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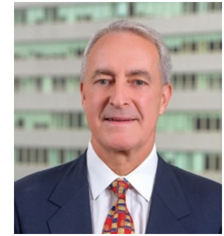

Thoughts for Investors

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The Fall of "New Math"

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"Everyone has a plan … until he gets hit."
– Mike Tyson

As In past issues of "Thoughts for Investors," I wrote that there are no secret investment formulae that work forever. I have also written that the existence of noncorrelated investments (except for cash) is, in my opinion, a myth confirmed at the most inopportune time – in a crisis – when everything goes down except cash. Portfolio management techniques such as asset allocation, Monte Carlo simulations, and portfolio alphas and betas have not worked to protect portfolios as investors had hoped. They only serve to lull investors into thinking one can "calculate" or "plan" their way to financial success instead of saving and working at investing. Finally, I have written that risk and volatility are different. Volatility can be good if you are in a position to take advantage of it, and risk can be bad if you didn't know you were taking it. All these issues have a common thread: They all involve "new math." In this issue I will outline why I believe the use of "new math" contributed to today's financial panic and ensuing economic crisis and what investors should be thinking about now.

"Problems can't be solved at the same level of awareness that created them."
– Albert Einstein

After every financial panic throughout history – and financial panics have been around since the invention of money – mankind endeavors to learn what went wrong and fix it. After the panic of the Bear Market of 1973-1974 there was an inevitable feeling of hopelessness and lack of control over the performance of one's investment portfolio. During this time, Wall Street started paying more attention to academic research aimed at incorporating more sophisticated quantitative theory into investment management. The hope was to reduce risk. One person whose work in this field began to gain prominence was Harry Markowitz, who in 1952 was credited with developing Modern Portfolio Theory or MPT. MPT states that an investor can "calculate" an expected return for a given amount of risk.

"For my part, it was Greek to me."
– William Shakespeare, Julius Caesar

If you know how much money you have, you can easily calculate the rate of return necessary to achieve a certain level of income. That part is "old math" and it works. However, it does not take risk into consideration and is unsophisticated, so someone can't charge you to do it. By adding the "new math" MPT theory, you can "calculate" the optimal mix of investments (or asset classes) for a given level of risk (uncertainty). Of course, this assumes that you have correctly assessed the risk, not an easy task. Along came David X. Li, a mathematician, with his risk assessment formula developed from the Gaussian copula function. Now Wall Street believed they were able to correctly assess complex risks, especially those associated with mortgage bonds. In other words, and theoretically at best, using "new math," computers could "calculate" the return and the risk. Seemingly investors had found the Holy Grail, a method for turning the "art" of investing into the "science" of investing.

There were failures of early versions of "new math"

models. The crash of 1987 was attributed to the failure of "portfolio insurance." Long Term Capital Management (LTCM), a hedge fund that used "new math" trading strategies such as fixed income arbitrage, statistical arbitrage, pairs trading, and lots of leverage, failed spectacularly as well. LTCM even had Nobel Prize winning economists on its board. Yet Wall Street was unfazed by these failures. Having refined its models to include even more sophisticated "new math" such as the Gaussian cupola function, they turned the whole thing loose again, this time on the bond market. Needless to say, much of Wall Street jumped on the bandwagon when, adding leverage, big profits ensued. No one wanted to leave the party early.

"The fool doth think himself wise, but the wise man knows himself to be a fool."

– William Shakespeare

Unfortunately, I believe there was another "miscalculation." These new math "tools" were put into the hands of inexperienced users. This is akin to giving a 10-year-old a chemistry set containing dangerous chemicals. Without the presence of an instructor or mentor, or in some cases common sense and knowledge of history, the toxic combination of "new math" tools, inexperience, leverage, and worst of all, OPM (other people's money) created a recipe for an explosion. All that was needed for ignition was the match, a panic brought on by something unexpected or remote. In 1998, The Russian Financial Panic was the match that led to the failure of Long-Term Capital Management. The failure of Lehman Brothers in 2008 was the match that many say led to our current situation. The sad part of the current panic is that even if you knew that investing could not be reduced to a science and therefore avoided subprime mortgage bonds, or derivatives, or countless other financial engineered "products" created through the use of "new math," you've still been injured by flying shrapnel.

In summary, understanding history is important for putting today's issues in perspective. Many of us don't read history and in particular, many investors don't read financial history. We've been here before (see last newsletter on why this time is not different). Nevertheless, there are three important questions investors need answers for right now: When will this crisis end? What should we learn to prevent its reoccurrence? What investments or types of investments should we be making now?

This crisis will end. All crises end, yet on a timetable that is unknown. Eventually every crisis runs out of fuel (fear) and burns itself out, yet not before clearing out the debris. Consider these times like a strong wind. As it blows through the trees, it knocks out the dead and diseased branches, thereby preventing the diseases from infecting the rest of the tree and from spreading through the forest and killing all the other trees. Imagine the scenario where this wave of Ponzi schemes was allowed to continue unchecked. I realize a healthy tree will occasionally be toppled, yet even that event serves some good. Sunlight will reach the forest floor, seeds will germinate, and a new generation of trees will be allowed to flourish.

"Capitalism is the worst economic system, except for all the others."

– Winston Churchill

"The problem with socialism is that you eventually run out of other people's money."

– Margaret Thatcher

What should we learn? We should learn that humans will make these (or new) mistakes again, and that is not all bad! Making mistakes is an important way civilizations advance. Capitalism, even with its "new math" mistakes, is the best economic model discovered so far. Further, we should be careful about associating the word "greed" with the word "capitalism." Years ago, Phil Donahue interviewed Milton Friedman, the great economist. During the television interview (you can find it on YouTube), when asked if he ever had doubts about capitalism, Friedman replied, "The world runs on individuals pursuing their separate interests … Einstein didn't construct his theory under order from a bureaucrat. Henry Ford didn't revolutionize the automobile industry that way … the only cases in recorded history in which the masses have escaped

from grinding poverty is where they have had capitalism and largely free trade." Finally, we should learn that investing is both an art and a science. Great artists are "scientific" about their craft. Great scientists employ "judgment" (see prior newsletter on "judgment") to more fully utilize the tremendous capacity of human intellect. "If it is too good to be true …" should have been part of the investment philosophy for Madoff investors.

"Failure is the only opportunity to begin again more intelligently."

– Henry Ford

What type(s) of investments you should be making now depends on your needs, your risk tolerance, and your time frame (see newsletter on needs versus wants). Identifying the proper investments for you requires working with someone who has his/her own well-thought-out process for investing. They must have an investment philosophy and strategy and must be able to explain it to you. They must have experience and be capable of overlaying judgment on decisions (see newsletter on judgment). "Judgment," with regard to investing, involves the ability to distinguish a good process that leads to a bad outcome (bad luck) from a bad process that leads to a good outcome (good luck). You must agree with their philosophy and strategy in order to be patient and must be confident that your best interests are being served. Finally, there has to be mutual trust. There is no pie chart, asset allocation, investment "product," or any "new math" model or software that works for all investors, under all conditions, as is now painfully clear.

"Don't worry about the world coming to an end today. It's already tomorrow in Australia!"

– Charles Schultz

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Hear the Other Side

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