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## REMEMBERING THE FUTURE

Vol. 2, Issue 5, November 2010

The **C**omplexity of **C**urrencies and **C**atastrophic **C**haos: The Four **C**s of Damocles' Sword  
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### Introduction

In the September 2009 issue, we wrote that financial crises come in twins. We elaborated in that issue that the credit crisis that originated in the US due to over-extension of credit based on worthless paper assets will have a twin crisis in the form of currency crisis. The first phase of the latter was shown in the EU in the early part of this year (see also our newsletters of February-May, 2010).

We are of the opinion that the second phase of that crisis has started slowly to show its face and implications in the current discussions and headlines of “currency wars”. The US desires trade surplus nations (more accurately nations whose current account exhibits significant surpluses defined as 4% of local GDP) such as China, Japan, and Germany to allow appreciation of their currencies while the US dollar declines. If that takes place, then global trade imbalances – which certainly contributed significantly to the crisis – will start moving towards correction.

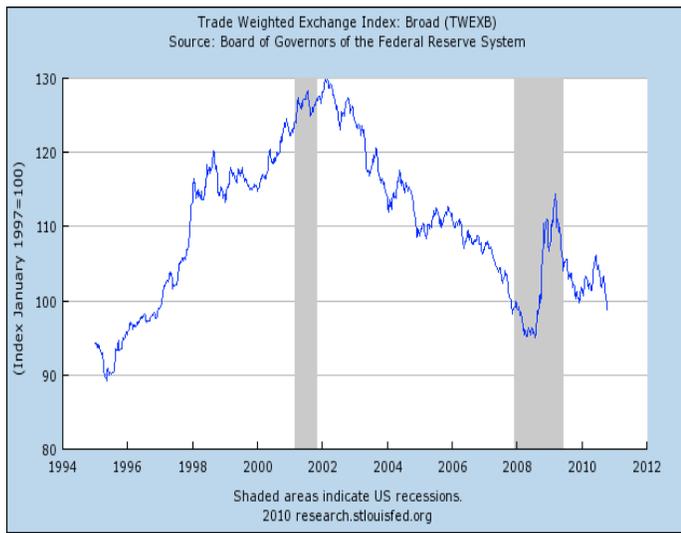
The currency picture these days resembles the legend of Damocles, who was a courtier for Dionysius II in Syracuse, in the 4<sup>th</sup> century BC. According to the legend, Damocles backed away from being the king – even for a day – due to a sword that was hanging over the throne. The interesting part is that the sword was hanging just by a single hair of a horse's tail. As we see the global crisis evolving, we believe that a Damoclean sword is hanging over the global markets and is being held by a single hair of a horse called bubbles. Heads of central banks who are well

respected through the years such as Marvin King of England, and Axel Weber of the German Bundesbank, have been saying for few weeks now that the new Basel III rules are not sufficient to prevent another crisis. Both of them see too much debt in the balance sheets of banks.

The US central bank is preparing the next phase of what is known as QE2 a.k.a. increasing the money supply for the sake of buying more paper and pumping more liquidity into the market. If that were the answer then why don't they find ways to release the hundreds of billions that are sitting idle in the balance sheets of the banks i.e. the funds of the first round of increases in the monetary base? (See related graphs in previous commentaries, including but not limited to the ones in September 2009 and May 2009).

All these talks about currency wars and QE2, have been pushing the value of the dollar down, as the following graphs demonstrate. We believe that the efforts underway to create a multi-polar monetary system where other currencies will start gaining international reserve status may resemble efforts made in the beginning of the second decade of the 20<sup>th</sup> century (around 1912 the British pound and the French Franc tried to co-exist) as well as in the late 1920s and early 1930s when efforts were made again for the British pound to co-exist with the US dollar. We know that both efforts led to a catastrophe because the absence of an anchor turns the global credit markets into an unstable mechanism.

Figure 1: The Trade-Weighted Index and Value of the Dollar



The figure above tells us a story of quantity and value. The dollar was losing ground from 2000 until the eruption of the crisis when it was viewed as a safe haven. The movement and the intentions to circulate more of them has resulted in a discounted picture by the international markets and thus both the dollar index and the trade-weighted value of the dollar may soon reach historic lows.

However, the situation is much more complex than this, so in the next section we will discuss three theories that were developed not for economics but for natural sciences and how their interaction may fit into the currency framework.

These theories are known as complexity, catastrophe, and chaos theories.

### Complexity, Catastrophe, and Chaos: The Currency Markets

The second law of thermodynamics tells us that a system that experiences reduced energy to do its work, will ultimately increase its disorder. The currencies worldwide have moved away from equilibrium due to various (external) interventions, manipulations, fiscal and monetary policies, as well as the unstable behavior of market participants. These factors increase the currency disorder and serve as the Damoclean sword over the currency markets.

A complex system is made up of a large number of relatively simple entities that organize themselves into a collective whole that takes advantage of information, evolves into a greater system, learns by itself, creates synergisms, and weaves as well as entwines into something that is greater than its parts. An example of a complex system is our brain, where simple cells/components called neurons through their internal connections cause thoughts, feelings, perceptions, and other brain activities.

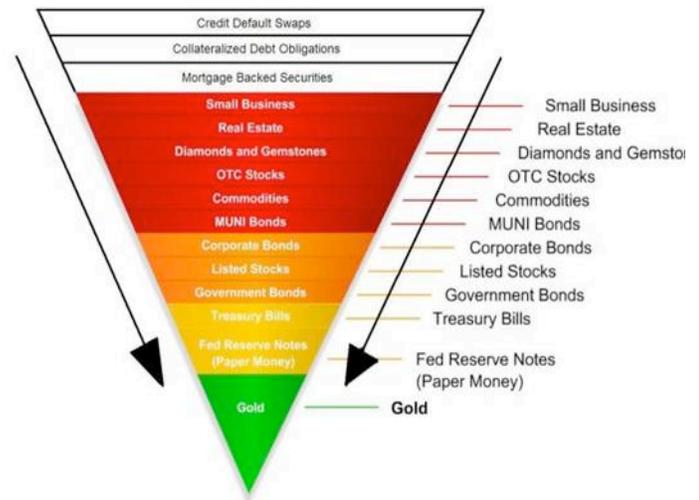
Another marvelous example can be found in the picture below, which demonstrates how an ant colony advances the good of the whole, by finding ways to identify sources of food, save time, fight intruders, etc. Each ant works alone and performs simple actions. However, the collective result is the survival of the colony. The ants' use of soil, leaves, and twigs to build nests of great stability and strength is a lesson to us all. Those nests are characterized by large networks of underground passages that have the perfect temperatures. The social structures of ants point to a complex system where individual actions allow the whole body to adapt to changing circumstances. The amazing thing about these complex systems is the fact that individual simplicity becomes the cornerstone of collective sophistication.

Figure 2: Simple Acts and Complex Systems



Can we draw some lessons from the complex systems? Adam Smith in 1776 called the microscopic market participants' behavior the self-interest that leads to a social optimal output, a.k.a. "the invisible hand". However, in today's global economy we no longer have microscopic players, but rather nations, megacorps, and funds that are huge, may even have competing interests and goals, and the concept of common survival may not even be in the agenda. The complexity of currencies is not found in simple behavior but rather in unanchored (coordinated and non-coordinated) policies where the great majority of the credit pyramid has been filled with "assets" whose value is determined not by intrinsic principles but rather by algorithms that have subverted the concepts of production, distribution, growth, and consumption. Such subversion can be seen in the figure below originally proposed by John Exter (former V.P. of the NY Fed).

Figure 3: The Subversion of the Credit Mechanism



This subversion, releases financial energy and credit from the bottom to the top i.e. the collateralized paper assets whose valued may have been exaggerated via algorithmic manipulations, is feeding the credit system, with precious metals moving up in value as a result as their safe haven aspect is being valued more and more. This release of energy increases the system's entropy/disorder and is the Damoclean sword that hangs over by a single horse's hair. In a section that follows, we will show the numbers in each subsection of the pyramid.

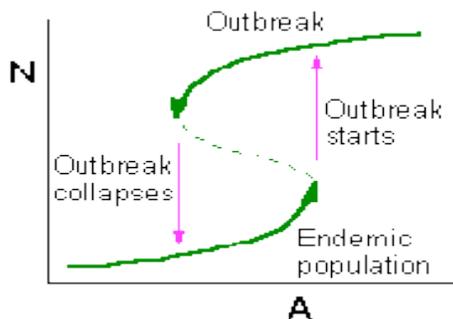
It seems that the effort to bridge the gap of global imbalances via coordinated action and the co-existence of currencies that can simultaneously play the role of reserve currencies, along with credit creation – based on the monetization of contracts - may unleash the Damoclean sword. Such a simple movement may bring catastrophe into the whole system. Hence, our application of the catastrophe theory in this framework.

Here is the essence of catastrophe theory articulated by Rene Thom: Small changes in circumstances of sub-articles can destabilize the whole system. The constant feeding of the credit system with paper assets that are being

collateralized and their tranches sold as securities, ultimately could lead to a disequilibrium position of fiat money collapse. Water suddenly boils, a bridge can suddenly collapse, ice melts, or the earth unexpectedly quakes. The energy pressures destabilize the system, and we are afraid that we are closer than ever in the last forty years for such a collapse/catastrophe.

The increases in the monetary base as an initial reaction to the credit collapse could be perceived as an inflation hysteresis that will create an outbreak with QE2. The latter will boost demand for Treasuries and will allow the issuance of more derivatives (e.g. interest rate derivatives) that could augment the demand for dollar-denominated paper assets. The pyramid of created liabilities can only be liquidated by a finite supply of paper. This in turn creates a bias for falling interest rates and artificially boosts the demand for bonds. The layers of derivatives that have been built into the global credit system (in the trillions of dollars) could only be redeemed and liquidated via T-bonds. All those layers represent real liabilities and counter-party risks that someone cannot avoid except by defaulting on those. What will be the thing that breaks the camel's back may not be known, but when it happens (the small movement in the catastrophe theory) an avalanche of defaults will take place and chaos will ensue. Faith in fiat-paper money will disappear since real hard assets will be insufficient to cover the pyramid of liabilities that has been constructed. The system's entropy will force it back to the origin as the following graph shows.

Figure 4: Endogenous Entropy/Disorder in a Catastrophe Model



The artificial creation of demand for paper should be viewed within the context of lowering interest rates where the accomplishment of the latter is supposed to unleash saved energies (unused capacities, excess labor, savings etc), stimulate demand, lower unemployment, and possible even create a level of contained inflationary expectations. Thus, the context is fairly predictable and deterministic. The essence of our argument is that the inverted pyramid is unstable and a small change makes this deterministic model fairly unpredictable a.k.a. deterministic chaos.

Closing this section let's review the inverted pyramid with the corresponding numbers in each section.

Figure 5: The Trillions within the Inverted Pyramid



In a global economy where total production is roughly \$60 trillion, the paper assets issued exceed the global GDP by a significant high multiple, demanding in the process augmentation via credit creation. The result may be catastrophic chaos for fiat currencies that will lose value against hard assets.

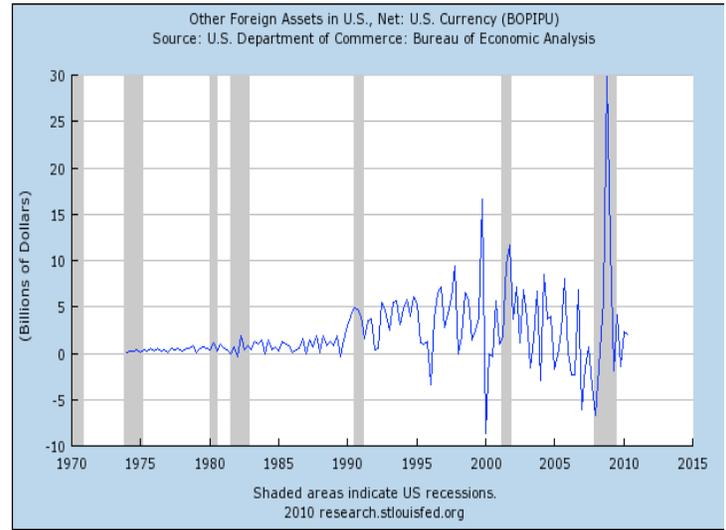
**Currency Multi-Polarity and Financial Instability**

The reader could find numerous references over the course of the last 18 months that call for a new international reserve currency. Our position is that while such a move may resemble the efforts of ants who sacrificially build a bridge for the sake of the whole, the situation with currencies involve unpredictable behavior of all market participants and such calls and actions at the present time may be nothing more than the straw that breaks the camel’s back.

Currency multi-polarity could possibly be implemented under conditions of financial stability rather than of instability. Hence, while hedge funds and Vector/ETFs may gain from such a move (where the commodities oriented currencies such as the Australian, New Zealand and Canadian dollars are included into a basket of global currency) in the foreseeable future, the result of such an effort may contribute to the ultimate collapse of fiat currencies. This may happen because market participants will no longer view the system’s liabilities as liquid assets. If that were to happen, then either banks will default or prices will skyrocket. In either case, debt instruments will no longer be capable of controlling capital assets which will lead to instability, and deterministic chaos.

It seems that we were on the verge of such a thing when the crisis erupted, and hence foreigners brought their assets to the US which was viewed as the safe haven, as the following figure portrays.

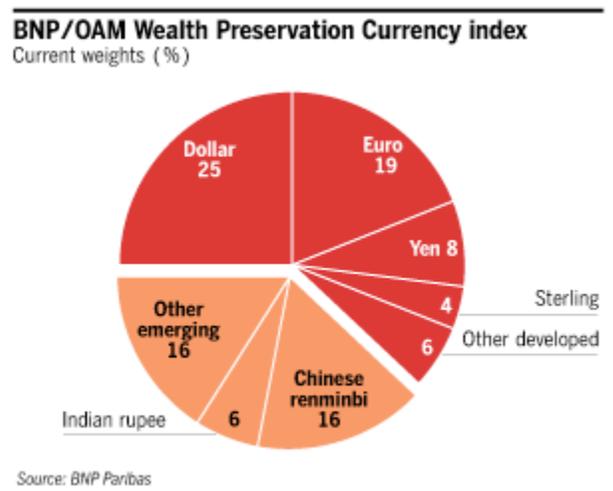
Figure 6: Foreign Assets in the US since 1975



The drop that is being observed lately could be interpreted either as a verdict of global confidence that the worst is over, or as lack of confidence to the strength of the dollar to store value for the owners of those foreign assets. The problem is that when the next crisis erupts, its nature will not allow asset owners to seek refuge in paper currencies.

The figure below is but just one example of the recent tendency to diversify away from the US dollar, primarily as an effort to preserve wealth.

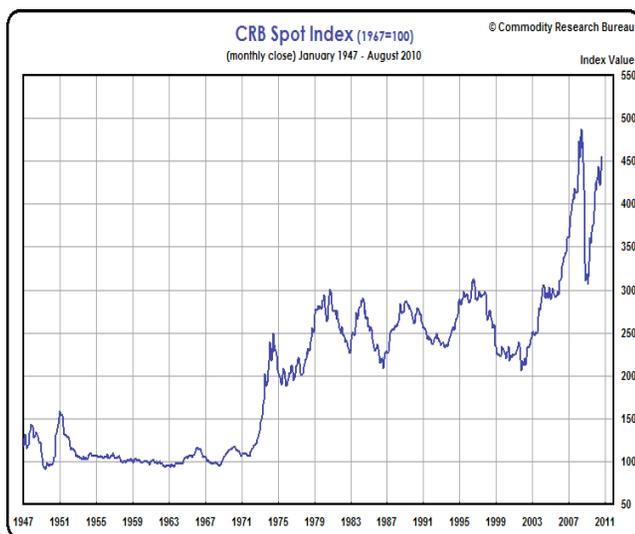
Figure 7: A New Index Currency Fund



Financial capital movements to the tune of almost four trillion dollars a day for speculative purposes signifies a volatile environment of debasing the fiat currencies from any real production measure. The prosperity of a nation does not depend on its ability to consume but rather on its capability to produce. In a similar manner, a nation cannot thrive its way to prosperity and wealth creation by debasing its currency from real production and hard asset bases.

The dollar/debt/financial instruments express may be coming soon to a halt. The low volume in the equities market signify uncertainty. The commodities' market index as shown below reflects that uncertainty too and signifies the demand not just for returns but for a stable basis.

Figure 8: The Commodities Index in the Last Several Decades



### **Conclusion**

We consider it only prudent to reiterate that currency diversification in a portfolio under conditions of uncertainty and instability described above is a must. We also reiterate our “ode to hard assets” position and we caution portfolio allocation/construction managers to take defensive positions for the foreseeable future, anchored in real assets that not only could gain from a chaotic

development but also serve as the springboard for greater gains in the evolving economic environment. The legendary Irish singer/songwriter Rory Gallagher in his song Moonchild wrote:

“You are a moonchild and, pretty soon child  
I’ve got that feeling that  
I’m gonna make you smile forever if I can  
Just give me a sign and I’ll show you my plan”

The gods may have sent Pandora as a punishment for Prometheus’ act of stealing the fire, but even Pandora’s box retained the hope. Dum Spiro Spero for those anchored portfolios!