

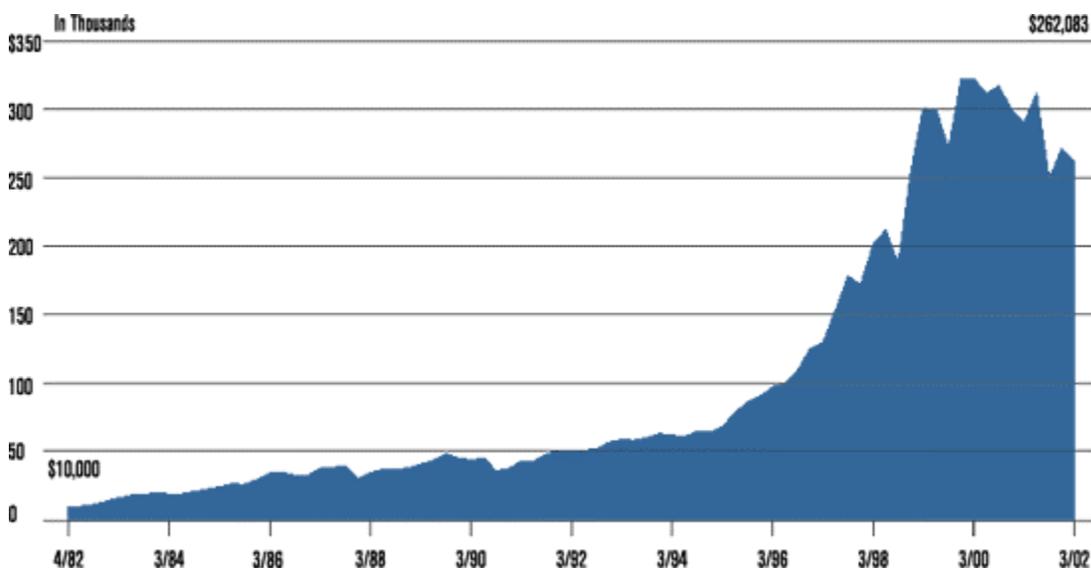
## Latticework - II

by Mohnish Pabrai

Published in the August, 2002 Issue of Silicon India Magazine

Bill Miller manages the Legg Mason Value Trust. He is the *only* mutual fund to have beaten the S&P 500 11 years in a row – averaging about 18% a year versus 13% for the S&P 500. It's a better record than Peter Lynch. How has Miller managed such a stellar record while managing over billions in assets? The answer, again, lies in Latticework.

### Bill Miller's Legg Mason Value Trust Performance Chart



**Figure 1: \$10,000 invested in 1982 had grown to over \$260,000 in 2002**

Bill believes that the stock market is a complex adaptive system. There are a myriad of factors that impact the future performance of any business. The future of a business cannot be gleaned by fixating on book value or P/E ratios. One needs to have a broad based view of the world and build a latticework of mental models. In the rare instance where these mental models converge on much larger numbers for intrinsic value vs. the current price of the business, Bill backs up the truck.

Bill does not have a MBA or business degree. As money managers go, his educational background is most unusual. He was a history major and subsequently pursued a Ph.D in Philosophy at John Hopkins. Like the students at St. John's (*Latticework, July 2002, Silicon India*), Bill enjoys multi-disciplinary reading and interaction. Here is a cross-section of Bill's unusual bookshelf:

*Lives of the Poets* (a 992 page history of English-language poetry)  
*At Home in the Universe*  
*The Eudaemonic Pie*  
*Percentage Baseball*  
*Swarm Intelligence*  
*The Metaphysical Club*  
*Nature and the Greeks*  
*Information Rules*

This multidisciplinary knowledge is fundamental to building a latticework of mental models. Take the book *Swarm Intelligence* for example. It delves into how, if one studied individual ants or bees, one would see random patterns of behavior. However, when their collective work is examined, there is a definitive pattern of order and achievement. Bill believes that the stock market has definitive correlations with the manner in which a swarm of bees behave.

The cross-pollination impacts of studying different disciplines are very helpful getting a handle on the critical factors that are likely to control the future destiny of a given business. A few years back, Bill became aware of The Santa Fe Institute (SFI; [www.santafe.edu](http://www.santafe.edu)) in New Mexico. He immediately started visiting it on a regular basis and is now on their board. SFI is an unusual place. It describes its mission as:

*Operating as a small, visiting institution, SFI seeks to catalyze new collaborative, multidisciplinary projects that break down the barriers between the traditional disciplines, to spread its ideas and methodologies to other individuals and encourage the practical applications of its results.*

SFI promotes multidisciplinary interaction via a range of lectures, workshops and publications. For example, at SFI, physicists or genetics researchers routinely present their ideas and thoughts to multidisciplinary audiences – including fund managers like Bill Miller. Bill Miller himself has presented various nuances of markets and investing at SFI to audiences that have no competency in investing. They are looking for correlations to their field of interest. As an example, SFI's multidisciplinary cross-pollination has led to ground breaking work in complex adaptive systems and Bill has keenly absorbed and applied this knowledge to the Legg Mason Value Trust.

Charlie Munger has taken numerous bits and pieces from a variety of disciplines to form his own investing latticework. Everyday his latticework becomes richer. Let's take, for example, Darwin's Laws of Natural Selection. Based on Darwin's laws, Munger has developed his "Laws of Economic Selection". He finds correlations between the struggle for survival (both inter and intra species) and the odds of a given business' chances of surviving or thriving (both inter and intra industry).

There are additional latticework thoughts to be drawn from Darwin. Darwin was a very unusual scientist. He approached science with an open mind and let extensive empirical evidence and observations drive his analytics to begin to forge a theory. In his book, he observed that man had a tendency to ignore/forget any evidence that conflicted with preconceived theories or the vast majority of other observed evidence. Understanding this bias, he made it a point to write down everything that did not agree with his emerging theories or science as it was understood in the 1800s. He then went to work on these inconsistencies with a series of deeply probing "Whys?".

In contrast to Darwin, Louis Agassiz (the person who first discovered the pattern of Ice Ages), started with preconceived theories that made perfect sense to him and then went about observing the evidence. He made the evidence "fit" the theory. Agassiz believed that all lifeforms were destroyed by the end of each Ice Age and the creator "repopulated" the earth with a diverse range of lifeforms each time. He then gathered evidence that supported his theory. He refuted Darwin's theories on the origin of species since it contradicted his "perfect theory". Agassiz was an outstanding public speaker and a professor at Harvard. For the longest time, his theories were blessed by academics and listeners everywhere.

Investing is all about making a series of observations about a given business and developing a theory about what it's going to do in the future. We all have a tendency to approach it like Agassiz and make the evidence fit a preconceived theory and ignore any minor aberrations that fly in the face of the perfect theory. However, we'd all do a lot better as investors if we approach the problem like Darwin. Start by making a series of careful observations, analyze them, fixate on the ones that fly in the face of an emerging picture, ask lots of "Why" questions and look at the final latticework to make a decision.

When I was taught Darwin's theory of evolution, it was condensed down to a small chapter in a nondescript science textbook. None of Darwin's analytics made it into the chapter. One has to read Darwin's own words to understand how he was the one who solved the problem – even though millions around him had full access to the same dataset and couldn't see it. On a smaller scale, it is very similar to the thought process behind Buffett's investment in Coca Cola in 1987 (*Latticework, July 2002, Silicon India*).

The best part about investing is that one can never reach a plateau where the learning stops. It is one of the broadest of all disciplines where all knowledge has a cumulative effect and essentially nothing is wasted. As the years roll by, if one continues to delve into a diverse range of disciplines, the latticework of mental models only gets richer – with ever improving results. I referenced *The Man Who Beat the S&P* by Janet Lowe for this article and recommend the book to delve further into Latticework.

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**Mohnish Pabrai is the Managing Partner of Pabrai Investment Funds. He can be reached at [mohnish@corp.siliconindia.com](mailto:mohnish@corp.siliconindia.com)**