

# C<sup>c</sup>avelti

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To: Our Clients  
From: Peter Cavelti

## On Chaos

Dear Client:

Chaos Theory, once dismissed as a fad, has become an important part of modern physics. As one school text observes, physics is no longer just the study of subatomic particles in a billion-dollar particle accelerator, but the study of chaotic systems and how they work. Physics is not alone: chaos theory has become a new frontier of science in general: engineering, mathematics, biology and even philosophy are exploring how its teachings may be applied. Manifestations of chaos occur almost everywhere: meteorologists understand that air turbulence and ocean currents behave chaotically; medical science can't predict how blood will flow through fractal vessels; plants branch and bloom in endlessly different ways even when growing conditions and nutrients are identical. The bottom-line: the evolution of complex systems does not follow a linear path and outcomes can therefore not be accurately predicted. And why is that? Chaos theory teaches that even a tiny difference in initial parameters will completely alter the behavior of a system, once it is complex.

"The flapping of a single butterfly's wing produces a tiny change in the state of the atmosphere. Over a period of time, what the atmosphere actually does diverges from what it would have done. So, in a month's time, a tornado that would have devastated the Indonesian coast doesn't happen. Or maybe one that wasn't going to happen, does."

*From *Does God Play Dice? The Mathematics of Chaos*, by Ian Stewart,  
the mathematician who coined the term "Butterfly Effect".*

As investors are coming to understand, chaos is frequently present in the economy, whose functioning and success is dictated by two forces: the mindset of its participants and the policy actions initiated by politicians and monetary authorities. To say the least, that makes for an extremely complex construct. In recent years, central banks have made available to the economy trillions of dollars, while politicians have continuously reassured us that all is under control, while economists and the financial industry have echoed this optimistic sentiment. But people aren't buying it. Consumers are extremely cautious and businesses are hesitant to make productive investments.

It's difficult to determine exactly when public sentiment changed. Maybe the 2008 financial crises caused provided a catalyst, or maybe the policy responses to that crisis (such as the mega bailout of patently reckless banks and incompetent enterprises) were responsible. Or perhaps negativity built in small increments, over time. Few people have the knowledge or analytical tools to investigate economic and social developments, but everyone is touched on some level as they unfold. What is not grasped through intellectual reasoning is still deeply understood at an intuitive level.

For example, most people cannot logically explain how, over the past two or three decades, policies in virtually all segments of governance have been allowed to become unsustainable. But they sense that our economic and monetary strategies are faulty, or that the way our foreign policy is conducted isn't benefiting anyone. Some results of misguided policy are so blatant, everyone can see and feel them: education and healthcare are in disarray, infrastructural upkeep appears non-existent, our resources are mismanaged and our environment is compromised. Let's face it, our politicians have let us down badly, continuously shying away from badly needed reforms and kicking the proverbial can ever further down the road. An added problem is that the worse things get, the more painful the corrective action will be—at this point, politicians who embrace meaningful reform literally risk the end of their career.

One major reason why the central banks have become so powerful is that politicians have been disastrously ineffective. But in implementing monetary policies that have saved the existing systems from painful and socially disruptive restructuring, or even collapse, the world's key central bankers have unleashed forces that have themselves introduced new variables and unknowns. One example is the zero interest rate policies that are now in place in so many countries—it's hard to see how they can ever be reversed without throwing their economies into a tailspin. And in the meantime, zero interest rates have comprehensively altered the social order. People who led productive and financially prudent lives are deprived of an income on their life savings; pension funds can no longer grow their assets to cover their liabilities; companies that are run along sound business principles are under pressure because others, fuelled by mega-loads of cheap credit are stealing their market share.

### Butterflies Turning Into Black Swans

Add to this the fact that at least half a dozen other critical changes are in progress, and you end up with a climate of extreme complexity. Consider the following:

- The benefits of globalization and productivity growth, arguably the two most powerful economic dynamics of the past two or three decades, are now testing their limits.
- We have entered a messy transition from an era of American moral leadership to a multi-polar geopolitical arrangement, in which even U.S. allies find it difficult to attribute credibility to Washington's agenda.
- Central bank policies and the lack of meaningful political reform are eroding our Middle Class, creating a massive disparity in wealth. Nowhere is the development more pronounced than in the United States, which is fast descending into an oligarchy.

-The demographic bubbles in Japan and several key European economies are entering their most critical stage. In Europe, the social cost of the 'old age' problem is now being compounded by the massive influx of migrants and refugees.

-China, whose rapid growth generated massive demand for raw materials and consumer goods in the mainstream economies, is undergoing a painful restructuring that is likely to suppress domestic and global growth for the foreseeable future.

-The collapse in oil prices threatens the economies and destabilizes the social orders of at least a dozen major energy-producing nations in Africa, the Middle East and South East Asia.

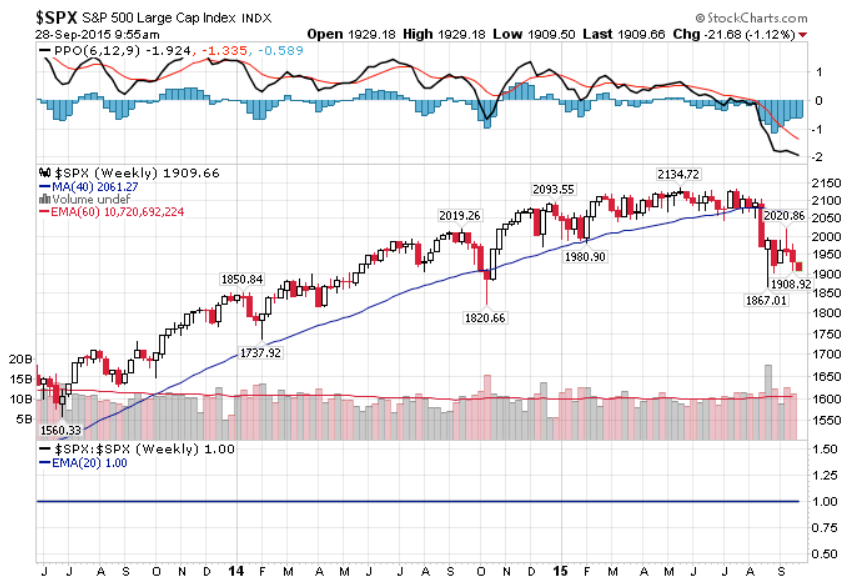
Taking into account these and other challenges, it becomes clear that chaos is not an unlikely outcome. It's also easy to see how one key variable in the economy, the popular mindset, could quickly turn more negative. Conversely, it seems unlikely that sentiment will turn positive while so many unresolved problems are with us and potentially destructive new developments are unfolding. That, unfortunately, does not bode well for economic and social stability and, by extension, our capitalist system's financial markets.

A great many financial professionals and economists describe the current outlook as encouraging. They see monetary authorities like the Federal Reserve as a benign force that will surely prevent a descent into another recession. Counterpoint to that rosy perspective is the voice of several well-known financial professionals who fear that central bank experimenting has done more harm than good and that we may experience declines in all asset classes. Everyone will lose money, they feel, and the winners will be those investors who lose the least. These opposing viewpoints essentially capture the two most likely broad outcomes. On the one hand, there is the possibility of a reflationary recovery, in which massive ongoing stimulus and continued low interest rates will eventually help economic growth, but probably at the expense of a significant rise in inflation. On the other hand looms accelerating deflation, in which even aggressive central bank actions become ever more ineffective, and in which prices and valuations of almost everything spiral downward. What will tip the balance to one side or the other? Most likely, a catalyst that we can only guess at: a breakdown in the social order, a policy error by a key central bank or government, a military confrontation turned war, a banking crisis, or one of half a dozen other events that could easily arise out of the current disequilibrium.

### Guessing Is Futile

Investors can never know what's ahead with certainty, but in more sedate climates it's possible to make educated guesses. I would argue that at present what lies ahead is unknowable and, consequently, would recommend diversification across a broad spectrum of conventional and alternative asset classes and regions. I also remain convinced that a strong focus on capital preservation is best. Bigger bets on any asset class or sector may hold the promise of greater gain, but will also raise the level of risk.

Unfortunately, caution cannot protect your account from depreciation, as long as we hold any investments, and third quarter results reflect that fact. The main reason for the negative performance in your account is due to the decline in the U.S. stock market. Perversely, the correction is at least partly due to the very fact that America's economy is in better shape than others.



Driven by the fact that the U.S. is “the best house in a badly run-down neighborhood”, capital flows into the United States have been strong all year, propelling the U.S. dollar to multi-year highs and undermining the export earnings of many American corporations. And the high dollar is not the only factor that generates headwinds for U.S. equities—equally responsible are the continued economic weakness in most other parts of the world and a continuously

cautious American consumer. The result: earnings expectations are falling, at a time when stock valuations remain fairly high. Even so, we still prefer the U.S. market to most others. Consumers and businesses appear to have settled into the kind of low-growth environment we’ve now seen for several years without losing heart, which reduces the odds of a recession. Another source of comfort is that American banking system is well capitalized. These attributes are in stark contrast to Europe, Japan, China and much of the emerging markets complex, where the financial system is wobbly and consumers are pessimistic.

The bottom line: we continue to be cautious investors, and in the equity space we continue to favor the U.S. We also hold modest exposures to the commodity and emerging markets sectors, where valuations have collapsed and solid longer-term value is present. Looking forward, we believe high volatility will be with us for considerable time, with periods of sharp sell-offs and robust rebounds both a distinct possibility. Let’s be clear about one thing: central banks appear to have lost control over their intended path toward ‘normalization’, but their experiment continues and their power remains undiminished. That is why financial asset markets will continue to take their cues from statements made by a few central bankers. And given the large number of unresolved issues on the economic and geo-political fronts there will be lots of such statements, each of which will yank precariously jumpy financial markets in one direction or another.

With kind regards,