# The Fingers of Housing Instability



**By John Mauldin**

This week we look at the yen carry trade, delve deeper into the mortgage lending world, and see if we can find a possible connection between them and the economy in general through something called complexity theory. As I have written for many months, I think the subprime mortgage problems are going to be the catalyst for a recession. We look at some ways that the contagion in this small part of the housing market could spread.

Bubbles have consequences far beyond their causes when they burst. That is because they encourage irrational behavior and expectations not just in the asset that is rising in price, but in surrounding areas. As an example, remember the internet bubble? There were 350 internet stocks at the end of 1999, comprising a mere 6% of the market cap of total US equities. But the NASDAQ dropped by over 70%. The damage was not confined to just internet stocks.

The massive build-out by the internet and telecom companies produced monster sales at technology suppliers all up and down the food chain. The rise in tech-stock values created a mindset that infected all stocks, giving us the highest P/E ratios in history. It was a new era, we were told. And the internet in fact has ushered in a new era in the way many of us work and live. But that new era has to live in real-world valuations.

I think we are seeing the same theme in the housing market, just in a slower manner. What began as a reasonable response to lower rates (higher home values) evolved into a mad chase to cash in on what seemed like a market that would rise forever. As we now know, and we will discuss later on, loans were made that were simply not economic. Some were fraudulent in nature.

The argument is made that this is just a small part of the housing market. The damage will just be in the subprime world and will not spread to the rest of the economy. But that is not how things work. There are connections, just as in the dotcom bust. And then we throw in a problem from over the Pacific called the yen carry trade, and there is the potential for a world where risk is on the rise, and risk premiums will rise as well.

## Ubiquity, Complexity Theory and Sandpiles

How do seemingly different problems get connected and cause more of a problem than in just their small area? We are going to briefly revisit an e-letter I wrote

early last year, as we start our explorations with excerpts from a very important book by Mark Buchanan called *Ubiquity, Why Catastrophes Happen.* I HIGHLY recommend it to those of you who like me are trying to understand the complexity of the markets. Not directly about investing, although he touches on it, it is about chaos theory, complexity theory, and critical states. It is written in a manner any layman can understand. There are no equations, just easy-to-grasp, well-written stories and analogies. www.amazom.com/ubiquity.

We have all had the fun as a kid of going to the beach and playing in the sand. Remember taking your plastic buckets and making sandpiles? Slowly pouring the sand into ever bigger piles, until one side of the pile started an avalanche?

Imagine, Buchanan says, dropping one grain of sand after another onto a table. A pile soon develops. Eventually, adding just one more grain starts an avalanche. Most of the time it is a small one, but sometimes it builds up and it seems like one whole side of the pile slides down to the bottom.

Well, in 1987, three physicists named Per Bak, Chao Tang, and Kurt Weisenfeld began to play the sandpile game in their lab at Brookhaven National Laboratory in New York. Now, actually piling up one grain of sand at a time is a slow process, so they wrote a computer program to do it. Not as much fun, but a whole lot faster. Not that they really cared about sandpiles. They were more interested in what is called nonequilibrium systems.

They learned some interesting things. What is the typical size of an avalanche? After a huge number of tests with millions of grains of sand, they found that there is no typical number. "Some involved a single grain; others, ten, a hundred or a thousand. Still others were pile-wide cataclysms involving millions that brought nearly the whole mountain down. At any time, literally anything, it seemed, might be just about to occur."

It was indeed completely chaotic in its unpredictability. Now, let's read this next paragraph slowly. It is important, as it creates a mental image that helps me understand the organization of the financial markets and the world economy. (emphasis mine)

To find out why [such unpredictability] should show up in their sandpile game, Bak and colleagues next played a trick with their computer. Imagine peering down on the pile from above, and coloring it in according to its steepness. Where it is relatively flat and stable, color it green; where steep and, in avalanche terms, 'ready to go,' color it red. What do you see? They found that at the outset the pile looked mostly green, but that, as the pile grew, the green became infiltrated with ever more red. With more grains, the scattering of red danger spots grew until a dense skeleton of instability ran through the pile. **Here then was a clue to its peculiar behavior: a grain falling on a red spot can, by domino-like action, cause sliding at other nearby red spots.** If the red network was sparse, and all trouble spots were well isolated one from the other, then a single grain could have only limited repercussions. But when the red spots came to riddle the pile, the consequences of the next grain became fiendishly unpredictable. It might

trigger only a few tumblings, or it might instead set off a cataclysmic chain reaction involving millions. The sandpile seemed to have configured itself into a hypersensitive and peculiarly unstable condition in which the next falling grain could trigger a response of any size whatsoever."

Something only a math nerd could love? Scientists refer to this as a "critical state." The term critical state can mean the point at which water would go to ice or steam, or the moment that critical mass induces a nuclear reaction, etc. It is the point at which something triggers a change in the basic nature or character of the object or group. Thus, (and very casually for all you physicists) we refer to something being in a critical state (or we use the term critical mass) when there is the opportunity for significant change.

"But to physicists, [the critical state] has always been seen as a kind of theoretical freak and sideshow, a devilishly unstable and unusual condition that arises only under the most exceptional circumstances [in highly controlled experiments]… In the sandpile game, however, a critical state seemed to arise naturally through the mindless sprinkling of grains."

Thus, they asked themselves, could this phenomenon show up elsewhere? In the earth's crust, triggering earthquakes, or as wholesale changes in an ecosystem or a stock market crash? "Could the special organization of the critical state explain why the world at large seems so susceptible to unpredictable upheavals?" Could it help us understand not just earthquakes, but why cartoons in a third-rate paper in Denmark could cause worldwide riots?

Buchanan concludes in his opening chapter: "There are many subtleties and twists in the story … but the basic message, roughly speaking, is simple: The peculiar and exceptionally unstable organization of the critical state does indeed seem to be ubiquitous in our world. Researchers in the past few years have found its mathematical fingerprints in the workings of all the upheavals I've mentioned so far [earthquakes, eco-disasters, market crashes], as well as in the spreading of epidemics, the flaring of traffic jams, the patterns by which instructions trickle down from managers to workers in the office, and in many other things. At the heart of our story, then, lies the discovery that networks of things of all kinds – atoms, molecules, species, people, and even ideas – have a marked tendency to organize themselves along similar lines. On the basis of this insight, scientists are finally beginning to fathom what lies behind tumultuous events of all sorts, and to see patterns at work where they have never seen them before."

Now, let's think about this for a moment. Going back to the sandpile game, you find that as you double the number of grains of sand involved in an avalanche, the likelihood of an avalanche is 2.14 times as unlikely. We find something similar in earthquakes. In terms of energy, the data indicate that earthquakes simply become four times less likely each time you double the energy they release. Mathematicians refer to this as a "power law" or a special mathematical pattern that stands out in contrast to the overall complexity of the earthquake process.

## Fingers of Instability

So what happens in our game? "…after the pile evolves into a critical state, many grains rest just on the verge of tumbling, and these grains link up into 'fingers of instability' of all possible lengths. While many are short, others slice through the pile from one end to the other. So the chain reaction triggered by a single grain might lead to an avalanche of any size whatsoever, depending on whether that grain fell on a short, intermediate, or long finger of instability."

Now, we come to a critical point in our discussion of the critical state. Again, read this with the markets in mind (again, emphasis mine):

"In this simplified setting of the sandpile, the power law also points to something else: the surprising conclusion that even the greatest of events have no special or exceptional causes. **After all, every avalanche large or small starts out the same way, when a single grain falls and makes the pile just slightly too steep at one point.** What makes one avalanche much larger than another has nothing to do with its original cause, and nothing to do with some special situation in the pile just before it starts. **Rather, it has to do with the perpetually unstable organization of the critical state, which makes it always possible for the next grain to trigger an avalanche of any size**."

Now, let's couple this idea with a few other concepts. First, Nobel laureate Hyman Minsky points out that stability leads to instability. The longer a given condition or trend persists, the more dramatic the correction when the trend fails. The problem with long-term macroeconomic stability is that it tends to produce unstable financial arrangements. If we believe that tomorrow and next year will be the same as last week and last year, we are more willing to add debt or postpone savings for current consumption. Thus, says Minsky, the longer the period of stability, the higher the potential risk for even greater instability when market participants must change their behavior.

Relating this to our sandpile, the longer that a critical state builds up in an economy, or in other words, the more "fingers of instability" that are allowed to develop connections to other fingers of instability, the greater the potential for a serious "avalanche."

Or, maybe a series of smaller shocks lessens the long reach of the fingers of instability, giving a paradoxical rise to even more apparent stability.

## The Unstable Subprime Connections

Let's look at the fingers of instability, the connections, between the subprime mortgage market and the rest of the economy. There are some rather obvious ones. Subprime mortgages were about 20% of the market in 2005-6. Already almost 12% of those mortgages are in some part of the foreclosure process, with anecdotal evidence that the number is going to increase. The prediction late last year by the Center for

Responsible Lending that as many as 20% of the subprime loans made in the last two years would end in foreclosure does not look as Cassandra-like now. The CLR study suggests that as many as 2.2 million people will lose their homes.

If you put just 4% (and it could be more!) of the homes sold in the last two years back on the market within the next six months, it is going to have a serious effect on housing valuations. While anecdotal evidence suggests home prices in many areas are starting to fall, lenders have not yet capitulated. In one county in California last week, 179 homes were put up for auction at the courthouse, with a reserve price of the mortgage value set by the lender. The catch is that these were 100% lender-financed homes. The lenders did not sell one home. They are still hoping that buyers will come in and pay full price. I wonder how many of those homes had very high appraisals.

Lenders, whether banks or hedge funds or institutions that get stuck with the paper, are not in the rental housing business. They can hold on for a little while, but eventually they are going to have to bite the bullet and sell, and that means offering a discount. Discounted homes mean that appraisal values are going to drop in that area.

That means it will be more difficult to get a home-mortgage equity-withdrawal loan, as valuations could be falling, not rising. It also means that consumer confidence will start to drop, since there is a strong correlation between consumer confidence and the value of their homes. And the wealth effect from homes is much higher than it is for stocks. That suggests that consumer spending is likely to come under pressure. And indeed February retail sales were punk.

And of course, it is getting harder to get a loan, as credit standards are starting to tighten. And where will they tighten the most? On subprime loans. I have talked with several mortgage executives from around the country this week (and given the nature of the conversations, I can't reveal their names).

Bottom line? You could see the removal of 30% or more of the subprime buyers who would like to buy a home but simply won't qualify now. Let me see if I can help my non-US readers understand the problem.

Let's say I want to buy a $200,000 home. I can qualify for an option Adjustable Rate Mortgage (ARM) with a starter rate of 2%. I can pay interest only for the first year, and then the rate goes to 5%. So, I have an interest payment of $4,000 a year, or $333 a month. But starting the second month, the interest is actually at 5%, so the real interest amount is almost $10,000, and the amount on my mortgage grows by roughly $6,000 the first year. I now owe $206,000 on the home. If I put down just 5% as a down payment, I now owe more than I paid for the house, if you take out 6% realtor fees when I sell! But as the interest rate resets in the second or third year, it can go up to 8%. I am now paying $16,500 in interest, and my monthly payment for just the interest is $1,375.

Ok, now here is the insidious part. Let's say you make $40,000 a year, about average in the US. You couldn't qualify for a conventional loan that would require you to

pay $1,375 a month plus insurance, utilities, and some equity payment, which could run the total housing cost to over 50% of your income.

But if your payment was only the initial $33 a month, you do qualify! And lenders were making loans based on that initial small monthly payment and not the eventual payment. And home buyers were taking the deals, either not understanding or hoping they could flip out of the home and make a profit. And that is why up to 20% of these loans are going to default. One mortgage banker told me the number of loans which are defaulting in only the second and third months after getting the mortgage is rising.

That doesn't even count the number of borrowers who have two loans, one standard for 80% of the buying price and another higher-cost loan which covers all or most of the down payment. If you think home values are going to rise 15% a year, go ahead and get that ARM for the 20% of the home value, and then in two years refinance the whole thing because now you can get a low-cost fixed-rate loan based on an 80% valuation.

I mean, if your $200,000 home is going to appraise for $260,000 in two years, you can get a total loan with lower payments at an 80% appraisal! And maybe even take some cash out! Of course, you were watching your neighbors and co-workers do just that.

The argument is that this is just the subprime and lower end of the market, and that the rest of the housing market will not be affected. This does not hold up for two reasons.

The first is that as many as 30% of prime loans in the last two years were option ARMs. And we are already seeing higher default rates among prime borrowers, although not yet at alarming rates. 4.7% of all mortgages are now delinquent or in default, according to the Mortgage Banking Association. For the subprime world, the number is 11.7%.

Why are we seeing the explosion in defaults and foreclosures? This note from CBS News gives us at least part of the answer:

"Today, about 80 percent of subprime mortgages are adjustable-rate mortgages, or ARMs, also called 'exploding ARMs.' These loans are so-named because they carry low teaser rates that often reset dramatically higher, increasing the borrower's monthly mortgage payments by 25 percent or more.

"According to reports from loan counseling agencies across the nation, the main reason homeowners give for falling behind on their mortgage payments is not a change in personal circumstances (such as a job loss), but instead, they are not able to make the increased payments on their ARMs.

"The loan application and review process for 'no-doc' loans was so lax that such loans are referred to as 'liar loans.' In a recent report by Mortgage Asset Research

Institute, of the 100 loans surveyed for which borrowers merely stated their incomes on loan documents, IRS documents obtained indicated that 60 percent of these borrowers overstated their incomes by more than half.

"The newer mortgage products, such as 'piggyback,' 'liar loans' and 'no doc loans' accounted for 47 percent of total loans issued last year. At the start of the decade, they were estimated to be less than two percent of total mortgage loans. As a result, homeowners have never been more leveraged: The average amount of debt as a percentage of a property's value has increased to 86.5 percent in 2006 from 78 percent in 2000."

Ok, let's run the math. Almost 50% of the loans made last year were made with little or no documentation check, and 60% of those people overstated their incomes by more than half!!! That means 30% of the loans made were to people who were stretching to buy a home and whose actual income would not qualify them for a home anywhere close to what they bought.

Of course, now that the horse is out of the barn and well into the north 40, lenders are starting to tighten standards. And you can bet that one of the standards is going to be income verification, if for no other reason than that the mortgage company will not be able to re-sell that loan without it! Liquidity for nonconventional loans is going to dry up, if it already hasn't.

And you should care. "Tighter credit means fewer potential buyers, fewer buyers means less demand, less demand means less appreciation. Add a growing volume of homeowners who now owe more than their homes' value and who have no viable options for refinance or repayment and you have the conditions for more folks who will simply opt to walk away, forcing the lender to foreclose and sell at a below-market price. This could make it more difficult for 'innocent bystanders' to sell their home or refinance a mortgage."

Last week I highlighted the excellent piece by Paul McCully of Pimco. His thesis is that subprime buyers are the plankton of the housing ocean. Without a healthy supply of plankton, the rest of the ocean's denizens do not live well. (You can read the essay, and you should, at www.pimco.com).

The entire housing market is connected. The lower part is becoming unstable, and the rest will be affected as well. Yes, there will be patches that will do fine. Upscale Marin County north of San Francisco (California) is still seeing offers higher than listed prices on certain properties, but other cities (like Sacramento) are in serious trouble. But in general, housing prices are going to come under pressure as the number of potential home buyers shrinks. What is that shrinkage number? 5%? For sure. 10%? Maybe.

Another less obvious connection? Fewer buyers and those losing their homes will mean more rentals. That means rent prices will go up. The Consumer Price Index uses owner's equivalent rent as a proxy for housing costs. As rents went down or were flat in

the early part of the decade, the "cost" of housing did not rise along with the rise in home values. But now we will see the opposite. As home values drop, the "cost" of housing in the CPI will rise.

As it did last month. Both CPI and PPI (Producer Price Index) came in much higher than expectations. Core CPI was up 2.7% from this time last year, and PPI was up 2.5%. The Fed simply is not going to be able to cut interest rates until late in the summer, at the earliest. We are a long way from being in the 1-2% comfort zone. And the thought of actually raising rates is on the mind of some at the Fed.

"The risk of inflation remaining too high during the forecast period is greater than the risk of growth falling too low," Chicago Fed President Michael Moskow said last week. "Thus, some additional firming of policy may yet be necessary to address this inflation risk."

## The Fed to the Rescue? Not!

There is a growing call for the Fed to cut rates to help the housing market. They are not going to any time soon, until inflation is back below 2%. Further, lower rates won't help with tighter credit standards. Even if the Fed were to cut rates, it does not automatically produce more buyers in the subprime world. That will take lower home prices and increased affordability.

Of course, falling home prices and tighter lending standards will reduce home mortgage equity withdrawals, and that, along with the negative wealth effect, is going to slow consumer spending.

All of these are connected, like the grains of sand I described in the opening. Consumer spending is linked to corporate profits. Lower consumer spending is the classic recipe for a recession. Recessions are linked to falling stock markets. But unlike our sandpile illustration, markets will not crater overnight. This is a slow-moving landslide. Very slow.

## The Yen Carry Trade Converges

And on another side of the sandpile, we watch as the yen carry trade is taken off the table, thus drying up liquidity. Being overly simplistic, you can borrow yen (or if you are Japanese, invest yen abroad) at 1%. If you invest in funds or assets that pay more than that, with or without hedging costs, you can leverage up and make a nice differential "carry." You can invest in 5% US treasuries, 7% corporate bonds, stocks, emerging-market debt, soybeans, or cattle futures. Whatever you have the stomach for. And as long as the currency is stable, or the yen falling, you are in good shape. But if the yen rises, your return falls, because when you sell whatever asset you purchased, you now owe more yen back.

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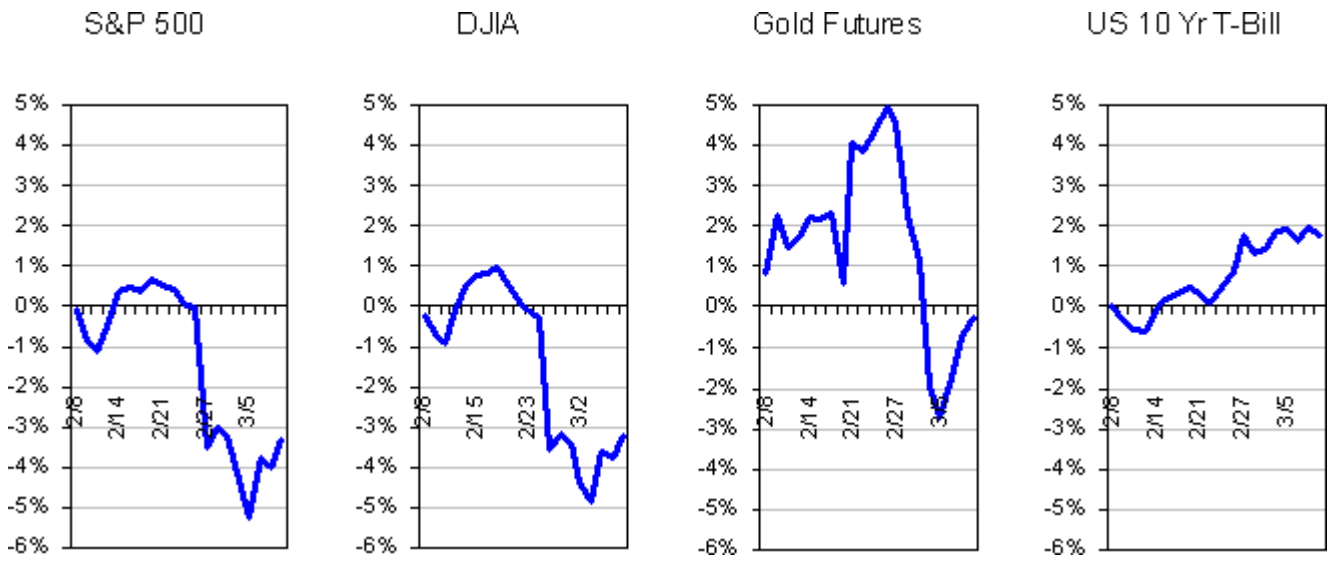
If you borrow 121.9 yen to buy a dollar's worth of US Treasuries, and the dollar falls to 115.8 yen, as it has in the last 30 days, you now have lost almost 5% in one month. If you are levered two, three, or more times, you can get hurt quickly when the margin clerk comes calling, as you have to mark to market each day. When you sell your asset to get dollars to buy yen to pay back your loan, you get only 115 yen and you owe 122 plus interest. Suddenly that cheap interest rate hurts.

And what do you sell? Anything you can. As good friend Art Cashin teaches us, in a liquidity crunch you don't sell what you want to sell, but what you can.

No one knows how large the yen carry trade is. It is like the experiment to determine the weight of a gravity wave. We know it is there, we just can't measure it. But we can see its effect.

We don't know how big the yen carry trade is, but we can see the effects when all asset markets move together in price in tight correlation to the yen. Good friend and business partner Jon Sundt of Altegris Investments writes about the high degree of correlation we have seen in all sorts of supposedly noncorrelated markets:

"So to me, the surprise [in the markets] certainly isn't the correction in China. After all, what goes up fast can fall even faster. The real surprise to many was the subsequent global correction in almost every asset class that followed. From Brazil, to Europe, to the US, every major stock index corrected violently. In addition to global equities, most commodity prices were down, including crude oil (which is generally good for equities). Even the supposed 'safe harbor' of gold fell more than $20 in a single day, as the investors' flight to quality marched right past gold and instead embraced the US bond market."




Source: International Traders Research, Inc.

You don't sell what you want, you sell what you can. And suddenly risk premiums are higher and going to what would be considered more historically normal levels.

Bottom line: the mortgage market problems are going to reduce liquidity in the US. And the slowing down, or ending, of the yen carry trade is going to reduce liquidity worldwide. And if the US consumer has to re-trench, it could be a bumpy ride. Be careful out there.

## La Jolla, Scotland, Malta, Calgary, Maine

Scotland is definitely on for late May, and it is my intention to go to Geneva to meet with my Swiss partners and their clients at EFG, and of course to London to be with partner Niels Jensen and his team at Absolute Return Partners. My guess is they will have me going to a few other cities. I know we will go to Malta for a day or so to attend board meetings for some funds I work with.

And of course, I will be in La Jolla in mid-April for my own strategic investment conference, April 19-21, and the weekend before to be with Rob Arnott at his Research Affiliates private conference in La Jolla. Not sure if I am going to stay in California, go back to Texas, or maybe take some time off. I have agreed to go to Calgary (Canada) in late June, and my son wants me to take him back to La Jolla in June, when he surfs and I work with my partners at Altegris. And then Maine in late July to go fishing with my son at David Kotok's annual gathering of economists, Fed types, and other ne'er-do-wells in the investment business. And back to Europe in late August and early September.

That sounds like a lot of traveling to me, but it all sounds fun as well. If it wasn't for the airplanes and airports, it would be a lot more fun.

I have just finished another Accredited Investor E-letter, and will be sending it out soon. If you would like to know more about hedge funds and alternative investments, I invite you to go to www.accreditedinvestor.ws and sign up for my free letter. One of my worldwide partners will contact you and show you some of the funds and managers we have which may be of interest. (In this regard in the US, I am president of and a registered representative of Millennium Wave Securities, LLC, member NASD.)

Tonight I am going to the Dallas Mavericks and taking my youngest son, who is almost 13. And since the game is in about an hour, it is time to hit the send button. Have yourself a good week.

Your ready to see the Mavs start another winning streak analyst,

John Mauldin