

The Unacceptable Behavior of the Market

By Michael Pettis¹

*Excerpts from an article that appeared in the **EconoMonitor** on the 17th of July 2012. Available at: <http://www.economonitor.com/blog/2012/07/the-unacceptable-behavior-of-the-market/>*

The author comments on two major economic themes dominating news events in recent times, namely the European debt crisis and China's this-time-it-is-different-economic growth. The article explains the dangers of pro-cyclical policies/strategies that often create self-reinforcing price signals and together with rapid credit expansion fuel price bubbles, but invariably end in economic hardship and dire consequences for investors. Some interesting food for thought stemming from the article is perhaps our tendencies to use bold assumptions whenever making investment decisions, but it is not so much that we are using assumptions (how else would we make sense of our world), but rather that we use perhaps the wrong set of assumptions. For example, it is easy to explain and justify current events/trends. Therefore, it is easy to be too confident in one's beliefs and assumptions how the world actually works, and more importantly, how it will continue to work in the future. We use our recent experiences and conveniently assume that is how it always will be, but at the same time perhaps not paying close attention to some basic economic principles why those assumptions may not be sustainable going forward.

Last night I arrived at my family's home in Spain just in time to catch Spain play Italy [the final of the 2012 UEFA Euro Cup]. The whole family and lots of friends watched it, while feeding on great seafood and lots of wine, at a neighboring *chiringuito* on the beach, and I guess if you weren't there you can only imagine the excitement. I suppose this spectacular win by Spain means that Spain will be able to stay in the euro a little longer than I otherwise expected, although I am not so sure about Italy.

It would make sense for me to start off with some foot-ball related comments, but instead most of this newsletter will attempt to describe the way pro-cyclical behavior can be embedded into balance sheets, and how this can create significant risk for developing countries especially. Because most analysts do not seem to understand balance sheet dynamics, it is worth pointing out that the more pro-cyclical the balance sheet, the much more widely off-the-mark projections are going to be – both on the way up and on the way down.

To start off, in mid-June, just a couple of days before the Spanish treasury raised 2.2 billion Euro in an auction – one in which the cost of borrowing surged, with 10-year bonds breaking

7% – France’s new president complained about the unfairness of the financial markets. According to an [article](#) two weeks ago in the *Financial Times*,

“It’s not acceptable that Spain, which just got a promise for support, has interest rates around 7 per cent,” Mr Hollande said. “It’s not acceptable that countries that are making efforts, like Italy, to improve their public finances,” were paying high interest rates on their bonds.

It would be useful if policymakers (and not just in France) had an understanding of how markets actually work. Hollande is effectively complaining that markets are reacting not to what policymakers propose they will do but rather to something else, and he believes that this is unfair, even unacceptable.

But clearly it isn’t. Since that “something else” to which the market is responding is the underlying process of balance sheet unraveling, and this is happening no matter what policymakers might say in the G20 meetings or elsewhere, it actually makes a lot of sense that markets overall continue to deteriorate.

Last Friday, continuing I think the confusion between the politics and economics of the crisis, Reuters had the following:

Yet though the obstacles facing the euro are daunting, the main lesson of the debt crisis so far is that markets underestimate at their peril the political commitment of Europe’s leaders to do what is necessary to preserve the single currency.

“The euro crisis is in some ways mind-bogglingly simple to solve ... because it isn’t economics, it’s politics,” Jim O’Neill, chairman of Goldman Sachs Asset Management, told Reuters. “If Angela Merkel and her colleagues stood there together with the rest of the euro area ... and if they behaved as a true union this crisis would be finished this weekend,” he added.

I am not sure what O’Neill means by Europe’s behaving like a “true union”, but if he means Europe’s immediately becoming the United States of Europe overnight, which is certainly not a mind-bogglingly simple policy to implement, then the euro part of the euro crisis will certainly end. What won’t end, however, is the need to write down a staggeringly large amount of bad loans and to cover the banking losses with transfers from the housing sector, nor the rapid slowdown in growth even in countries like Germany.

This, I would argue, is more than just about politics, and that while “the political commitment of Europe’s leaders to do what is necessary to preserve the single currency” may indeed be quite high, in disagreement with the author of the article I would suggest that overestimating the impact of this commitment is at least as perilous as underestimating it. The market reaction is no longer, nor should it be, about the lack of trust or confidence.

Why? Because yet another agreement for a temporary bailout of Spain will do little to address Spain’s real problems, which are its massively insolvent banks, its uncompetitive economy, and the fact that the country is caught in the downward spiral typical of debt crises

in which every sector of the economy, not least its political elite, are acting in ways that systematically undermine growth and creditworthiness. The continued deterioration in Spain and elsewhere is now part of a fairly mechanical process that operates under its own dynamic, and it will take a lot more than exhortations to reverse the process (and it was noteworthy that a lot of comments and advertising during last night's game explicitly tried to tie a Spanish victory with a boost in confidence sufficient to turn the corner of the crisis).

We need more than trust

But what the market needs is not for investors to start trusting policymakers more. Rather it needs actions that reverse the downward spiral in which countries like Spain find themselves, in which each sector of the economy – from workers to creditors to businessmen to middle class savers to policymakers themselves – are rationally and in self-defense acting in ways that increase the country's debt, reduce growth, and exacerbate balance sheet fragility.

Unfortunately there isn't much that can be done in a big enough or credible enough way to reverse the downward spiral, and this is why I don't pay too much attention any more to the proposals and counterproposals that are on offer in Europe. I think it is probably too late for that, but certainly by continuing to behave as if this is all about trust, or lack of trust, policymakers are building in their own disappointment and extending the crisis.

At this point the only thing that can save the euro is a combination of moves in which the European banks are guaranteed by a credible institution and in which Germany takes steps to stimulate its economy quickly and dramatically. Until Germany is willing to boost domestic spending enough to run a deficit that allows Spain to run a surplus, it is impossible for Spain to repay its debt. This is just basic balance-of-payments arithmetic.

I recognize that policymakers are in an extremely difficult position and that there is no longer any easy solution, but railing at the markets rather than trying to understand why they are doing what they do (which anyway makes them far more rational than if they responded to the pronouncements coming out of Brussels) is counterproductive. In fact this kind of pouting is just a part of the self-reinforcing downward spiral that I have described many times before. Policymakers are complaining that economic agents are behaving in ways that reinforce the crisis, even as they do the very same thing.

Given all the excitement over the speed of the deterioration in European markets, I suppose we are going to see urgent new measures announced and a temporary respite in the crisis, but ultimately I think this will be little more than a blip on the way to sovereign debt restructuring and the break-up of the euro. Nothing has changed fundamentally in Europe in the past few weeks and there is no reason to assume that the crisis is on its way to being resolved.

It's different this time

To move away from Europe, among economists (at long last) we are beginning to see an increasing reluctance to respond to evidence of bubble-like behavior in China with explanations of how these things don't mean the same thing in China as they do in other

countries. Our normal understanding of economics doesn't apply to China, we are earnestly told by the China bulls, because either

- 1) China has a different set of economic rules under which it operates, and so the economic processes that have adverse consequences in other countries are unlikely to have the same consequences in China (how many times, for example, have we heard someone say that China cannot have a real estate bubble because, unlike in the US, surging real estate prices have not been fueled by a deregulated mortgage bubble?), or
- 2) China's very wise policymakers have invented a new and brilliant form of economics that isn't understood in the "West", although strangely enough it seems well-understood by the many Westerners who regularly proffer up this explanation.

We still hear the China's-economy-is-different nonsense from non-economists, but among the many academic economists and research analysts who used to trot out these arguments regularly even two or three years ago, there is a growing awareness, I think, that they are starting to wear thin. There is no such thing as a different kind of economics, and even a very cursory glance at Chinese economic history should have made clear that if China really does exist in a different economic universe, with its own set of rules, then this has been a fairly new phenomenon. For most of its history the same old set of rules seemed to apply to China that applied everywhere else.

The massive credit expansion in China, with its associated problems of overinvestment and asset price bubbles, is no different than any other credit bubble. I mention this because until recently it was not just China that was supposedly following a new set of economic rules, and I was reminded of this after reading an [article](#) in the *Financial Times* about the Spanish bank Bankia. According to the article,

During Spain's housing boom, mortgage lending at Caja Madrid, the largest of the savings banks that formed Bankia, started to grow so quickly that, by 2007, some executives were trying to slow things down. After its mortgage book expanded by 25 per cent in 2006, Carlos Stilianopoulos, Caja Madrid's then head of capital markets and later Bankia's chief financial officer, said: "We don't want to grow this fast. We are a savings bank so we don't have to keep shareholders happy. We prefer to have a solid institution."

At the same time, warnings from abroad about the overheating of Spain's property market were dismissed. "Perhaps in other countries this pace of growth would be seen as a bubble," he told Euromoney. "But not in Spain."

"Perhaps in other countries...but not in Spain." This statement alone should have been a warning signal. We know why it is impossible for property prices ever to become unsustainable in China – actually I don't know, but I have been told that it is because of the immutable urbanization process, of which more later – but why is that the case in Spain?

This, it turns out, I can explain. I remember in 2003 my mother had a New Year's Eve party at our family home in Málaga, in southern Spain, at which over 80 people sat for dinner,

including most of my old friends still around from high school days. That night I had one of those epiphanies (as you often do on New Year's Eve, I guess) about the real estate market when I suddenly realized that nearly every one at the party was involved in one way or the other in real estate. Most of the people there (including my Persian sister-in-law) were real estate developers, real estate agents, real estate lawyers, architects, or owners of building and construction companies. All of them lived off (and had prospered mightily from) the real estate boom in southern Spain.

But this cannot be, I thought in my naiveté. If the only industry around is real estate, then we must be living through a real estate bubble of enormous proportions.

Later that night I spoke to one of my old high-school friends, Andy, who was at the time a prosperous real estate agent with houses in Marbella (purchased on borrowed money, naturally), a Mercedes, and all the trappings that accrue to an immensely charming and self-confident real estate agent during a real estate boom. In our conversations, and ones that took place subsequently over the next few years, I warned him that the property market in the south of Spain looked out of control, and it would be a good idea from him to diversify his savings out of real estate.

Same old same old

Of course Andy didn't. He explained to me that what we were seeing in southern Spain was not a bubble because there were very strong reasons to believe that real estate prices were undervalued and were going to rise a lot more. Europe, he told me, is aging rapidly, and old people, as everyone knows, like nothing better than to retire in some warm and sunny place, preferably on the beach. With an infinite supply of European old people and limited European beachfront property, mostly in Spain, Italy, and Greece, where in addition you had great food, warm-hearted people, and plenty of immigrants to keep the prices of services (and servants) down, it was certain, Andy explained, that real estate prices would not decline. The demand was insatiable at almost any price.

This seemed like a perfectly reasonable argument on the face of it, and it was widely proposed to justify ever-soaring Spanish real estate prices for many years, not just on the Spanish coast but also, perhaps a little bizarrely, in every nook and cranny of the country, including some pretty gray and inaccessible building projects outside cold, northern industrial cities.

The weakness in the argument, of course, was that although there might have been near-infinite demand, this could not justify near-infinite increases in prices, especially since the demand itself was likely to be highly pro-cyclical because the Spanish economy had itself become dependent on real estate development. As long as the economies of the cold northern European countries were booming, in other words, the demand from retirees for beach houses would stay high, but any slowdown in the economy would reduce demand in Spain at the worst possible time.

And as Spanish real estate slowed, the impact would be exacerbated by a much sharper slowdown in the Spanish economy caused by the slowdown in real estate, which had become a major driver of the economy. If a substantial portion of the Spanish workforce depends on a booming real estate market – and not just those directly dependent, but also those indirectly dependent, like bankers, restaurateurs, retailers, travel agents, and so on – then any slowdown in the real estate sector is itself seriously self-reinforcing.

We have now seen how this works in Spain, but in China we are still using a similar argument to explain why real estate prices cannot drop significantly. Our Chinese version of the old-people-love-to-live-on-the-beach argument is the urbanization argument. As long as Chinese workers continue to move from the country to the cities – and urbanization has been one of the most dramatic consequences of Chinese growth in the past three decades – then there is likely to be a near infinite demand for city property, and so prices can only go up. And because prices can only go up, speculative demand for real estate is not speculative, it is precautionary.

This claim seems at least as plausible as the Spanish argument justifying infinite price increases, and was probably true a decade ago, but it runs into the same problem that the Spanish story ran into (and indeed that nearly every previous case in history of a real estate bubble, which has always started with a plausible story). First, no matter how much demand we can project into the future, rising prices can nonetheless outpace rising demand because rising prices can themselves stimulate further demand, in which case rising prices are unsustainable. This should be obvious, but the point is often lost in the giddiness that accompanies rapidly rising prices.

Second, and this is key, the rising demand is itself pro-cyclical. This is the most dangerous part of the process and perhaps the least well understood. Rising demand driven by the urbanization process is itself subject to underlying growth in the economy, since it is growth in turn that drives the urbanization process.

What's more, when we reach the point as we did in Spain several years ago, and have reached in China too, in which a substantial part of the growth that drives the urbanization process is itself created by real estate development, then any slowdown in underlying growth is likely to be seriously exacerbated by a corresponding slowdown in real estate development. This is because the economy is caught in the reverse side of the feedback loop that helped drive prices on the way up – slowing growth leads to slower demand for urban real estate, which leads to slower real estate development, which itself leads to slower growth.

This is part of the reason why declining real estate prices and slowing sales, which Beijing has insisted for years it wanted to see, is causing so much worry. It is both a consequence and cause of economic slowing, and these kinds of self-reinforcing relationships always lead to unexpectedly sharp outcomes, both on the way up and on the way down.

Minsky on balance sheets

In trying to judge the probability of a crisis we need to think not just about the probability and impact of positive or negative events in and of themselves. It is extremely important that we also understand the balance sheet mechanics that force the system into self-reinforcing behavior. The structure of the balance sheet itself, in other words, is as important in determining the impact of adverse events as the direct impact of those events on the asset side of the balance sheet.

Any attempt to predict the likelihood and extent of a breakdown in an economic system – country, region, or company – that starts only from the asset/operational side of the economic entity without taking into account the feedback mechanisms inherent in the relationship between the asset and liability sides, is pretty useless.

What's more, the recent history of disturbances in that economic entity tells us nothing about the future impact of similar disturbances – as long as the balance sheet structure is changing, the lack of instability during previous disturbances will itself change the structure of the balance sheet. Stability is itself destabilizing, as [Hyman] Minsky² warned us, because it changes the nature of the relationship between the two sides of the balance sheet.

Commodities and growth

Volatility, in other words, is a function not just of volatility in *real* economic factors, but also, and perhaps even more so, of the structure of the balance sheet. The structure of the balance sheet can either smooth out normal economic fluctuations or it can turn them into highly destabilizing events.

One example of a destabilizing feedback mechanism worth pondering is the relationship between commodity prices and Chinese growth. Here is a very interesting [article](#) from last week's *Financial Times*:

Chang Zhenming, chairman of Citic Pacific, is unambiguous about the significance of his company's Sino Iron mine in the desolate, red-soiled Pilbara region of Western Australia. "The whole of China is watching this project," he says.

More to the point, China is watching with some trepidation as his Hong Kong-listed company faces increasing cost overruns and delays. The stakes are high. Mr Chang says Sino Iron is four times bigger than any iron ore project at home.

While outside observers often fear Chinese companies are unstoppable juggernauts in their ravenous pursuit of the world's minerals, much of this perception is inaccurate. China's international resource expansion is not running smoothly. The world's second-biggest economy had hoped it would more easily control its economic destiny by taking huge mineral stakes, robbing companies such as BHP Billiton, Vale and Rio Tinto of the ability to dictate commodity prices.

But the Sino Iron project, far from being a showcase for China's might, has become instead a cautionary tale of the difficulties Chinese enterprises face as they seek to expand abroad. When it was first conceived in 2006, the total cost was estimated at

under \$2bn. By now, it has already cost Citic Pacific \$7.1bn. Analysts at Citigroup calculate the bill could swell to a possible \$9.3bn, while others say they expect the ultimate bill will be closer to \$10bn. The mine is at least two years behind schedule.

“This is no longer about commercial goals,” says a senior executive at one leading Asian trading company with extensive sourcing operations in Australia. “It is about Chinese machismo. They have plonked down too much money to pull out now.”

Leaving aside that rather interesting and even surprising last paragraph, one obvious comment on this article is that vastly overspending on a project of this nature is not at all surprising in a system in which privileged operators have near infinite access to cheap funding, little accountability, and no budget constraints for any project that can be proposed as being of national importance (and it is astonishing how many projects fit under that category). But the lesson I want to draw is a very different one – a balance sheet lesson.

In projects like this, and in the extent of commodity stockpiling we have seen more generally, China has taken a huge long position. Some analysts argue that China, by buying far more in the way of commodities and commodity producing companies than it requires for its immediate needs, is hedging its future demand.

Dambisa Moyo, a former investment banker turned economic writer, has argued in her book *Winner Take All* that the world is facing a crisis in the form of a commodity shortage. According to a recent review in the *Guardian*,

“Simply put, the Chinese are on a global shopping spree.” State-sponsored Chinese corporations are busy buying up commodities across Africa, North America, the Middle East, South America – anywhere they can – in a concerted strategy to seize control of resources before the rest of the world wakes up to the looming crisis.

But when the resources begin to run dry, the consequences will be catastrophic. Already, since 1990 at least 18 violent conflicts worldwide have been triggered by competition for resources. If nothing is done now, warns Moyo, commodity wars on a terrifying scale are all but inevitable.

Inverted balance sheets

Perhaps it is my natural skepticism, but we have heard warnings like these many times before, and they have usually proven to be spectacularly wrong largely because they are based on projections of recent trends that are clearly unsustainable. In my opinion the next few years are not going to see soaring commodity prices but rather collapsing commodity prices, in large part because it has been China’s unsustainable investment boom that has both driven demand up ferociously (accounting for only 10% of global GDP China nonetheless absorbs roughly 40% of global copper production and nearly 60% of global iron ore and cement production) and driven up investment in extractive industries.

Once China brings down its infrastructure investment rate, the combination of declining demand and expanding supply is likely to have a very deleterious effect on prices. In my opinion China is paying overly high prices in a market in which prices are likely to drop sharply.

But reasonable people can differ on whether or not commodity prices are going to rise substantially. What reasonable can never do is place too much confidence in their predictions. Dambisa Moyo may be right that commodity prices will soar, and remain permanently high. I doubt it, but the real reason I think China is making a mistake in stockpiling commodities is not because I think prices will inevitably decline, but rather because it is a risky balance sheet strategy for China. It exacerbates the volatility impact of commodity prices, which are already very volatile, and this brings us back full circle to Hyman Minsky.

Why is stockpiling a bad strategy for China? It is risky because of the inverted relationship between Chinese growth and commodity prices. It is widely agreed in the commodity industry that the biggest cause of rising commodity prices in the past decade has been the ferocious growth in Chinese demand, and this growth has been primarily a consequence of Chinese investment growth. If China keeps growing rapidly, of course, we may very well see higher commodity prices in the future, but – and this is the problem – if China slows significantly, the price of commodities is likely to decline, at least in the next few years.

So China has effectively made a big bet on commodity prices, and it “wins” the bet if it continues to grow quickly. It “loses” the bet, however, if its growth rate slows sharply. This is what I referred to as an “inverted” capital structure in my 2002 book, *The Volatility Machine*. An inverted structure is the opposite of a hedged structure – when the asset/operational side of your balance sheet does well, your liability side also does well, but when the asset/operational side does badly, the liability side does too.

Inverted balance sheets exacerbate volatility – good times are automatically better than they otherwise would have been and bad times are automatically worse. Countries (or companies) with inverted balance sheets are more volatile than countries with hedged balance sheets, and unless you can get all your speculative bets right, this higher volatility lowers growth over the long term. Inverted balance sheets, I argued in my book, are one of the key differences between countries that are able to recover successfully from crisis and countries that aren't, and I would propose that this may be one of the differences between countries that can escape the middle income trap and countries that can't.

Of course a country's balance sheet is affected by a lot more than just commodity stockpiling. There are many other aspects of China's balance sheet that matter, but I would argue that good liability management consists of eliminating sources of volatility in the balance sheet by structuring it in ways that cause the performance of the liability side and the asset side to move in opposite ways, not in the same way.

This isn't happening – in at least one aspect of the national balance sheet, commodity stockpiling. To take another example, hot money flows are automatically volatility enhancers

– when the economy is growing quickly, money pours into the country and causes even more growth, but when the economy gets into any trouble, money flees and so causes even more contraction.

Or to take two more obvious examples, first, asset based lending – for example against real estate – is also a source of balance sheet inversion. When asset prices rise, the value of debt collateralizing the assets also rises, but when asset prices drop the debt becomes less credible and its implicit cost to the economy rises. Second, borrowing short term, or borrowing in a foreign currency, has the same risk profile. When the country is doing well, the real cost of short-term or foreign currency debt declines, only to surge when the economy gets into trouble.

Sometimes inverted capital structures are inevitable, but liability management consists, in my opinion, of identifying ways of eliminating inversion when you can and embedding as much hedged liability structures as you can, so as to make the overall economy less, not more, volatile. In the case of China, stockpiling commodities is exactly the wrong thing to do – but of course it is hard to convince anyone that this is the case when we are in the “good” part of the volatility cycle.

My baby drove off in my brand new Cadillac

It is only when conditions turn for the worse that everyone recognizes – albeit usually too late – the risk. We see this happening in Europe. When Europe was booming and the borrowing costs for the peripheral countries were converging with that of countries like Germany, it was hard to convince anyone that this was an extremely risky balance sheet structure.

Now that Europe is in crisis and the very source of interest rate convergence – the euro – is causing a massive divergence in borrowing costs, everyone recognizes, albeit too late, the danger of highly inverted balance sheets. But, as I pointed out in my book, no matter how often history repeats, during the good part of the volatility cycle it is brutally difficult to convince anyone of the need to change the structure of the balance sheet. The riskier and more inverted it is, the more money everyone makes. All you can really do is write about it, and point out the occasional country – like Chile in the past two decades – that have learned, however temporarily, how the volatility machine embedded in balances sheets works.

To point out a slightly lighter story of balance sheet inversion here is another *Financial Times* article that I found very interesting:

Cash-strapped local governments in China have begun auctioning off fleets of officials' luxury cars as part of efforts to bolster revenues hit by the country's slowdown. Wenzhou, a south-eastern coastal city hit hard by the cooling economy, sold 215 cars at the weekend, fetching Rmb10.6m (\$1.7m). It plans to sell 1,300 vehicles – 80 per cent of the municipal fleet – by the end of the year.

Wenzhou is not alone. Across the country, from Kunming in the south to Datong in the north, officials have been tightening their belts, paring back on banquets, curtailing travel and trimming the fleets of tinted-window luxury cars that have long been standard issue – even in the middle ranks of government.

Buying fleets of expensive cars when everyone else is buying them, when the economy is booming, and selling them when everyone else is selling them, when times get tough, is a great way to lose money just when you can least afford it.

Just a few years ago it seemed so inconceivable that we would face tough times that no one really questioned the wisdom of extravagant spending, but now clearly those questions don't seem so absurd. I can't help but see this except as a part of a bigger process of wealth transfers from municipalities toward the buyers of distressed assets, who tend already to be quite wealthy. My guess is that for anyone with lots of liquidity and no real hurry to invest it, the next few years are going to produce quite a lot of bargains at the expense of the poor and middle classes, who will inevitably foot the bill.

In itself this story is more amusing than serious, but it does illustrate, I think, the way certain types of systems create incentives that tend to exacerbate volatility, and a thorough analysis of the risks associated with a country like China requires an understanding of the incentive structure and how it builds up balance sheet inversions.

We are far from having in China a risky external debt structure, but this does bring up two issues. First, rising external debt simply adds to the many ways in which the national balance sheet has built up instability. This often happens in the late stages of an unsustainable credit boom because as stresses in the system appear, they are often resolved by structures that are, by my definition, inverted. As Chinese companies find it harder to borrow in RMB, for example, they increasingly take to dollar borrowing.

And as Chinese companies find it harder to borrow long-term, they borrow more short term. As the price of their commodity stockpiles declines, they add to their hoard to reduce average prices. As perceptions of financial fragility rise, the system switches even more to collateralized borrowing. We don't know what the cumulative impact of all this balance sheet inversion is, but we need to acknowledge that the range of expected outcomes has become more volatile.

The second issue is just a history reminder. When Brazil went through its own debt financed investment boom in the 1960s and early 1970s, during the period of the Brazilian "miracle", most of it was domestically financed. By the mid-1970s, however, Brazil began reaching domestic debt capacity limits, and so the economy began slowing.

The party, however, didn't quite end. At around the same time the huge increases in oil prices had created massive petrodollar surpluses that weighed on bank balance sheets, and banks were eager to lend them out. Fortunately for them (or unfortunately, as it turned out), the developing countries, including Brazil, were able to turn to the banks and borrow their way through the economic slowdown of the mid-1970s.

The rest, of course, is history. Countries like Brazil were able to continue overinvesting, and continued growing in the late 1970 even as the US and Europe slowed (sparking much excited talk of “decoupling”). This went on until debt levels became unsustainable, and in 1981-82 credit abruptly stopped flowing.

I am not suggesting that China today is undergoing the same process as Brazil and that it will switch from domestic to external financing as the Chinese banking system finds it increasingly difficult to keep credit growth high. I certainly hope that this doesn't happen, since it will simply allow China to postpone the necessary adjustment in its growth model for a few more years, but at the cost of a much more difficult adjustment. Brazil in the 1980s showed how painful that can be.

¹ *Michael Pettis is a professor at Peking University's Guanghua School of Management, where he specializes in Chinese financial markets. He has also taught, from 2002 to 2004, at Tsinghua University's School of Economics and Management and, from 1992 to 2001, at Columbia University's Graduate School of Business. He is a member of the board of directors of ABC-CA Fund Management Co., a Sino-French joint venture based in Shanghai.*

Pettis has worked on Wall Street in trading, capital markets, and corporate finance since 1987, when he joined the Sovereign Debt trading team at Manufacturers Hanover (now JP Morgan). Most recently, from 1996 to 2001, Pettis worked at Bear Stearns, where he was Managing Director-Principal heading the Latin American Capital Markets and the Liability Management groups. He has also worked at Credit Suisse First Boston, where he headed the emerging markets trading team.

*Pettis is the author of several books, including *The Volatility Machine: Emerging Economies and the Threat of Financial Collapse* (Oxford University Press, 2001). He received an MBA in Finance in 1984 and an MIA in Development Economics in 1981, both from Columbia University (Source: EconoMonitor).*

² *Hyman Philip Minsky (September 23, 1919 – October 24, 1996) was an American economist and professor of economics at Washington University in St. Louis. His research attempted to provide an understanding and explanation of the characteristics of financial crises. Minsky was sometimes described as a post-Keynesian economist because, in the Keynesian tradition, he supported some government intervention in financial markets and opposed some of the popular deregulation policies in the 1980s, and argued against the accumulation of debt (Source: Wikipedia)*