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Posted to the Gilder forum - June 24, 2001

## The Fitness Landscape

A specialist is someone who knows more and more about less and less. An expert is someone who knows everything about nothing!

The idea behind the Santa Fe Institute was precisely to solve the problems created by specialization. The wealth of information about any and every field is so vast that it is difficult to keep up and no time is left for "extracurricular" activities. The institute was conceived by George A. Cowan, the then administrator of the Los Alamos National Laboratory. The founding of the institute is described in Mitchell Waldrop's very readable [Complexity: The Emerging Science at the Edge of Order and Chaos](#). The science of complexity, simply put, is the science that deals with systems made up of many independent agents who act without a central guide and leader. The brain, made up of thousands and thousands of neurons, is a complex system but there is no master neuron to order the others around. The stock market is also a complex system with thousands upon thousands of investors each trying to make a buck with no central authority dictating the buy/sell decisions

I have been reading a lot about the science of complexity lately and it turns out that many of the experiences and experiments described by the various authors are relevant to my observations about politics, management and investing. Currently I am reading [At Home in the Universe: The Search for the Laws of Self-Organization and Complexity](#) by Stuart Kauffman. Kauffman argues that evolution as proposed by Darwin is not enough to explain the current state of living species. He argues that evolution does not work just by selecting the best of random mutations but that there is an underlying order in the universe. According to Kauffman, natural selection helps to improve life forms (usually) but it is not powerful enough to have created life itself. According to Kauffman, life is the result of the self-organization of complex enough open systems. This might be a gentler, kinder form of evolution that even Creationists might be willing to accept. An excerpt:

["An Unrepentant Holism](#)

["This theory of life's origins is rooted in an unrepentant holism, born not of](#)

mysticism, but of mathematical necessity. A critical diversity of molecular species is necessary for life to crystallize. Simpler systems simply do not achieve catalytic closure. Life emerged whole, not piecemeal, and has remained so. Thus unlike the dominant nude RNA view of the origin of life, with its evolutionary just-so stories, we have a hope of explaining why living creatures seem to have a minimal complexity, why nothing simpler than the pleuromona can be alive.

### Fitness Landscapes

The concept of fitness landscapes is one of the really fascinating themes in Kauffman's book. Simply put, a fitness landscape is a three dimensional virtual space with peaks and valleys that a life form traverses seeking the high ground. If a life form is very stable it is liable to get caught in a local high point that is much lower than the life form's potential. In other words, if a life form is very stable it does not know how to get from there to here -- it does not know how to get off a local peak when there are higher peaks in the vicinity. To get off a local high peak means accepting, for a good cause, a temporary lower level of fitness. On the other hand, a chaotic life form never remains for long on any high point because it is hyperactive in its search for fitness. Kauffman calls this good in-between point, Life on the Edge of Chaos. On the edge of chaos is where life forms can attain their best levels of fitness.

There is an additional level of complexity to fitness landscapes when a system houses several species. To use his example, think of what happens to a fly's fitness landscape when frogs develop sticky tongues. The fly has to find ways to neutralize the frog's stick tongue which means that his fitness landscape has changed. Of course, as the fly tries to find ways to evade the frog, the frog's fitness landscape also changes! This is the co-evolutionary dance.

I find the fitness landscape a wonderful metaphor for thinking about investing strategies. A LTBH strategy can be considered as too stable to find the highest peaks of fitness while a trading strategy can be considered as too chaotic to ever remain on the high peak of fitness, should it ever find it. I find it very encouraging that this conceptual explanation matches so well with the results of my experimental trading program which, in effect, accumulates large positions in certain stocks by doing a modicum of trading.

This new way of thinking leads me to two conclusions:

- It reaffirms my conviction that trading is not the best way to make a fortune on Wall St.
- It also tells me that a LTBH strategy, by itself, is also not the best way to make a fortune on Wall St.

As the economy changes, the investing fitness landscape also changes. As the market mood changes, the investing fitness landscape also changes. As ones financial position changes, the investing fitness landscape also changes. As ones preference for certain types of stock changes, the investing fitness landscape also changes. In other words, the investing fitness landscape is co-evolutionary.

Let's take LTBH. If you are investing in traditional consumer goods like Buffett does, then there is little danger of technological obsolescence, a soft drink is a soft drink. But if you are a GTR subscriber and technology investor, then the chances of any one of your products or companies becoming obsolete is very high. This makes our investing fitness landscape different from Buffett's and for us LTBH is riskier and less appropriate than for Buffett.

My [Worry Free Portfolio](#) has taken a lot of heat and I have defended it not as a portfolio but as a way of thinking about which stocks to buy. Lets examine it from the new perspective of fitness landscapes. The thinking behind the Worry Free Portfolio as it refers to which stocks to buy is as valid as ever. Going away on a long vacation and not worrying about the portfolio is no longer valid. The portfolio might not change but the investing fitness landscape might! A company's main product might be made technologically obsolete (NXLK, TERN) or the stock prices might be adversely affected by general market conditions (just about all our stocks). Buffett can count on people drinking Coke now and for a long time but we cannot count on our companies being technology leaders by the end of the bear market. Also, traditional consumer goods companies do not depend on external financing as they are usually cash flow positive. The same cannot be said about those of our companies that are just now building their infrastructure. Believe it or not, being able to read financial statements and understanding their long range implications might be more important for us than for Buffett!

How would I summarize my current investing beliefs?

- Pick your technology stocks carefully
  - Buy as per the GTR, [The Gorilla Game](#) and the Worry Free Portfolio
  - Keep each stock's story on a 3 by 5 card and sell it when the story is no longer true
- Keep margin very low or avoid it entirely so that you can take advantage of buying opportunities
- Take some profits when prices spike up -- they will come back to earth after a while!
- Keep in tune with the market mood and change your investing strategy accordingly
  - In bull markets, LTBH works well, just take some profits
  - In bear markets, accumulate cash
- Never sell short

The above is a revised version on LTBH. The reason for never selling short is that you can't accumulate a position by selling out and it's even more difficult if you are selling short! Besides, the risk/reward ratio of being short sucks!

Denny

"Demand creates queues. Supply gets rid of them."

[Software Times](#)