognize familiar elements in a new situation and draw upon experience to provide a valid intuition. The other stage is a deliberate or logical reasoning thinking process which requires more time to arrive at a conclusion.

Being able to differentiate knowledge from understanding is another trait. These individuals have the ability to distinguish the judging of individual fact from statistical fact. They are also able to unify knowledge and understanding per a given situation.

Lastly, these individuals are able to develop the "string" that ties together the knowledge, facts, intuition, experience and understanding.

SECTION TWO: ASSESSING THE STRENGTHS AND WEAKNESSES OF TALEB'S CASE

In this section Werther builds on his critique of Taleb's black swan concept and provides a strength and weakness assessment of Taleb's philosophies, methods and factors from his 2007 book that impact the recognition, assessment and response to black swan events. Werther cites real-life examples of black swans that aren't. He refers to an 1856 forecast of civil war in America pending the outcome of the 1860 elections. He goes into great length to reveal how easily the Lebanon strife in 1975 could be foreseen. Werther reveals how security expert Rick Rescorla could so easily foresee an attack coming on his World Trade Center buildings, he actually practiced evacuations with his clients prior to 9/11.

Don't see the world like a naïve turkey. Complex system forecasting requires a sophisticated mindset and understanding. Werther discusses that LSLIRE forecasting analyses need to include proper situational awareness, lessons from history, multiple perspectives, cognitive shifting, intuition and insight into multiplayer/multifactor intentions and their implications and shifting contexts as well as integrating other information.

One might think that it cannot be done as most analysts do not adequately learn the meta-rules of a system, consider what they don't know, or achieve sufficient skepticism about change. However, Werther recognizes many individuals in the paper, such as Rick Rescorla, who have achieved this multidimensional type of thinking that leads to recognition of system shifts, changes to

Recognizing When Black Swans Aren't

"Recognizing When Black Swans Aren't: Holistically Training Management to Better Recognize, Assess and Respond to Emerging Extreme Events," by Guntram Fritz Albin Werther with the assistance of Tom Herget, is now available on the SOA website at *www.soa.org/blackswans/*. There you will also find a Power Point presentation that will help you present this research to colleagues and peers.

the composition of the whole structure and the emergence of LSLIREs.

Others, including Taleb, might think that it is all luck to foreseeing LSLIRE/"black swan" events. Yet Werther notes that randomness, chaos or chance is not involved in LSLIRE recognition. There are individuals who can consistently be the elite in their field such as Wall Street analysts who have received the Best on the Street recognition year after year. Luck might be involved with one-time winners, but luck/randomness does not factor into it year after year. The only logical answer is these individuals have superior learning, experience, skills and a different way of thinking over their peers. One way of becoming better at forecasting LSLIREs is to look at the attributes and practices of successful analysts, which is one of the things Werther does in the next section.

SECTION THREE: MOVING TOWARD SOLUTIONS THAT BETTER FORECAST LSLIRES

Continuing examining serially successful analysts and others who have achieved excellence in their field, Werther points out that being accomplished in an area is serious work and requires time to build experience. LSLIRE emergence recognition is also serious work, but individuals need to have a broad common sense and experience just to get into the game. While these individuals are dealing with events far out on the statistical tail, they still need to be able to know what "normal" looks like in each system and among them to recognize a LSLIRE.

In complex systems forecasting, having broad experience improves comparative abilities in recognition and encourages multiple perspective thinking. Knowing why something works one way within a specific context versus other ways in different contexts is important and will lead to the LSLIRE analyst understanding how things fit and their limit and possible/impossible potentials. In addition, Werther suggests a broad knowledge of comparative values, religions, philosophies, politics, history, and other areas will help LSLIRE analysts build a societal behavior profile that is needed to evaluate societies and how they react to change pressures and processes.

Werther points out that LSLIRE forecasting experts need to focus on patterns first then facts. The problem with the facts is that there are too many of them, each embedded in dynamic adaptive complex systems.

Given all the facts, it becomes harder and harder to know which fact matters when, how, why and in what context. Yet, it is natural for humans to learn and experience patterns which make it easier to identify deviations in them. For example, driving a car or walking is a recursive pattern/action. Deviations can be identified if something doesn't fit the expectation. A deep understanding isn't even necessary. In emergent LSLIRE environments, using familiarity, experience and judgment can identify deviations in patterns that can be signals for a coming crisis.

Following mainstream models, methods and mentality will lead to failure in LSLIRE recognition. To be a good LSLIRE analyst, one needs to have the courage to think independently and be a contrarian to see the emerging landscape. If an individual follows the status quo and becomes a member of the herd, he will have a much limited view just seeing what is directly in front of him. Yet herd-like behavior of analysts and their failure to foresee the emerging, changing landscape helps identify the timing of the emergence of the LSLIRE.

SECTION FOUR: BETTER RECOGNITION AND TIMING OF AN EMERGING LSLIRE

Werther answers the question of how mainstream analysts' failure can benefit LSLIRE recognition. He explains that near emerging crises, the herd mindset begins dissolving. As the crisis nears, there is increased divergence in mainstream analysts' ability to see what is happening. While they are unlikely to understand what is wrong when using their methods, more of the analysts begin to realize that something is wrong. The more

mainstream analysts' dissonances and model disturbances occur, the more consideration of emerging deviation in underlying systems and possible LSLIRE occurrence. Therefore, mainstream analysts' failure dynamics teach the time of the emergence of an LSLIRE.

To illustrate this point, Werther includes studies and examples related to the recent financial crisis showing how mainstream analysts' herd-like behavior diverged significantly as economic instability emerged. He also includes examples of how mainstream models acted unusually before a crisis. Therefore, don't ignore the signals!

In conclusion, Werther looks closely at Taleb's closing example. Taleb said, had 9/11 been conceivable, it would not have happened. Thus it was a black swan to Taleb. But it was a foreseeable event (an LSLIRE) to Rescorla and to others who were on the trail. Failure to act is not the same as failure to foresee.

Werther tells us the dots are out there. It is up to you to see them. It is up to you to connect them. It is up to you to choose to act on them. Read this research paper to learn how you can act daily to spot upcoming LSLIREs. After you read this report, you can judge if "LSLIRE" will become the most successful

acronym in the history of forecasting. My advice would be to buy your t-shirt now. **A**

Tom Herget, FSA, MAAA, CERA, is a retired actuary and current chair of the American Academy of Actuaries' Solvency Committee. He can be contacted at *Herg411@ gmail.com.*

Guntram Fritz Albin Werther, Ph.D., is professor of Strategic Management, The Fox School of Business, Temple University. He can be contacted at Guntram.werther@ temple.edu.

Ronora Stryker, ASA, MAAA, is a research actuary with the Society of Actuaries. She can be contacted at *rstryker@soa.org.*