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Subzero, Subprime and Cement

The year was 406, and Vandal tribes stared across the Rhine River, the frontier of the Roman Empire, at the camps of the Roman legions. For years, the Vandals and other tribes harried the Romans, but the Rhine had always stood as a natural defensive barrier. The Goths, a competing tribe, had crossed the Danube and were raiding throughout the Empire. The Vandals were jealous and eager to get their share of land and booty. Still, the Romans across the Rhine had defeated them so many times that they felt stymied.

One morning in early winter, the Vandals awoke to find that subzero weather had frozen the Rhine. Scouting parties crept across to find the Roman guardhouses and camps empty. The Romans had stripped the Rhine garrison of soldiers and sent them back to Italy to fight against the Gothic invasion, confident that the river barrier would continue to protect the Empire. Nobody was home. The Vandals and other "barbarian" tribes streamed across the frozen river, breaking down the frontier and virtually assuring the collapse of the Roman Empire in the west. Chaos reigned. The Goths wound up sacking Rome in 410; a shocking event that you might guess would cause a rift in diplomatic relations with the Romans. Rome, however, decided it needed the Goths as an ally to fight off the Vandals, so a treaty ceded the Goths the south of France in return for a promise to help the Romans against the other barbarians. Therefore, the Goths, in the space of a few short years, went from wearing smelly animal skins in frigid northern Europe to eating cracked crab on the beaches of the Riviera, and the greatest empire in the history of the world stood on the brink of collapse, all because of a river freezing.

More recently in Moscow, Russian air force planes accidently dropped a 55-pound bag of cement on a suburban home. The planes were seeding the clouds in an attempt to create good weather for a national holiday (and here we are, dutifully reducing our carbon footprint to prevent climate change). Experts helpfully explained that the bag "failed to pulverize completely at high altitude," falling and leaving a 3-foot hole in the roof of the house. They indicated this was their first problem seeding clouds in 20 years.

One plans one's life without taking into account the possibility of rivers freezing over or cement bags crashing through the ceiling. The world is a complicated place, a complex adaptive mechanism, and yet we humans persist in seeking simplistic notions of cause and effect. Unsettling complexity is very evident in the financial markets. In early 2007, subprime loan problems started to emerge, but a chorus of experts told us the problem was "contained" and represented only a minor factor on the overall economic and investment scene. Since then, not only has the subprime blip turned into a crisis, it has also devastated the returns of quantitative investment managers, the municipal bond market, monoline insurers, and the commercial banking and investment banking industries generally.

> ***"[Life] looks just a little more mathematical and regular than it is; its exactitude is obvious, but its inexactitude is hidden; its wildness lies in wait."***
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> ***– G.K. Chesterton,* Orthodoxy**

Quantitative investors love to use their delicate statistical apparatus to analyze investment returns from various assets and different factors in the markets. Many hedge funds, banks and investors now in trouble are prone to blame their troubles on supposedly unforeseeable "only once in 10,000 years" circumstances. You would think that after dozens of such supposedly rare occurrences happen, some market participants would begin to question their underlying assumptions and overall approach to market risk. If your predictive models consistently lead to disaster, you may need a new model.

Many quantitative approaches assume that security returns are normally distributed, that they follow the pattern of the familiar bell curve you might remember from a long-ago course in statistics. This has many benefits from a calculation standpoint. It allows you to use a huge box of statistical tools that generate all kinds of interesting conclusions. There is one big drawback to the assumption, however – it does not correspond to reality. A relatively simple observation of security returns indicates they are not normally distributed. They look close, and this allows many to pretend that close is good enough. If you are leveraged 30 to 1, like many hedge funds or investment bank proprietary trading desks, close definitely is not good enough – a relatively small negative variation from the model is enough to wipe out your equity. One can imagine, using the modern parlance, Roman generals and Russian pilots explaining that their problems were a "ten-sigma event," but the Empire still fell and that hole is still in the roof.

G.K. Chesterton observed that the problem with the world is that it is nearly reasonable, but not quite, a trap for logicians. We yearn for regularity and control, for a Newtonian universe where every effect has an easily discernable and explainable cause. This yearning leads us towards hindsight bias in which, lacking humility, we convince ourselves that unexpected events of the past actually were obvious and inevitable. The Romans should have been better at weather prediction, and Muscovites should wear hard hats. An unfortunate aspect of life generally and of investing specifically is that, eventually, you tend to experience hard-to-predict, rare events that have huge impacts on outcomes. You might believe you have the world's greatest investing algorithm, but the next moment a bag of cement hurtles past your head, and your investment empire can lie in ruins. A good investment plan needs a margin of safety that protects against the unexpected. Do not be a cement-head – before the wildness in wait vandalizes your portfolio, contact us at www.sigmainvestment.com or give us a call at 503-419-3938.