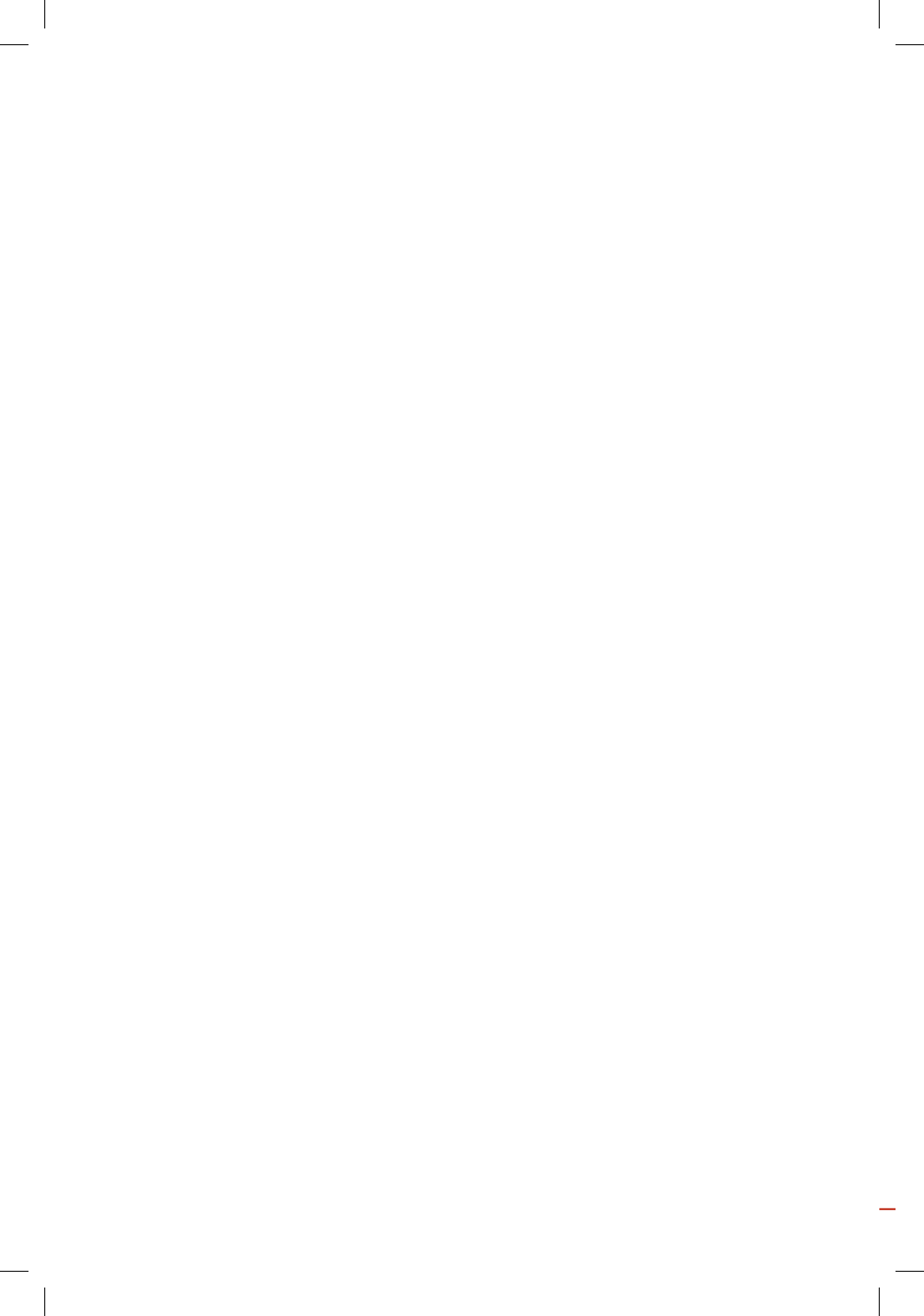


Too Different For Comfort

by
Louis-Vincent Gave

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To Kelly



Acknowledgements

I would love to claim all of the ideas presented in this book as my own. The reality is that most of these ideas were formed in discussions with GaveKal clients all around the world. As I have found to my expense over the years, the bad ideas are more often than not mine while the good ones tend to be the clients'. I am thankful for all of our clients' trust, friendship and support over the years.

Unfortunately, it is not just all of the ideas that aren't mine. In the pages that follow, not even all the words belong to me! Some of the paragraphs in this book have been borrowed from various research reports published by GaveKal in the past decade; especially pieces from Charles Gave (on the velocity of money), Arthur Kroeber (on political developments in China) and Anatole Kaletsky (on the Western central banks' new 'control engineering'.) This reflects two fundamental realities. The first is that Charles, Anatole and Arthur are smarter than I am on almost any topic they decide to tackle. The second is that, being lazy, I would rather cut to the chase quickly; after all, as Milan Kundera once said, *"ambition is a poor excuse for not having sense enough to be lazy"*.

This brings me to the last bunch of folks I need to thank, namely all of my colleagues at GaveKal who make my everyday life so much more pleasant. Putting this book together would have been a non-starter without the help and hard-work of our analysts, editors, assistants and GaveKal partners. Within this group, a few stand out as deserving special praise for working through the manuscript with a fine toothcomb: David Hay, who runs Evergreen-GaveKal, our US private-wealth management

joint-venture, my wife Kelly Gave, who runs the GaveKal Endowment (where, incidentally, all proceeds of the sales of this book will end up), our senior analyst Will Denyer and our chief editor Simon Pritchard. David, Will, Simon and Kelly did their best to take out the many typos, grammatical mistakes and other gremlins from this document; the fact that any of them still made it through their careful eyes is simply a testimony to how many there were to start off with. As Napoléon once said: “*à l'impossible, nul n'est tenu*”.

Staying on the theme that we like to take other people's ideas and make them our own, we look forward to your feedback, either through our GaveKal books website (www.gavekalbooks.com), or by email (Louis@gavekal.com). Or, if you long for the days when all important post went through red, yellow or green boxes, then write me at Suite 3101, Central Plaza, 18 Harbour Road, Wanchai, Hong Kong.

Louis-Vincent Gave,

Hong Kong, August 26th 2013

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Introduction

When Lord Salisbury, the first British prime minister of the 20th century, was asked by Queen Victoria to consider a reform, he famously replied: *“Change? Your majesty, aren’t things bad enough as they are?”*

Of course, it is in the nature of conservatives to look askance at change. But sometimes, change is thrust upon us; and in that regard, turn of the century periods tend to be particularly traumatic. Think of a man who fell asleep for 30 years in 1790. Our sloth would have woken up to a very different world in 1820 (France was no longer the dominant European power, Britain was rapidly expanding her global reach, Spain had become a has-been, the United States was experimenting with a new form of government...). The same is even truer for the man who fell asleep in 1890 and arose in 1920 to witness the end of the Austro-Hungarian, Chinese, Russian and Ottoman empires, the establishment of the USSR, the rise of Japan, the dominance of the United States. And the same is true today: someone who fell asleep in 1990 would likely be surprised to hear that Pentagon officials are now more worried about China (an economic and political basket case in 1990) than about the Soviet Union (which of course no longer exists); that Europe is going cap in hand to ask for loans from China, India and Brazil; that Iran may, after all, end up exercising ultimate political control over Iraq (remember that in 1990, Iran was left on its knees by the Iran-Iraq war). In short, beginning of centuries tend to be ‘revolutionary periods’, with societies, political systems, and established values all undergoing deep and profound changes.

Now contrary to what Lord Salisbury implied, not all change needs to be negative; after all, life is a whole lot more comfortable and less gruesome today than it was one century ago for almost anyone, bar perhaps a few British aristocrats or Russian landlords. However, change that is misdiagnosed, misunderstood or miscommunicated can be highly destructive. The entire History of the 20th century, with the rise of fascism, communism, large-scale genocides, unprecedented loss of human life in large-scale wars, etc... testifies to this unfortunate truth.

And this is where the study of economics comes in.

Most of us were taught in school that economics is the ‘dismal science’; the dour discipline necessary to master in order to allocate most efficiently the world’s scarce resources (whether labor, land, capital, or commodities). But in a world in which capital is increasingly human or, even more importantly, a world in which capital can ‘breed’ and become limitless rather than finite (for example, think of the information stored within the Amazon servers and how the more one shops there, the more information and thus ‘capital’ Amazon accumulates) such narrow-thinking makes no sense. Instead, economics is increasingly about reflecting on the changes reshaping the world, and how we can best adapt to them.

At least that is how we perceive things at GaveKal and why, in 2002, we moved our main office from London to Hong Kong, before opening a Beijing office in 2005. Indeed, a decade ago, the main change to the global system came from the ascension of China. And understanding this rise, and its global impact, was essential, we felt, to managing money efficiently. This was the task I decided to tackle in previous books such as *Our Brave New World* or *A Roadmap For Troubling Times*.

But now the China growth story is evolving, with massive ramifications across financial markets. Worse yet, this is happening at a time when the entire structure of production of most industrial countries is itself going through a highly disruptive accelerating rate of change. Indeed, over the past two years, one of the key GaveKal themes (aside from

the changes unfolding in China) has been the rapid rise of automation and the growing obsolescence of the low-end workforce. A development which has probably helped trigger dramatic changes in our monetary systems – changes which themselves will also have deep ramifications (another key GaveKal theme, and source of debates, over recent years).

Re-reading the above paragraph, one might come to the same conclusion as Lord Salisbury – that change is something to be feared rather than embraced. That is not the thesis of this book, for some changes can be extremely positive. For example, the shale-gas revolution which started to bear fruit in the US following the 2008 crisis is undeniably a tremendously positive development. Also, the changes re-shaping the Chinese economy could unleash some extremely exciting and creative forces. I will thus do my best to end the book with a sunny outlook, even if some of the individual chapters make for sober reading.

When it comes to soberness, no-one could quite compete with Thomas Robert Malthus, who, a little over two centuries ago, went around explaining that there won't be enough for everyone, and forecasting Armageddon. Now the funny thing about Malthus is that he came up with his doom-mongering just as humanity's progress was set to go into hyper-drive. Look at it this way: from 2000BC (i.e., when reliable records start) to the late 18th century (when Malthus developed his theories), the life of the typical human was fairly uniform. The vast majority of men and women lived short, painful lives during which they lost an inordinate number of children to early deaths and struggled to accumulate any meaningful capital whatsoever. Most people 'survived' rather than 'lived'. As the US economist Robert Gordon showed in his work, before the industrial revolution transformed England in the late 18th century, **it took 350 years for an average British family to double its standard of living**. But then, just as Malthus lamented the collapse that civilization was facing, and how, in the economic 'zero-sum game', millions were bound to go without, the first industrial revolution (based around the steam engine), the second industrial revolution (based around electricity) a century later, and the third industrial revolution (based around the

spreading and storing of information) a century after that, completely changed the human experience. **In short, Malthus described a world that, at the time he was putting pen to paper, no longer existed.**

This does not mean that his ideas were not powerful. To this day, we regularly meet disciples of Malthus; and those typically come in one of two ilk. The first are the straightforward Malthusians; the proponents of the ‘too many Chinese, not enough oil/copper/wheat/insert your commodity of choice’ school of thought. For such investors, commodities are, by definition, in short supply and given the growth of the world’s population and of overall global incomes, shortages are bound to emerge. Commodity prices will thus have to rise given that we are confronting a world with too many people and not enough resources. Combine that with the central bank’s tendencies to monetize (i.e., run the printing presses) commodity price increases and the potential for blow-off tops seems obvious. With the peaking of the commodity bubble in 2011, this kind of Malthusian has lately grown less vocal, giving rise instead to the second kind of Malthusian, prone to argue that **perhaps the past two hundred years or so of economic progress, based, as they were, on the rapid succession of three dramatic revolutions (steam engine, electricity, information), were a historical anomaly?** Instead, the norm for the human experience is long periods of little or no growth in which any individual’s increase in wealth automatically comes at the expense of someone else. Look at it this way: in the 1950s and 1960s, the average American would roughly double his parents’ standard of living. Thus, in the space of a single generation, for almost all Americans, life got to be ‘twice as good’. However today, most Americans fear that their children will not be able to maintain the standard of living that they have become accustomed to, let alone double it. So clearly something has gone wrong? How can this not be a case of progress having stalled?

Aside from the ‘there won’t be enough for everybody; so let’s organize the scarcity’ argument, there is, of course, another explanation for the lack of wage growth in the US and across the US. Namely, that since the fall of the Berlin Wall the world has experienced a dramatic Ricardian

boom. But it just so happens that this boom has delivered rewards, for now, mostly outside of the OECD. Billions of people around the world (in China, India, Africa..) have seen dramatic increases in their standard of living. But these increases just don't happen to be in America, or in Europe, because right now that is not the place where the most dramatic productivity gains are taking place. But could that perhaps change?

Why do I call this Emerging Market boom of the past decade a clear-cut example of Ricardian growth? Because it was David Ricardo who demonstrated cogently that if we (whether individuals, regions, or nations) each focused on what we are best at producing, then there would be more to go around for everyone. So, for example, if Senegal is really good at producing soccer players, and Germany is really good at producing soldiers who join the French foreign legion, then Senegal can send its soccer players to France, while France sends her legionnaires to Senegal and at the end of the day, France can win the soccer World Cup while Germany gets cheap cocoa beans (or some such).

Though, of course, a better rationalization of talent around the world cannot be the only explanation behind the global growth of the post Berlin-Wall world. Enter Joseph Schumpeter, who once declared: *"When I was a young man, I set myself three goals; I wanted to be the world's best economist, the world's best horseman and the world's best lover"* and then after a pause added *"I am still struggling with the horses"*.

This, as much as anything, illustrates Schumpeter's sunny disposition. And while asserting the reality of the third declaration is a challenge I will leave to others, in my mind, Schumpeter does at least have a claim to the 'greatest economist' title; if only because his description of capitalism as being a process of 'creative destruction' summarizes in just two words almost everything one needs to know about our economic system. Of course, Schumpeter stood on the shoulders of giants (Ricardo amongst them), a position which did allow him to see just a little bit further and express the view that economic growth can be created ex-nihilo, by someone inventing a new product, a new process, a new service, etc.

Even if this growth ends up being highly destructive for somebody else. Until Schumpeter arrived, economics was, for all intents and purposes, the ‘dismal science’, more concerned about how to best allocate scarcity than anything else. After Schumpeter, economics became about describing change.

In the following pages, I propose to review whether we are indeed entering into a period of scarcity (hardly!) and tie up a lot of the dramatic and structural shifts discussed in our research over the years; structural shifts important enough to single-handedly reshape the global economy. These include the growing adoption of robotics in industrial processes and service industries; the dramatic expansion of monetary policies; China’s long grind back towards economic relevance; and the emergence of a new comparative advantage (namely cheap and plentiful energy) in the US. Most of these changes represent genuine revolutions. From this quick review, I will attempt to draw some investment conclusions – not an easy task given that some of these deep structural forces often have very different, and contradictory, investment implications...

The Stagnation Years

In early 2013, Ben Bernanke stood up and said out loud what he had been saying under his breath for the previous five years: namely that the Federal Reserve has an employment threshold as well as an inflation threshold, and that monetary policy will not budge until the employment goal is met, or the inflationary cost proves too high. Thus, for the first time, the Fed fully embraced its dual mandate, and Bernanke proclaimed himself an ‘economic engineer’.

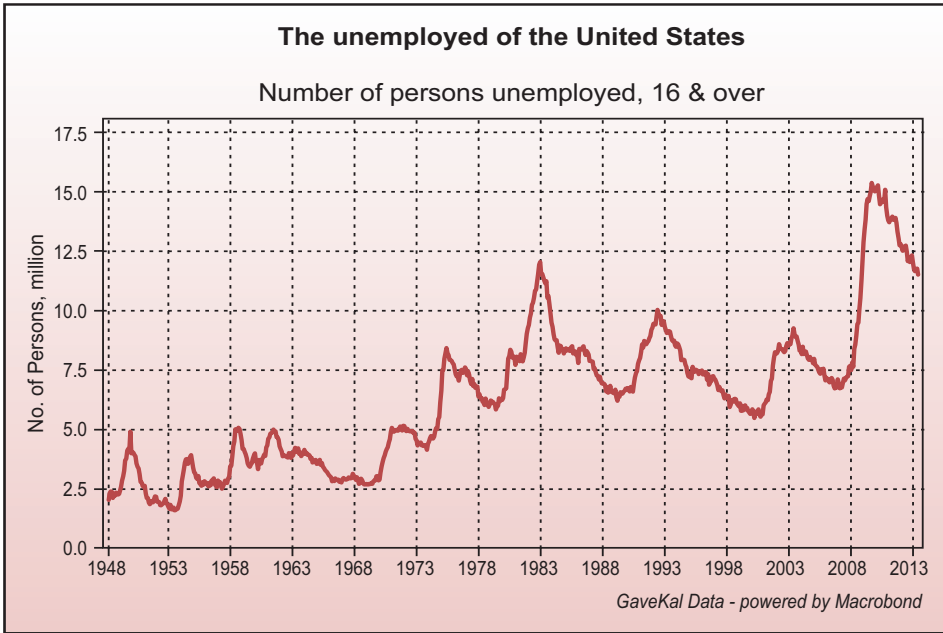
Of course, the Fed’s so-called ‘dual mandate’ to pursue both price stability and full employment was enshrined in law in 1978. But for the next 30 years, the Fed’s statements consistently avoided reference to the employment objective. The overriding concern was price stability, and the underlying assumption was that maintenance of a stable low-inflation environment would automatically enable robust economic growth and hence, over the medium-to-long term, full employment. The emphasis on price stability for a time seemed vindicated by the high-growth, low-inflation ‘great moderation’ of the 1990s. The 2008 financial crisis then threw this model into doubt.

In his 2011 book *Capitalism 4.0*, GaveKal founding partner Anatole Kaletsky argued that the single-minded focus on price stability had failed, and would inevitably be replaced by a ‘control engineering’ approach under which the central bank would pursue multiple objectives—price stability, full employment, and financial system stability—and respond flexibly to whichever pressure gauge happened to move farthest into the

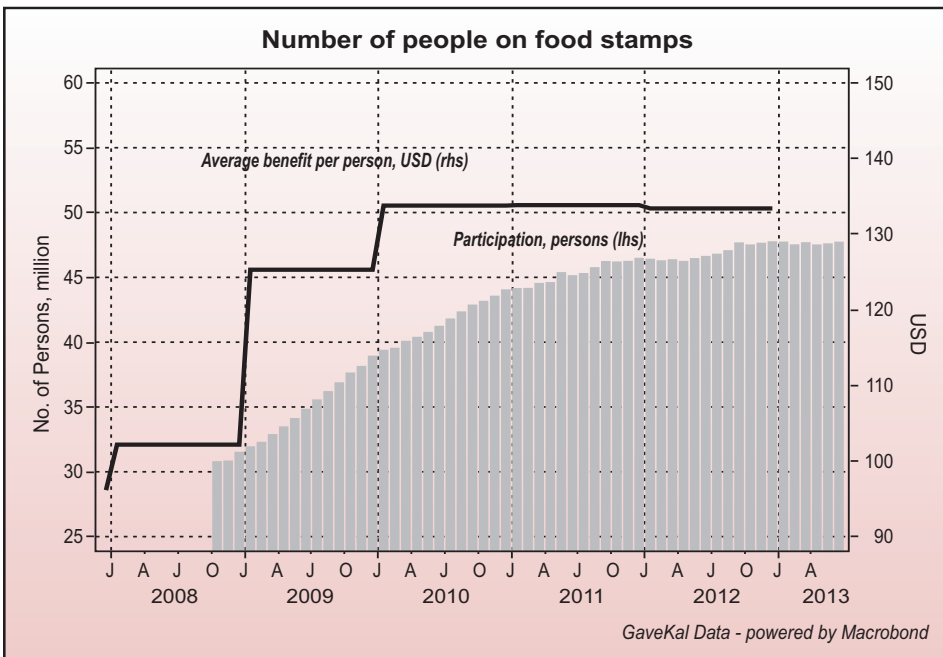
red zone. This describes quite well the way Ben Bernanke has run the Fed since 2008. And the Fed chairman's more recent comments simply made explicit and formal an evolution that has clearly been in progress for almost five years. In the wake of the financial crisis, Bernanke aggressively expanded the Fed's balance sheet, and introduced the innovation of buying mortgage-backed securities, in order to preserve financial system stability and underpin the prices of an asset class perceived as crucial, namely housing. Later moves, notably Operation Twist and QE3, aimed both to stabilize or revive asset prices and to stimulate employment growth.

Less visibly, but just as importantly, the language of Fed statements under Bernanke has shifted inexorably toward a true dual-mandate framework. In December 2008 the Fed broke its three-decade silence and specifically cited 'maximum employment' as a policy objective. And every FOMC statement since September 2010 has included explicit reference to the impact of Fed policy on employment. Recent adoption of formal unemployment and inflation thresholds of 6.5% and 2.5% respectively, simply made apparent an evolution that was already complete.

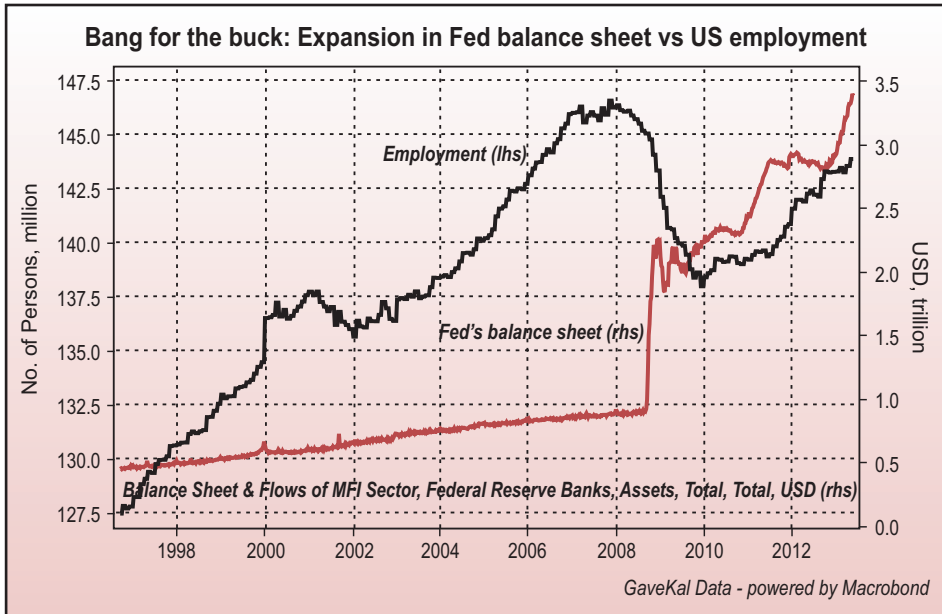
And the Fed is not alone in this paradigm shift. Or else, how can we explain the record low interest rates prevailing in Japan, Europe, the UK, etc.? However, in spite of all of the central banks' actions, and the central banks' good-will, unemployment in numerous countries, including the US, has remained stubbornly high. In the US, after four years of zero interest rate policy (ZIRP), more than 11 million people are still unemployed. Today's 7.4% unemployment rate has in the past only been witnessed during the peak of recessions, not four years into the recovery.



More alarmingly, some 47.5 million Americans are currently on food stamps, a new record high. And the average benefits accruing to food-stamp recipients have increased more than 35% since January 2008.



Or look at it this way: since the fall of 2008, the Fed has expanded its balance sheet by some US\$2.6 trillion. Yet there are still 2.8 million less people employed in the US than there were in 2008. This means that, since the employment lows of 2008, some 5.8 million jobs have been created. **Dividing the Fed's US\$2.6 trillion by the labor market's 5.8 million person expansion, one finds that each additional job created has come at the 'cost' of a roughly US\$450,000 expansion in the Fed's balance sheet. A good bang for the buck?**



To explain these grim numbers, one can latch onto one, or several, of the following explanations:

The first explanation is the one any reader who can afford a copy of the New York Times, and endowed with the patience to go through a Paul Krugman article, will instantly recognize: namely the idea that what ails our world is 'insufficient demand'. There are many variations of this theme but the idea is probably best explained by Richard Koo in his seminal book on 'balance-sheet recessions' (*The Holy-Grail of Macroeconomics*). For Krugman, Koo and most other Keynesians, once an

economy embarks on a deleveraging cycle, the government has to step in and make-up for the lack of demand through massive spending plans. For such economists, the continued downturn in Japan, the stubbornness of the US unemployment rate, etc... is a sign that the government is not doing enough. In that respect, such Keynesian economists are almost like psychiatrists: if the patient gets better, the psychiatrist is to be thanked. If the patient gets worse, then a bigger dosage of psychiatry is obviously needed. To some extent, it is this explanation that the world's central banks have latched onto. Otherwise, why would they bother with the highly unorthodox policies they are now following?

The second explanation is also linked to policy but takes a diametrically opposite view to the one proposed by Krugman, Koo et al and has been described in the general media as 'Austerian' (a play on words meant to defang the Austrian school of economics). Proponents of such a view will explain that, through their unprecedented policies, central-bankers, treasury officials and elected politicians are actually creating massive uncertainties for the average businessman and investor who then typically reacts by sitting on his hands. Ergo, lame capital spending, anemic employment growth, very marginal productivity gains and the overall weak growth environment we have experienced in recent years. Worse yet, today's policymakers are not only generating uncertainty, but by maintaining an inordinately low cost of capital, and by subsidizing failing business entities (e.g., Peugeot in France, Solyandra in the US), they are in essence keeping 'zombie-companies' alive. In turn, such zombies drag down the returns for good companies, leading to lower returns on invested capital, less investment, etc... In other words, as Western policymakers follow the path blazed by Japanese policymakers, we end up with a very similar economic outlook.

The third explanation is the simple possibility that the world may be going through an enormous labor cost arbitrage. Indeed, the fall of the Berlin Wall and the concomitant opening of China, and even India, has meant that what could be produced for dollars in the Western world can now be produced for cents in emerging markets. This was the main

underlying theme of *our 2005 book, Brave New World*, in which we reviewed how the Western world, if it wanted to continue thriving, would have no choice but to move up the value-chain rapidly. This is well-trodden territory which can best be described by Ross Perot's remark on NAFTA in the 1992 presidential debates that: "*We're here and they're there. Now the plan is that we meet somewhere in the middle. Makes you feel real good, don't it?*". The obvious problem with this explanation is that China, India, Russia, Poland and the like have also gone through massive restructurings of their labor force. For example, between 1994 and 2005, as China restructured its state-owned industries, more than 50 million industrial workers lost their jobs (that's more than twice the total number of US industrial workers). Thus, while the international labor-cost arbitrage may help explain some of the challenges the Western world's workforce are facing, it can't be the only explanation. Instead, the question has to be whether our economies are facing a structural problem?

Enter Tyler Cowen and his thesis laid out in *The Great Stagnation* (a must read book) that the lack of jobs in our economies can be traced to the lack of growth, itself a direct consequences of the lack of new, game-changing, inventions. Think back to the age of automobiles, or the age of commercial aviation, or even the age of steam engines and electricity and how each of these discoveries transformed our economies, generating jobs (to build cars, pave roads, etc.) and incomes. For Cowen, the lack of new inventions, is the primary culprit for the current funk that our economies are experiencing.

Interestingly, Eric Brynjolfsson and Andrew McAfee take exactly the opposite view in *Race Against the Machine*, yet another must-read book (readers with a short-attention span will be glad to hear that the book is a very digestible 75 pages long). The MIT professors return to the theme of 'the end of work', already developed by such visionaries as Keynes and Peter Drucker and the theme of Jeremy Rifkind's 1995 best-seller of the same name. They also quote Nobel prize winner Wassily Leontief who wrote: "*The role of humans as the most important factor of production is bound*

*to diminish in the same way that the role of horses in agricultural production was first diminished and then eliminated by the introduction of tractors". This parallel with the working farm-horse is somewhat troubling; especially as, later in the book Brynjolsson and McAfee quote economist Gregory Clark who, in a *Farewell to Alms*, wrote: "There was a type of employee at the beginning of the industrial revolution whose job and livelihood largely vanished in the 20th century. This was the horse. The population of working horses actually peaked in England long after the industrial revolution, in 1901, when 3.25 million were at work. Though they had been replaced by rail and by steam engines, they still plowed fields, hauled wagons and carriages and carried armies into battle. But the arrival of the combustion engine rapidly displaced these workers so that by 1924, there were fewer than two million. There was always a wage at which all these horses could have remained employed. But that wage was so low that it did not pay for their feed."*

To a large degree, it is hard not to have some sympathy for the 'end of work' argument as everywhere we care to look, we see jobs being replaced by software or machinery. No more gate-check-in agents at airports. For that matter, no more travel agents either. No more bank tellers. In fact, at McDonald's in France, no more cashier to take in your order either. No more subway drivers in Paris' increasingly automated metro system (on the plus side, this also means no more strikes). No more equity traders but a plethora of algorithms to execute trades. No more money managers either but simple ETFs and index funds. As the list of jobs displaced by technology continues to grow, it would be easy to conclude that humanity may no longer be able to compete with machines.

However, as Ronald Reagan's favorite economist, Frederic Bastiat, commented there is always "what we see and what we don't see". We see the jobs being destroyed and to be fair, we see the jobs being created. But we may fail to see the important shift in the balance. For example, every worker at Amazon has more than ten times the amount of sales attached to his or her name than the average Wal-Mart employee (just like the average Wal-Mart employee had ten times the amount of sales

as the old corner-store employee). Or look at it this way: in early 2013, Facebook bought Instagram at a valuation of US\$1bn. Instagram had all of 13 employees at the time. Compare this to Eastman-Kodak who, at its peak, employed more than 64,000 people and it is easy to see how technology is rapidly displacing jobs.

Needless to say, figuring out what ails our job markets between lack of innovation, accelerating creative destruction, policymakers that are too timid in spending money, policymakers that fail to provide private sector investors with a stable environment, or the great global labor cost arbitrage, is an important task for here lie the possible diagnosis to our ailing economies:

- **Diagnosis 1:** Believers in the great labor cost arbitrage theory will, like Chuck Schumer, Arnaud Montebourg, or Marine Le Pen naturally be drawn to protectionist measures. Or, the smarter ones, like Ben Bernanke or Kuroda-San of Japan, may be drawn to currency devaluations since they know that *“if goods don’t flow across borders, armies will”* (Frederic Bastiat).
- **Diagnosis 2:** Believers in the ‘balance-sheet’ recession argument will, like Paul Krugman, Richard Koo or even our own Anatole Kaletsky, make the case that governments need to increase spending to boost income and thereby get consumption rolling again. This can be done through higher social transfers, unemployment benefits, healthcare packages, etc... And this should be financed through higher budget deficits monetized by central banks.
- **Diagnosis 3:** Believers in the Ricardian equivalence of a private sector holding back because of policy uncertainty, fears of future tax increases, and the constant threat of price wars from zombie companies will naturally be drawn to Bowle-Simpson type bi-partisan solutions to fiscal retrenchments. In short, such investors would like to see a scaling back of government spending combined with an easy monetary policy to help pass the bitter pill.

Interestingly, the Washington gridlock means that this is broadly what has happened in recent years.

- **Diagnosis 4:** Believers in Tyler Cowen's *Great Stagnation* thesis will typically argue that the government needs to take the lead in investing in new technologies, whether alternative or nuclear energy, renewal of infrastructure, education, etc...
- **Diagnosis 5:** Believers in the idea that we are going through an accelerated phase of creative destruction and that, as a result, a lot of people are ending up by the wayside, will tend to argue that we need to dramatically rethink our fiscal systems so as to penalize work less, and possibly tax capital more, while simultaneously revisiting the entire structure of welfare systems that were built for industrialized economies whose structures have now dramatically changed. Failure to do this is a serious impediment to investment, and growth.

So this brings us to the first conclusion: our Western economies are obviously sick. And there are five potential diseases. And as always with diseases, a wrong diagnosis may prove very costly. If nothing else, the dose of antibiotics prescribed by say, believers of option 2, may well leave our economic bodies weakened if the true ailment is, as we believe and will try to show, diagnosis 5 – **the age of accelerating creative destruction.**



The Rise of the Robots - Or Pricing 'Cheap Labor' Out of the Market

Amidst the overall somber mood surrounding employment in the Western World, and the slow recovery from the recession troughs, one should nevertheless highlight that in the US, manufacturing employment has been posting annual gains in employment for over a year. This is meaningful for, since 1997, the US has done nothing but shed manufacturing jobs:



Behind this rebound lies stories such as Maytag repatriating the production of washing machines to the American rust belt. Or decisions

by Hyundai, Kia Motors, Toyota and others to expand their production bases in the US. The sharp rise in orders that Boeing has lately been receiving has also helped.

So is this re-onshoring just a case of companies acting on a weak and undervalued dollar, a weak job-market which ensures that wage demands remain muted, and some of the cheapest real estate witnessed in forty years? Very possibly—though there may be more to the US manufacturing renaissance than a simple cyclical trend. Let us take Japan as an interesting counter-point to the US.

In Japan, the labor market is still somewhat tight while both costs and headaches had, until very recently at least, been on the rise (i.e., power cuts related to Fukushima, labor market that remains inflexible etc.). Moreover, the uncertainty surrounding the country's long-term fiscal situation is, arguably, worse than that of the US, as is the uncertainty surrounding energy costs, and even its steady supply. The yen has hardly been undervalued in recent years while land still typically trades at a premium to land in almost any other OECD country. In short, Japan would likely not be the first logical destination for a brand new factory. Yet, in the past few quarters, and even preceding the launch of Abenomics, we witnessed a number of interesting announcements. For example:

- Hewlett-Packard announced in May 2012 that Japan's on-shore PC production ratio has risen to 90% from 60% the previous fall. Behind the rise was HP's decision to shift high-end laptops production away from Chinese subcontractors. The motive for the move? HP has now halved its typical supply lead time from twelve business days to five.
- Lenovo, the Chinese computer giant which has produced almost exclusively in China, also announced plans in May 2012 to cement its JV with NEC and begin making business-use systems in Japan. The motive for the move? Lenovo has now reached the stage, and managed to develop a brand, where the priority is on consistency and high quality, with shorter delivery times and simplified logistics.

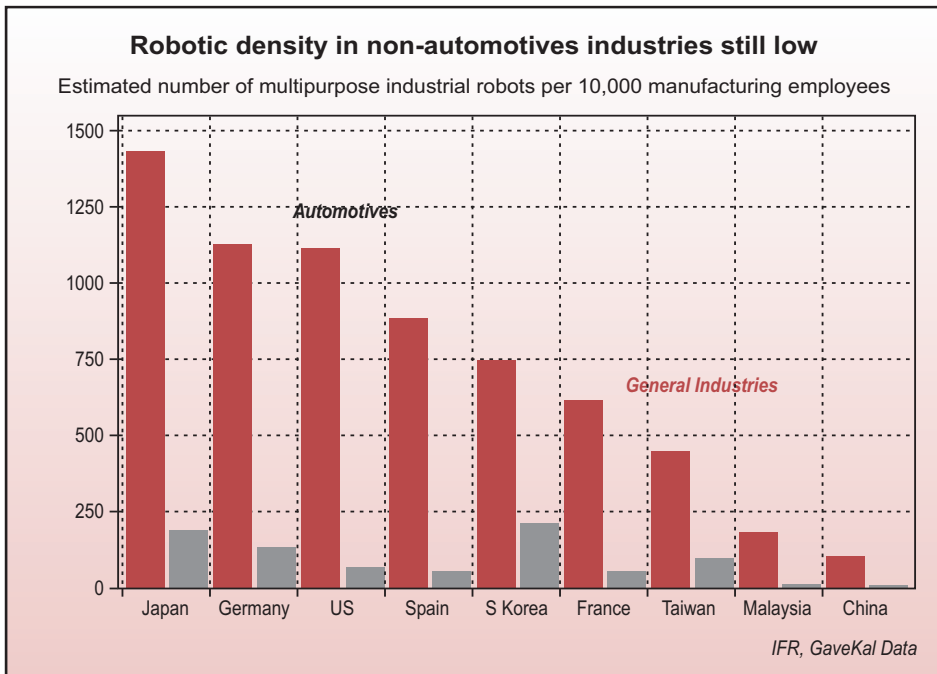
- Fujitsu, the world's 3rd largest maker of IT computing products, after HP and Lenovo, recently announced that some of its PCs and mobile phone capacity will return home from southeast Asia, with multifunction robots, that can solder and assemble parts, replacing the Thai and Filipino workers. Fujitsu expects the move to slash personnel expenses by 30%. The new assembly lines will be completed by fiscal year 2014.
- Canon, the world's largest digital camera vendor with a 20% global market share recently said that it is 'fully robotizing' its digital camera and lens factories. Canon has promised not to cut jobs and intends to shift existing employees to other roles as the company gears up for machine-only production by 2015; however, this shift to robotics is expected to improve margins over the long term.

Behind this re-shoring trend lies a simple reality: **what can be achieved with robots grows by the day, while the costs associated with automating a plant are falling** (and will continue to do so). Thus, manufacturing jobs that, until recently were sent to Mexico, China, Poland, or elsewhere can now return to countries such as Japan and the US, to be done by robots. This new reality may well explain the rise in US manufacturing employment in the last few years. **Thanks to progress in robots' functionality, and lower prices, the global 'labor-cost arbitrage' trend, which was the predominant macro-economic feature of the past decade, may now be coming to an end.**

Industrial robots have been around for decades; and automation is hardly a new concept. However, most manufacturing automation in the last century fell in the category of 'fixed automation'. For example, a stamping machine that stamped only one kind of sheet metal part, or a welding machine that only welded one specific part to another. On the other hand, robots, defined as machines capable of performing a complex series of actions automatically are 'flexible automation', where the process can be changed by reprogramming the software rather than altering the actual machine. **Recent developments in robot**

technology, specifically robotic software, sensors and controllers, have brought about a new era that takes the machines from automatic to autonomous. As a result, robots are now capable of offering much more intelligent solutions for a wider range of industries and applications, and can be easily re-programmed to respond to new input and situations.

Looking through the robotics industry, we find that the largest segment of the robot industry is industrial robotics, which made up more than 60% of the value of total robots shipped in 2010. Until recently, industrial robots were mainly confined to the auto industry and handled materials-handling and welding; however, in recent years, a new generation of industrial robots, with vision capabilities and enhanced mobility through software enhancements, have expanded applications to packaging, painting, and warehousing in automotive and non-automotive industries like electronics, cosmetics, logistics and food and beverages. This should mean that, while robotics penetration in non-automotive industries is still relatively low (at less than one-third of those in autos even in a leading country like South Korea), usage should rapidly grow over the coming decade.



Indeed, while industrial robotics growth has been modest over the last decade, a number of compelling drivers will accelerate the greater use of robots from here. Namely:

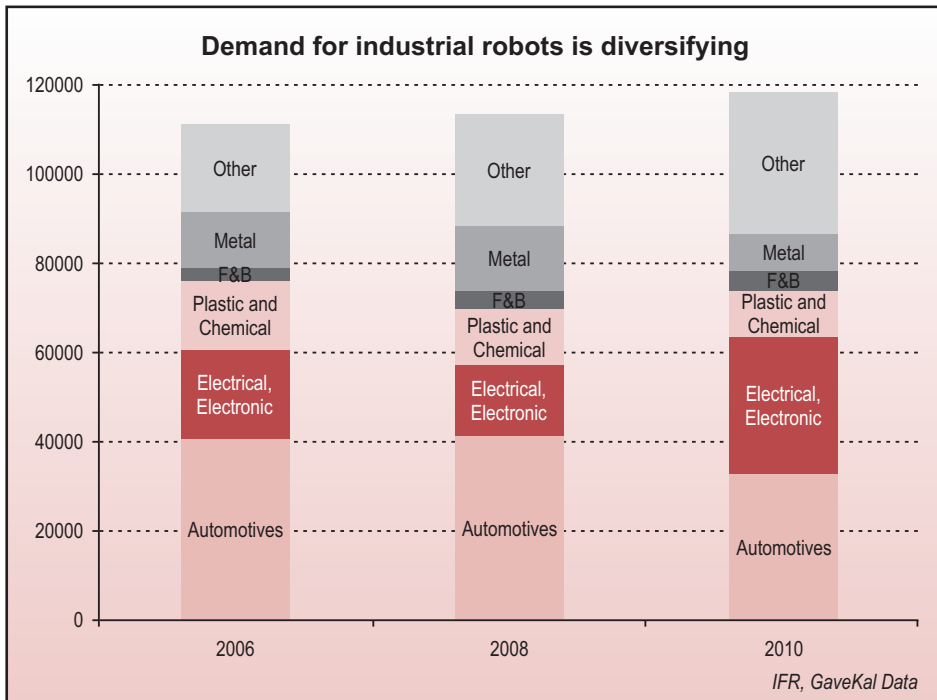
- **An evolving necessity:** The new generation of miniaturized, multifaceted products with short life-cycles (e.g., cellular phones, cameras, etc.) requires quick adaptability, accuracy, and consistency on the production line that is now beyond the skills of human workers. Robots satisfy the need to retool much more quickly with now lower capital investment to move from one product specification to another.
- **A self-propelling spiral:** As more companies adopt new technologies, they force others to follow suit. Take the TV industry as an example. The TV industry was, until ten years ago, dominated by Japanese producers (Sony, Sharp, Panasonic...). Samsung emerged and, through the use of robotics, was able to dethrone the Japanese in what had until then been a highly homogeneous consumer electronics market. Samsung's highly automated plants allowed the South Korean company to offer quality products at low prices. As prices declined, Japanese giants like Panasonic and Sharp followed suit and produced the latest generation of robotic television production facilities.

Putting it all together, we would conclude that the global manufacturing and industrial production lines have likely started a transformation similar to that which unfolded in agriculture in the first thirty years of the 20th century. Indeed, a century ago, Western nations went from having roughly 40% to 60% of their workforce engaged in farming, to less than 10% within a generation; and with that 10% producing multiples of what the 50% used to produce. This was a deeply unstable social trend, with millions thrown off the land, and into the arms of extreme and aggressive ideologies (communism, fascism, etc...), which raises the question of whether the same thing will now happen to the world's manufacturing workforce? For most Western countries, this question may not matter too much in that the manufacturing workforce is already a small part of the overall population. Moreover, the demographic situation of most Western countries (which are today by and large ageing fast) could not

be more different than what it was a century ago. But can the same statement be made for emerging markets?

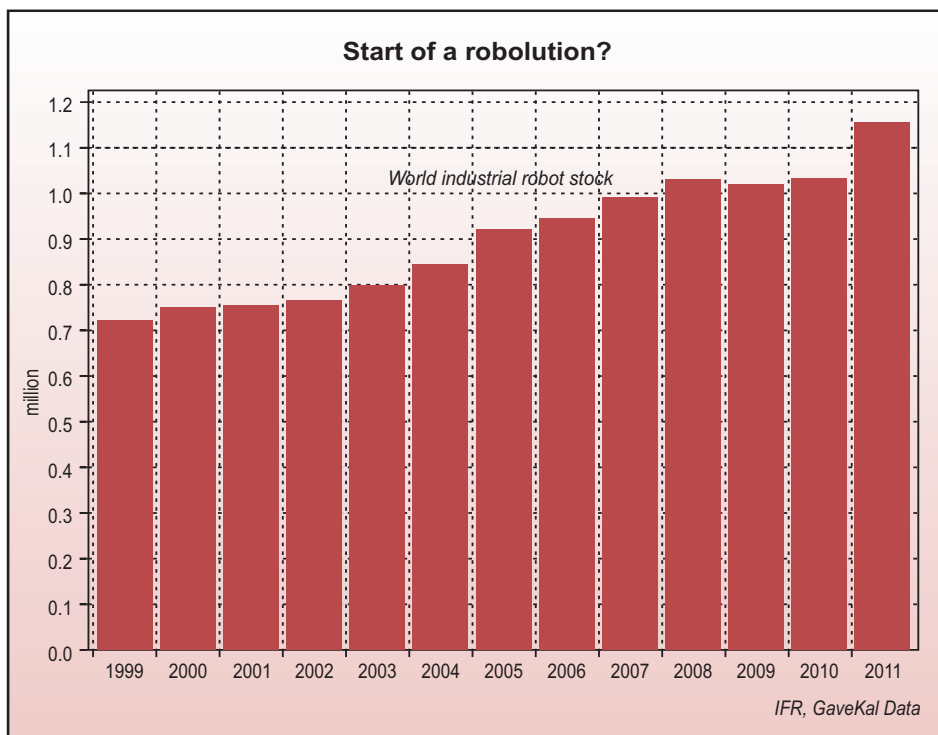
Robotics will not just change the way we manufacture goods. It is already changing the way we fight wars (for a terrific book on the drone wars, pick up *The Way of the Knife* written by my college room-mate Mark Mazzetti), produce agricultural goods and deliver services such as transport, medical procedures, logistics, etc. Even if progress in non-industrial robotics (the 40% remaining) has so far been slow, mostly due to the heavy initial R&D required for uncharted territories.

Until now, military and medical applications have been the primary drivers of the expansion in service robotics, partly because the unit value of service robots has been significantly higher. In 2010, the average unit value for a service robot was approximately US\$230,000 compared to US\$48,000 for an industrial one. However, these price tags will fall fast over the next decade as the knowhow from the exclusive and specialized service and military robotics fields trickles down to down to personal



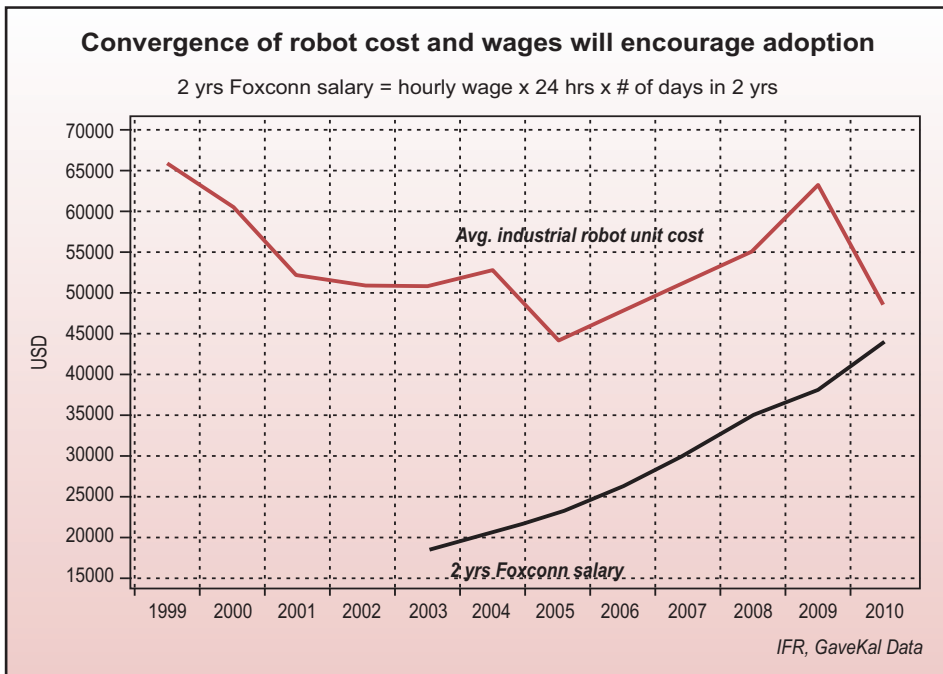
robotic devices. As such, we will start to see more widespread use of robots for such mundane tasks as vacuum cleaning, ironing, lawn-mowing, and perhaps down the road educational help or services to older folks. Such progress will continue to make our lives easier.

One important point about robotics adoption may actually be the simplest, **namely that new technologies do not always have an immediate impact on the world around them.** The first steam train did not revolutionize consumer markets until a large, affordable-to-use network was built. The impact of computers was not obvious until first the Microsoft Windows operating system and then the internet brought new ways to work, consume and play to every office and home. Today, given the exponential growth in technological innovations in cameras, speech recognition, vision sensors and wireless networking, combined with the dramatic drop in the price of robots, we are possibly reaching the point, where the **outlook on robotics is so promising that we may now be entering a new industrial revolution – a Robolution?**



Beyond greater adaptability and functionality of robots, the other factor driving the Robolution is falling costs. Indeed, up until recently, the high cost of most industrial robots restricted their use to a handful of high-wage sectors such as the auto industry. In the past few years, however, the cost of robots has fallen and by some measures, in a number of key industries, a robot's cost is approaching the unit cost of factory labor in low-wage sectors. The average cost of industrial robots shipped in 2011 was 29% lower than those in 1999. Given rising wage pressures in formerly cheap labor destinations, the cost-benefit is thus shifting dramatically in favor of robots (which, at least for now, remain uncovered by Obamacare).

Take for example, the cost of a robot for Foxconn and the wages prevalent in China's electronics industry (see chart below). When even companies such as Foxconn, the world's largest private sector employer, start using robots rather than bodies, then the attractiveness of robots may have reached a level where the technology is becoming widely adoptable.



In fact, if anything symbolizes the Luddite nightmare of robots replacing humans, it must be the recent decision by Hon Hai Precision Industry

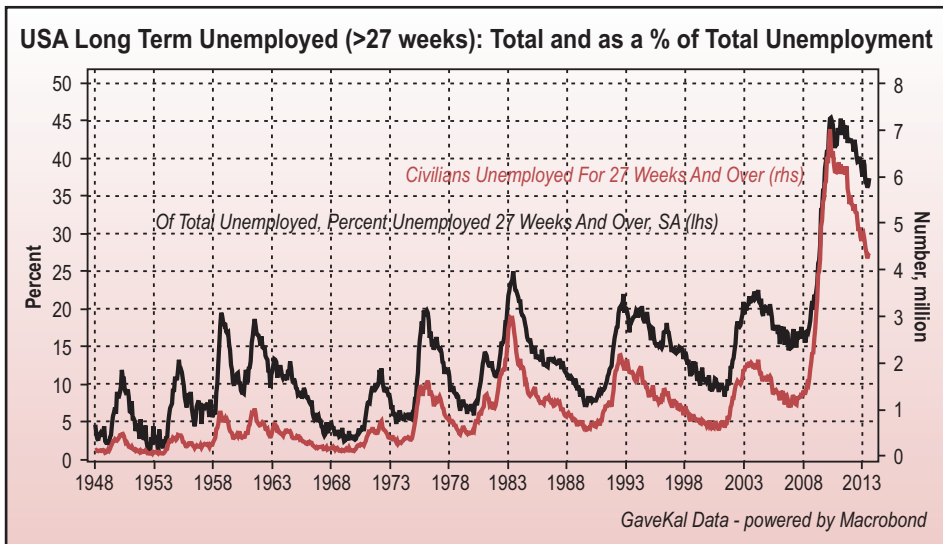
(the parent of Foxconn) to break ground on a US\$223 million industrial robot R&D and manufacturing facility in Taiwan. Not only will Hon Hai/Foxconn potentially galvanize the global production of industrial robots—but the company will also increasingly staff its own factories with robot workers. Now when we think of robots replacing humans, we can probably break down jobs into one of four categories:

- **Category 1 workers: non repetitive, non complex:** Gardeners, plumbers, ski instructors, hair-dressers,... These jobs are not in danger and will likely continue to be the largest source of job growth across the OECD and emerging markets.
- **Category 2 workers: non repetitive, complex:** Pharmaceutical research, software coding, civil or mechanical engineering, hedge fund managers... Such jobs are not in danger. Quite the contrary - demand will likely increase and salaries rise, allowing those working in these fields to purchase more goods and services from the workers toiling in categories 1, 3 and 4.
- **Category 3 workers: repetitive and complex:** Airline pilots, surgeons, highly qualified industrial jobs, equity traders... Within the OECD, these are the jobs threatened by the Robolution.
- **Category 4 workers: repetitive, very simple:** Manufacturing jobs, low end farming jobs etc... Think Charlie Chaplin in the movie *Modern Times*. Such jobs have already disappeared in the OECD – they will now disappear in emerging markets.

So as we look at the high unemployment rate that currently prevails across most developed nations, it seems obvious that **educational policy should be driven by the need to identify, and train, category 1 and 2 workers**. However, almost everywhere we care to look, the onus of educational systems seems to be on churning out category 2 and 3 workers by pushing as many people through university as possible. But, as we enter an age of declining category 3 opportunities, is enrolling as many children as possible through a costly university education that sensible? Or is it just a reflection of previous era thinking? This question is loaded with emotions. No parent

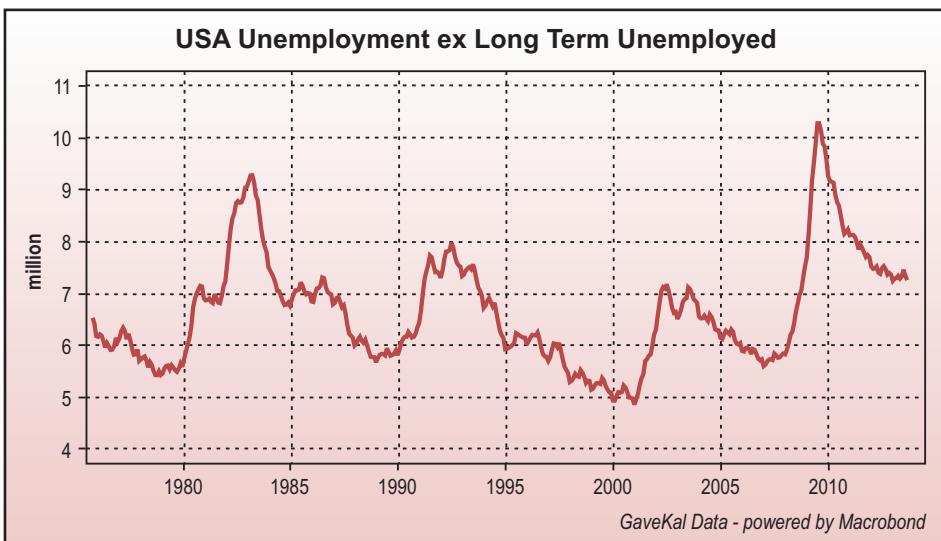
wants to be told that their son or daughter would be better off training as a plumber or a carpenter, even if such jobs potentially offer far more future financial independence than a degree in psychology or sociology. And so, in a culture which devalues manual labor and over-romanticizes intellectual tasks, the path of least resistance for politicians is to promise elevated high-school graduation rates and access to university for all. On an individual basis, this makes ample sense: almost everyone wants their children to achieve a university education; however, as a society, the fact remains that the coming years will most likely offer more opportunities for category 1 workers than category 3 workers. And if the Western world's educational system intends on continuing to form category 3 workers, then rich, Western, societies will need to continue sourcing their category 1 workers from abroad (i.e.: the London Polish plumbers, the Texan Mexican gardeners, the Czech nannies...). Hardly an optimal societal choice.

Staying on the question of whether our educational systems churn out the 'right kind' of workers, or whether they remain stuck in the patterns of a 'pre-revolution' era, please look at the chart below looking at the percentage, in the US, of long-term unemployed people as a % of total unemployment. Very visibly, what makes the current era unique is the very high level of long term unemployment.



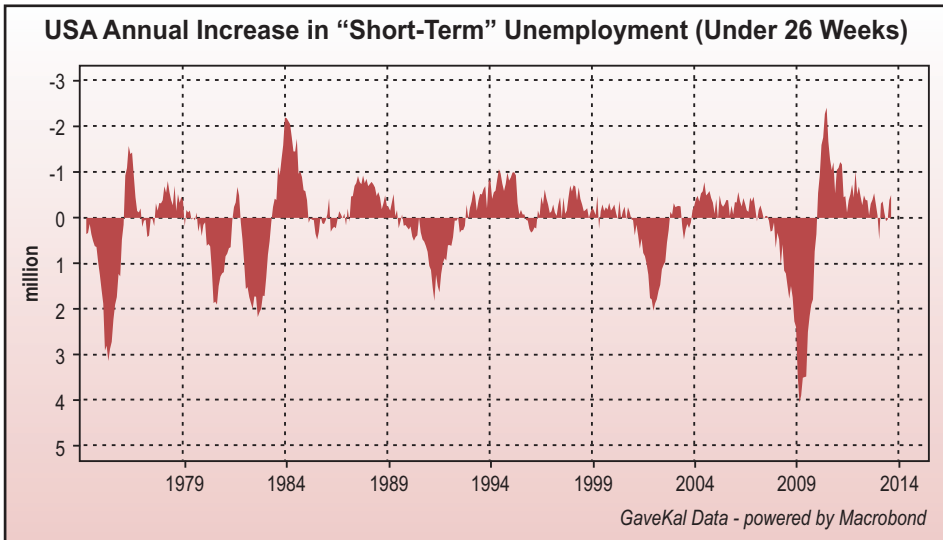
This chart and the question of whether the above surge in long-term unemployment in most of the Western world is a structural, or cyclical, issue is the crux of the problem confronting policy-makers today. For now, policy-makers, not least of which the Fed, have chosen to deal with this issue as if high long-term unemployment rates were a cyclical problem that could be treated with easy monetary policy. But what if the Fed is wrong? What if, because of structural shifts (including the robolution, but also weaker demographic growth), the US structural growth rate is now lower and structural unemployment higher? Could the Fed then ‘over-stimulate’?

Let us stay with the US as an example and make a controversial and somewhat inhumane assumption; that the 4 million or so Americans that have been unemployed for over six months are, for all intents and purposes, unemployable. Their skills are by now obsolete and unfortunately, there is little room for them in a rapidly changing modern economy. In other words, the 4 million or so long-term unemployed are category 3 and 4 workers in an economy whose growth only requires category 1 and 2 workers. Thus, if we make the very brutal assumption of ‘writing off’ such workers as unemployable (as un-politically correct

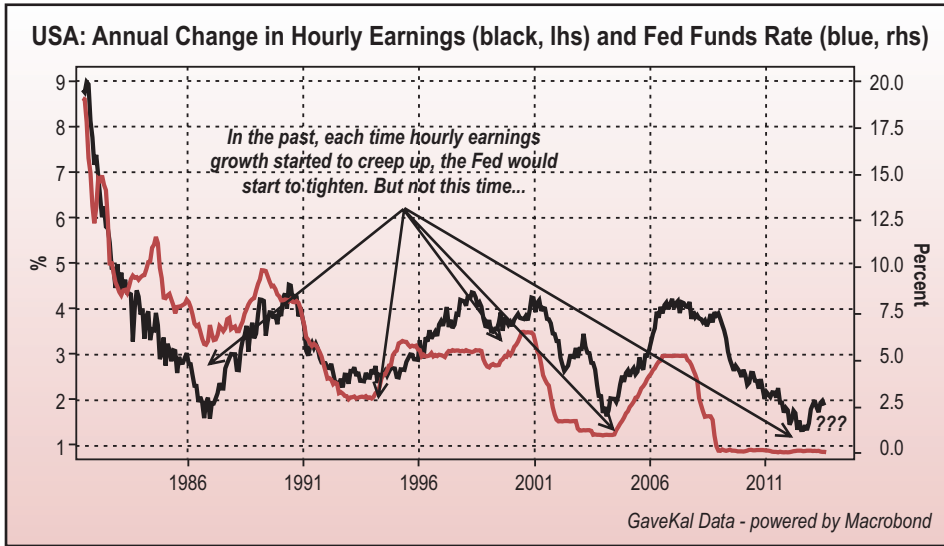


as this may sound) and instead focus solely on the unemployed who have been unemployed less than six months, we find the above chart which highlights a level of total unemployment at around 7.5 million people; a lot less extreme than the one suggested on previous charts.

Going one step-further and looking at the absolute growth in short term (less than 26 weeks) unemployment, we find that, for all the talk of a jobless recovery, the short-term unemployed market seems to be rotating just fine:



In other words, job growth amongst the non-long-term unemployed appears to be very decent; explaining why, in spite of an unemployment rate that remains stubbornly high, US labor costs are starting to trend higher. And this rise in the growth of hourly earnings leaves the Fed in a quandary. Indeed, in past cycles, accelerating labor costs were always an immediate trigger for Fed tightening. Not so this time. Obviously, the Fed feels that 'it's different this time':



So is the Fed not tightening today because the long-term structural unemployed cloud the overall picture? This is not a moot point, and brings us back to the question of whether the long-term unemployed are here to stay? Indeed, if our labor markets are now split between long-term, and hard to employ, unemployed workers that have effectively ‘fallen off the grid’ and short term unemployed workers who find jobs much more easily, then is an overly easy monetary policy really the solution to the dilemma of long-term unemployment? Is the Fed attempting to resolve a structural issue through monetary policy? And, if so, should we brace ourselves for longer-term distortions to either asset prices, inflation or growth?

It is too early to say whether Foxconn will eventually produce as many robots as it hopes to (some reports say the goal is 1 million robots per year starting in 2014) and how much of an immediate threat this represents to category 3 and 4 workers across the world. Nonetheless, given what we can already see today, policy-makers should be discussing and preparing for the long term threat of an accelerating ‘robolution’. Instead, in the US, in Europe, in Britain and almost everywhere we care to see, policy-makers are placing their hopes on non-conventional monetary policies

to solve what increasingly looks like a structural problem. Of course, punting the ball to central bankers is easier than tackling the problems of reshaping our welfare states to help cushion the blow for armies of by-now obsolete workers, rethinking our taxation systems so that they penalize work less, or re-configuring our educational systems away from expensive university educations that may no longer be needed, etc... But is this really a strategy, or a prayer? As we look at the next five years, a much greater adjustment may well be on the way.

As one of the largest electronic manufacturing companies develops a model that so strongly favors automated processes over traditional human hands, other companies will likely have little choice but to retool their production models on the new Foxconn-established industry standard. The current market leaders in robotics, all from OECD economies (such as Europe's ABB and KuKA, or Japan's Fanuc), will start to worry about the emergence of a new, low-cost competitor and double-down on their efforts. Of course, the top companies, with their stranglehold on patents and knowledge in the sector, are best poised to gain from the transition described above—and already rumors abound of ABB's prospective involvement in Foxconn's plan. Still, however one cuts it, the increase of competition in the robotics space probably means an acceleration in the rate of innovation, adoption and disruption.

Another very important question is that, if even emerging market companies are now turning to robots and automation, what will this mean for the development, and social stability of these economies? For, while the rise of robotics may incentivize a revival of domestic manufacturing in the West, this potentially highly disruptive technology will surely create challenges for the workers whose skills will be devalued or removed from existence entirely. Moreover, as emerging market producers rush to stay profitable, while consumers demand more for less, the extremely thin margins found at the bottom of the supply chain of many industries could well leave many grasping for even the most subtle gains in efficiency.

The bottom line is that Foxconn's noticeable shift to automate much of its manufacturing model and the resulting influence this may have on strategies of other similar corporations could eventually eliminate significant employment opportunities in emerging markets and various manufacturing sectors in general. As painful as this disruption may be to highly structured labor markets, it also accentuates the likelihood that, in a knowledge-based economy, groups holding intellectual property will succeed over those who specialize in strategies or business models that are easily commoditized.

This is an issue that looks more threatening to the developing economies than to the OECD, as manufacturing jobs have been crucial to the development models of non-commodity producing emerging markets. But even for the OECD, the robotics trend raises as many challenges as opportunities. While robots will not strike, unionize or demand higher wages, they also do not buy iPhones or holidays to Paris.

The macro implications are thus vast and include:

- a. **A new wave of manufacturing migration as cost considerations shift:** the need to chase the next low-cost labor country for manufacturing bases will eventually become less important for producers and their priorities will shift to other costs like logistics, energy costs and protection of intellectual property. Developed countries, where most of the end demand is coming from anyway, have the advantage on these fronts. Companies such as General Electric and Boeing have already started to talk about moving some manufacturing operations back to the US from China and Mexico, to solve quality-control problems and capture logistics advantages. While it remains to be seen how many firms follow suit, it is clear that growth in robotics usage will spur further investment in developed countries, at the expense of developing countries.
- b. **A potential loss of employment as workers are replaced by robots:** to date, the negative impact of automation has been

limited to menial and repetitive jobs. Meanwhile other higher-skilled jobs have been created as part of the automation process. However, modern day robotic manufacturing lines can in some industries reduce the number of employees by as much as 90%, even in complex processes. If this shift speeds up, the demand for more highly skilled jobs risks not offsetting the loss of factory-floor jobs.

- c. **A potential headwind for developing countries that have traditionally relied on supplying labor to grow:** The ‘Asian miracle economies’ developed rapidly by attracting foreign manufacturers into their countries. China provides the most recent example of this model: it provided cheap land and labor and in return enjoyed strong job growth, training for its workers and managers, technology and knowledge transfers, and ultimately, the necessary skills and knowhow to move up the value-chain. But now, how will economies such as Vietnam, Bangladesh, Pakistan and others which have little to offer the world but cheap labor, develop if foreign companies are no longer willing to move there to exploit their cheap labor? The rise of robotics could mean the end of the tried-and-tested emerging market roadmap to development.

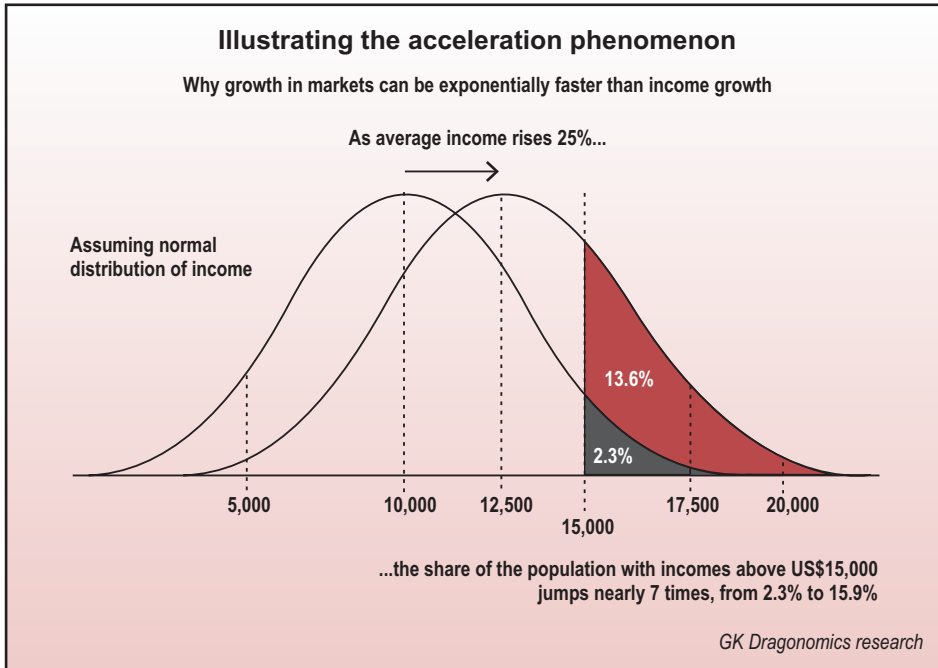
In short, the Robolution promises an even more unequal world. Unequal within rich countries as those who only possess two strong arms find themselves no longer needed, while those who possess capital see disproportionate returns from the inherent productivity gains. And unequal across the globe as the rich countries reap the reward of their developments, while the poorer emerging markets struggle to get their foot on the first rung of the industrialization ladder.

Viva la Robolution?

In the early 20th century the French economist Albert Aftalion developed the concept of 'Acceleration'. Aftalion explained that most socio-economic variables are distributed according to the 'normal' law, the famous bell-shaped curve, affectionately also called the boiler hat. This is especially true of income. In a normally functioning society (i.e., not North Korea), income tends to be distributed according to a Gaussian pattern, with a large percentage of the population making close to the average level of earnings. In a normal country there will be few people with a very low income and few with a very high income. At both ends of the curve (the tails), one finds a very small population in percentage terms. This Gaussian distribution of income matters greatly for, **when it comes to the buying of certain goods and services, the historical evidence suggests the existence of thresholds.** For example, if the average income in a country is below US\$1,000, nobody owns a television; when the income moves above US\$1,000, then almost everybody buys one. For a cell-phone, the required income level seems to be around US\$2,000. For a car, the critical level seems to be US\$10,000/year. For foreign travel, it is US\$15,000. For university education, US\$20,000. For financial products, US\$30,000 and so on.

So let us assume that in a given country the average income was US\$10,000/year. The number of people who earned more than US\$15,000 would for example, be 2.3%. If, over the next three years, incomes grew 25% to an average income of US\$12,500/year, then those earning more than US\$15,000 would all of a sudden be 13.6% of the

population; an almost six-fold increase in the population likely to follow a person with a little flag while wearing the same baseball cap as their closest 100 friends. Indeed, it is hard to come up with a better illustration of the Acceleration phenomenon at work than Chinese tourism. Though another good example is Chinese mobile phone use.



In 1998, only a few million Chinese were registered cell phone owners. By 2008, 650 million people in China were yelling into their receivers while going to the movies, riding the train, lounging in the park. In the course of ten years, two things happened: firstly, the GDP per capita rose from US\$817 in 1998 to US\$3,405 in 2008. Secondly, the price of using a cell-phone collapsed. This twin effect, incomes moving to the right and prices moving to the left, led to an explosion in demand far beyond the correspondent growth in income. It is this double 'Acceleration phenomenon' which makes 'deflationary-booms' possible.

Now any new technology typically goes through an initial phase where price points are so high that only a few early adopters can afford the new

revolutionary product. This was the case for autos, for air conditioning units, for televisions, for cell phones and personal computers... And up until now, it has definitely been the case for most high-end manufacturing robots. **However, the question investors should ask themselves is whether we have now reached a tipping point?** And it's not just about the US\$10,000 robots that Foxconn claims it will be producing by next year. Nor is it Bill Gates' recent forecast that new generation robots may become as ubiquitous and have as transformative an effect on our economies and our lifestyles as the personal computer. Instead, it's about everything we see about us: from Paris' driver-less metro railtrains, to Panasonic's fully automated plasma screen plants in Osaka. Everywhere we care to look it is hard to avoid the conclusion that an increasing number of jobs are being replaced by machines and smart software. Even the Rabbi's matchmaking duties are now being replaced by Match.com's algorithms (or, in the rabbi's case, www.jdate.com).

But as with the PC revolution of the 1990s, it's not all about price. Indeed, the first generation of industrial robots did relatively simple, yet repetitive, tasks on production lines where labor was expensive and fault-tolerance was low. Such machines brought precision to Japanese car factories and Taiwanese wafer fabrication plants, allowing lean production with minimum wastage. What they did not do was fundamentally change the nature of industrial automation which over the last 200 years has grown increasingly capital intensive and sophisticated. Until now, that is. Indeed, to even the most casual of observers, the obvious conclusion has to be that robots are becoming sufficiently smart and affordable to change the way manual tasks are undertaken in both developed and developing economies. New generation robots can be programmed to undertake complex tasks that allow easy replacement of physical labor; and can then be reprogrammed to do different tasks.

In a move reminiscent of General Motor's purchase of the Los Angeles, San Diego and Baltimore tramways in the 1950s, Amazon spent US\$775 million in 2012 on Kiva Systems, a supply chain robot maker. Clearly, Amazon's goal was to not only move one step above the

competition in terms of supply-chain efficiency, but also ensure that the competition stayed one step behind. Or take Foxconn, with over 1 million employees, the company is on record as wanting to effectively replace 300,000 workers with robots over the next three years. Already, the company's highly secretive new Chongqing plant is reportedly experimenting with robot-run production lines.

Very soon, large-scale robotic adoption and production by firms such as Amazon or Foxconn will fundamentally change the competitive dynamics of their entire industries. But just as IBM and Cisco dominated the first phase of the computing and internet cycle, the early winners of the robotic revolution will likely be the makers of core infrastructure. Which means that, for now, investable options in this potentially high-growth sector remain dominated by robot producers, a group of companies whose performance can now be tracked through an ETF (ROBO.US). Incidentally, what are ETFs but another sign of the unfolding Robolution, with algorithms and programs replacing money managers in the investment decisions?

Not that building a homogenous robotics index is that easy. Instead, it means aggregating extremely disparate companies whose profile can vary substantially by region.

Japan specializes in industrial robots and is the world's biggest producer and user of such machines. As a result, most listed robotics companies in the world are Japanese, ranging from components suppliers to full systems producers. For such industrial robotic makers, the main risk has to be the gradual commoditization of the technology due to new entrants like Samsung and Foxconn, even if the large installed base of the Japanese market-leaders should provide a medium-term buffer. The Japanese robotics stocks have risen with the recent rally in Japanese equities, but continue to trade near trough valuations. So provided that Koreans or Chinese producers do not meaningfully undercut the Japanese in the coming years (admittedly, a large caveat), Japanese robotics stocks would seem to offer good value.

In the US, the robotics industry is mostly concentrated around publicly-traded services and personal robotics companies. Such companies produce robots that tend to be sold directly to end users, resulting in higher margins; i.e., a surgical robot is sold directly to a hospital, while an industrial robot sold to Toyota facilitates the making of a car. Because of this ability to generate higher margins, US robotics stocks have consequently attracted a valuation premium compared to companies trading in Japan and Europe. But of course, the risk for consumer robot producers is that the ability to continually innovate needs to be high as barriers to entry are relatively lower in this space. Valuations, however, are currently near historical lows. Attractive options thus lie in firms holding patent protection and requiring stringent regulatory approvals (as with healthcare robots, for example).

Europe is witnessing significant robotic innovation in the small-cap segment; unfortunately the European robotics investable universe is very small, with just one large-cap producer. European robotics producers' earnings have also tended to lag those in Japan and the US in recent years (most likely due to the fact that industrial investment across Europe has been tame in recent years), resulting in less of a valuation uplift.

Having said all this, there is little doubt that the listed robotics sector remains very much a niche market today; but then, so was the internet in 1995 and 1996. Meanwhile, the robotics' industry growth potential offers a compelling risk-reward proposition—especially at current depressed valuations. With robotic adoption benefitting from technological advancements, and indirectly from inexorably rising labor costs in large manufacturing economies, the current market leading suppliers should benefit. Building an early position in these stocks provides optionality—especially if, as seems possible, robots really do end up taking over the world. Or, at the very least, taking over jobs that, until recently, were being filled by Chinese, Vietnamese, Mexican or Polish workers.



Will the Robolution End Up Eating Its Own Children?

Most people know the quip of Henry Ford pointing to his new machines and asking Walter Reuther “*How will you get union dues from them?*”, only for the UAW leader to reply: “*How will you get them to buy your cars?*”

Back then, the challenge was not as much the machine’s threat to industrial workers as much as the rapid industrialization of agriculture. As mentioned before, at the turn of the 19th century, roughly half of the workforce of most countries with a European population (whether England, France, the US, Australia...) worked in farming. Within a generation, this ratio had broadly fallen to 10% or thereabouts. And that 10% produced multiples of the foodstuffs that their forefathers had produced.

This massive gain in productivity, itself a direct result of the mechanization of agriculture (along with improvements in seeds, fertilizers, overall farming knowledge, etc...) had many beneficial effects, not least of which was the ability to work a lot fewer hours to feed one’s family. The table below, derived from the Montgomery Ward catalog, reviews the number of hours the average US worker needed to work, in order to purchase everyday items. In 1895, twelve oranges cost two hours of work. By 1997, the cost of these same oranges was down to six minutes.

Exhibit 5
Labour time costs of commodities (1895-1997)

Commodity	Time-to-Earn in 1895 (Hours)	Times-to-Earn in 1997 (Hours)	Productivity Multiple
Horatio Alger books (6 vols.)	21	0.6	35.0
One-speed bicycle	260	7.2	36.1
Cushioned office chair	24	2.0	12.0
100-piece dinner set	44	3.6	12.2
Hair brush	16	2.0	8.0
Cane rocking chair	8	1.6	5.0
Solid gold locket	28	6.0	4.7
<i>Encyclopedia Britannica</i>	140	4	35.0
Steomway piano	2400	1107.6	2.2
Sterling silver teaspoon	26	34.0	0.8
Oranges (dozen)	2	0.1	20
Ground beef (1 lb.)	0.8	0.2	4
Milk (gallon)	2	0.25	8
Television	∞	15	∞
Plane ticket SFO-BOS	∞	20	∞
Antibiotic strep throat cure	∞	1	∞
Dental x-ray	∞	2	∞
Laptop computer	∞	70	∞

Source: 1895 Montgomery Ward Catalogue

If nothing else, this illustrates the profoundly deflationary nature of capitalism. Fundamentally, capitalism is about making more with less. And if possible, much much more with much much less. And given the Robolution, we may well have entered a period of structurally accelerating deflation; an ability to produce more and more goods and services with ever fewer workers.

In his research, Professor Brynjolfsson shows that 65% of American workers occupy jobs whose basic tasks can be classified as information

processing. This is frightening as it leaves open a lot of jobs that could be replaced by machines and/or software. It is this new reality that raises major headaches for policymakers.

The first big policy issue is faced by central banks which have given themselves the dual task of fighting both deflation and the rise in unemployment. But what if higher unemployment and the fall in prices are a structural phenomenon that has little to do with the cycle? For example, if tomorrow Samsung is able to fully automate its production line and deliver to our doors a smartphone without the intervention of a single worker (save the lorry driver bringing the parcel) and, as a result, the price of a phone halves? Or what if, thanks to ever-improving robots, heart surgeons are able to operate on ten times as many patients as they are today, thereby collapsing the cost of the average heart surgery? Should we bemoan such deflation? Should we lobby our policymakers to do something about these collapsing costs? And what could they do? Order surgeons to use leeches to treat heart problems and electronic contract manufacturers to go back to using child labor? And does putting the cost of capital at zero, and printing a lot of money (the remedies so far espoused by most central banks in their bid to fight deflation) really help the laid-off Samsung worker, or now-unemployed nurse, find a job? Or does the zero cost of capital instead accelerate the trend of replacing labor with capital? **After all, if we make capital free, and labor expensive (through increases in regulations, increases in benefits etc...), should we be surprised that companies replace labor with capital?**

More poignantly is this trend a threat to the current structure of most Western welfare states? Indeed, most developed countries put together their current fiscal structures in the period between the Great Depression and the oil shocks of the 1970s. And the rules which most governments (at least, the successful ones!) seemed to work under were that:

- Labor was broadly fixed, and thus ripe for the plucking, while

- Capital was more fickle and so should not be overly taxed lest it make its way for friendlier destinations

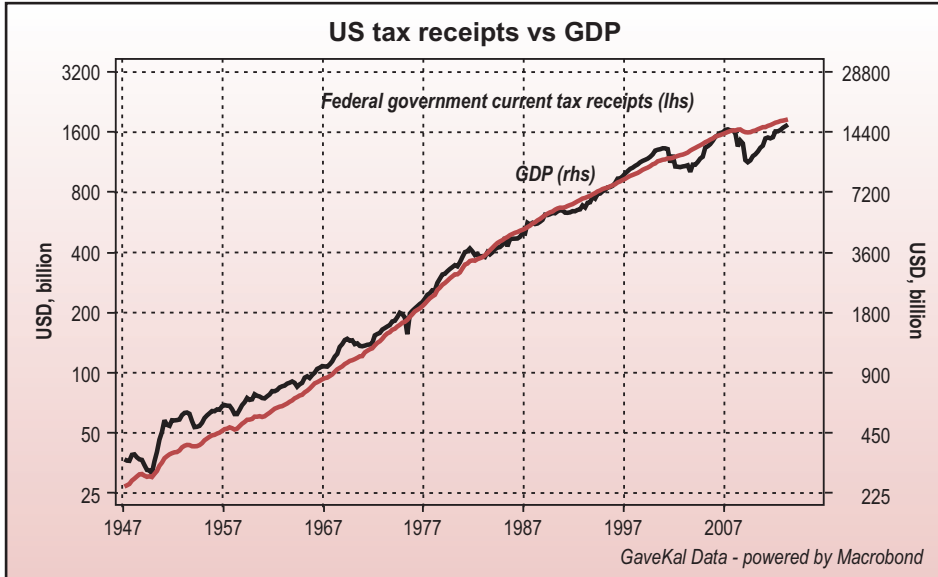
In those days, the economy was organized along vertical lines, around key industrial consortiums, whether GM, P&G, IBM or Citibank for the US, Mitsubishi & Sony for Japan, Renault and Credit Agricole for France, etc... Most of the value-added accrued to a few key, large, companies, typically managed by friends, or even government appointees and technocrats. In this pyramidal eco-structure, taxing the very wide working-base made all the sense in the world. After all, as Mark Twain once said: *“Tax the poor people; there is just a lot more of them.”*

But then labor became flexible (the 300,000 or so Frenchmen living in London attest to this – as do the rosters of the Chelsea football and Toulon rugby squads) and now, for a lot of activities, labor may even be becoming superfluous. Surely this raises the question of whether maintaining high taxes on labor (i.e., income taxes, payroll taxes, etc...) to fund welfare states still makes sense?

Now undeniably, with the looming threat of high structural unemployment triggered by the Robolution, our governments will need money to help the citizens left behind in the current economic transformation. And in such conditions, nobody concerned with a modicum of social harmony should suggest that dismantling the social safety net (as the EU is currently doing all over Southern Europe) should be a priority. **Instead, the question that should be asked is whether collecting money through a tax system built on the back of an economy from another era really makes sense for our Western governments?**

Take the US as an example. From World War II to the late 1990s, tax receipts always grew more or less at the same pace as US GDP. In the up-cycles, tax receipts tended to be stronger than GDP growth, and in the down cycles the reverse held true. But never did we have a long-standing period of twelve years or so, as we have just had, when tax receipts did not manage to keep pace with GDP growth. And note that this was before the Robolution got started in earnest. What happens if,

for the next decade, tax receipts continue to undershoot? Will the US government, or others in the same predicament, shift away from taxing labor and instead start to tax capital more aggressively?



The problem here is obvious enough: in a world in which labor is harder to pin down, capital only becomes much freer (as the numbers of rich, older, French folks living in Brussels can attest). And this trend towards freer capital may also be going into hyper-drive. Indeed, once a company makes the switch to the ‘platform company’ business model (for more on this, please see our book *Our Brave New World*), as they focus more on design and on sales than on labour-intensive manufacturing, then more and more companies start to domicile their research and marketing activities in countries with low marginal tax rates (Ireland, Luxembourg and Switzerland yesterday, Hong Kong, Canada and Portugal tomorrow?). Companies do this both for their shareholders and for their employees (which increasingly are one and the same).

To some extent, this has already happened in the financial industry. On any given day, the biggest foreign net buyer or seller of US Treasuries is the Caribbean Islands. Now needless to say, the Caribbean islanders are

not amongst the world's largest investors; but the hedge funds domiciled there most definitely are. So the 'efficiency capital' of the world which used to be domiciled in big investment banks, in the world's financial centres (whether London, New York, Frankfurt, Tokyo...) has now re-domiciled itself in hedge funds whose legal structures are in the Caymans, Bermuda, the British Virgin Islands, etc. The tax revenue on the 'efficiency capital' is now lost for the US, the UK and others. Of course, the fight is on to gain this tax revenue back; even as privately, most Western policymakers acknowledge that this is likely to be as successful as the charge of the Light Brigade at Balaclava.

The reality is that, in a world in which both labor and capital become ever more decentralized and in which the more productive talent will want to work, or at least be taxed, in low tax environments, the modern welfare states will be hard pressed to prevent a structural downturn in tax receipts. Let's not beat around the bush: in the new world forming in front of our very eyes, income and capital gains taxes will become increasingly voluntary and governments will have to get their pound of flesh elsewhere. So will this trigger a change in the welfare-state? Or a change in the taxation method?

Looking back though the history of modern nations, one finds that the first industrial revolution gave birth to the modern nation-states and the idea of citizenship. At the time, governments basically provided subjects, who had little say in the matter anyway, a modicum of regalian functions (police, army, judges). Following the second industrial revolution, governments started to branch out from their regalian functions and provided citizens with income redistribution, education, pensions, healthcare, unemployment insurance, etc. In a society where everything was based on industrial mass production, mass distribution, mass consumption, mass education, mass media, mass recreation, mass entertainment, and weapons of mass destruction, a system of mass taxation made sense. But today, in the midst of a rapidly accelerating third industrial revolution, centred around the ability to store, transmit and analyse information ever faster at a collapsing cost; a society

characterized by a growing diversity in lifestyles (what Alvin Toffler called ‘subcults’), fluid organizations that are prone to rapid change (Toffler called them ‘adhocracies’), and in which workers are less proletarians than loosely-affiliated ‘cognitarians’; with an economic system in which mass customisation offers the possibility of cheap, personalised production catering to small niches and in which ‘prosumers’ can increasingly fill their own needs through the miracle of 3D printing, **does mass taxation to deliver uniform state services really still make sense?**

In our ‘third wave’ world (see Alvin Toffler’s *Future Shock* for more on this) in which platform companies, prosumers and cognitarians operate, taxes will increasingly become voluntary. This implies that governments will have to compete with each other to provide the best services at the lowest possible costs to attract the world’s best platform companies, and their workers. Over time, this should mean that governments which provide the most efficient Regalian functions, and at the lowest possible costs (Hong Kong? Singapore? Luxembourg?) stand to survive in their current structures. Either that or, like the US, governments will have to trap their citizens through global taxation; i.e., take away their right to vote with their feet (this can be done on citizens who have an emotional attachment to their countries – it is much harder to do on corporations who are, by nature, far more mercenary). So on the assumption that non-US Western governments shy away from locking their populations behind the high walls of global taxation, the pound of flesh will have to be found elsewhere. In our view, this will have to be done through:

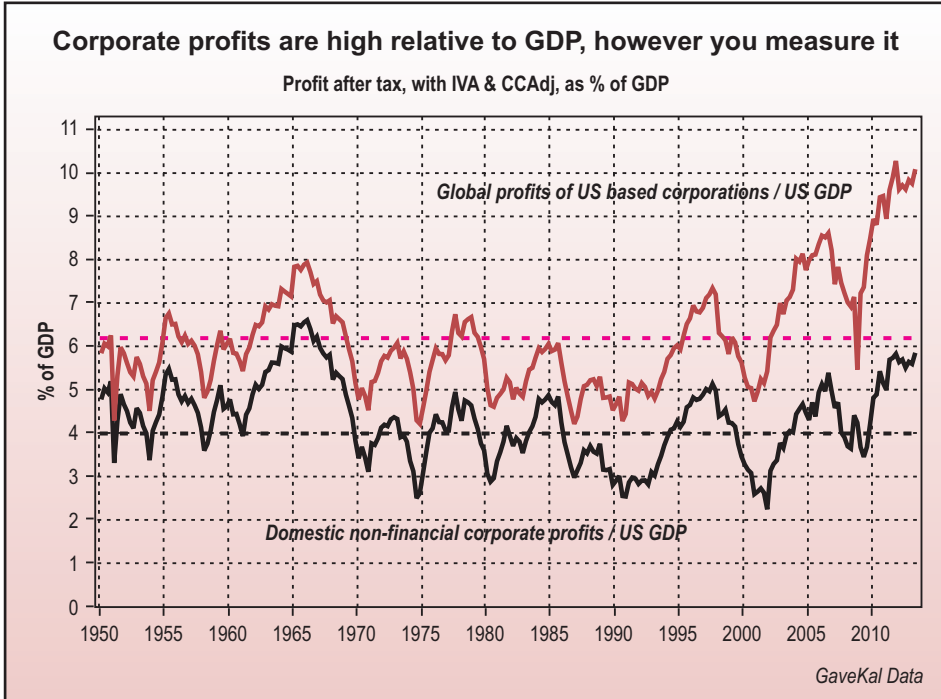
- **Increases in sales tax:** The prosumers will be roughed up for money at the point of sale. In that regard, it is hard to imagine that the tax-free nature of so many internet transactions will be allowed to endure.
- **Large increases in real estate taxes:** France already has a wealth tax (which hits holders of valuable real estate disproportionately), while in the UK, the debate over a mansion tax has been raging for years. Over time, as governments look desperately to make

up for empty coffers, the temptation of taxing richly-valued real estate will just prove too strong (and politically popular?) to resist. Though, of course, any increase in real estate taxes comes with a Catch-22 in that the more the tax rate on property increases, the less desirable the property becomes, thereby affecting the property's value and the tax receipts...

- **Large increases in inheritance tax:** If our starting point is that a) taxes are a necessity to pay for the things we need governments to provide, and that b) ideally these taxes should be as less disruptive to the economy as possible, then it is hard to argue against the efficiency of inheritance taxes. This is not a new idea. John Stuart Mill cogently argued that inheritance taxes are the most efficient way for governments to fund themselves as they simply do not impact people's willingness to work, or invest, more. Indeed no-one work will work less tomorrow if the inheritance tax has been boosted higher. On the contrary, high inheritance tax rates may well encourage older folks (of which there are more and more in the developed world), to go out and spend, or invest, more aggressively?

Beyond the neutral impact of inheritance tax, high death duties may also make sense from a social stability standpoint. Indeed, in a world in which, thanks to the Robolution, the returns on capital rise exponentially (look, for example at the chart below, showing how far US profits relative to GDP, stand above their long term mean (admittedly, part of the boom in profits is linked to the fact that US companies have been so efficient at harvesting profits abroad – a phenomenon we discussed in *Our Brave New World*, but even stripped of their foreign profits, US domestic profits relative to GDP stands at close to all time highs). So while the returns on physical labor collapse, the societal risk inherently becomes that too much capital becomes too concentrated in just a few hands. This is all the more so since a) capital starts to 'breed' (as reviewed above) while b) capital increasingly becomes untaxable. In such a world,

pushing for high inheritance taxes to avoid a 'latifundalization' of our economies, in which too much wealth is concentrated in too few hands, may well make sense.



Unfortunately, however, in no Western democracies have we seen a move towards scrapping income and capital-gains taxes, to be replaced by sales, real estate and inheritance taxes. And so we are stuck in a situation where, even five years after the recession, the tax receipts of almost every Western government fall far short of their spending habits – a situation bound to get worse as Western countries age, blowing pension obligations and social security costs through the roof. And thus, to square the circle, central banks have been forced to transform themselves into the financing arms of their countries' budget deficits; even if the consequences of adopting zero interest rate policies are ultimately self-defeating.



Subsidizing Expenditures That Give No Return With Money That Does Not Exist

Jacques Rueff, most likely one of the best central bankers France ever had (this is not meant to be damning with faint praise—even if some readers will likely see this as a tallest dwarf competition) once said “*inflation consists of subsidizing expenditures that give no return with money that does not exist*”. To a large extent, this could be seen as a concise summary of the policies followed by the various Western governments over the past few years, whether it be subsidies to Solyandra, debt guarantees to Peugeot, wars in Afghanistan, increases in French national education hires, British foreign aid, German wind-power subsidies... Wherever we care to look, government spending is near an all-time high thanks to money provided willy-nilly by central banks. And yet inflation is nowhere to be found? Could this be the result of massive productivity gains (robotics, the internationalization of trade, and cheaper energy...)? Or is something else at hand; perhaps an unprecedented collapse in the velocity of money? Let us back-up here for we may be getting ahead of ourselves. Indeed, before we investigate a potential collapse in the velocity of money, **perhaps we should take a few lines to review the vexing question of what money really is?**

In the midst of the recent ‘euro crisis’, the age-old question of what money is, and why it has any value, has taken a new urgency. On our side, we started pondering this question when a client told us “*I was at Disney World this weekend and saw the euro wearing a ‘Make-A-Wish’ T-Shirt*”. Obviously, what our client was implying was that the twelve year old euro would not make it through puberty, because, as the client put it to

us, the euro was not a proper currency (an easy to reach conclusion when looking at the monopoly bank-notes the eurocrats have created, devoid of historical figures, genuine historical monuments or magnificent natural vistas – as if Europe lacked any of the above). So was our client right?

The question of what constitutes money has pre-occupied much finer minds than ours. For example, a wall display in the Bank of England museum notes on the debate on the nature of money between William Pitt the Younger and Charles James Fox that: *“Fox argues, quite rightly, that every note issued by the Bank should be backed by gold. Pitt, on the other hand, maintains that the Bank should issue as many notes as are needed.”*

Obviously, times have changed and the *“quite rightly”* seems somewhat at odds with the philosophy currently prevailing at the Old Lady. The fact that the Bank of England could, two centuries later, feel so differently about the core issue at the very center of its own existence than the faith professed on its own walls is a revelation in itself. By comparison, we doubt that there will ever be a Pope in the Vatican who will state publicly that perhaps Jesus-Christ did not multiply bread, or that he was not born from the Virgin Mary. This illustrates how difficult it is to define the nature of money. For centuries, we have used money to measure value, to store wealth, and to exchange goods, but no-one can really say why money has any value at all; a paradox which has trumped the greatest minds in Western civilization.

Aristotle was the first to try and tackle the topic and expressed the view that **money had to have a high cost of production in order to make it valuable, and to allow it to represent a lot of value in a small physical format.** He also argued that everybody had to accept money as a means of payment, as a store of value or as a standard of value. This drew Aristotle, the first famous gold-bug of sorts, to the conclusion that only gold and silver could be accepted as money. But even a gold standard leaves us with the quandary of a farmer selling his wheat for something that is essentially useless? Aristotle also does not explain why it would

make sense, and generate wealth, for people to spend resources and time to dig up holes in mountains, and then take the proceeds of their efforts to bury them in another hole somewhere else? Even more alarmingly, it seems that the core of the Aristotelian argument is that gold/silver have value because they take a lot of effort to extract; in other words, at another time, Aristotle might have been a paid-up subscriber to the Marxist labor theory of value, a theory that we now know to be an intellectual dead-end.

Indeed, as the Austrian school amply demonstrated, the labor theory of value (the idea that the price of things should be determined by the amount of effort that was put into producing them) is not worth the amount of time that the classical economists and later Marx spent on the topic. Incidentally, this makes it ironic that so many people who claim to be Austrian economists also happen to be gold bugs. Indeed, one can be a disciple of Aristotle, Ricardo or Marx and be a gold bug; but one cannot claim to be a follower of Ludwig von Mises and argue that gold is the answer. Indeed, the founding stone of Austrian economics is that value is totally subjective. So how can we have a world in which all values are subjective—except one, gold, which would be objective?

The Aristotelian explanation thus falls short. The reality is that gold and silver do not have a value because of the time, resources and cost involved in producing them. Instead, gold and silver have value because everybody believes they do. This is not at all the same thing and leads us to the second view, namely that of Plato.

For Plato, money is just a social convention and has no intrinsic value except the one that people ascribe to it. This is a lot more acceptable, and very close to the marginal theory of value. Thus, for Plato, money is little more than a social convention and money itself need not have value, except the one that people wish it to have; which only brings us back to the debate between Fox and Pitt immortalized on the walls of the Bank of England and quoted above.

Now the other great Western philosopher who, funnily enough, never bothered to write anything down, was Jesus Christ; though not writing anything did not stop Him from being the most influential thinker to ever walk the face of the earth. And, as one might expect, Christ actually had a lot to say about money (purchase a copy of my dad's book—*Jesus, The Unknown Economist* at www.gavekalbooks.com for more on this).

Indeed, Christ not only:

- Emphasized Plato's marginal theory of value (the story of the poor widow whose lonely small coin offering is worth a lot more than the large gifts of the Pharisees) but also
- Highlighted that burying one's money in unproductive means was harmful (the parable of the talents).

Christ also went one step further than Plato by stating that **the entity enforcing the value of money was the state** (the state had the monopoly of putting Caesar's face on a coin: "*Render unto Caesar what belongs to Caesar*", and it was the duty of the state to make sure that the coins could be used to buy cherries, pears, or pay taxes). **For Christ, if money is going to work, it needs to have the backing of the state.**

This makes ample sense for if money is a social convention, then it follows that this convention will need to take place in a social 'something'. In our modern times, this social something has tended to be more often than not a nation. But what is a nation? Ernest Renan, a 19th century French philosopher, wrote that the main characteristic of a nation was: "*The willingness of the citizens to live together*". Implicit in the idea of a nation is thus that a social contract exists with two important elements: a) solidarity among the citizens, and b) a state to help organize the defense of life, freedom and property. And if this is the case, then money is nothing but a necessary tool for this social contract between citizens to be expressed in the economic and legal life of the nation. **It is through 'money' that the citizens can organize themselves economically and establish legally the contracts that bind them.**

Behind every contract, behind every legal act, behind every transaction, in the background, unnoticed, **we always find the notion of money**. This implies a same set of ‘values’ which correspond to this ‘willingness’ to live together. In modern times, this has corresponded to a nation, a *polis*, to use the Greek word. In turn, this raises the question of whether each nation has its currency and each currency its nation?

For a nation to emerge and prosper, we thus need a) the willingness to live together and b) two tools, namely a money and a state, the last one being defined as the entity having the monopoly of legal violence, delegated by the population. **Money, by construction, being one of the two tools necessary for a nation to exist is however a ‘common good’, a little bit like the internet, clean air or individual freedom.** Common goods—for example, ‘justice’—are strange notions and sometimes hard to define. Everybody should enjoy them, but they must not be owned by anybody and especially not by the state. This is problematic because the temptation for the individuals working for the state to capture control of the money supply to serve their own goals has historically proven to be almost irresistible.

The relationship between money and the state operates through the tax system. Money is a claim on the future tax receipts but is also needed to pay current expenditures. When the government cannot finance its current expenditure through taxes, it can issue bonds, which are nothing but deferred taxes. When nobody in the free market wants to buy these bonds, the solution is either to reduce government spending, unfortunately most politicians, and the economists that serve them, adhere to St Augustine’s prayer of “*make me chaste - just not right now*” or to ask the authority in charge of the production of money to buy the debt issued by the bankrupt government. **Once that happens, money stops being a common good.**

When those who control the state move to ‘capture’ money and subject it to state whims, the general well-being of the population tends to decline. When the heavy-hand of the state supplants the invisible hand of the

market, a vicious circle ensues. The size of the government's weight in the economy goes up, which at first can provide a burst of growth; but over time, the marginal rate of return on capital goes down, and with it the growth rate of the economy. Unemployment rises, inviting more intervention, lower growth, etc...

Money is thus a common good which should not be owned and/or operated by those ruling the state; and one of the great battles in democratic systems has always been to prevent this nefarious 'capture.'

There are various ways to achieve this:

- Give the control of this common good to a bunch of independent wise men and women (a little bit like what the US did for justice when it created the Supreme Court)—to sit separately from other branches of government. This has been the solution chosen by the Swiss, Australians, Canadians, Norwegians, Swedes, etc.
- Takeaway the possibility for the political rulers to steal the currency by moving to the gold exchange standard.
- Assume that there are no wise men or women in your own economy able to withstand the pressures coming from politicians and abandon the national characteristics of your money and peg it to someone else's (usually America's or Europe's). As Argentina and the eurozone have shown, this has typically been a terrible decision which more often than not threatens to destroy the 'willingness to live together'.

And why is money so important that Aristotle, Plato and Jesus Christ, three great minds not known for being particularly venal, would take the time to think about it? We find many possible reasons – possibly a reflection that we have ourselves spent too much time thinking about money!

Reason #1: Money is information - money is the system through which information about the current and future values of goods and services is

transmitted. This is the essential function of prices. **The problem is that money at any given point in time has itself not one but two prices:**

- The first price, the exchange rate, allows any nation to specialize in her comparative advantage and thereby maximize the well-being of the population over the short and the long term.
- The second price, the interest rate, optimizes the choices that the local consumers/savers have to make between consumption and investments (between the present and the future).

The first price deals with the nation's specialization in a geographical world, the second with how the nation can rationally integrate present-value discounting mechanisms into the decision-making processes of its citizens.

Funnily enough, the history of economics and financial markets is almost all about attempts by policymakers to tamper with either, or both, of these two prices. And each attempt, starting with Diocletian's *Edict on Maximum Prices* in third century Rome, all the way to the current eurozone problems has led to economic disasters. For what is the euro but an attempt to impose the same exchange rate, and interest rate, on different nations who have historically shown preciously little economic similarities, or willingness to live together? Since all prices derive one way or the other from exchange rates and interest rates, political powers should never (except perhaps in times of an acute crisis such as a total war) interfere with these founding prices. Unfortunately, the temptations all too often seem to be too strong and so 'wrong' information is passed on through the system, often with devastating consequences.

Reason #2: Differentiating between money and credit - in a fiat monetary system, central banks can create base money from nothing. In turn, commercial banks can multiply this base money by extending credit. This simple reality brings us to Irving Fisher's equation of $MV=PQ$ to which we would very immodestly propose a small alteration as the equation may be better expressed as (Government Money +

Credit Money) * $V = P * Q$ (nominal GDP). Now ‘credit’ comes from the Latin ‘credo’ meaning, ‘I believe’ or ‘I trust.’ So how does ‘trust’ prevail? History has shown that “trust” expands when the ‘system of credit’ is

- privately owned (for the creative destruction to take place),
- extremely fragmented (to avoid the too-big-to-fail syndrome in the credit system with its resulting moral hazards) and above all when it is,
- tightly regulated.

In that regard, **the provision of credit is very different to that of most other goods and services.** Indeed, for capitalism to function, it makes sense for the production of goods and services to be as deregulated as possible. But **the same logic does not apply to the production of money for a simple reason;** namely that the marginal cost of producing one more dollar of credit is zero in the short term though it can be very high in the long term. **As the past few years have shown, those benefiting from the deregulation may not be the same individuals who end up paying for its failures.** And unfortunately, this will happen every time the managers/owners of the credit system have their bonuses/profits tied to the short-term distribution of credit, and no penalty for the non-repayment of the loans. In such a system, we witness an excessive growth of credit, followed by a bust. This first gives rise to a huge increase in the value of assets bought on credit, followed later on by a collapse of these values. This then leads to a huge contraction in the credit part of our money equation (see Irving Fisher’s *Debt Deflation Theory of Great Depressions*); which triggers either a depression (1930s) or the present situation with the **central bank forced to replace with money the credit which has been destroyed**, with consequences that are difficult to fathom.

Thus the conclusion is that credit is not money, but **money borrowed.** As such the creation of new credits must be in the hands of the private sector (to avoid the ownership of money by the public sector) but must also be tightly regulated by an independent body, preferably the central

bank; with the best regulation being that commercial banks remain small, with a capital base equal to a minimum of 12% of the size of their balance sheets (which have to include off-balance sheets positions and the net positions in derivatives, and with derivatives priced on an open market). Unfortunately, we seem to be no closer to achieving this goal than we were in 2009; rendering true Jeremy Grantham's prediction (when talking of the 2008 crisis) that we will likely *"have learnt a lot in the short term, a little term in the medium term, and nothing at all in the long-term"*.

Reason #3: The costs of money - the interest rate - At the beginning of the 20th century, Knut Wicksell explained that, at any given point there are two costs of money: the 'market rate' (short rates as determined by the supply of demand of money/credit) and the 'natural rate' equal to the variations in the working age population to which must be added the growth rate of productivity (i.e., the economy's structural growth rate). For Wicksell, boom and bust cycles arise due to differences between these two rates. When short rates are set below the natural rate, it pays to borrow to invest (the cost of money is below the return on capital). This mismatch leads to the boom phase. But the attraction of high returns tends to spur businesses and individuals to leverage up. As a result, the cost of money eventually rises until it moves above the growth rate. The bust then ensues.

For Wicksell, big spreads between the market rate and the natural rate, cause large boom and bust cycles and increase the volatility of economic activity and the risks of financial accidents. For example, from 1983 to 1999, the US followed a perfectly Wicksellian policy which led to the "great moderation". Then (because of the Y2K fears, or the TMT bust, or maybe 9/11, or a fear of repeating Japan?) the US central bank embraced negative real rates and market rates fell below the US economy's natural rate. This led to a massive misallocation of capital and eventually to a financial crisis. Since then, the US, and global economies have gone from one crisis to the next, bringing nominal interest rates to their minimum 0% floor. From the TMT bubble burst, to the US mortgage and banking industry meltdown, to the European crisis, investors have

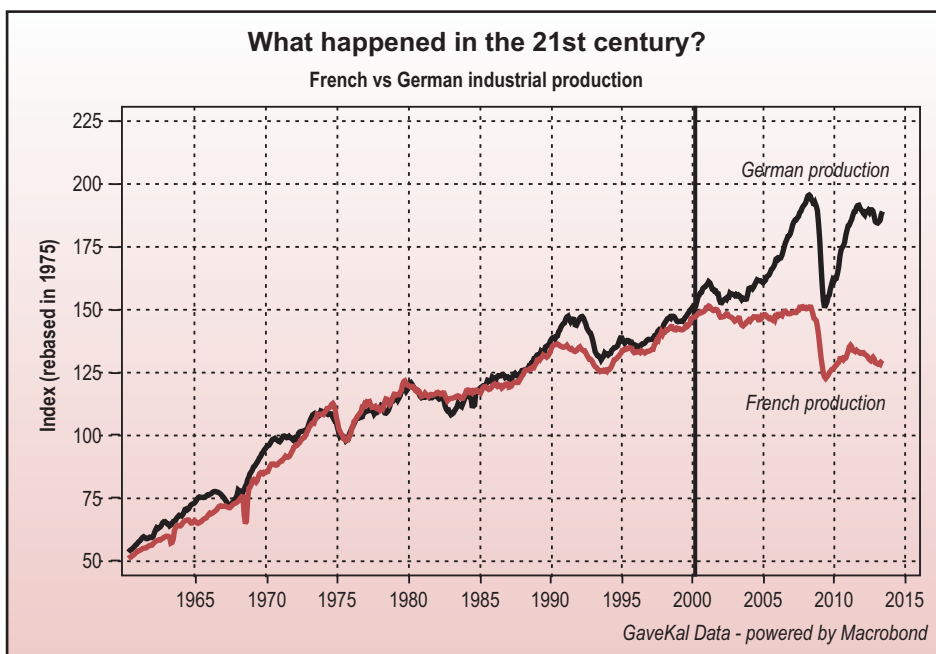
had to adjust to a world where the structural growth rate continues to fall, while interest rates remain constantly below Wicksell's neutral point (as an aside, any Wicksellian disciple would quickly conclude that the euro is doomed since the natural rates are very different from one European country to the next. We will thus always have massive divergences between the different natural rates and a common market rate. And over time, this will lead to ever bigger, and uncontrollable booms and busts, across the zone. Meanwhile these growing economic divergences will be hard pressed to not trigger political tensions).

Reason #4: The cost of money - the exchange rate - Milton Friedman argued that the best system for setting exchange rates between nations is freely floating exchange rates. Such a system provides a shock absorber against exogenous shocks (changes in economic policies, oil, wars, tsunamis, droughts, etc...) and so limits the damage to the international and domestic economic systems. This is what we broadly had in the 1980s and at the beginning of the 1990s, and it led to one of the strongest growth periods in history. What followed was German reunification leading to the creation of the euro, and then the emergence of China as a major player in world trade even though Beijing maintained a closed capital account and a quasi-fixed and undervalued exchange rate against the US dollar. These two events broke the back of the Friedmanian system (also known as the 'Washington Consensus') and led to massive trade surpluses for Germany and China, increasing dramatically their perceived political power, and from there to the re-emergence of the mercantilist view that a current account surplus is a good thing and a current account deficit a bad thing.

Since the countries with surpluses present themselves as virtuous and do not want to expand, while the countries with deficits, the sinners, have to follow deflationary policies, we are led inevitably into a deflationary bust. Nowhere is this more visible than in euroland today. As a matter of fact, this belief encourages political interventions into economy through the manipulation of prices which have an influence on external

competitiveness, such as interest rates or exchange rates. From this point we often get the emergence, or reemergence, of protectionism.

So there is a double-point here: interest rates should be maintained as close as possible to the economy's structural growth rate (i.e., the natural rate, or where they would probably be if the central banks did not intervene constantly) without any attempt to fine-tune. **And the exchange rate should be left alone**, since over time, the exchange rate between two countries with similar levels of development will always return to purchasing parity. Anything else and there is a risk of severe economic disruption. Take the Franco-German relationship as an example: for decades, the growth of French industrial production stayed roughly on par with Germany's. Then, in 1999, the euro was adopted, largely at the urging of French civil servants who figured they would capture, through the control of the currency, Germany's economic might, thereby leaving them ruling the roost. Fifteen years later, the joke is obviously on France as economic and political power within the European Union has drifted away from Paris and towards Berlin.



So money is extremely important—a reality which begs the question of whether the Western economies current malaise finds its source in the mismanagement of money by its stewards?

On this note, we were once told that Christopher Columbus was the world's first modern-day central banker in that he left without knowing where he was going; he arrived and did not know where he was; and finally, he did it all with other people's money.

So where have the West's central bankers taken us?

The asset-price centric monetary system

In Alaska, during the first gold rush, one winter was particularly rough and a famine ensued. To survive, people only had sardine cans, and a lively market took place in this rare commodity. One fellow bought himself a can of sardines at an extraordinary price, but was surprised to find, upon opening the box, that the sardines were rotten. He went back to complain, but was told by the can's previous owner: *"but those weren't eating sardines, they were trading sardines!"*

Now one of the biggest quandaries for economists, and market participants, is determining the relationship between price and value. Early on in the history of economics, Ricardo sent the profession down a dead-end when he advocated the labor theory of value (which both the Catholic church and Marx happily picked up on) and tried to use values to determine prices (e.g.; the price of a beef stew should reflect the time, resources, and capital needed to produce the ingredients and cook it). The reason the labor theory of value failed is that every single person has a scale of values different from their neighbors'. There are an infinite number of 'values' simultaneously about in the world and, from time to time, miraculously, two 'values' coincide and a price is struck. This is how the exchange of goods and services comes about. The price establishes the monetary value of an article at that moment—and only at that moment. And this price has nothing to do with the subjective value which each of us could put on a good or service; or the amount of effort required to produce said good or service. **For the convenience of analysis and the calculation of statistics, the price struck at this**

transaction will be used as a substitute for value, but only until a new transaction takes place.

This theory of subjective value, and its corollary the objective price, was brought to light by the Austrian school and revolutionized economics from the late 19th century onward. Instead of looking at value to determine prices, the capitalist West looked at prices to determine values and an efficient allocation of resources unfolded. Meanwhile, the communist world looked at value to determine prices, only to end up with poverty, environmental devastation and human misery. A grim reality best illustrated in a Marx Brother movie scene where Chico and Groucho sit in the 'socialist restaurant'. Groucho says, *"this food is disgusting and inedible!"* To which Chico replies, *"and on top of that, the portions are far too small!"*

By the late 1930s, it was already obvious that socialism was bad fare. Yet, socialism and the labor theory of value, remained in high demand; it took another half century for scientific socialism to be finally discredited. With the economic disasters wrought by socialism, one might have assumed that policymakers would accept that the future cannot be forecasted and that, rather than use values to determine price, policymakers should just promote a stable monetary and legal framework and let markets determine prices. **However, in the past few years, and as mentioned above, we seem to have embarked on a new, third, paradigm in which our control engineer central bankers (whether Bernanke, Carney, or Draghi) have decided that the value of assets must no longer be driven by a price that would be reached today, but instead by whatever best price a given asset may have reached in the past. This is a revolutionary change.**

Indeed, because keeping interest rates at low enough levels to save existing owners from liquidation is no longer proving sufficient to maintain prices, central banks themselves have become the marginal buyer of certain assets; though, of course, not all assets. For the US, the asset that is now not allowed to fall is real estate (and its corollaries

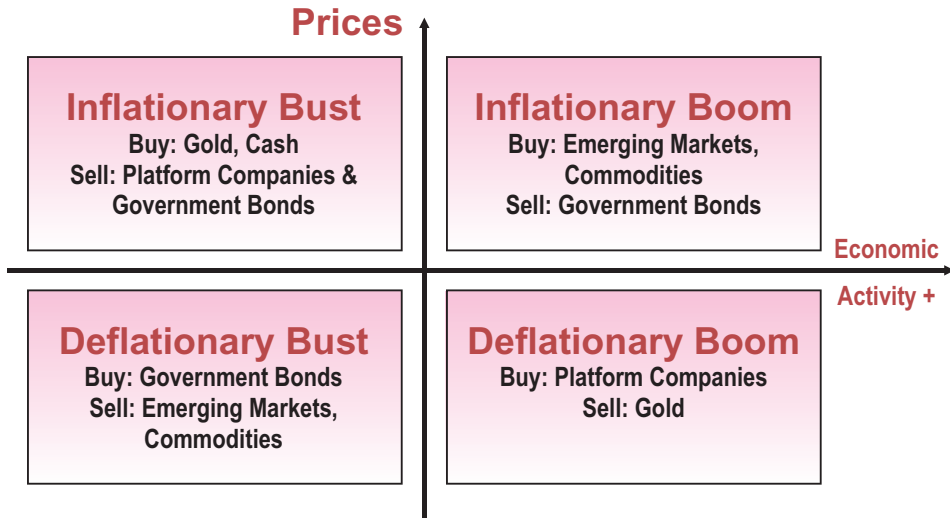
such as mortgage bonds). For the UK, it is gilts. For Europe, it is Italian bonds. And so on...

So however one cuts it, **we have now moved from a world where money was at the center of the system and asset prices at the periphery, to a world where some specific asset prices are at the core of the system, while money has moved to its borders.** If nothing else, this means that the supply and demand for money, along with its price, now has a lot less to do with economic activity or individual capital and time preferences as expressed in a market. The supply of money has become the de-facto variable of adjustment; a supply managed by central banks with the sole purpose of preventing selected asset prices from going down. The monetary system is thus anchored in the past (the prices that some assets reached a few years ago) and not in the present. The goal of the modern central bank is thus no longer to conduct a policy to arbitrage between the present and the future through a predictable money supply and variations in interest rates to allow the private sector to reach rational decisions. It is now simply to prevent certain asset prices from going down, at all cost.

Economic thought has thus moved from the horizon of the labor theory of value, to the theory of subjective value, to the theory of never-falling prices. In a new and improved declination of Friedrich Hayek's 'fatal conceit', we seem to be moving away from scientific socialism to scientific capitalism—where the overconfident and overeducated control-engineers are no longer members of the avant garde of the proletariat, but plain, boring and well-meaning economists working in the entrails of the world's central banks. Needless to say, this change has profound investment implications, the most obvious being that most investors may have to rethink their entire portfolio construction theories.

On our side, we have always assumed that asset prices were overly dependent on the change in two variables, namely inflation and growth. This is why a large majority of asset allocators spend most of their time trying to determine how strong, or weak, economic growth in the months,

quarters, or years ahead will be and whether inflation is set to accelerate, or decelerate. Mapping out these two variables leaves investors with the following, simple enough, road-map:



The first investment scenario is the **‘inflationary bust’**, also known as stagflation. This investment environment was prevalent in the late 1970s and early 1980s. Stagflation is triggered by excessive government spending monetized by a care-free central bank. Warning signs of such a scenario are an increase in government spending as a % of GDP and excessive growth in monetary aggregates. In such an environment, the best thing to own is assets valued on the basis of their scarcity rather than their productivity, i.e.: one would rather own gold than a gold mine. Or fine wines rather than a winery. Or diamonds instead of a steel mill, etc... In an inflationary bust, investors tend to flee from their rapidly depreciating currencies into the relative safe-harbour which scarcity assets represent. Needless to say, this ends up being highly disruptive for the broader economy, for when capital is not productively employed, but is instead squirreled away, jobs aren’t created and progress stalls (which is why Christ banished the servant who buried his silver in the parable of the talents to the *“darkness, where there is much weeping and gnashing of teeth”* - Mathew 25-14).

The second investment scenario is the **'inflationary boom.'** This is the investment environment which has been the most prevalent since the end of the Second World War, and as such the investment environment upon which most of the world's financial institutions base their strategy. The biggest beneficiaries of an inflationary boom are always the price-sensitive producers. As prices accelerate, they see their sales in both volume and value go through the roof, and their profit margins rise even more. In today's world, the most price sensitive producers tend to be found in either the emerging markets or commodities. In an inflationary boom, overweighting those two asset classes makes a lot of sense. More often than not, the reason we enter an inflationary boom is that central banks have pushed too much excess liquidity into the system. As the central banks realize that they might have added a little too much rum to the punch bowl, they typically reverse course and tighten monetary policy. More often than not, this means that government bond markets face serious headwinds in inflationary boom periods.

The third possible scenario is the **'deflationary boom.'** Annoyingly, in casual conversation, most economists and politicians frequently use deflation and depression as synonyms; probably because the last great depressionary period in the 1930s was associated with falling prices. This is a mistake, for falling prices can sometimes be met by booming economic activity. Looking through history, capitalism has gone through many cycles of falling prices and booming economic activity. This is not to forget that what matters first and foremost for companies are sales. Managing a business when nominal sales are rising is easy; managing a business when nominal sales are falling is a nightmare. But sales are the product of volumes sold against prices achieved. So saying that we are in a deflationary period is only making a comment on the price side of the equation; it offers no information on the volume side of the equation, or, more importantly, to total sales. In fact, when prices fall, we can face one of two situations:

- Volumes rise faster than prices fall (elasticity to prices is greater than 1) and we are then in a deflationary boom, or

- Prices fall faster than volumes, or both fall together (elasticity to prices is less than 1), in which case we are then in the very ugly and nasty deflationary bust.

Most of our research, and history, lead us to believe that **a deflationary boom is the natural state of capitalism**, and while this natural state might be interrupted by short, or long, waves of deflationary busts, inflationary busts or inflationary booms, over the very long term, the deflationary boom will prevail. Unless, of course, policymakers make it their life's purpose to prevent deflation; the situation we are in today with the 'never-falling price theory of value'.

Nonetheless, looking back through the deflationary booms of the 19th century, and the deflationary boom prevalent in the US since the mid-1990s, we find that the usual winners have been a) the currency (since its purchasing power rises), b) the local consumer, c) local financials, especially banks, d) real estate, especially at the very high end, e) anyone who produces goods with an elasticity to prices and an elasticity to revenues greater than 1. As we see it, in a deflationary boom, the best thing to own is companies able to expand or contract their operations rapidly; the 'platform companies' we described in our 2005 book *Our Brave New World*.

The fourth and final investment environment is of course **the deflationary bust**. Probably the worst kind of investment environment as every single asset class goes down in price save one: high quality government bonds. To enter into a deflationary bust, one must have the returns on invested capital fall below the cost of capital for a substantial period of time. Looking back through history, such a collapse has usually only occurred when governments stomped their heavy boots unto the markets. To move into a deflationary bust, governments need to commit one, or several of the following cardinal sins:

- Increases in taxation
- Increases in regulation

- Protectionism
- Wars
- Monetary policy mistakes

Any of the above mistakes can lead returns on invested capital to plummet and/or the cost of capital to rise inordinately. When those mistakes are made, investors should load up on the government bonds of countries with healthy balance sheets and undervalued currencies, for the coming quarters will likely prove to be rough.

Putting together the above scenarios means that most asset allocators have tended to build their portfolios around four key groups of assets. The first could be called 'scarcity assets' (precious metals, low-end real estate, art). The second could be called 'price monetizers' (usually cyclical and value stocks, commercial real estate, high-end real estate, emerging markets). The third is 'volume monetizers' (financials and growth stocks, high-yield corporate bonds...). And the last is high quality government bonds.

What has been terrific is that historically:

- The prices of these various assets have tended to move mostly independently from one another, and
- The prices of these various assets have tended to show spikes in volatility at different times in the cycles.

These are two highly attractive characteristics for any asset allocator. In fact, the differences in volatility were such that most practitioners started to use the volatility of underlying assets as a measure of risk. **And this is where the next problem for investors may find its source as, if anything, the various central bank interventionist policies have probably had their biggest impact not on prices, but on the volatility of almost all assets.**

Indeed, not only are prices totally artificial for a number of assets (French OAT? US mortgage bonds? London real estate?...), but the volatility of a

number of prices has also become completely meaningless. In short, the recent volatility of most asset prices no longer indicates the risks involved in holding such assets but instead measures the amount of manipulation that the poor prices are enduring. For example, no-one today could say with a straight face that there is any information in the volatility of the euro-swiss exchange rate, or that this zero volatility adequately measures the risks that a Swiss-based investor takes in buying euro-denominated assets. The same could be said of the 12 month volatility of a French government bond. Or that of the 12 month volatility of a US mortgage bond. Today's volatility readings have absolutely nothing to do with the underlying risks. And this is probably one of the main reasons of discomfort amongst investors.

Indeed, most people intuitively feel Karl Popper's observation that: *"In an economic system, if the goal of the authorities is to reduce some particular risks, then the sum of all these suppressed risks will reappear one day through a massive increase in the systemic risk and this will happen because the future is unknowable"*.

In other words, suppress risk somewhere and it comes back with a vengeance to bite you on the derriere. Look at 2008 as an example: we cut up credit-issuing risk into tiny parcels and distributed it across the system through securitization, only to see the banks take on a lot more leverage and ultimately sink their balance sheets on instruments they failed to understand. It is, thus hard to escape the following conclusions:

- The current manipulation of volatility will lead to the next disaster, for **major financial accidents typically find their source in a misconception of risks, rather than a misconception of returns** (e.g., Greek bonds are just as risky as German bonds, levered US mortgage bonds are as safe as houses, etc);
- Building a rational portfolio, where risks can be properly hedged, is very challenging when market signals have disappeared (explaining the recent difficulties of so many macro and CTA hedge funds?), and

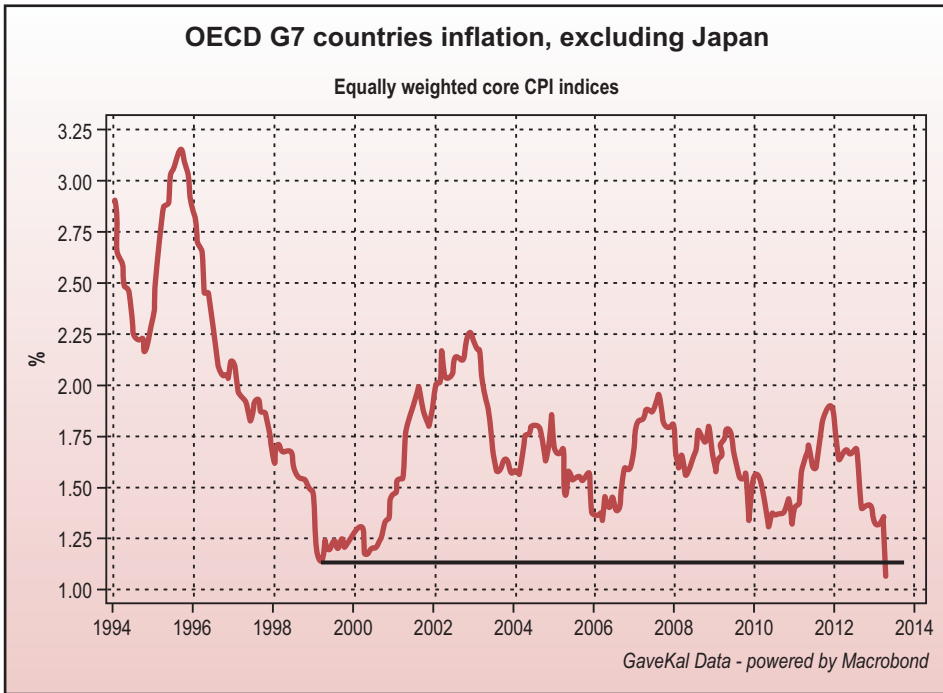
- Staying with the above ideas, the risk is that the quantitative models and statistical techniques like ‘value at risk’ will prove to be hopelessly wrong when true volatilities re-emerge (as they always do!). And when that occurs, who doubts that many financial institutions will, once again, find themselves in the line of fire? Indeed, if Karl Popper was right and the sum of the risks in an economic system over time is a constant, **then the only question confronting economists and policymakers should be whether we should prefer to take our risk in small regular doses? Or in a massive injection** (as occurs when a fixed exchange rate system breaks down, or when a debt restructuring happens...)? Amazingly, every policy-making decision of the past decade seems to point towards the massive injection answer.

This also means that, in a world of suppressed volatility, the only smart thing a long-term investor can do is to buy the assets which have been sold because of their higher volatilities. This obviously is equities, and in particular, the very long duration equities of companies in technology, healthcare, retail, energy, etc. A well-diversified portfolio of such shares will be volatile, but investors will likely see their money back over time and then some. But of course, most pension funds, insurance companies or banks are being pushed by regulators, or even shareholders, in precisely the opposite direction! Like French generals in 1930, the management of most financial institutions are busy building Maginot lines; i.e., loading up their balance sheets with highly risky, though currently ‘non-volatile’ assets.

Meanwhile, if economic history teaches us anything it is that:

- No-one can predict the future (not even an army of central bank economists);
- No policymaker can control volatility forever; and
- The single rule of political science that never seems to fail is the law of unintended consequences.

So finishing with the law of unintended consequences: the very clear aim of the radical shift in monetary policy-making was to prevent the unfolding of deflation. The fight against deflation justified sending monetary aggregates through the roof. But yet, as we write, global inflation continues to collapse. So what is happening? Our proposal: a collapse in the velocity of money.



The Velocity of Money Collapse: Japan as an Example

Defining the ‘Velocity of Money’ is not an easy task. Keynes called it the ‘animal spirit’, the Austrians called it ‘the preference for liquidity’, Wicksell labeled it the spread between the ‘market rate’ of interest and the ‘natural rate’. Schumpeter identified it as the main characteristic of the entrepreneurs, its increase or decrease indicating the willingness to exchange uncertain future profits against certain and immediate costs. Schumpeter further explained that the velocity of money is strongly linked to the time horizon of the risk takers, to the view that they have on the current and future value of this elusive tool called ‘money’, to the stability of the legal systems in which they operate, to property rights, to new inventions, to fashions and moods, to general optimism or pessimism.

Still, with all the respect owed to the luminaries mentioned above, the best work on velocity was probably done by Irving Fisher in his *Debt Deflation Theory of Great Depression* article published in *Economica* in 1932. In this piece, Fisher authored the equation $MV=PQ$, or $V=PQ/M$, PQ being the nominal activity (or nominal GDP), M the quantity of money, and V the velocity of money.

To most, $MV=PQ$, is not an ‘equation’, but a tautology, and it is used to compute velocity ‘ex post’ as a ‘residual’. We know M , we know P (a price index) and we know Q (the quantities produced in an economy); so, from there, we can derive V (velocity). However, **implicit in this way of computing velocity is the belief that the velocity has**

no impact on the other components. This Fisher explained, was profoundly untrue. Instead, velocity is an independent variable. For Fisher, it was really at the heart of capitalism, if not the very heart of capitalism.

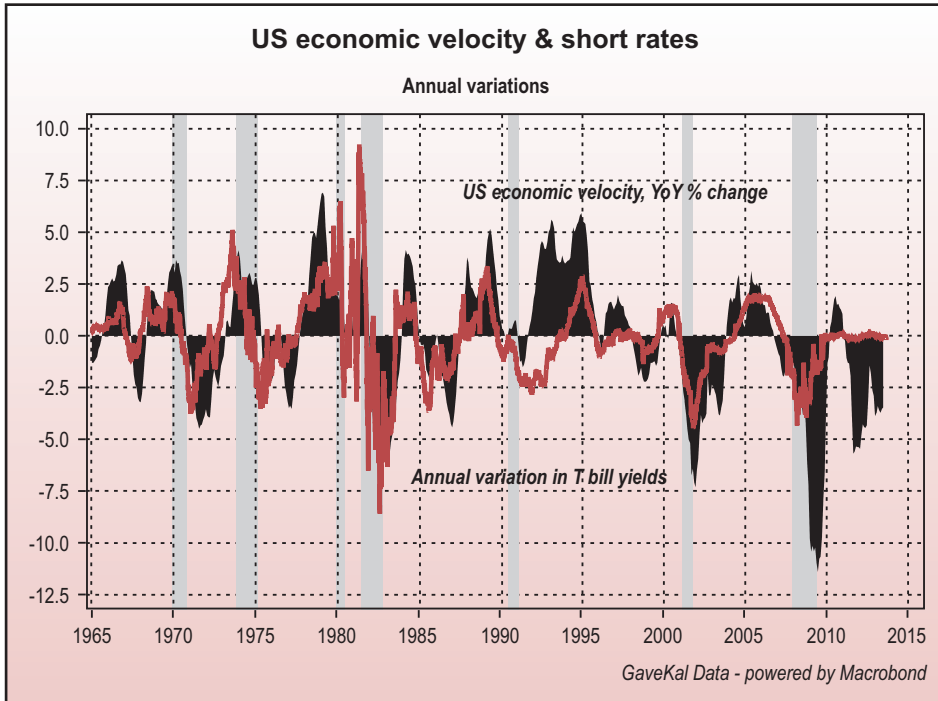
If the velocity of money is an independent and non-mean returning variable 'ex-ante', then a variation in V can have a massive impact on P or Q , i.e., the nominal GDP that our policymakers attempt to fine-tune. Moreover, V can even impact M , or at least the part of M which is 'created' in the private sector, by the banking system. **So figuring out what is happening to the velocity of money is the building block on which any investment decision should be based.** Unfortunately, beside the fact that it is massively important, there are two other consequential issues when it comes to the velocity of money:

- **Velocity is eminently volatile**
- **Changes in velocity are almost impossible to forecast**

But that does not mean we should not give our best shot to trying to understand it!

The first thing that has to be said is that velocity must be related to interest rates. Intuitively, it makes sense that if the cost of capital is too high, risk-takers will not take risks; but is the reverse also true? If the cost of money is too low, will entrepreneurs take on more risk, and thus trigger more growth? This is the question of the age we live in.

To answer this question, let us start by assuming that the demand for money, for whatever reason, is accelerating fast. If the supply of money remains the same, or goes down, then one would expect velocity and interest rates to go up. And this is what we see in the US (economic velocity defined as $GDP/M2$, the ex post measurement).



The relationship seems obvious enough, even for something as heavily manipulated as the 3 months UST bills. **Interest rates and velocity are correlated**, and velocity has never risen without interest rates doing so as well - except once, in 1994, when the Fed, artificially prevented short rates from rising, worried as it was by the S&L crisis (the beginning of the Greenspan put and perhaps the source of the troubles we find ourselves in today?).

This bodes the question: since the Fed has been guaranteeing no changes in rates for years to come, and since we have witnessed falling velocity every time we had stability in interest rates, then does this mean that velocity will keep falling as long as interest rates remain at 0%? If so, how can we not expect a deflationary scenario with stagnating growth and/or collapsing inflation?

Alternatively, should we expect velocity to start acting as an independent variable and spontaneously rise on its own, thereby fueling inflationary pressures? Unfortunately, in this latter scenario, the Fed will quickly find itself between a rock and a hard place. Should the Fed raise rates, the bond market will crash, and should the Fed not raise rates and permit an even greater misallocation of capital, we may be setting ourselves up for more trouble down the line. Unfortunately, this already troubled plot rapidly becomes even more complicated than the inflation/deflation debate! Indeed, interest rates (for government bonds issued in their own currencies) have two components:

- An inflation component; and
- A real price component, usually aimed at incentivizing the saver to part with his savings. This is commonly called the real interest rates.

This is where it gets complicated because these two prices can move in opposite directions, as Irving Fisher expressed in his seminal article: *“The above eight changes... cause complicated disturbances in the rates of interest, in particular, a fall in the nominal, or money, rates and a rise in the real, or commodity, rates of interest. Evidently debt and deflation go far toward explaining a great mass of the phenomena in a simple and logical way ...”*

If both variables can move independently from each other then, in good logic, we can have four distinct scenarios and we should expect our economic systems and financial markets to behave very differently from one scenario to the next. Here are the four options:

1. **Nominal rates down and real rates down:** This is the ‘post-recession’, post-liquidity crisis scenario, in which one should accumulate financial assets when the valuation becomes attractive, since velocity is down, but about to go up. It is usually very short in time, but the price movements can be very big.

2. **Nominal rates up but real rates down:** This is the ‘CPI rising’ scenario in which it pays to leverage and accumulate ‘real assets’ such as precious metals, real estate, fine art, equities.... The only danger presented by moving into a leveraged position to buy these assets is that this phase is interrupted once in a while by sharp ‘liquidity crisis’ in which the margin calls made by the lenders can lead over-leveraged borrower to be ‘liquidated at the bottom of the liquidity crisis’. But save for the occasional liquidity crisis, these are by and large happy days for risk assets.
3. **Nominal rates up and real rates up:** This is the ‘hawkish central bank’ scenario, with the central bank tightening liquidity and its actions having an impact on inflation, and growth. This usually leads to a slowdown in the velocity of money in an economy that is otherwise over-heating. When this occurs, starting to gradually allocate more money into long-dated government bonds makes sense, if only as a hedge against the central bank over doing things and pushing the economy into a recession.
4. **Nominal rates down, but real rates up:** This is the central scenario of Irving Fisher’s *Debt Deflation Theory of Great Depressions*; the scenario which prevailed in the 1930s across most of the Western World, i.e., debt deflation and secondary depression. When such a scenario unfolds, the only assets to own are government bonds and the equity of the least levered, most productive, producers. It is in this scenario that velocity becomes a really independent variable and where any ‘over indebtedness’ starts to hurt.

In scenario 1, leveraging up pays handsome dividends rather rapidly as the discounted price of any future cash-flows rises thanks to the fall in the nominal discount rate. With money getting cheaper all the time they will borrow more, and will be right to do so as nominal rates keep falling, along with the decline in inflation.

The problems really start to emerge if/when inflation craters and real rates start to shoot up and move above the growth rate of the economy. Once that point is reached, an economy is living on borrowed time, because no economy can grow for very long when the cost of money stands above the growth rate of the expected returns. To once again quote Fisher: *“In the great booms and depressions, each of the above-named factors has played a subordinate role as compared with two dominant factors (our emphasis), namely over-indebtedness to start with and deflation following soon after.”*

This is when the secondary depression kicks in, during which the velocity of money becomes as flat as Kansas. In the 19th century, such periods often lasted ten years or more. i.e., the time for new banks to be created, for the old banks still in business to finish rebuilding their capital, and for a new generation of entrepreneurs to come in with new inventions, new ideas, or new products...

Or to put it another way, in the first two scenarios above, financial markets may go through liquidity crisis and sharp sell-offs; and such sell-offs are invariably buying opportunities for risk assets as the financial system is not fundamentally confronting a solvency crisis. However, in the fourth scenario, the level of debt starts creeping up and the danger increases exponentially that the next crisis (and what is capitalism if not a series of crisis—as Apollo astronaut and airline executive, Frank Borman commented: *“Capitalism without bankruptcy is like Christianity without hell”*) will be a solvency crisis. In this last phase, the name of the game is solvency, achieved by minimizing debt and maintaining positive cash flow.

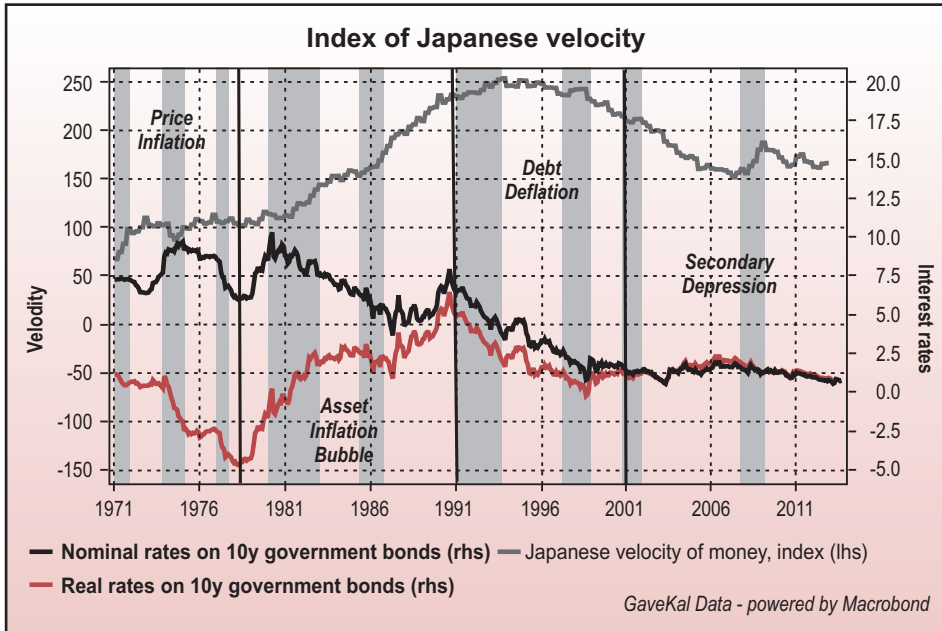
Let’s look at Japan over the past decades as an example, partly because the last 50 years or so break down so neatly in the four scenarios mentioned above.

- First, throughout the 1970s, Japan experienced rising nominal rates and falling real rates. In this period, it paid to borrow, provided one

could survive the liquidity squeezes (1970, 1974, 1978-1979). This period was characterized by fairly high **nominal** rates, although real rates were manageable.

- In 1979, Paul Volcker took the reins at the Federal Reserve. His tightening of US monetary policy created the mother of all liquidity crises. In this period, nominal and real rates rose together (scenario 3) to unprecedented levels. This led to a massive shake out in the economy and the financial system.
- Thirdly, as Japan tried to manipulate the yen (as per the 1985 Plaza accord), nominal rates collapsed (from extraordinary high levels), but thereafter real rates continued to rise (from 2% to a high of 5%, or well above the growth rate of the Japanese economy). At first, the money illusion of ever falling nominal interest rates led to an unprecedented rise in the prices of financial assets and real estate. Investors borrowed in the belief that it had never been so cheap to borrow, following an income-statement logic, instead of a balance-sheet logic. In that period, velocity went up tremendously and everybody felt richer as asset prices kept rising. This was the ultimate 'bubble time', a paradise for momentum buyers, and a graveyard for return-to-the-mean players.
- But as real rates inched higher, and moved above the structural growth rate of the economy (around the end of the 1980s for Japan), asset prices (against which a colossal amount of debt had been issued) started to fall. We entered into the fourth phase, the debt deflation, the hallmark of which is a never ending collapse in the velocity of money, leading eventually to negative inflation and a further rise in real rates, making the repayment of debt almost impossible. In time, this gives way to a secondary depression...

Please have a look at the following graph which attempts to illustrate this process:



Our reader can see the huge increase in velocity which took place from 1981 (the peak of nominal rates) to the end of the 1980s. This rise in velocity was created by a significant rise in private sector indebtedness, with bank lending going through the roof. **Unfortunately, this debt was not issued to increase productive assets but to push the price of existing assets higher and higher, thereby leading to an ever bigger frenzy to borrow.**

When the real rates moved above the structural growth rate of the economy (around the end of the 1980s), the music stopped, the borrowers found themselves in a 'debt trap' and despite all their efforts the Japanese authorities have never been able to reignite the velocity of money, since they always acted as if they were facing a **liquidity** crisis and not a **solvency** crisis. Put simply, the Japanese believed that by adding liquidity, they would solve the problem. **Unfortunately, the more liquidity was added, the bigger the fall in velocity** (what Keynes called 'pushing on a string').

The Japanese policymakers thus constantly followed the wrong policies.

Facing a similar dilemma of bust banks and over-extended real estate prices, Sweden, and to a lesser extent Canada, followed the ‘right policies’: i.e., take the losses, nationalize the bust banks, jail a few bankers (read Rene Girard on the need for societies to have “*victimes expiatoires*”, or scapegoats, at times of crisis), recapitalize the banks, privatize what you can (to shore up government finances), and reignite ‘animal spirits’ by opening new fields to the private sector (usually through privatizations and the pull-back of government) which can borrow again from a newly solvent banking system. As an aside, this is what China is trying to do right now (more on that later).

So the Japanese financial history since the beginning of the 1970s seems to offer a kind of model of the structural behavior of the links between the financial system and the economic system split in the ‘expected’ four stages: price inflation, asset inflation, debt deflation and secondary depression and to these four periods correspond four patterns for velocity: (i) stable; (ii) rising; (iii) falling and; (iv) flat-lining once inflation becomes negative. To summarize:

- At first, real rates go down and nominal rates rise (the price inflation period).
- In a second phase, nominal rates fall and real rates increase, (the asset inflation period). This is the period when central bankers should be on their guard as the increase in the velocity of money may well trigger speculation in asset prices instead of genuine investment.
- In a third phase, real rates move above the real growth of the economy and the velocity of money collapses.
- Finally, the cycle ends with a long period of stagnation.

During the last two periods (if the wrong policies are followed) government bonds are by far the best investment. One should own only

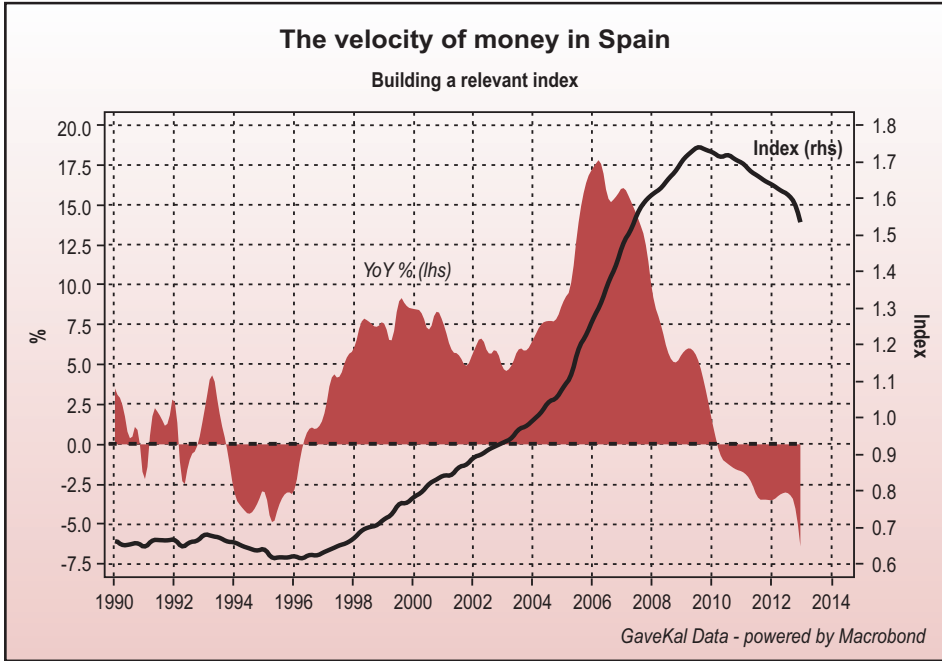
positive cash flow investments with no debt attached as negative cash flow assets register a price collapse, nominal rates go down but since they cannot go below zero, real rates go up, and this reality means that the only rational policy is to keep deleveraging. But since everybody does it, prices keep falling and the charge of the debt keeps going up...

The question confronting every investor today is where, in this four stage cycle, do the world's main economies lie?

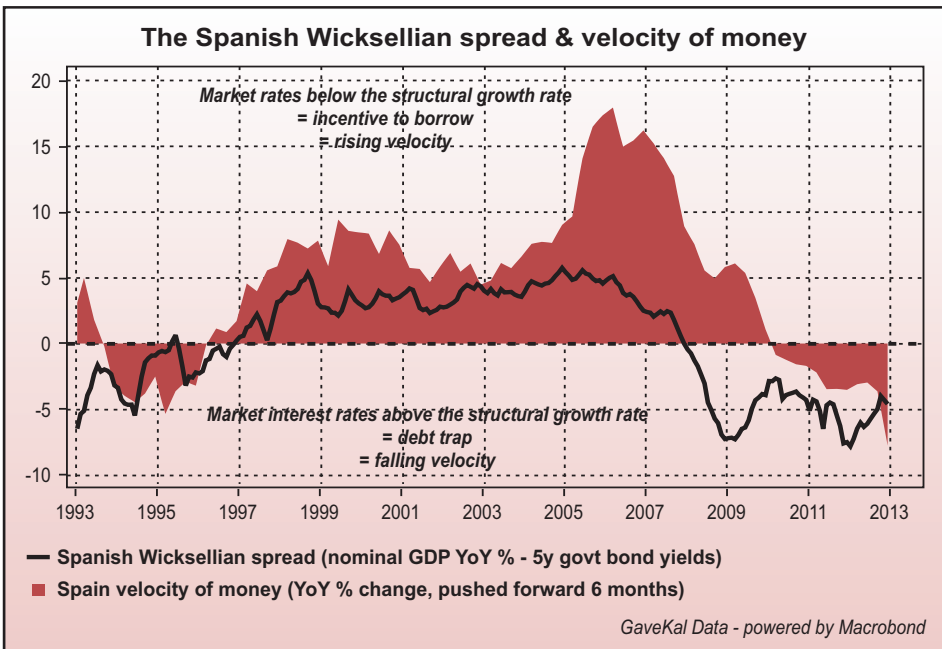
The Velocity of Money Collapse - Spain as an Example

In the previous chapter, we reviewed the solid link between inflation and the velocity of money. But there also exists an alternative model to explain a collapse in monetary velocity, this time created not by a fall in inflation, but more simply by the existence of a fixed exchange rate system such as the gold standard (in the early 20th century), the Hong Kong dollar peg (in 1997-2003) or the euro (today). To illustrate this consider the Spanish experience of recent years, safe in the knowledge that our reader will understand that this would apply as well to Italy, Ireland, Portugal, Greece, France.... The first thing to do is build a velocity index for Spain.

When looking at Spain, we know the GDP figures. What is more challenging is getting the true Spanish money supply data. Indeed, money could officially 'be' in Spain but actually invested in Germany (for example, if a Spanish investor purchases a CD from VW and holds it with Santander in Barcelona). So we have decided to replace the likely dubious money supply figures by a BIS-produced statistic on the total amount borrowed by Spain's private sector from Spanish banks (like Keynes, we would rather be "*approximately right than precisely wrong*"). We then build the ratio between this figure and Spanish GDP. We shall call this our Spanish Velocity Index (red line), together with its 12 month rates of change (blue area). As one might expect, velocity in Spain boomed between 1999 and 2008, and has cratered since then. For anyone that has kept up with recent events in Southern Europe, the chart below makes intuitive sense.



The second step in our analysis is to compute what we call the ‘Wicksellian spread’, or the difference between the nominal growth rate of Spain’s



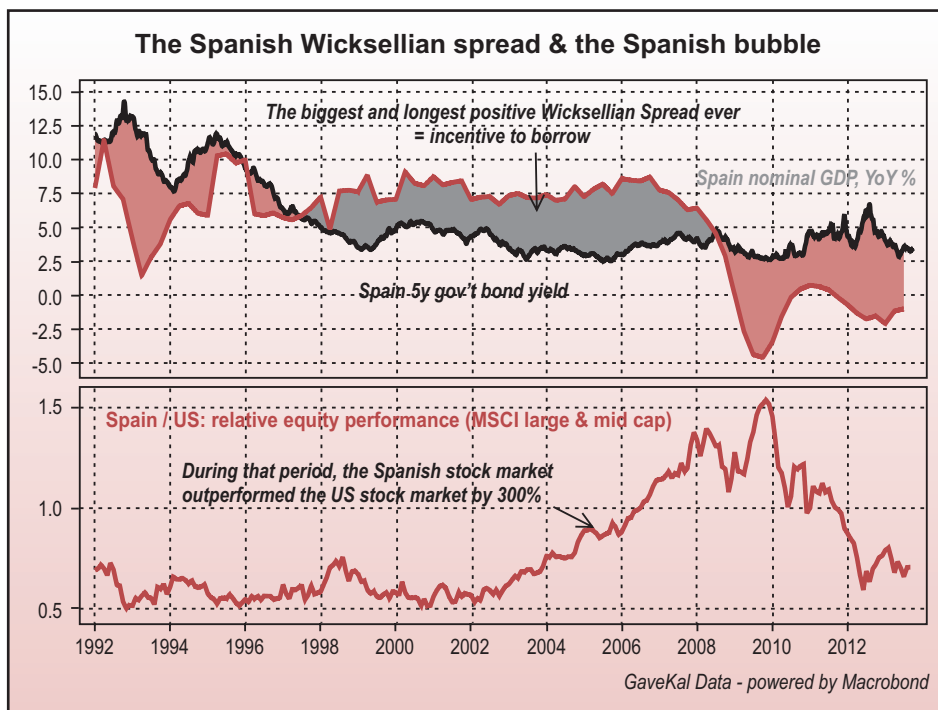
GDP and Spanish interest rates (using 5 year yields as a proxy for the average yield across the yield curve, from policy rates to long rates). As outlined in the previous chapter, Wicksell argued that when ‘market rates’ are below the ‘natural rate’ (based on the nominal growth rate), then it pays to borrow and velocity should go up. Let us have a look.

The red line is our Wicksellian spread and the blue area is the 12 month rate of change in the Spanish velocity index. And for those interested in the history of economic thought, this might be an interesting result.

The Wicksellian spread (the difference between the market rate and the natural rate) and the velocity of money are essentially the same thing. When long rates are way below the GDP growth rate, velocity accelerates, when they are way above, velocity collapses.

So what happened in Spain in the last thirty years? The answer is unfortunately very simple.

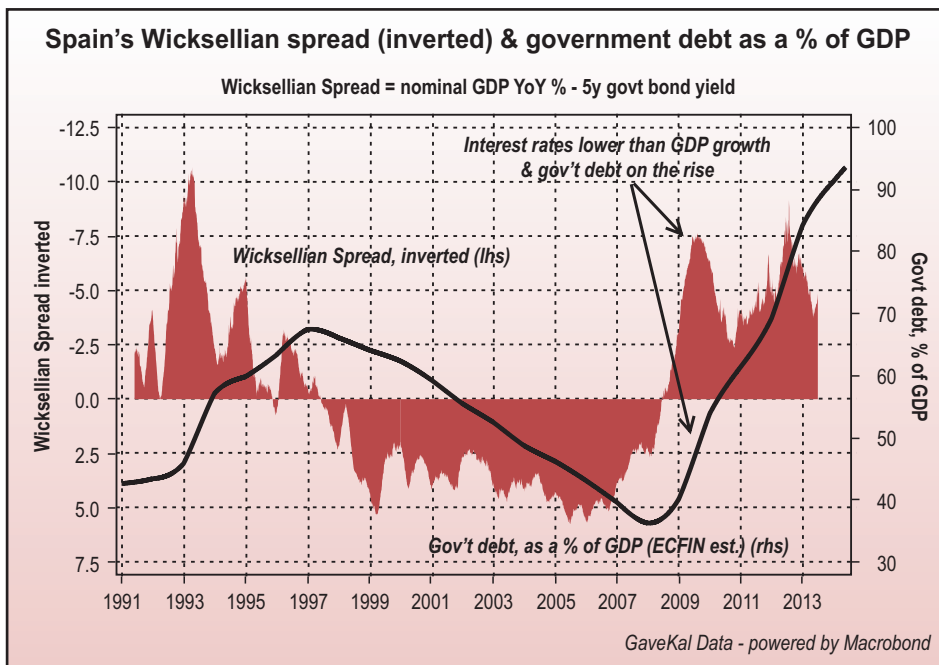
A political decision to join the euro led to an artificial rise in the velocity of money through an unjustified collapse in long rates. This triggered a



massive increase in indebtedness, leading first to a boom, then a bubble, from which we moved inexorably into a debt deflation, from which there is no escape as long as the euro is around.

In the chart above, the black line is the yield on Spanish five-year government bonds. The red line is the structural growth rate of Spain's economy, while the bottom line is the ratio between the Spanish and US MSCI equity indices (total returns in US dollars). The grey area represents periods during which it paid to borrow as interest rates were well below Spain's growth rate. Thanks to the euro's flawed design this was the case between 1998 and 2008. These faulty policy settings created a huge incentive to borrow and led to a massive bubble in Spanish assets (illustrated by the ratio between the Spanish and the US stock market). But in 2009 the music stopped, Spanish growth rates slid below the long rates and a Fisherian debt-deflation became unavoidable. Today, Spain's structural growth rate has moved to 0% (a consequence of weak demographics and shrunken productivity growth which tends to result when capital spending halts). Meanwhile, long rates hover around 5%. So Spain is locked in a debt trap with the only conceivable escape being a collapse in the exchange rate to a sufficiently low level that long rates can move below the growth rate (as evidenced by the chart above). Only then will economic growth resume.

Let us be blunt: with interest rates 500bp above the economic growth rate, the incentive to repay one's debt is about as big as was the incentive to borrow a decade ago. It means that the velocity of money will continue to collapse. Moreover, since M is not under the control of Spain's central bank, MV will continue to collapse and Spain's depression will not only continue, but will get worse. Both private sector investment, and demographic growth, will remain paralyzed.



The Spanish situation is without a solution within the euro. The same analysis can be done for Greece, Italy, Portugal, France... The velocity of money in all these countries will keep collapsing, without the compensation of the central bank being able to print and take the currency down.

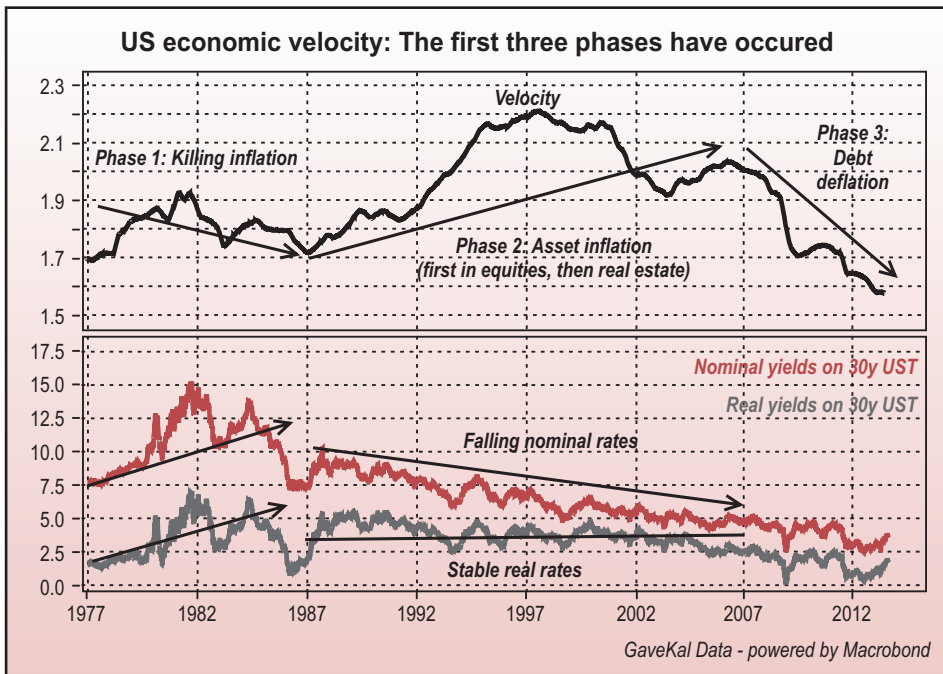
When it comes to Germany, we are of course in exactly the reverse position. Interest rates which were far too high for Germany ten years ago are now excessively low, way below the economic growth rate. So our Wicksellian spread is far too positive, and this is 'bubble time' in Germany, very visible in the bond market, partly in the stock market and increasingly in the real estate markets. The euro will thus continue to wreak havoc and destabilize economies; and the arm of the executioner will be called 'velocity of money'. Needless to say, the fact that, partly because of the Robolution reviewed above, we are entering into an age of accelerating creative-destruction in which companies will either have to invest large

amounts, or find themselves rapidly thrown on to the trash-heap of history, complicates things further for the countries whose structural growth rate now rests below their cost of capital. All these trends will only further accentuate the differences between the haves and the have-nots within the eurozone, between the rentiers/bureaucrats who earn a safe return, and the struggling entrepreneurs facing ever more uncertainty.

With Japan, we saw how a country moving from high to low inflation could easily find itself in a debt-deflation spiral. With Spain, we now see how velocity in a fixed exchange rate system relates the variations in velocity to the rigidities inherent in such a system, leading to the mispricing of long rates as a result of the false exchange rate. There is, however, one common characteristic between the two: **the music stops when the incentive to borrow disappears**, i.e., when long rates move above the structural growth rate of the local economy, or to sound more pedantic, when the Wicksellian spread becomes negative. Which brings us to the biggest bully in the playground, namely the US economy and the Federal Reserve.

Should We Worry About US Velocity?

When it comes to the US, we will take as a measure of velocity the classical, ex post, definition of $V=(\text{NOMINAL GDP}/M2)$. This figure appears below (black line), together with the real rate on the 30 years US Government bond (grey line) and the nominal rate on the same bond (red line). Let us first attempt a historical description of what happened in the US economy using the simplistic Japanese model developed earlier.



At the end of the 1970s and beginning of the 1980s, after a great deal of price inflation, the US Federal Reserve decided to kill inflation expectations. In order to achieve this goal, the Fed organized a huge rise in nominal and real interest rates. Investors figured out quickly that borrowing did not pay. We mark this above as phase 1: killing inflation.

By the beginning of 1988, inflation expectations were trending lower and the US could enter into phase two, the asset inflation phase, marked by a remarkable stability of real long rates, centered (as they should) around the structural growth rate of the US economy, slightly below 3% with very little volatility around that equilibrium. While real rates remained stable, nominal rates halved from 1988 to 2007. This decline in nominal rates led to two powerful bubbles, the first one from 1994 to 2000 in the US equity markets, the second one from 2004 to 2008 in the US housing market.

Now when it comes to bubbles, it is important to note that while two bubbles are never the same, bubbles often show similar patterns. In fact, we would argue that there are really two different kinds of bubbles. The first kind of bubble takes place on non-productive assets (typically land & real estate, but also tulips, or gold...). The second kind of bubble takes place on productive assets (canals, railroads, telecom lines). **In the first kind of bubble, prices are bid higher due to a 'rarity' factor. In the second kind of bubble, prices rise because investors misjudge the future returns of the assets.** When the bubbles burst, in the first case, we are left with no more land (or gold, or oil...) than what we started with. In the second case, productive capital has been put in place which can still be exploited, either by its current owners, or by a new set of owners.

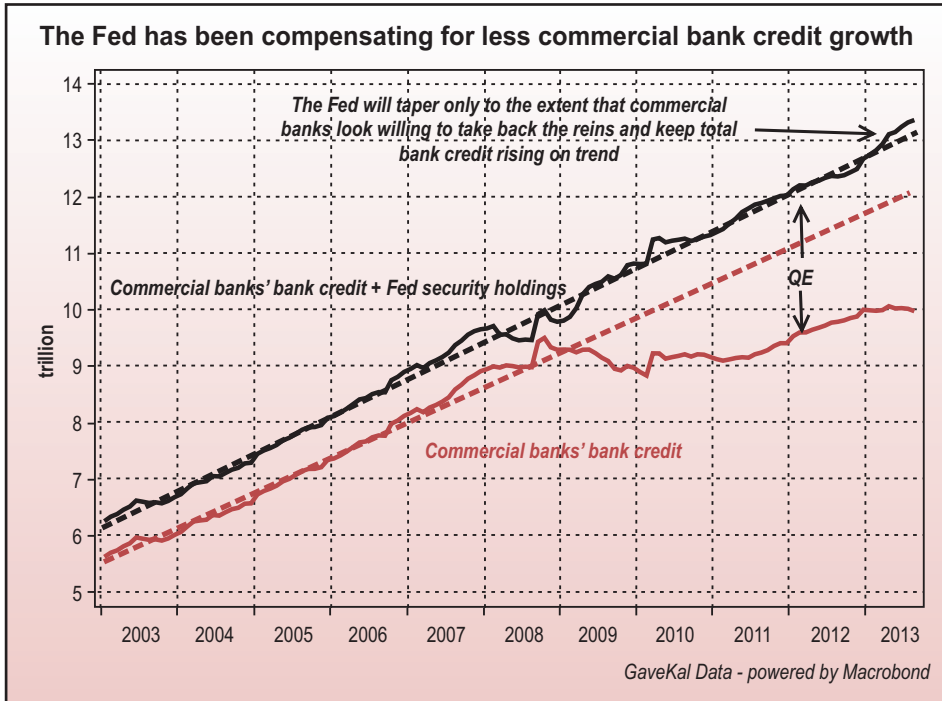
An example of the first kind of bubble would be the tulip-mania of 18th century Holland. An example of the second is the US and UK railway bubble of the 19th century or the telecom and tech bubble of 1997-2000. In Holland, when the tulip bubble burst, people were left with their eyes

to cry with. In the US and the UK, when the railway bubble burst, the domestic economies still had trains to ride. All around the world, when the TMT bubble burst, consumers were left with the ability to make cheaper calls and transfer data more cost-efficiently. In turn, this led to much higher levels of productivity (e.g., the birth of Indian and Filipino call centers), growth and standards of living.

Another key difference between bubbles is in the way that they are financed:

- If a bubble is financed by banks, when the bubble bursts, the banks' capital disappears and the velocity of money collapses.
- If a bubble is financed by capital markets (corporate bonds, junk bonds, and equities...) those owning the overvalued assets take a beating. If they hold those assets on leverage, then the assets get transferred to more financially sound owners. Otherwise, the buck stops with the owners of overpriced assets.

So, from a velocity point of view, the worst possible kind of bubble is a bubble in unproductive assets (gold, land, tulips...) financed by banks. The best possible kind of bubble (i.e., one that does not hurt growth too badly) is a bubble in productive assets, financed by capital markets. The Japanese bubble of the late 1980s was a 'bad' bubble. It was mostly in real estate and was financed by Japanese banks. By contrast, the US TMT bubble of the late 1990s was a 'good' bubble. It was mostly in technology (too much telecom and computing expansion) and was financed by capital markets (junk bonds and equities). Unfortunately, the US real estate bubble of the mid 2000s was a 'bad' bubble, i.e., one that financed unproductive assets through excessive bank leverage. A reality which helps explain why, even five years after the crash, bank lending has yet to really pick up:



But this difference between the two US bubbles in TMT and real estate brings us to the key difference between the US of today and the Japan of the late 1980s, namely the fact that **in the US we had two bubble periods: 1994-2000 and 2003-2007**, while in Japan the two bubbles took place at the same time (1985-89).

The extraordinary thing is that the Fed not only authorized the emergence of a second 'worse' bubble in the US following the first one, but did everything in its power to create it! So in 2007-08 when we saw the start of the unavoidable debt deflation part of the cycle, the Fed once again felt compelled to act. In order to prevent the debt deflation from getting out of control, the Fed forcefully lowered short rates to zero in the hope of forcing long rates below the growth rate of GDP, in an obvious attempt to reignite the velocity of money. But, as the charts above make painfully clear, it did not really work and velocity in the US continued to fall, **begging the question of whether zero interest rates can really prevent a collapse in velocity?** After all, zero interest did little

to reignite growth in Japan and after five years of near zero interest rates across the Western world, most countries' GDP/capita remain below the levels achieved in 2008.

When looking at the Fed's decision to maintain interest rates at zero, one can see contradicting logic at work. The first logic goes roughly like this:

1. When interest rates are too high, growth suffers—this is a proven and true statement.
2. When interest rates come down from the excessive levels, growth can once again resume – this is also proven and true.
3. Ergo, low interest rates, and especially negative real rates, will favor economic growth.

Unfortunately, the third statement is a complete non-sequitur; a logical fallacy linking a proven proposition to an unproven one. Indeed, the idea that by fixing a wrong price (for the cost of money) one arrives at favorable results for the economy at large is internally inconsistent with the description of money as an 'information system' as presented in chapter 5. If one fixes the wrong price of money through a price control (of the cost of money), since it is in this money that all prices are expressed, then the whole pricing system sends the wrong information, preventing the average entrepreneur from making rational decisions.

Or look at it this way: the average entrepreneur/investor basically borrows for two reasons:

- **Capital spending:** Business is expanding, so our entrepreneur borrows to open a new plant, or hire more people, etc.
- **Financial engineering:** The entrepreneur/investor can borrow in order to purchase an existing cash-flow, or stream of income. In this case, our borrower calculates the present value of a given income stream, and if this present value is higher than the cost of the debt required to own it, then the transaction makes sense.

Unfortunately, the second type of borrowing does not lead to an increase in the stock of capital. It simply leads to a change in the ownership of the capital, with the ownership of an asset often moving away from entrepreneurs and towards financial middlemen or institutions. **So instead of an increase in an economy's capital stock, as we would have with increased borrowing for capital spending, with financial engineering, all we see is a net increase in the total amount of debt and a greater concentration of asset ownership.** And the higher the debt levels and ownership concentration, the higher the system's fragility and inability to weather shocks.

The Japanese experience, along with that of the OECD in recent years, seems to indicate that the combination of abnormally low interest rates and economic uncertainty leads a country's available savings (probably already depressed by the very low interest rates) to disproportionately head towards the 'financial engineering' kind of borrowing. After all, adjusted for the risk of failure, an entrepreneur would have to be an idiot to invest in new machine tools, while launching a takeover bid for one's competitor, or buying back shares, promises high returns with greater visibility. Look at the surge of US share buybacks of recent years as an example; between January 2009 and June 2013 buybacks amounted to US\$1.4 trillion, or roughly the size of Spanish GDP.

Unfortunately, as the 'financial engineering' kind of borrowing thrives, the capital spending kind of borrowing languishes, and so does economic activity. This begs the question of whether maintaining a cost of **capital too low, for too long, leads to a crowding out of debt available to fund capital spending by that which is supporting financial engineering?** As Charlie Munger says: *"show me the incentives, and I will show you the results"*. Could the zero interest rate incentive lead to weak capital spending, and from there, to a fall in the productivity growth rate and a decline in the structural growth rate of the economy? In other words, the darn law of unintended consequences strikes again?

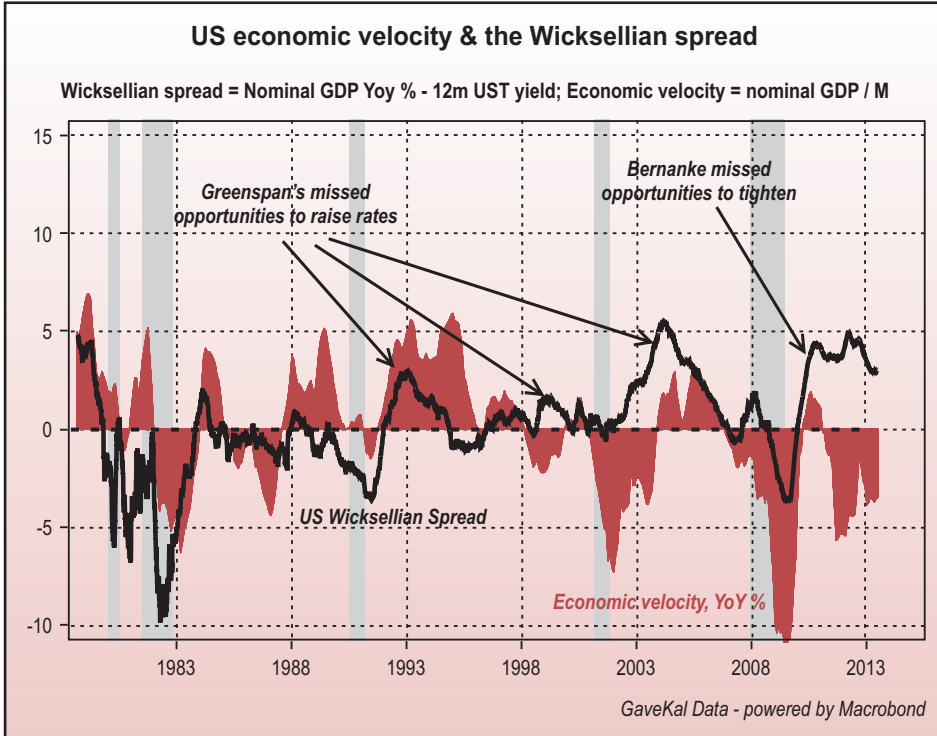
If so, then the potential for negative feedback loops is high for, as growth falls, the **ex-post** returns on the ‘financial borrowings’ will not be as high as expected. And if, for whatever reason, interest rates then start to rise (as they have lately been doing) then in a world in which the amount of debt remains fixed, falling returns combined with rising servicing costs, will mean that ‘somebody’ will have to eat an adjustment. That somebody can be ‘capital’ (through a debt restructuring) though, more often than not, the first port of call will be ‘labor’. Financial pressures will lead to people being fired while remaining employees will be on the receiving end of what was **nothing but an attempt to get rich without working, by capturing an undue rent created by the wrong cost of capital.**

In other words, excessively low real rates seem to lead to rent seekers (those close to the issue of new money) gorging themselves by bidding on other people’s businesses and, then turning around when these assets do not perform as expected and firing the employees. If this is the case, then because zero interest rates trigger capital and labor misallocation, we could perhaps conclude that they also end up being responsible for a lower structural growth rate and a higher level of uncertainty for the workforce (hence a fall in consumption, consumer confidence, birth rates, etc.). This is how well-meaning central bankers and their zero interest rate policies end up generating higher structural unemployment rates, falling median incomes, and a huge increase in part time jobs.

Now the fact that zero interest rate policies have done little to boost capital spending, and economic growth, in the US, Japan or across the OECD is all nice and good in practice, but does it also work in theory? To judge whether the Fed has successfully managed to guide the US, and global economies, away from the possible ‘secondary depression’, we next move from the **absolute velocity**, as shown in the graph above, **to the rate of change of velocity**; with our goal being to explain what drives such changes.

This brings us back to our study on Spain, and how the changes in the velocity of money may be driven by the differences between the

Wicksellian natural interest rate (the structural growth rate) and the market interest rate. It is this idea which we test on the next chart for the US.



The red area represents the rate of change of velocity, while the black line shows a US “Wicksellian spread” (the difference between the US nominal growth rate and treasuries, in this case using, 12-month Treasuries as a short-rate proxy). So when the black line is in positive territory, the US growth rate is running far above interest rates, and vice versa. As can be seen, and with the benefit of hindsight, the Fed made four mistakes in the last twenty years:

- First, Alan Greenspan, because of the Savings and Loans crisis delayed tightening money for far too long at the beginning of the 1990s. This was probably at least partly responsible for the US bond market carnage in 1994, and to the over-borrowing of

dollars in Mexico, Thailand, Korea etc. which ended up triggering the Tequila and Asian crises.

- Secondly, as Asia, Russia and LTCM hit the wall, Alan Greenspan refused to raise rates in 1998. In turn, this led to the capital misallocation of the TMT bubble and the subsequent crash.
- Thirdly, the Fed refused to raise rates in 2003 while the velocity of money had recovered. This led to the housing bubble, to a massive misallocation of capital, and to the consequent crash.
- Fourthly, the Fed (once again) refused to raise rates in 2011, allowing the emergence of a system where creative destruction was prevented, leading to a bubble in global fixed income, a depressed US currency, itself leading to a bubble in commodity prices and a hampering of global trade. As we write, a cloud hovers global fixed income markets, just as commodities have rolled over, thereby triggering capital losses which will likely lead to a further decline in the velocity of money for similar reasons to the falls in velocity after the previous three crashes.

And capital losses, and their consequent negative impact on the velocity of money, is not all that was achieved by the policy mistakes. The four consecutively faulty decisions led investors to believe that really big capital allocation mistakes were never going to be sanctioned... but only if the mistake was big enough! In plain English, the Fed created a monstrous ‘moral hazard’; a moral hazard policymakers are struggling to legislate, or regulate, away. Most worryingly, the Fed’s actions show that it has not understood that, in the debt-deflation phase of a solvency crisis, policymakers’ goals should not be to prop up the ‘weak hands’. Instead, **the Fed should facilitate the liquidation of ‘weak hands’ by providing an infinite amount of liquidity to ‘strong hands’, meaning those who can pay a ‘normal’ price for money. Strong hands would then turn around and buy assets through the weak hands’ forced selling.** Instead, the current zero interest rate policy ensures the survival of zombies, who misallocate land, capital and labor, and thus guarantee

a continuous collapse in the velocity of money. This is why Walter Bagehot's advice to central bankers caught in a crisis was to "*lend freely, but at a price*". Without the 'price component' of the equation, there is no incentive to change one's mistaken ways. This is how zero interest rate policies end up, somewhat counter-intuitively, triggering an ever falling inflation rate. And in time, the ever falling inflation rate prevents the debt deflation from ever becoming manageable.

In this regard, the Fed's policies remind us of Georges Bidault's famous words when describing French policy towards Indochina in the early 1950s: "*I don't know where we are going, but we will get there without detours*". Let us hope the Fed does not push the global economy into its own Dien Bien Phu.

Today, the Fed, the Bank of England, the ECB and other central banks are actively attempting to ignite and maintain a fourth bubble (whether in UK or US real estate, French OAT bonds, etc.) to deal with the structural problems of their respective economies. In other words, manipulate prices in a bid to boost economic growth. We have never understood how the logic of entering false prices into the system could be beneficial. In all likelihood, this manipulation will fail as miserably as every attempt at price manipulation since Diocletian's *Edict on Maximum Prices* in the 3rd century. The only outstanding question is one of timing. Unless, of course, something comes along to **to boost structural growth rates higher in Western countries, and make 'capital spending' investments worthwhile for entrepreneurs.**

Such shifts can sometimes occur through changes in government policies. For example, in Sweden in the 1990s, we saw structural growth boosted by the withdrawal of the government from a number of industries that had no business being government monopolies (education, healthcare...). In China, we have seen growth boosted over the past thirty years as the government first liberalized labor, then corporate structures, then real estate, then commodities etc. Or such a boost to growth can happen through the miracle of the private sector, i.e.: a Schumpeterian surge.

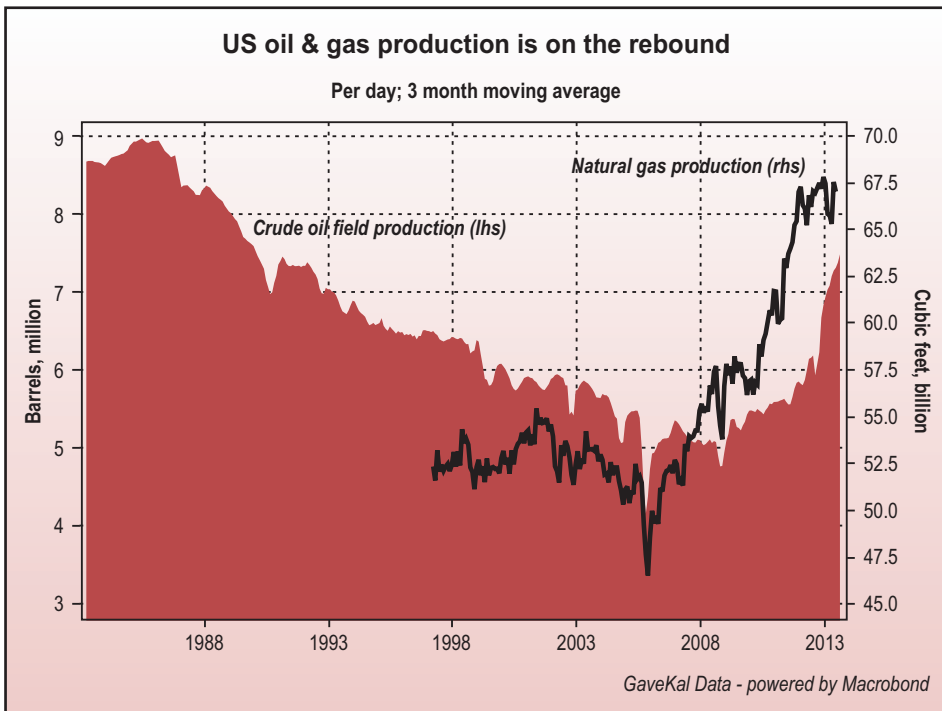
Unfortunately, when one looks at the US today, it is hard to argue for a new productivity boom triggered by a government withdrawal out of key industries (in fact, we have just witnessed an attempt to nationalize the healthcare industry). Still, on the positive side, there is one part of the US economy that is booming, namely the energy sector. An energy boom which, like Blücher's cavalry, may arrive just in time to save the day. In fact, the US shale gas revolution raises the question of whether US growth could, after all, be clicking into a higher gear?



The US Shale Gas Revolution - A Game Changer?

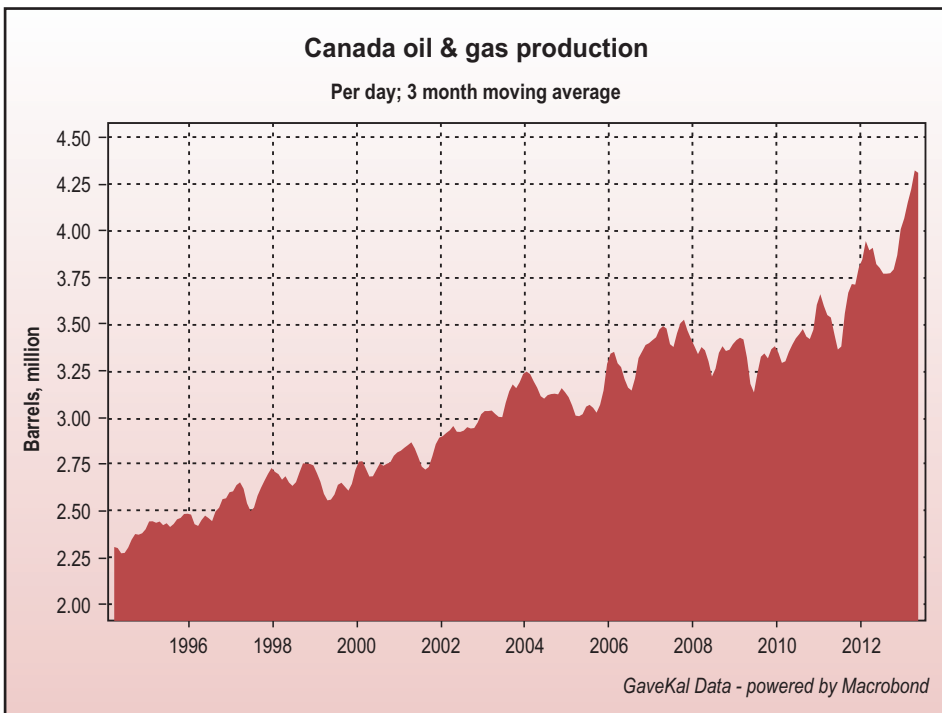
Talking about the days of the Russian revolution, Lenin once wrote that *“there are decades when nothing happens – and there are weeks when decades happen.”*

This neatly summarizes events before and during a revolution—and it is very applicable to what has been unfolding in the US energy space over the past couple of years. Look at it this way: in early 2012, the US Energy Information Administration, home to the world’s foremost energy experts,

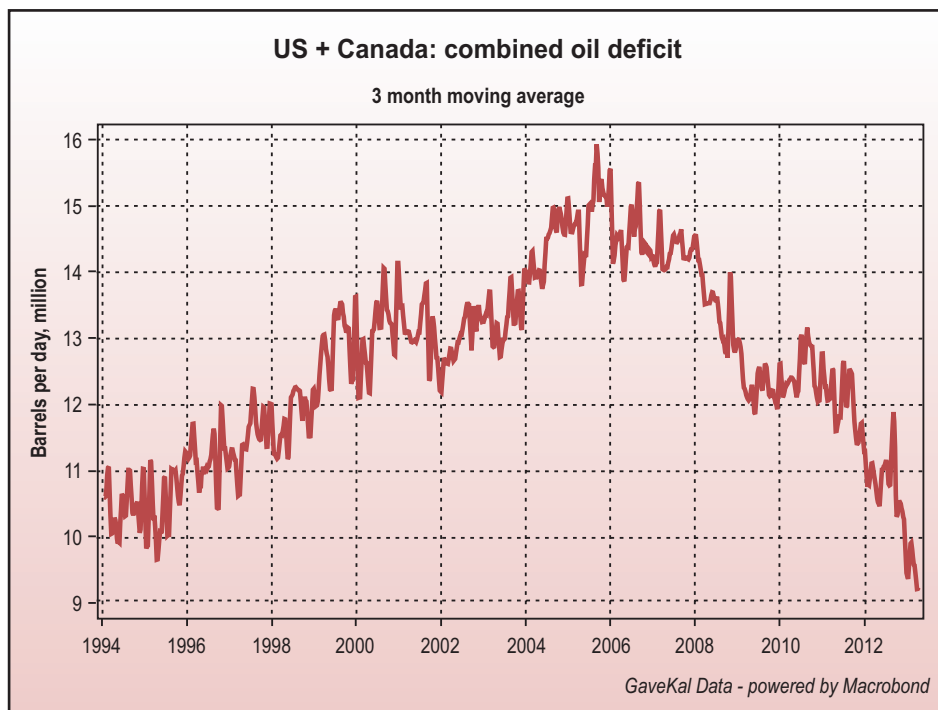


forecast that, in 2013, the US would be producing some 5.6 million barrels per day or so. When that forecast was made, the US was already churning out 6 million bpd, on its way to the 7.5 million bpd currently coming out of US soil.

The reason we highlight this is not to make fun of the EIA but instead, and to Lenin's point above, to illustrate how quickly things are moving on the energy front in the US. And it's not just the US. Take a look at Canada's oil production for another example. In the past two years, Canadian oil production has jumped by a solid third!



As a result, the US and Canada together have a combined oil deficit of 9 million bpd, compared to 16 million bpd at its peak in late 2005. That's a difference of 7 million bpd, which at US\$100/bl and over 365 days per annum, represents US\$255bn. That's a lot of dollars that used to flow abroad and are now staying at home! Better yet, the trend seems to be accelerating.



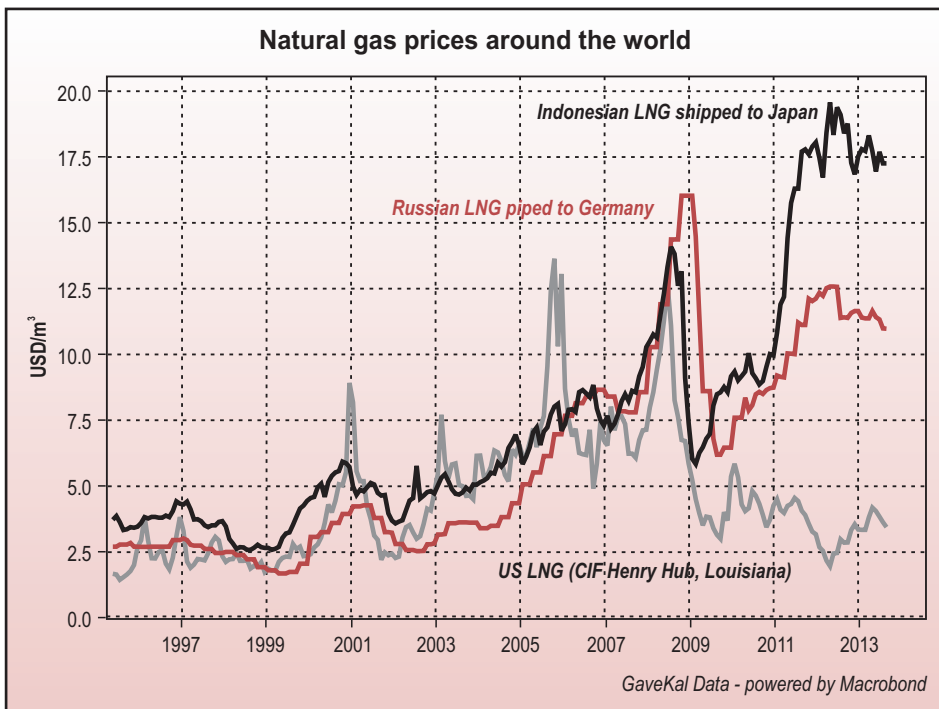
This is a very important development with potentially dramatic repercussions on global trade, growth, liquidity and geopolitics. After all, a North America that imports ever less oil may well start to care as much about the Middle East as it does say, Africa. If the US can meet most of its energy needs through domestic production, will it still need to maintain a large navy and defend the world's sea-lanes? If the answer is no (as seems likely), then should we not expect another peace dividend to unfold in the US similar to the one that followed the fall of the Berlin Wall? But, in turn, if the US is no longer going to care much about events in the Middle East, nor worry about sea-lanes, will this mean that others will have to pick up the military burden?

Five years ago, with oil hitting near US\$150/bl, the ultimate Malthusian theory, namely 'Peak Oil' was running rampant. At the time it was hard to open a newspaper without confronting apocalyptic scenarios of massive global energy shortages. As now seems obvious, proponents of the 'Peak Oil' theory forgot the old oil industry adage that the cure to high oil prices

is high oil prices; i.e., when prices stay high enough for long enough, not only do consumers modify their habits (witness the rising popularity of Tesla cars in the US or electric buses all around urban France), but the economic incentives to find new energy sources simply become too compelling.

This is what has happened in the US: thanks to the discovery of new oil in the Dakotas, Texas, and Louisiana, US oil production is back at a twenty year high. Better yet, current projections have US oil production rising from the current 7.5 million bpd to 9 million bpd before the end of the decade. And it's not just oil: the real revolution on the energy front has come via the exploitation of natural gas through hydraulic fracturing (or fracking) which has triggered a collapse in the US price of energy.

Consider the following chart – the grey line represents the cost of natural gas in the US, the red line is the cost of natural gas in Germany (piped in from Russia) while the black line is the cost of natural gas in Japan (shipped in from Indonesia).



A dramatic discrepancy which brings to the fact that business investments are typically driven by one of five considerations: the cost of labor, the cost of land, the cost of regulations/taxes, the cost of capital and the cost of energy.

The five key factors that drive investment

Cost of
labor

Cost of
land

Cost of
government

Cost of
energy

Cost of
capital

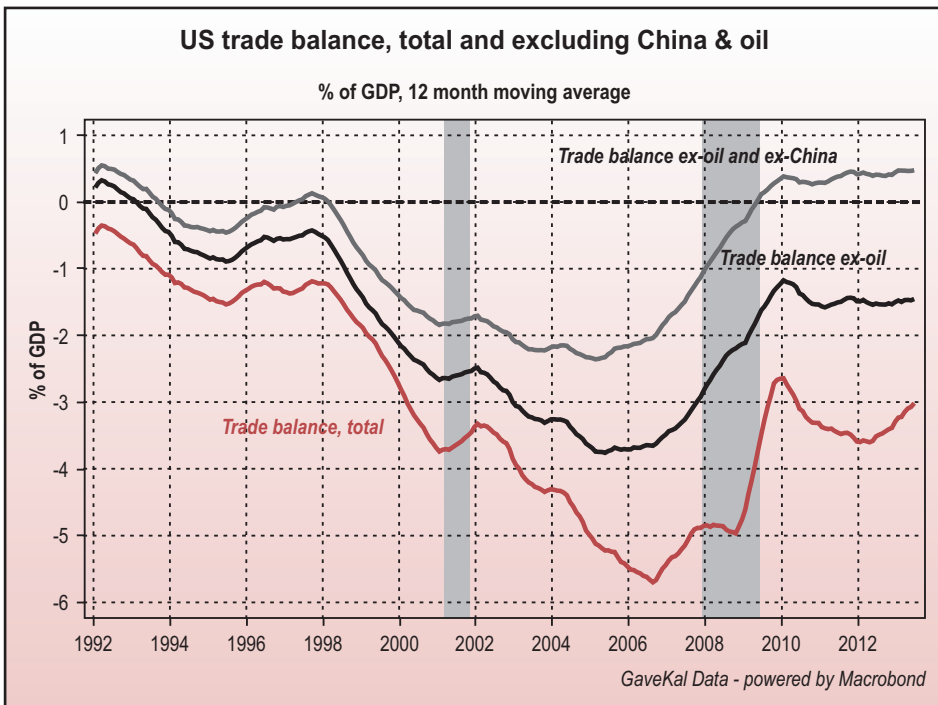
From there, two broad generalizations can be made.

The first is that, in the post-WW II period, the cost of energy was not much of a differentiating factor between the various parts of the developed, industrialized world. Indeed, everyone had roughly the same cost of energy, priced off a cheap and plentiful marginal barrel of oil. The rise of China in the 2000s changed that, and as oil moved from US\$10/bl in 1998 to US\$150/bl in 2008, every country was faced with some important energy choices. Britain and Germany decided to develop wind power (a poor choice), India decided to bet on thorium (instead of uranium) based nuclear plants (a choice that may still prove a winner), France developed fifth generation nuclear plants (probably the right choice for France given its limited domestic energy resources), China bet on coal. The US government bet on solar (a huge dud) while the US private sector developed new methods to extract natural gas and went out looking for natural gas, and oil, wherever it could be found. Five years later and the results are in – results that make the US a massive winner in the global stakes. Indeed, **the fact that the US all of a sudden has a much lower cost of energy than anyone else means that the US has a brand new ‘Ricardian’ comparative advantage.**

This brings us to our second broad generalization, namely that since the fall of the Berlin Wall, and even more so since the 1997 Asian Crisis, **we have lived in a world in which the main factor of differentiation between economies was the cost of labor.** In short, the past fifteen years or so have been one big labor cost arbitrage, with Asia (and especially

China) offering the world productive and disciplined workers for a fraction of the cost of comparable workers in the OECD. As a result, between 1997 and 2011, new factories were typically set up in China, or around China's periphery. However, **what happens if, because of the collapsing cost of industrial robots, the marginal cost of labor no longer is that important and instead, the cost of energy (after all robots need to run on something) becomes the primary driver of investment decisions?** Such a shift has the potential to up-end the core underpinning of comparative advantages we have grown used to over the last decade or so.

In the first instance, the US shale gas revolution should be felt on the US trade balance. (a constant drag on US GDP numbers) Indeed, the very real prospect that the US could move towards energy independence by the end of the decade implies that, conceptually, the ever-present US trade deficit could shrink to irrelevant levels. Already, the US trade deficit has halved from around 6% of GDP in 2006 to around 3% of GDP



today. And what remains of the trade deficit (about -US\$40bn/month) (is pretty much all going towards buying either: a) energy (which should likely continue to dwindle over the next decade) and b) manufactured goods from China (which may well dwindle as well as manufacturing returns to the US in order to benefit from the cheap energy).

And while this will be an undeniable boost for the US economy, it does beg the question as to who will be on the other side of the adjustment. Look at it this way: for the past two decade or so, the US current account deficit has hovered between -2% and -6% of US GDP. In other words, by importing foreign energy and foreign manufactured goods, the US consumer boosted the economy outside of the US by between 2% to 6% of US GDP. That's a significant amount (at its high in 2006-07, the US trade deficit reached more than US\$700bn per annum). But **should the US stop exporting these dollars, then someone outside of the US will clearly no longer be able to live the high life to which they have become accustomed.** The question for the coming years is who that 'someone' will be?

And the other, much more important, question is how world trade will continue to grow with a US trade deficit fast heading towards zero?



The Dollar-Debt Standard

Since the end of the Bretton-Woods monetary system, a number of famous economists and market pundits have made hay predicting that the US dollar's days as the world's single biggest reserve currency were numbered. For forty years, alarm bells have continuously rung on this topic and, to this day, there have been no shortages of volunteers for the role of Quasimodo. However, like the British guns in Singapore circa 1942, could all the critics of the US dollar as a reserve currency actually be facing the wrong way?

The first point to note is that reserve currencies arise because they are convenient, and then become dominant because of network effects. This is not to say that they do not reflect underlying political bargains; but nonetheless, they have never emerged as the result of conscious political negotiation and compromise. So today, the dollar is the world's reserve currency not because the US lobbied for this to happen, but because it just happened that way.

The first global reserve asset was gold, and the first country to move to the gold standard was Great Britain, which did so by accident in 1717 when the master of the mint, Sir Isaac Newton, set the gold price for silver too low and so drove almost all silver out of circulation (today's central bankers should take note: even the greatest geniuses make monetary mistakes).

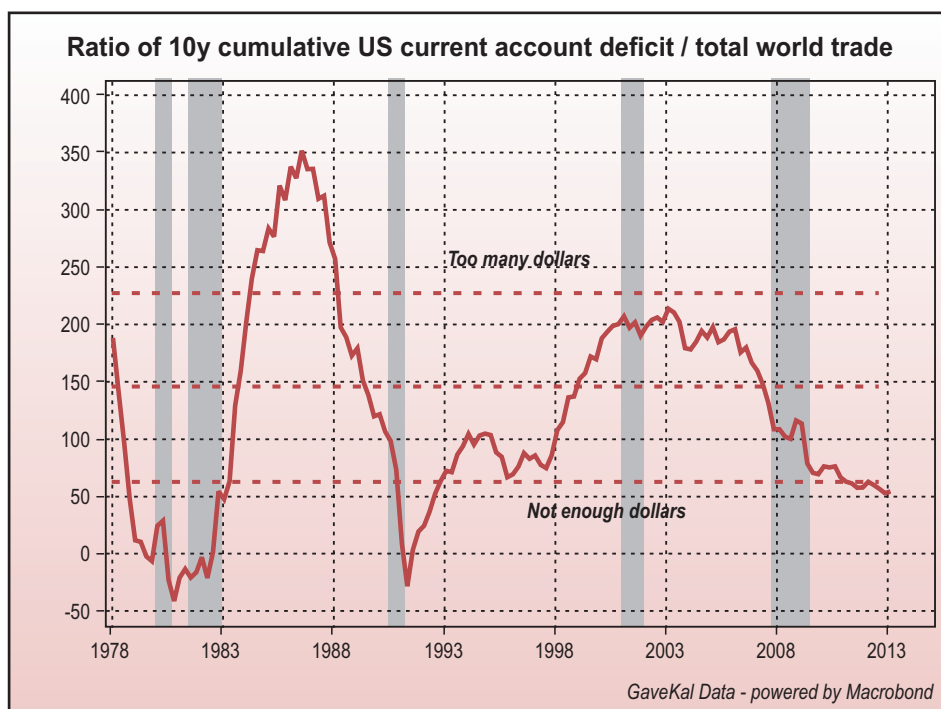
The gold standard did not become prevalent in Europe until after the 1870 Franco-Prussian War, and it was not until 1890 or so that pretty much the whole world was on a gold standard, rather than the previous bimetallic gold/silver standard. Convenience and network effects explain why it took so long for the gold standard to become established. So long as some countries operated on gold and others on silver, it made sense for most countries to operate on a dual gold/silver standard, since this facilitated the maximum number of trade transactions. Only after the balance shifted decisively in favor of gold (after 1870, when Germany decided to convert its giant reparations payments from France into gold) did it make sense for everyone to switch to gold – which countries then did with alacrity.

A reserve currency is thus a bit like a computer operating system – it pays to use the one that everyone else is using, and the more people use one system, the less incentive there is to switch. Once a reserve currency gets entrenched, therefore, it is exceedingly difficult to dislodge, because the benefits of the new currency have to outweigh those of the old one, not by a little, but by a lot.

It was cumbersome to move physical gold to correct balance of payments deficits, so investors typically moved gold-backed units of exchange instead, of which sterling was the principal one, making it the world's first dominant reserve currency. As the global center of economic gravity moved from Britain to the United States, the dollar gradually assumed sterling's position in the international payments system, although this shift only became complete with the bankruptcy of Britain after World War II and the subsequent establishment of the Bretton Woods system, which revolved around a dollar with a fixed parity to gold and fixed parities of the other currencies to the dollar.

After Bretton Woods broke down in 1971, the world moved to a system of pure fiat currencies, the 'Dollar-Debt Standard'. Under this arrangement, dollar-denominated government debt replaced gold as the basic reserve asset. The central bargain was that the United States agreed

to run a permanent current account deficit in order to ensure that there be enough US government debt in the system to provide the rest of the world with liquidity. Since the end of Bretton Woods the United States has mostly run a current account deficit. When it did not (1973-74, 1980-82, 1991) the world typically moved into recession as the dollar needed to finance the growth in global trade could no longer be found.



The first essential point to note is that under this system (unlike its Bretton Woods predecessor), large-scale US current account deficits are not regrettable; they are indispensable. Put another way, the global payments system of the post Bretton-Woods era has depended on the United States spending beyond its means. Perpetual surplus countries like Germany, Japan, Saudi Arabia and now China, which tend to confuse economics with morality, have liked to denounce America's excess consumption as profligate (but only after they have padded their bank accounts with the profits made possible by this profligacy). But economics is not morality, and America's excess consumption has not

(always) been profligacy. This excess consumption has helped drive innovation, which in turn is the ultimate (Schumpeterian) source of sustained economic growth. To understand why, take the example of the Apple iPhone. A significant number of consumers in the United States were willing to pay US\$600 for the first version of the iPhone, even though had they thought about it rationally, they would have waited a year for prices to drop. Thanks to customers who will overpay for early access to an innovation, Apple can rely on a good bit of its R&D expenditure being paid for by consumers of the new product, rather than from its pre-existing cash reserves. This is an extreme case, but it is almost certain that the existence of a deep and dynamic consumer market—by increasing the likelihood that one will recoup some, or all, of one's R&D cost, even if a particular product or service is not all that successful—reduces the risks of innovation, and so makes innovation more prevalent.

Excess consumption drives innovation, innovation drives productivity growth, and productivity growth drives long-term economic growth.

This equation helps explain how the United States, a 'profligate' debtor country, differs from Argentina or Hungary. The ultimate basis of the Dollar-Debt Standard has been a credible promise by the United States to continuously restructure its economy to ensure the productivity growth necessary to generate the cash flows that will enable the American government to service the debt created by its perpetual current account deficit. The credibility of this promise has stemmed from two hundred years of economic history, and from a few ancillary factors, notably America's political and military hegemony (which means that the United States will always be able to secure the physical resources needed for growth), America's large and growing comparative advantage in tertiary education and research universities (which attract talented individuals from around the world, most of whom end up staying), and a rising population, which ensures that the United States will be able to provide a rapid expansion in the global monetary base to support growth in populous Asia.

This background helps explain why the Dollar-Debt Standard, seemingly built on foundations of air, has lasted so long, and why proposals to replace it have amounted to nothing. In fact, for all the complaints from the multitude of high-profile economists about the Dollar-Debt Standard's instability and susceptibility to crisis, it has already lasted about as long as any previous international monetary arrangement since bimetallism. The classic gold standard, by the most generous possible count, lasted 43 years, from 1871 to 1914. The subsequent interwar gold standard functioned imperfectly and collapsed during the Great Depression. The Bretton Woods system lasted for a quarter century, from 1946 to 1971. The Dollar Debt Standard is now 42 years old and counting...

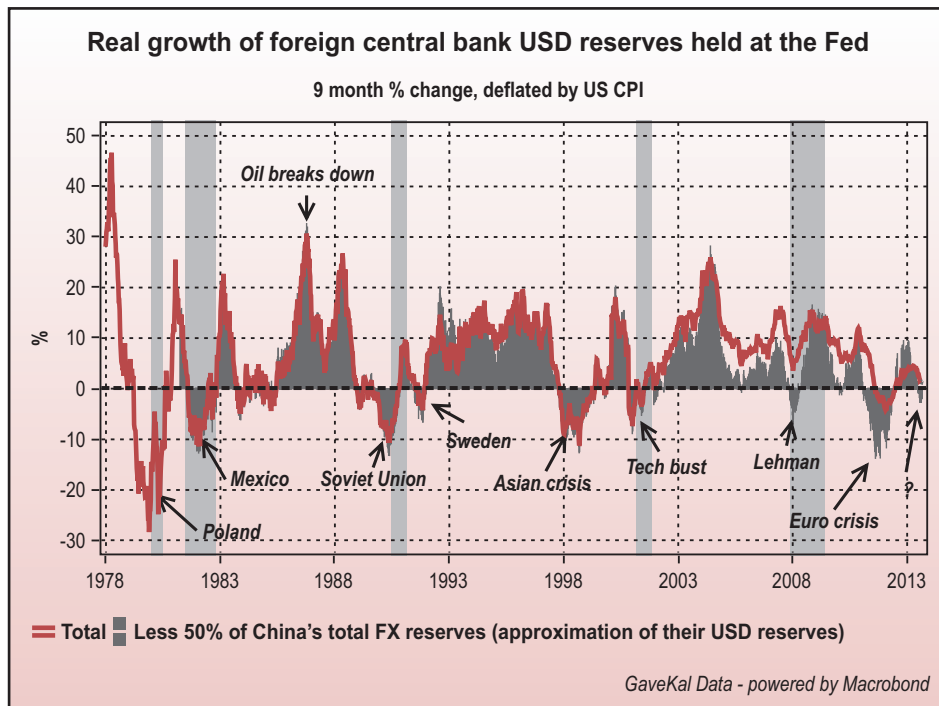
Now throughout its 42 year history, economists have explained that, at some point, foreigners would lose faith in the dollar, and in the US government's ability to service its debt, and that this well-functioning system would thus come to a crashing halt. In spite of political shenanigans in Washington DC, in spite of runaway debt, in spite of costly wars and even costlier social programs, this has never happened, partly because the US offers so many different kinds of attractive assets to own that, each time the dollar becomes cheap enough, Brazilians rush in to buy Miami properties, Russians buy New York condos, while UK and Swedish pension funds scoop up US equities or high-yield debt.

Returning to the poorly placed British guns in Singapore, it seems that few have considered that this well-functioning system could be under threat, not from a lack of faith in the United States, but perhaps because of a change in the United States' willingness to continue opening its doors to the best and brightest – indeed, immigration to the US has now become a rather complicated affair, to the point where most Indian engineers, Chinese doctors or UK fund managers would rather emigrate to Canada or Australia. Or perhaps, even more alarmingly, the system could be under threat from the US' ability to continue exporting the dollars that the rest of the world needs to trade?

This brings us to what is known as the Triffin paradox (named after the 20th century Belgian economist Robert Triffin) whereby when one nation's fiat currency (in this case the dollar) is used as the world's reserve currency, the needs of the global trading community are different from the needs of domestic policymakers. Indeed, in today's world, trading nations such as China, South Korea, Saudi Arabia or Brazil need ever more dollars to not only lubricate their foreign trade but also as foreign exchange reserves that bolster the value of their own currency and provide the asset base for the expansion of credit within their own nation. Meanwhile, the US trade deficit is shrinking rapidly, and is being encouraged to do so by policymakers keen to 'bring the jobs home'. But **a rapidly declining trade deficit means that fewer dollars are being exported; and so we should either expect:**

1. Global trade growth to slow – hardly a bullish development and a clear hurdle to a rapid expansion in Ricardian growth prospects; and
2. Global central bank reserves to shrink – thereby forcing central banks outside of the US to adopt tighter monetary policies than they would otherwise employ, given the overall lack of inflation risk.

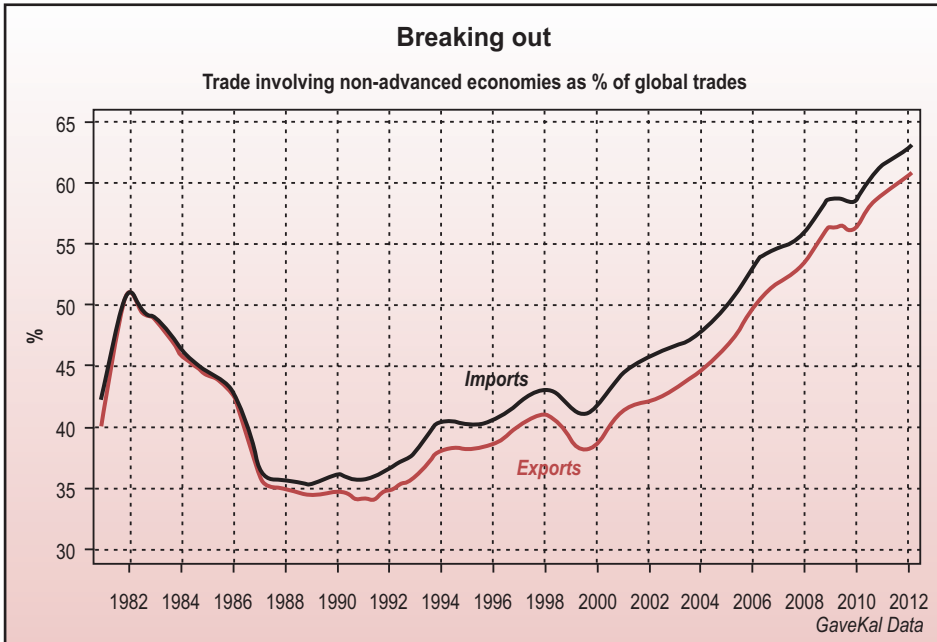
On this last point, consider the following chart which highlights that, each time central bank reserves started to shrink, the world faced an unpleasant event:



This brings us back to the surprisingly weak velocity of money studied in previous chapters. Returning to Bastiat's motto of "*what you see and what you don't see*", everyone today can *see* that the Fed is attempting to debase the dollar in order to re-accelerate the velocity of money at home. Meanwhile, everyone who cares to look also *sees* that the Fed's success at jump-starting velocity has thus far been very modest. Confronting this reality, one can come to two possible conclusions. The first is the Paul Krugman/Richard Koo approach which concludes that a) the Fed's efforts are about to gain traction and b) if they do not, it will be because the Fed did not do enough (as our friend Tyler Hay of Evergreen Capital put it to us: "*Do you know how to perfectly predict future Fed policy decisions? You take a past failed policy, double its size and do it for twice as long*"). The second is that clearly, things are not going according to the script.

In previous chapters, we reviewed possible explanations as to why velocity was weak, though we failed to mention what might be the most important one, **namely the rapidly improving US trade deficit**. Indeed,

because the dollar fills a very special role in the world, attempting to debase its value, as the Fed has repeatedly done in recent years, could turn out to be not only highly disruptive, but ultimately massively counter-productive. After all, over the past decade, most of the growth in the global economy has come from the expansion in emerging market trade, and almost all of this trade has been denominated in dollars.



Coming out of the 2008/09 crisis, it was hoped that emerging market growth, boosted mostly by massive Ricardian advances would help propel the global economy higher. However, it stands to reason that, if we want emerging markets to grow their trade with one another, then these emerging markets will first need to earn dollars as the working capital necessary to expand their trade.

Thus, we live in a world in which emerging markets will conceptually need more and more dollars (if we expect global growth to still be driven by emerging trade and consumption), **while the US will be exporting fewer and fewer of them.** This does not sound stable, unless, of course, the rest of the world gets its hands on dollars by selling assets (instead of

goods and energy) to US investors. But needless to say, US investors will only be interested in foreign assets if those are cheaper than equivalent ones in the US.

Now the easiest way for such an asset price differential to emerge is through exchange rate movements. Incidentally, one could make a broader similar argument for the eurozone: for the euro to work, we not only need Spanish engineers to move to Germany, but also rich German retirees to buy houses in Spain. In a free-floating exchange rate world, we would have, by now, seen the deutschemark shoot up against the peseta; this would have incentivized Germans to buy houses en masse in Mallorca. Unfortunately, within the euro, this currency adjustment cannot happen. Instead, asset prices have to bear the brunt of the adjustment and so, Spain goes bust. But if the Fed does its best to depress the value of the dollar, then the asset price adjustment that should take place through exchange rates has to take place with falling asset prices in emerging markets ...

This is another reason why the Fed's policies could conceptually be having a negative impact on the global velocity of money. Indeed, if, as seems likely, repeated doses of QE have weakened the dollar artificially, then this weakness has prevented the needed asset price differential between the US and the rest of the world from occurring via exchange rate movements (strong dollar, weak others). Instead (as in the eurozone), the asset price differential must emerge solely through asset price adjustments. This implies rising asset prices in the US and falling asset prices elsewhere (except perhaps in Germany); something which is unfolding in front of our very eyes! The fall in asset prices outside the US, and especially in emerging markets, then dampens the animal spirits of CEOs and investors who sit on cash. And this build up-in cash means that, ultimately, QE is self-defeating and does not re-accelerate the velocity of money, its ultimate goal. In other words, the Fed's quantitative easing policies may well be preventing the system from clearing as it used to in the past. If so, this has been a highly disruptive

policy choice whose final consequences are hard to foresee. The law of unintended consequences at work.

There is, however, another, far more bullish, option. Namely, that partly because of the uncertainties created by policymakers around the dollar and the US financial system, emerging markets will follow the path blazed by Europe forty years ago, discard the dollar and start trading in one of their own currencies. Fortunately, the odds of this happening are increasing by the day.

Can the RMB become a trading currency?

In 1971, with Europeans complaining that the US was blatantly debasing its currency, freshly appointed Treasury Secretary John Connally snapped that “*the dollar is our currency and your problem.*” This had the merit of being clear and concise and European policymakers got the message. Over the two decades that followed, intra-European trade moved from being almost entirely denominated in dollars to more than half in deutschemarks. This widespread adoption of the deutschemark for trade, working capital, individual savings... drove French policymakers nuts, which is why they came up with the euro; a brilliant concept that was supposed to phagocytize the German monetary strength for the greater power of France. Once again, the law of unintended consequences struck and Germany’s political clout within Europe is now at all time high while France’s continues to make new lows. So, all in all, a tremendous success...

Still, creation of the euro aside, the reduction of the dependency on the dollar was a very bullish development for Europe. As the deutschemark’s role expanded, European companies no longer needed to rely on US banks to fund their trade, their larger projects, or other expansion plans. Trading in one of its own currencies meant that Europe could now develop a cycle of its own. Instead of being dependent on US banks to finance its internal growth and trade—which de facto implied not only an economic dependence, but a political one as well (as was illustrated in 1956 when President Eisenhower told Prime Minister Eden and Prime

Minister Mollet to withdraw from the Suez Canal invasion or risk seeing all dollar funding disappear)—Europe started to self-fund its growth and trade. This made for a cycle less dependent on US events, and less dependent on US commercial banks. It also made European assets more attractive for international capital allocators and thus started the age of truly global mandates and international diversification for bonds and equity allocators.

Fast forward 40 years and the US is once again sending the rest of the world John Connally's crude message. Of course, Professor Ben Bernanke is far less brash and much more polite than the free-speaking Texan Connally ever was (Connally's best quote was, when he was asked why, as governor of Texas, he refused for the schools along the Mexican border to be taught in Spanish – *"If English was good enough for Jesus-Christ, it should be good enough for us"*). **Still, the Fed's QE policies of the past couple of years have, for all intents and purposes told the world that *"the dollar is our currency and your problem."***

And, in recent years, the dollar has been a genuine problem for a number of emerging countries. Indeed, if nothing else, the Lehman Brothers bust revealed the extent to which almost all of the trade (and project financing, and private bank lending, etc...) between emerging markets still takes place in dollars. This means that emerging market nations must either first earn dollars, or find someone to lend dollars to them, before expanding their trade and capital spending. It also means that, if US banks are mismanaged, emerging markets tend to fall apart as companies there can no longer obtain financing for trade, investment projects, etc...

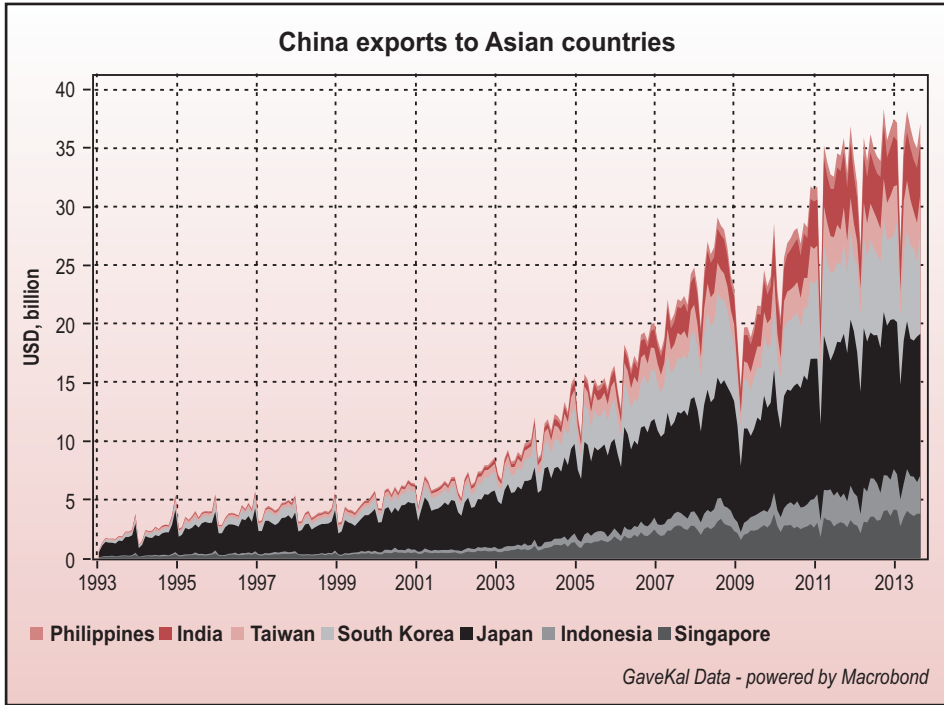
This was the main lesson that most emerging market policymakers learnt in 2008. Until then, having 100% of one's trade denominated in dollars did not seem awkward. But once the Lehman bust showed to the world that American bankers were no smarter than anyone else's and worse,

that American regulators were also no better than any other countries', then financing every trade and every investment in dollars rapidly shifted from being the easy thing to do to a problem that needed to be addressed. All of a sudden, it became obvious that depending on the dollar made no sense if the US banking system was badly managed and badly regulated. The scales fell from the eyes of the emerging markets' policymakers. And chief amongst the countries looking to make a shift was China which, by 2008, had become the number one, or at worst number two, trading partner for almost any emerging market, importing commodities from Latin America, Africa, the Middle-East, Russia or South East Asia and exporting manufactured goods everywhere around the world.

With Lehman and AIG hitting the skids, trade finance just dried up and China's exports fell -25% YoY:



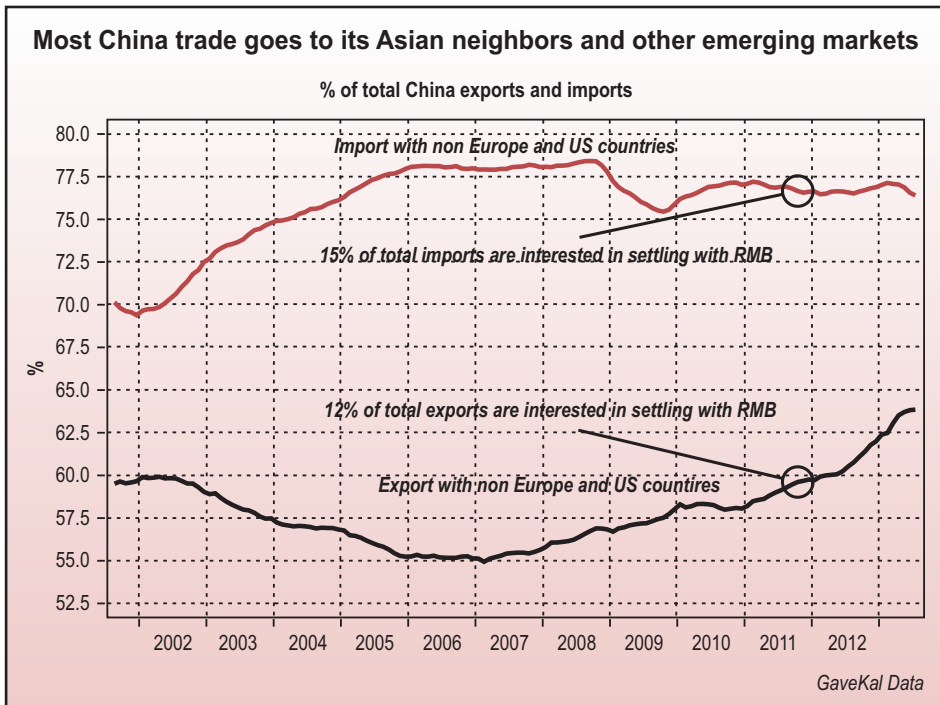
Now the fact that the US, or Europe, would import less as they entered into a recession was understandable enough. But what stung China most was that Asian traders partners also cancelled orders (see chart below) and, as a result, some 25 million migrant workers lost their jobs almost overnight.



Following this traumatic event, and the change in the perception of US stability, China went around the world and invited the likes of Brazil, Indonesia, South Africa, Turkey and Korea to shift some of their China trade away from the dollar and into renminbi. China started doing this in 2010 and this effort is gathering pace. The renminbi’s attempt to become a trading currency is potentially one of the most important financial developments. Yet no-one seems to care.

For the likes of Brazil, Turkey or South Africa to start trading in renminbi means that these countries’ central banks will need to keep some of their reserves in renminbi. Which, in turn, means that China needs to

offer assets for these central banks to buy. This simple reality has pushed China to create the offshore renminbi bond market in Hong Kong; the ‘dim-sum’ bond market. China’s invitation to other countries to start trading more in renminbi also explains why, over the past two years, the PBoC has gone around the world and signed swap agreements with the central banks of Brazil, Korea, Turkey, Australia, Argentina and countless others. In essence, China has told her emerging market trading partners: *“Let’s move our trade to renminbi and if you don’t have any, you can come borrow some on my HK dim sum bond market, or alternatively, we will just lend some to you directly through our central bank”*.



Given the increasing risk that the US will send ever fewer dollars abroad, China’s attempt to mitigate its dependency on the dollar could not be better timed. Of course, these efforts can only bear fruit if both the renminbi bond market and the renminbi exchange rate prove to be stable – in essence, if the renminbi is seen as offering a reasonable alternative

to the dollar; if the renminbi manages to transform itself into the deutschemark of emerging markets. Which brings us to the global bond market meltdown that followed the Fed’s announcement of a possible tapering of US treasury purchases – the Spring 2013 ‘taper tantrum’.

Following Ben Bernanke’s May 2013 declarations, emerging and OECD government bond markets sold off aggressively to the point where, in the second quarter of 2013, renminbi bonds were the only bonds globally to offer investors positive returns! Like the hounds in **Silver Blaze**, the renminbi bond market has been the dog that did not bark; and just as Sherlock Holmes was quick to deduce an important message from the dogs’ silence, perhaps we should listen to the sound of the renminbi bond market’s stability?



Indeed, in the face of weak Asian currencies, underwhelming Chinese economic data and disappointing global industrial and consumption numbers during 2013 (weak US ISM, weak EU retail sales, etc.) most

would likely have expected Chinese bonds, or the renminbi, to fare poorly. Yet, **renminbi bonds have been the new shelter-in-the-storm**; a reality which draws two possible explanations:

1. The offshore renminbi bond market, and the Chinese exchange rate, represent small, easily manipulated markets. And Beijing is manipulating them to suck in even more foreign capital into an economy that is increasingly spinning its wheels. Beijing will soon enough lose control and this will all end in tears (from our meetings, this would seem to be the consensus view—the pessimism on China is so deep that, if there was an Olympic medal for pessimism, most investors wouldn't even fancy China's chances).
2. The offshore renminbi bond market, and exchange rate, represent small, easily manipulated markets. And Beijing is manipulating the markets in a clear bid to transform the renminbi into a trading currency.

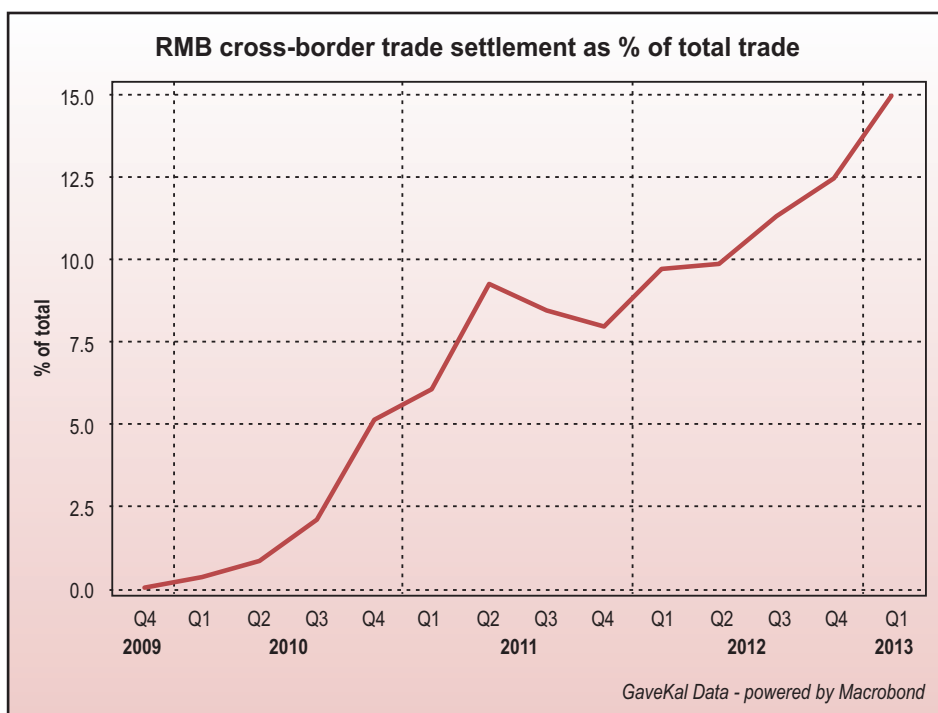
We tend to favor the latter explanation, probably because, for China, successfully transforming the renminbi into a trading currency is more than just evolving towards settling its own imports in its own currency (as advantageous as that may be). Internationalizing the currency may well be the key to China's future economic growth. Indeed, when thinking about China's economic development, most of us intuitively think of all the "Made in China" goods stocking up the aisles of Walmart or Carrefour. And it is undeniably true that China's prosperity has relied heavily on the export of cheap consumer goods to rich countries. China's modern economy has mostly been export-led; even if 'net trade' has historically not been such a large contributor to GDP growth. This is unlikely to change overnight. Exports have been central to China's development model as the country's insertion into the global supply chain has forced constant productivity gains. This cycle of improvement has been driven by technology and management know-how transfers, along with rapid shifts in the labor force. Thus, it is hard to imagine a strongly growing future for China without growing exports.

Which brings us to China's current quandary: basically, over the past 30 years, China got rich by selling cotton underwear and plastic-soled shoes to the world. This is why most people carry an image of China as a phalanx of sweatshops, churning out T-shirts and toys for American and European shoppers. However, this image is now as outdated as skinny jeans. Instead, most of the growth in Chinese exports now comes from industrial goods—and the customers are increasingly firms in developing countries building local infrastructure. China clearly no longer wants to pursue the high volume, highly polluting, low margin businesses which enabled it to rise from dire poverty. Instead, China (or at the very least, the Chinese Ministry of Commerce) now envisions its future as one made of sales of earth-moving equipment to Indonesia, telecom switches to India, cars to the Middle East, oil rigs to Russia and auto machinery to Eastern Europe or Latin America. **The problem, of course, is that once one starts to compete with the likes of Caterpillar, Siemens, or Komatsu, having low prices may not be enough. Instead, offering attractive financing terms may often be the deal clincher.**

China, thanks to its massive stash of foreign exchange reserves could of course offer financing in US dollars for an Indonesian construction company; but then China would be taking on a significant exchange rate risk. If the Indonesian construction company does not repay its loan (such things have been known to happen), or if the dollar funding market freezes again (also been known to happen), China could quickly find itself with an expensive naked-short dollar position, i.e. the situation that Latin America found itself in the early 1980s. Thus, to avoid the threat of hyper-inflation, bankruptcy, and dependency on the US, the better long-term proposition for China is to offer financing to its clients in renminbi. **But this requires that the renminbi be available offshore, and be stable, so that companies have predictable access to renminbi funding.**

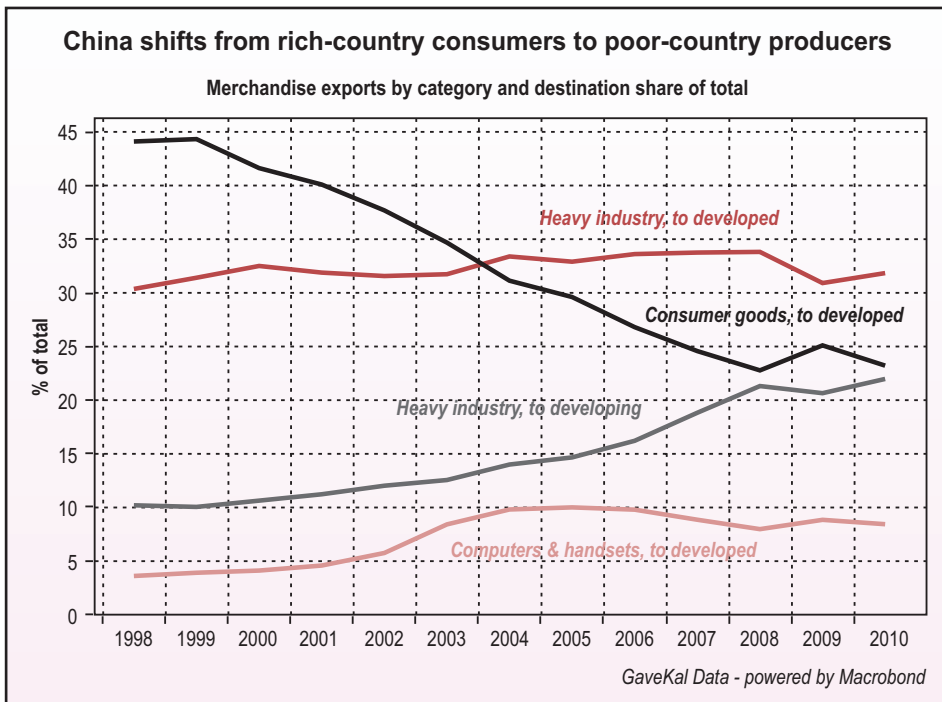
Which brings us to what is possibly China's single largest comparative advantage; namely that alone among emerging markets China actually has a deep capital market. China was immensely fortunate, for building a trustworthy financial market probably takes fifty years; a financial

market needs lawyers, accountants, auditors, judges, bankers, brokers... But in 1997, Britain basically told China *“Here is Hong Kong. It is a nice financial center that we have built over the past fifty years. Try not to break it”* (it was not quite that friendly, but still...). And for twelve years following the handover, China did very little with Hong Kong, adopting a hands-off approach that amounted to a *“don’t bother us and we won’t bother you”* attitude. But this is now changing and Beijing is making full use of Hong Kong to internationalize the renminbi and gradually move more of its trade into its own currency. In the two years since China created the dim-sum bond market in Hong Kong, China has moved from settling none of its trade in its own currency to settling 15% of its total trade bill in renminbi. This marks very impressive progress (if a nation, achieves energy independence, agricultural independence, and gets to settle a majority of trade in one’s own currency, then it is in pretty good shape as no foreign power can exert pressure).



Of course, having a financial center is a necessary, but not sufficient condition, for China to successfully internationalize her currency. For China's renminbi gamble to pay-off, the renminbi needs to offer security and the prospect of gains to the central banks currently switching a small part of their reserves over from US dollars. If these conditions are not met, then the renminbi will not stand a chance of replicating what the deutschemark did in Europe in the 1970s— and gradually replace the US dollar in emerging market trade.

Fortunately for China, these conditions are today being met in spades. And so China's trade strategy of replacing high volume, low value added exports (textiles, shoes, toys...) to the Western world with high-value added exports (telecom switches, PCs, excavation equipment, autos parts...) to the emerging world, on credit, is starting to make ample sense.



In fact, two important structural changes in China's exports have become apparent in recent years. **First, the share of consumer goods in**

total exports is declining, while the share of back-end industrial goods has risen. Capital goods like turbines and telecom gear, parts for those goods, and industrial materials like steel all account for a rising share of China's total exports. Second, the direction of exports is changing, with a larger share of goods going to developing countries and a smaller share to their rich cousins. These two shifts are in fact one: the developed world is the main driver of the decline in the share of consumer goods exports, while the developing world is behind the rising share of heavy industry exports.

The lesson China's policymakers have drawn is simple. The country's exporters will not keep growing by continuing to make the same cheap stuff for the same old customers. Instead, growth will come from diversifying into new products, finding new markets and moving up the value chain. Of course, exporting consumer goods to developed countries remains big business and will not vanish anytime soon. Still between 1998-2010, exports to the developing world grew at a compound annual growth rate of 23%, while exports to developed countries grew only 15%. As a result, the developing world's contribution to Chinese export growth nearly caught up to that of the developed world. Developing countries should soon become the chief driver of China's overall export growth.

China's new growth markets

Compound annual growth in exports, 1998-2010

	World	Developed	Developing
Consumer goods	13%	11%	18%
Heavy industry	19%	18%	25%
Of which finished capital	21%	18%	28%
UN COMTRADE, GAVEKAL DATA			

For evidence of China's newfound export prowess in heavy industrial goods towards emerging markets, take Liugong Machinery Corp, as an example. The company is a state-owned construction machinery manufacturer in the southwestern province of Guangxi, which has tripled

its work force in the last few years to keep up with exploding demand. In 2011, Liugong exported 12% of its wheel-loaders, excavators and other machinery, up from just 2% in 2008. These figures reflect trends for the industry as a whole: Chinese construction machinery exports grew at a compound annual rate of 40% from 2000 to 2010, and China's global market share in construction machinery exports rose from 1% to 8% with most of these exports going to developing countries.



And again there is “*what you see and what you don't see*”. Whoever cares to take a look sees China's export moving up the value chain. What is perhaps harder to see is how increasingly China will be financing these exports through renminbi bond issues, or simply by settling its own trade in renminbi. Could the day be far away when China exports tractors to Brazil priced in renminbi and imports soybeans and corn, also priced in renminbi? As emerging markets gradually learn to be less dependent on the dollar, perhaps the negative correlation between a strong dollar and poor performance of emerging markets will abate (for

now, a strong dollar equals a higher cost of funding for most emerging market companies and consumers)? Needless to say, as emerging markets move from financing trade in dollar to financing trade in renminbi, the US loses international clout and influence, while China gains.

With all this in mind, and at the risk of sounding like we are preaching to our parish, it seems that the biggest beneficiary of the Fed's recent policies may well be Hong Kong. Indeed, if the Fed policies fuel China's bid to gradually move more emerging market trade into renminbi, then Hong Kong should grow into a much bigger financial center than it is today. The valuation of local real estate (especially at the high end) could thus get even crazier, listed owner-developers would likely see their shares re-rated and local banks with an international franchise (HSBC? Stanchart? DBS?...) will thrive. Of course, all this is conditional on the renminbi dim sum bond market continuing to expand. Which in itself, is highly dependent on the renminbi holding its value against the dollar, and preferably generating gains. After all, who wants to save in a currency that goes down?

Returning to the 1970s parallel drawn at the beginning of this chapter, companies, investors and central banks did not choose to save in deutschemarks because Germany was the most popular country in Europe. The deutschemark became the de facto European trade currency because the Bundesbank was perceived as a solid inflation hawk (given what Germany had experienced in the 1920s) and because Germany had grown to be the single most important European economic power. Fast forward to today and the question is not whether China is a sufficiently important economic power (the answer is obvious), but whether the PBoC will be a proper inflation hawk.

A little theory may be necessary to answer this particular question. On the one hand, when looking at China's current crop of leaders, it is hard to find much that appears communist in their behavior. Instead, the primary focus seems to be to generate wealth for the greater population in a bid to maintain social peace and the party's grip on power. In fact, as

Richard McGregor illustrates in his must-read book *The Party*, the entire purpose of the Chinese Communist Party today is to hold on to political power. And this matters tremendously because, even if China's leaders no longer act, nor sound, communist, we must not forget that each of them was brought up infused with Marxist theory. And to a good Marxist, revolutions and other paradigm shifts in history do not happen because of individuals, or ideas, but because of economic forces. And there is no economic force stronger, or more destabilizing, than inflation.

After all, Marx did explain that Louis XVI lost his head because of the poor harvests and high food price inflation of the late 18th century. Just as Chinese policymakers explain today that the Tiananmen events of 1989 had little to do with students wanting more democracy or freedom, but instead, everything to do with the high inflation afflicting China in the late 1980s. Needless to say, this hardcore belief that inflation is the number-one threat to social stability (and Communist Party rule) will have only been amplified by the 2011 Arab Spring across the Middle East. This simple theoretical difference between China and much of the Western world leads us to conclude that China's policymakers can be counted on to be inflation hawks. After all, since 2010, China has tightened its monetary policies, while almost every other major central bank adopted highly expansionary policies. So combine China's inflation hawkishness with the apparent desire of turning the renminbi into a trading currency for emerging markets and it is hard to escape the conclusion that the renminbi will continue to move higher and that any dips should be bought.

Going one step further: when we review the rapid growth of the dim-sum bond market over the past two years, we are tempted to draw a parallel with the creation of the US junk bond market by Michael Milken in the early 1980s in the US. When Milken invented junk bonds, few foresaw that junk bonds would change the way companies financed themselves, looked at their cost of capital, trigger an M&A boom, mid-wife the explosion of the private equity industry or change the way banks were run. However, with hindsight, it is obvious that the creation of junk

bonds was one of the most important financial developments of the past thirty years.

Today, we see the world's second largest economy, and the largest exporter, creating a new bond market whose main purpose is to provide an alternative source of financing for emerging market companies, and an alternative to trading in dollars. Of course, this project is still in its infancy and could yet peter out. But it could also change the world for the better. One would think that investors, analysts, and portfolio managers would be studying how a world in which emerging markets increasingly trade in renminbi will look, and how to benefit from this trend? Is it, as we believe, by remaining long renminbi bonds and other interest rate sensitive asset classes? By building exposure to emerging market exporters whose results should now become less volatile? Is it by shorting US Treasuries? Does China's move, combined with the Fed's quantitative easing policies, imply that the dollar will lose its reserve status over time?

Of course, all this is conditional on the dim sum bond market continuing to expand. Which in itself, is partially dependent on the renminbi holding its value against the dollar, and preferably generating gains. Again, this is what seems to be unfolding. As we write in the summer of 2013, the renminbi is the only currency to have delivered gains against the dollar. Not only that, but over the past twelve months, the dim-sum market's growth has been impressive; even as concerns on Chinese growth have surfaced and equity markets have de-rated aggressively. This strength suggests that the creation of the dim-sum market may turn out to be a more important event than QE; even if few care and fewer still talk about it.

Still, Ben Bernanke's actions, and the Fed's fundamentally mercantilist policy (i.e., "*I debase my currency and don't care about the outside world*") are pushing the US, and the dollar, back to the days of John Connally. So should we not expect the same actions to have similar consequences? In the 1970s, Europe started to move away from its dependency on

the dollar and embraced the DM. In the 2010s, we have started to see emerging markets start to embrace more trade, more savings, and more capital raises in renminbi. The renminbi bond market is small, but growing fast, and who is to say where it will stand in a decade?

Today, every investor we meet wants to discuss China's slowdown or the Fed's 'taper'. Just like every investor we met a year ago wanted to review the European crisis. But what if the more interesting question lay elsewhere? What if the important development is that China continues to embrace the opportunity offered by the US missteps to push more emerging market trade, financing, and saving into renminbi? Are investors' portfolios today positioned for such a world?

This is not to say that the outsized returns of renminbi bonds—delivered with a lower volatility than that prevailing on treasuries—are 'normal.' But they may yet continue for a long while. This is why we continue to believe that, in today's world, any fixed-income investments should take place in this universe; it simply offers the best portfolio diversification. Until Beijing changes its policies, the risk-return profiles of renminbi bonds will remain similar to that of German bunds in the 1970s; i.e., one of the best portfolio diversifiers out there. And owning the Asian financials which will benefit from the birth of these new fixed income and exchange rate markets also makes ample sense.

The Question Marks Over Chinese Growth

To most observers, the intricacies of China's growth model appear harder to grasp than a soaped eel. On the one hand, there is the terrific progress epitomized by an anecdote recently recounted by our friend Michael Cembalest of JP Morgan: when President Nixon made his ground-breaking trip to Beijing, China did not have the required audio-visual equipment to hold a proper Mao-Nixon press conference and so the equipment had to be flown in from abroad. Forty years later, Huawei has now surpassed Ericsson as the world's largest telecom equipment company. By any measure, this is impressive progress. On the other hand, there is the dramatic shift in the landscape: according to calculations by Canadian policy analyst Vaclav Smil, **China used more concrete in its roads, railroads, dams, bridges, factories and buildings in the three years between 2009 and 2011 than the US did in the infrastructure that it built during the entire 20th century!**

It is this break-neck speed of construction that most foreign investors have a hard time getting their heads around. Hardly a visitor comes by our Hong Kong or Beijing office without enquiring on the state of empty office buildings in Shanghai, empty-bullet trains, ghost towns or bridges to nowhere. But, of course, the reason these investors first bothered to take a 12 hour flight to China is that, for the past decade, more than three quarters of global GDP growth took place in emerging markets, China chief amongst them. In fact, the 2009 recovery from the great financial crisis was unique in that, for the first time, the global economy was not rescued by the US consumer, but by China's large

infrastructure spending plans. But now, most question whether China's impressive growth feat can continue.

Whenever one talks of growth, it is useful to remember that growth comes from three independent factors: productivity of capital, productivity of labor and demographics. We will turn to the question of deteriorating demographics for China in a subsequent chapter but until then, it is no exaggeration to say that the initial driver of China's growth has been the constant ability to transform low productivity farmers into higher productivity factory workers. After all, if one manages to transform 10 to 15 million farmers (who typically produce goods worth US\$800 per annum) into factory workers (producing goods worth at least ten times as much), then it does not take a rocket scientist to deduce that domestic GDP will see a considerable boost. And that's before going into the secondary effects of higher consumption (as the income the factory worker earns is higher and less volatile than that of the farmer), infrastructure spending, etc...

However, as Western companies start to produce more at home with robots, the question can now be asked as to how emerging markets will continue to grow? If, over the past three decades, offering cheap labor to the world was a good recipe for development, what happens when the Adidas or Panasonic of this world say: *"thank you very much, but cheap labor is not really key for me anymore. And instead, I will keep my technology at home"*. In short, will the Robolution squeeze China, or other emerging markets, out of their one true comparative advantage?

Anecdotally, it would seem that one obvious consequence of cheaper and more flexible automation is that some of the manufacturing that fled the developed world for cheap-labor destinations like China is already returning to the US, Japan or Europe. Witness, for example, the first annual rise in US manufacturing employment in fifteen years (mentioned earlier) against the background of an otherwise lackluster economy. In short, **the benefits of low-cost labor may no longer outweigh the advantage of better logistics and proximity to customers.**

And even if factories stay put, the chances are that they will undoubtedly become even more automated. For example, look at how Foxconn, the world's largest private sector employer, recently announced plans to replace 300,000 jobs with robots. Such a trend should logically make it harder for the poorly educated farmer to become a productive urbanite in the short time frames that have prevailed in the past decade.

This question mark over future labor productivity gains is not a discussion on the sex of angels. It is at the heart of the battle between China bears and China bulls. On the bear side, arguments are made that China has thus far been hopeless at allocating capital and that grand-scale capital mis-allocations have always ended up in tears. On the bull side, it can be argued that whatever capital China wasted in the past, China usually first earned through the large labor productivity gains harvested by transforming farmers into factory workers. In turn, these productivity gains were captured, thanks to financial repression, and the government redirected these earned savings into infrastructure. Of course, not all infrastructure spending was efficient; but by and large, the new roads, railways, canals, schools etc.. generated enough positive externalities to keep the show on the road (for more on this, see our 2008 book, *A RoadMap For Troubling Times* at www.gavekalbooks.com).

By now, however, we would argue that this debate between Chinese bulls and bears, with bears claiming that China is only supported by government stimulus that will lead to a bigger collapse later and bulls promising that the recovery is just around the corner when a renewed government stimulus will finally take effect, is becoming increasingly stale. Instead, we would argue that **both the bears and bulls are wrong, because they are caught up in the old idea that Chinese economic growth is a simple creature of government-directed infrastructure investment.** This description was never correct, and it is even less true today.

A better way to understand China today is that it has begun a painful shift from the capital mobilization stage of development to the capital

efficiency phase. Over the past two decades, and especially since 2002, China's growth came mainly from an increase in capital inputs rather than marginal increases in the efficiency with which capital is deployed. Despite wails of capital misallocation from the China bears, this was a perfectly normal stage of development—but it is also one that must end. Put another way, for the last decade China enjoyed a delicious and fattening diet of cheesecake. But with the risk of arterial sclerosis looming, the government has rightly embarked on a strict corrective regimen of broccoli. It is not as tasty, and it will lead to a lower growth rates for China from here on out. But this new regimen also happens to be much healthier. If China can stick to its diet, it will be an impressive economy in a decade's time. If not, it might end up looking like Japan today, only much poorer.

As we see it, the recent sharp slowdown in China's economy is evidence that the shift to a healthier diet has begun. Nominal GDP growth—the key determinant of corporate and government revenues, and of the banks' ability to grow out of their large (but hidden) bad debt problem—has plummeted to 10%, from an average of 17% in 2004-11. This is still higher than in 2009, in the aftermath of the global crisis, or the deflationary 1998-2002 period, when nominal growth averaged 9%. But it is a severe deterioration that is unlikely to be reversed any time soon.

Indeed, the sources of the current slowdown are both structural and cyclical, and it is important to disentangle these two threads. Part of the current slowdown is simply the inevitable cyclical aftermath of the stimulus-driven boom of 2009-11. The other, bigger, reason is that China's economy is heading towards a new normal which is very different from the old normal of the 2003-2011 boom.

The macroeconomic policy settings of the old normal comprised artificially low interest rates (effectively taxing household depositors to subsidize investments in infrastructure and industry); an artificially low exchange rate (which subsidized exporters); and strict capital controls (which were needed to enforce these artificial prices). These policies

offended market purists, but were simply copied from the old Japanese, South Korean and Taiwanese playbooks. And for good reason: they were highly effective at promoting sustained and broad-based industrial and economic growth from a low base. The high growth of the old normal was thus primarily driven by capital accumulation.

However, China must now shift to a new normal based on greater capital efficiency. Already, the sharp slowdown in growth of capital spending is producing pain and consolidation in the traditional investment-heavy sectors; and this pain is likely to last for quite a while. Instead, because China will not invest as rapidly, it will need to get more return from the investment it does make. In this new environment, overall economic growth will trend closer to 6% than 10%. The macro policy settings of the new normal are likely to be:

- More market-driven real interest rates that will raise the cost of capital for business (or at any rate close the gap between interest rates and GDP growth), force greater efficiency, shift capital from state to private companies, and move national income from the corporate sector (which will suffer a profit squeeze) to the household sector (which will enjoy higher income from financial assets).
- A more market-driven exchange rate that will reduce the subsidy for exporters, push investment from tradable goods to non-tradable goods and services, and slow the pace of foreign-reserve accumulation.
- A gradual erosion of capital controls, in part because they are no longer needed to maintain artificial interest and exchange rates. The renminbi will be more actively used for international trade and investment, and a greater share of outward capital flows will go, via the non-government sector, into higher risk assets.
- Increased deregulation in the energy space in order to face China's current top challenges, namely environmental degradation and the lack of water.

Spelled out this way the transition seems straightforward, and in fact the macro policy changes supporting it are all well in train: interest rates have begun to liberalize, the exchange rate has become more of a two way bet, the renminbi, as already discussed, has begun to internationalize and the energy sector seems to be opening up to foreign companies. But reality is messy. Even if the transition is successful it will not be painless. Ensuring that this transition to more efficient growth does actually happen depends on the ability of the Communist Party's new top leadership team, led by Xi Jinping and Li Keqiang, to undertake a broad range of politically difficult reforms.

In the financial sector, bond and stock markets need to be developed in order to improve capital pricing and put competitive pressure on banks. Banks need to manage both assets and liabilities more efficiently, and direct an increasing share of credit to the dynamic private sector. To complement this shift, the power of state-owned monopolies and oligopolies must be reduced, and private firms' access to a broad range of economic sectors increased. The power of local governments to block competition by protecting favored local enterprises must also be curtailed. Local governments' tendency to encourage excessive investment in industrial capacity and high-end real estate also must be controlled, through overhauls of the tax system to reduce their structural deficits. Finally, user prices for key inputs like energy, natural resources and water need to be reformed so that they accurately reflect underlying cost structures, and no longer subsidize capital-intensive projects.

This is a daunting to-do list. Pessimists are absolutely right to worry that the power of entrenched interests (notably oligopolistic state-owned enterprises), and corrupt and unaccountable government officials at both the central and local levels present major obstacles to these reforms. There is significant risk that the new leaders fail to push reform in any material way. The most likely dénouement of this scenario is not financial crisis, as some fear, but progressive sclerosis as in 1990s Japan. Or to frame this debate in more theoretical terms (as my former French philosophy

teacher would say, *'it works in practice, but does it work in theory?'* there are two potential sources for growth:

- 1) **Growth can come from a rational organisation of talents.** As mentioned previously, David Ricardo gave the best expression of this source of growth in his law of comparative advantages. Even if a surgeon can type faster than his secretary, if cutting flesh pays more by the hour than typing letters, the surgeon should hire a secretary to do all of his typing, thereby freeing as much time as possible to cut flesh. This argument is of course most often applied to free trade.
- 2) **Growth can come from inventions put in place by entrepreneurs.** Growth triggered by invention is a totally different kind of growth altogether. A new invention can trigger new demands, lead to new products, new management techniques and new markets. At the same time, inventions can also lead to the collapse of old products or old firms (i.e., with emails and fax machines, who still uses a telex?). This is the 'creative destruction' which Schumpeter described.

To a large extent, the growth of China and that of other emerging markets has so far been mostly of the 'Ricardian' kind. China's miracle has mostly been about taking unproductively used resources (whether labour, land, natural resources...) and using these more efficiently. As an old joke states, the tragedy of Asia is that Japan is a profoundly socialist country on which capitalism was imposed, while China is a profoundly capitalist country on which socialism was imposed; with the Cold War, behind us, each country is starting to drift back towards its natural tendency.

Or look at it this way: forty-five years ago, during the cultural revolution, almost anyone with a math, physics or chemistry PhD would have been sent to the countryside to work the earth with his or her bare hands. Given this starting point, posting 15% annual nominal growth for thirty years in a row is not that hard to understand; it's almost as easy as it was to cut costs in an investment bank in 2008.

The inherent problem with Ricardian growth is that it is finite in scope.

Once inefficiencies have been squeezed out, economies that depend on Ricardian growth can easily move ‘ex-growth’ (witness Japan in the past two decades). Needless to say, the same cannot be said for Schumpeterian growth which is, as human history has shown, infinite. There are simply no limits to technological progress which means that there are no physical limits whatsoever to the potential of creative destruction. In fact, as argued in the chapters on the Robolution, we are living through an age of accelerated creative destruction. **And this for a simple reason: while the industrial revolution multiplied man’s physical strength, the Internet revolution is multiplying man’s intellectual strength.** Resources that, until recently, had been locked away in the world’s best libraries are now open for all to see – facts and figures that just ten years ago took dozens of hours to gather are now no further than a mouse-click away.

Returning to China, the leadership faces a simple challenge:

- If the growth in the 1980s and 1990s was mostly Ricardian in scope and found its footing due to the deregulation of the labour market and corporate structures, and
- If the Ricardian growth surge continued in the 2000s thanks to the deregulation of land and commodity markets; then

If China wants to continue growing, it really only has two options: after labour, corporate structures, land, and commodities, China will need to embrace the final frontier, i.e., the deregulation of capital.

But of course, as Tony Montana, Al Pacino’s character in *Scarface* said: *“First, you get the money, then you get the power, then you get the women.”* Giving up control of the purse strings is thus not an easy task. Yet, this is what will happen because of the one aspect of policymaking which makes China unique: **the fact that the country’s leaders wake up every morning pondering how to return China to being the world’s number one economy and a geopolitical superpower in its own right** (few other world leaders, not even Nicolas Sarkozy at his prime, harbor such thoughts). And ever since Deng Xiaoping, the answer to that question

has typically been to sacrifice some element of control over the economy in exchange for faster growth.

Today, China faces once again the imperative of making just such a trade-off between control and growth. The old model of cheap labor and vast capital spending is near exhaustion, so the only way to sustain growth is to go for more efficiency, especially through financial sector reform. For China's leaders, reform will be painful, but the cost of missing out on the global power that comes with further growth would be even more painful. **This is why Beijing is biting the financial reform bullet; and renminbi internationalization is the leading edge of that reform.**

To put it in theoretical terms, China today has a choice between a) moving ex-growth or b) shifting from a 'Ricardian growth model' to a 'Schumpeterian growth model.' Now no authoritarian country has ever managed to produce Schumpeterian growth. Indeed, Schumpeterian growth can only flourish in countries where intellectual capital is protected and where courts are independent; important features that are usually the hallmarks of democracies rather than one-party states. So by no means is the continued pace of capital reform, and China's transition to Schumpeterian growth, guaranteed. However, this reality probably means that the pace of reform could well accelerate from here.

In the meantime, continuing to bet on the reforms makes sense for the following reasons:

- On virtually every major developmental indicator China resembles Japan in 1970, not 1990. So there is probably time to implement reforms gradually, overcoming political resistance bit by bit;
- Market forces operate with increasing power and are generally pushing in the right direction, so success does not depend entirely on a few top officials getting policy decisions right;
- The historical record suggests that Communist Party leaders will stick to their new diet. At every critical point in the past 30 years when leaders faced a choice between maximizing control in order

to maximize the long-term growth prospects (and thereby enhance their own power both domestically and internationally), they opted, if sometimes reluctantly, to give up a bit of control in order to secure more growth.

Indeed, the achievements of Chinese economic policy are not simply the lucky fruits of one or two talented individuals, but reflect a systemic focus on sustaining economic growth in order to ensure the party's political legitimacy. And the choice today is the same it has been for the past thirty years: **surrender some control of state enterprises and the financial sector to achieve more sustainable long-run growth, or risk economic stagnation.** On balance the new leadership team looks to be more receptive to reform than the outgoing team. **But the leadership's collective self-interest and strong desire to remain in power also provides a powerful incentive in embracing change.**

Which brings us to the biggest incentive of all for China's leaders – maintaining social stability.

Is Social Stability in China Under Threat?

Whenever reviewing the Chinese growth slowdown which is part and parcel of China's new 'broccoli diet', the conversation tends to drift quickly to the 'magic number eight'. This may be because eight is a lucky number in Chinese culture (and four, which sounds like death is deeply unlucky) but whatever the reason, our reader will be hard pressed to find any explicit document or pronouncement from the Chinese politburo that 8% growth is the sacrosanct number it is often made out to be in Western media. Even more bizarre than this devotion to the Cult of 8% is the superstition that if—by some unaccountable failure of government policy or statistical ingenuity—China fails to record eight points of GDP growth, social chaos will shortly ensue. As we see it, this view completely fails to appreciate the capacity of individual Chinese to *chi ku* or 'eat bitterness' – i.e., put up with a bad lot. A most surprising oversight given that China has, in the recent past, weathered growth and employment shocks that in many respects were far more serious than the one it faces now, and society endured. Indeed:

- From 1995 through 2005 the state enterprise sector shed roughly 50mn jobs;
- For three straight years (1998-2000), at the height of this massive industrial restructuring, the true growth rate stagnated at around 5.5%, well below all minimum-growth thresholds (the government kept reporting growth of over 7%, to keep spirits up);

- More importantly, the workers who were laid off had grown up with a clear social contract: that the state would provide them jobs for life, health care, education and pensions (if crappy jobs, health-care, education and pension). That social contract was summarily torn up and many workers were pensioned off on US\$30-40 a month. Many had no skills and were effectively unemployable in a market economy.
- Because they were all members of regimented state-owned work units, such workers could have quite easily organized protests and riots, and indeed in the hard-hit industrial northeast there were plenty of protests, some of them violent. Yet society, the government and the country survived quite well, and social order was not seriously impaired.

Today, as China slows, the workers who are most vulnerable are migrants working in export factories and construction sites. Such workers have long been accustomed to finding work where they can get it, and many of them have been laid off before. Getting laid off once more violates no social contract. More importantly, these workers are very difficult to organize on more than a very local scale (any visitor to the factory floors of Foxconn, or Yue Yuen, will typically hear more than a dozen different regional dialects being spoken). Such workers will get work where they can find it, and accept the wages that are on offer. The threat to social order posed by unemployment in this type of work force is low, especially since many such workers have the basic security of a potential return to the family farm.

Beyond under-estimating the resilience of the individual Chinese worker, the view that missing a GDP growth target will unleash riots and revolutions also profoundly misjudges the inherent conservatism of Chinese society, and even perhaps the growing legitimacy of the Chinese communist party. Indeed, to most foreign observers eyes, the Chinese communist party finds its legitimacy in its ability to deliver the economic goods. But this view is far too simplistic.

Instead, the reason most Chinese tolerate, or even embrace, the Communist Party's jealous rule is that the CCP has been extremely successful in delivering social stability. Look at it this way: between 1870 and 1970, China knew almost nothing but misery: Opium wars, dismemberment at the hand of Western powers, hyper-inflation, warlords claiming stakes to different parts of the country, Japanese invasion, civil war, Great-Leap Forward and the consequent famine that killed up to 40 million souls, Cultural Revolution... After such a run, no wonder that stability trades at a premium in most Chinese minds.

Thus China's own history renders any claims that China needs to generate a minimum level of GDP growth (to maintain social stability) very dubious. We would go one step further: the idea that China, uniquely, requires a minimum level of economic growth for stability whereas other developing economies (India, Brazil, Russia, Indonesia...) do not, assumes that China's government has no source of legitimacy other than economic growth. There is no evidence for this crude proposition. China's government is a far more complex, responsive and resilient organism than that. And to demonstrate this, a brief review of Chinese political developments since the start of rule by the Communist Party in 1949 makes sense.

As we see it, the history of China under communist rule can be divided into three phases, each roughly spanning a generation.

The first, from 1949 through 1978, was the socialist era during which Mao Zedong's government attempted to impose a centrally planned economy. This effort brought a number of disastrous consequences, notably the failed industrialization of the Great Leap Forward (1956-59) which led to the famine of 1960-62 which killed millions; and the increasing reliance on rule by terror which shattered an entire generation of intellectuals and technocrats and led to virtual civil war during the Cultural Revolution (1966-69). But as gruesome as this period was, it also generated some real achievements, which laid the groundwork for the growth of later decades. The first was political unification. Until

1912 China was ruled by a medieval imperial autocracy which presided over a large, complex but essentially Malthusian economy in which technological gains were immediately offset by a rise in population with the result that per-capita incomes scarcely ever rose. After the fall of the traditional state there ensued four decades of political entropy during which no effective central authority emerged and there were few if any widespread social and economic gains.

The CCP, with extreme brutality, created the stable framework of a modern state, a major prerequisite of economic modernization. Decades later, the state framework established in the 1950s persists and grows stronger, even though virtually all vestiges of the Communist ideology used to create it have vanished. Because of its effectiveness at mass mobilization, the CCP also engineered major improvements in health care and education. Average life expectancy rose from 45 years in 1950 to nearly 70 years in 1980, thanks to improved hygiene, vaccinations and control of epidemic disease. Literacy rose from under 10% to around 90% in the same period. These gains generated substantial legitimacy for the regime, and helped offset its incompetence and terrorism in other areas. They were indispensable in creating a workforce capable of entering the global economy. The socialist era also produced two economic policies with lasting consequences:

1. The first was land collectivization, accomplished with great savagery during the 1950s. The immediate consequence was baleful as the elimination of individual farmer incentives was a major cause of the great famine. And even after that, in the later 1960s and 1970s, agricultural productivity rose more slowly than would have been the case in a freer system. But collectivization did destroy the old concentrations of land ownership, and after individual incentives were restored in the early 1980s, the egalitarian landholding structure provided a firm foundation for rapid economic growth, as was previously the case in Japan, South Korea and Taiwan. More importantly, egalitarian land holdings prevented agricultural surpluses from being hoarded as rents by a narrow landed elite

(as seen so frequently in Latin America, the Philippines, Thailand etc...) and were instead captured by the state and funneled into industrialization (for more on this, see *How Asia Works* by Joe Studwell, available at www.gavekalbooks.com).

2. The second was a surprising level of industrial decentralization—surprising because China ostensibly followed the Soviet Union planned economy model. Although on the surface China had the same centralized configuration of state planning commissions and industrial ministries as the Soviet Union, in reality economic decision-making was far more dispersed. Thanks to Mao's predilection for local autarky, every province and major city had a more or less complete set of light industrial plants producing the necessities of urban life. Even heavy industrial production was duplicated in several locations because of the national security concern that highly concentrated industrial centers would leave China vulnerable to damaging air strikes in the event of war. The consequence was that when local officials were given economic growth incentives in the 1980s, most had plenty of tools to work with.

The second era in CCP rule took off in late 1978 with the Party Congress that brought Deng Xiaoping to power, although the groundwork had been laid in 1973 when Deng was called back from political exile to rebuild an economy staggering from excesses of ideologically-driven policy during the Cultural Revolution. Deng inherited an economy that, despite its improved basic infrastructure, did a poor job of raising per capita incomes. His pragmatic goal was simply to make the economy work better. His serendipitous stroke of political genius was to coin a slogan for his reform program that has proved indestructible through 30 years of dramatic economic and social upheaval: *gaige kaifang*, or 'reform and opening.'

Unlike Japan, South Korea and Taiwan, which developed behind high tariff walls and with little foreign investment, China recognized that its

domestic economic reform program (*gaige*) was inextricably linked to escalating engagement with the global economy (*kaifang*), through both exports and inbound direct investment. Yet the goal of Chinese economic reform, despite persistent misunderstanding by foreign observers, was never to create a Western-style capitalist economy. There was in fact no model, or pre-determined end point for the reform process. There were, however, three underlying principles from which the country's leadership has not deviated to this day:

- i. The economy must be made progressively more effective at generating wealth.**
- ii. The state must retain a substantial direct ownership role in the economy.**
- iii. The CCP must retain absolute control of the political system.**

Westerners immediately grasped principle number 1, and frequently—through a combination of false analogies and mistaking effect for cause—reasoned that because all advanced economies were political democracies with limited state ownership of economic assets, that principles two and three inevitably conflicted with principle one and would therefore have to be abandoned. Over and over and over again, for the past thirty years, foreign analysts have lectured China about how its partial, or piecemeal, moves to a market capitalist economy left it in an unsustainable half-way house and that abandonment of the principle of state ownership was the only way to sustain progress. Time and again foreigners have declared that the combination of a dynamic economy with a static political system was intrinsically unstable, and that popular pressure from the rising middle class, the disgruntled rural masses, or dynamic entrepreneurs would necessitate dramatic political reforms—failing which economic growth would grind slower or even halt against the resistance of these political contradictions.

Sub specie aeternitatis, these arguments are probably more true than false. And it is most unlikely that China will enter the 22nd century—or even

the second half of the 21st—without either a reasonably representative system of government or a far higher proportion of the economy in private hands. For the time being, however, Deng’s reform program has delivered a remarkably stable synthesis in which adherence to all three principles has been strengthened. The structural distortions of the centrally planned economy have been mostly eliminated. Prices are determined by the market, except for a handful that most countries manipulate to varying degrees (notably for energy, but also telecoms, transport etc...). Still, most markets, even those dominated by state players, have a significant degree of competition. Since the mid-1990s, China has sustained GDP growth of around 10% a year and inflation of under 5% a year. State control of assets has been streamlined and made more effective; CCP political authority is broadly unchallenged.

The nature of China’s economy today is best understood through its ownership structure. The state sector accounts for about 35% of output, and it decisively controls all upstream and network sectors of the economy—as it were, the skeleton and musculature of the nation’s economic body. Natural resource extraction, transport, telecommunications, power generation and distribution, oil refining, and the production of key materials such as steel and basic petrochemicals, along with many machinery and national defense related industries, are all in state hands, and moreover the assets in these sectors are progressively being consolidated in the hands of a smaller number of larger companies with ever more professional management.

The second component of the economy is the domestic private sector, which accounts for a larger share of output—50% or so and rising. It also generates virtually all net employment growth and earns a return on capital of about 5 percentage points higher than the state sector. Yet it is fragmented among literally hundreds of thousands of small companies whose market power is limited and whose political influence is nil. China has failed to produce any analogues to the great private conglomerates so prominent in most other Asian economies: Japan’s Mitsubishi and

Mitsui, Korea's Hyundai and LG, India's Tata and Reliance, the far-flung empires of southeast Asian tycoons such as Hong Kong's Li Ka-shing and Malaysia's Robert Kuok. This absence of politically powerful private business groups is not accidental; it is a consequence of deliberate policy aimed at minimizing the political role of the private sector, in the service of principles no. 2. and no. 3—ensuring a strong direct state role in the economy and a political monopoly for the CCP. In other words, the CCP does not like competing poles of power and so non-state companies, while encouraged to grow, must also understand that they should not grow past a certain point or find themselves the targets of the Chinese leadership.

The final element of China's mixed economy is the foreign sector. This accounts for about 15% of business sector output but nearly 60% of exports, and 90% of exports designated high tech by the Chinese government. If the state sector is China's bones and muscles, and the private sector the flesh and blood, the foreign sector is like a Power Bar. It is the conduit by which key nutrients—new technology and expertise—are continuously introduced into the Chinese economy, and it is probably the ultimate source of most of the productivity improvement in China beyond the gains achieved by the brute application of large amounts of capital to large amounts of labor.

So, in short, the economic reform program launched by Deng Xiaoping in 1978 and maintained by his successors has been strikingly successful: China has delivered consistent economic growth of around 10% a year for three decades, and if anything the foundations of domestic demand are stronger, and volatility lower, now than at any point in the last 30 years. Beijing has engineered an economy that works far better than the planned economy of the 1970s, but it has also ensured state control of a comprehensive spread of key assets in the economy, and managed to defuse actual and potential sources of political challenge so that CCP political hegemony is less in doubt now than at any time since the 1970s.

It is not too much of a stretch to say that the restructuring of the old planned economy is now complete. **The age during which structural economic reform was job number one is now over.**

Which brings us to the third phase of China's political growth, which likely started around 2008 and is still ongoing. Over the next decade or two, job number one will be not economic but political. As many observers have pointed out, and as the big stimulus bill of 2008 made very clear, **China's governance system is not fully up to the task of running a dynamic capitalist economy with increasingly diverse interest groups.** The Chinese leadership agrees on the diagnosis but differs on the cure. Where Westerners would prescribe a strong dose of democracy, Beijing believes that more efficient administration and governance will do the trick. **Hence the third era of CCP rule, the era of governance reform.**

Deng's economic program pragmatically **focused on the substance of a market economy**—prices and competition—and **refused to get hung up on the issues of form** that foreigners obsessed about (private ownership of assets). In the same way, governance reform will focus on substance (more responsive and efficient, and less corrupt, administration) rather than the form (democratic elections). The goal of economic reform in China was simply to create an economy that worked better while preserving the roles of the state and the CCP. Similarly, the goal of governance reform is to create a governance system that works better, while preserving the roles of the state and CCP.

Critics who claimed that market-led economic reforms would inevitably undermine the state and the CCP have been comprehensively refuted: the Chinese state and CCP are now by most measures stronger than they were 10 or 20 years ago. In the same way, we believe that the critics who believe that governance reform without democracy is doomed to failure will also be refuted, for a while anyway. By 2020 China will have essentially the same political system as it does today, with a well-funded government that delivers greatly improved standards of health, education and environmental protection than today, with a higher general level of

administrative professionalism and competence, and possibly (though here we are stretching quite a bit) even with a lower level of corruption. Clearly, this is one of the tasks that the new leadership of Xi Jinping and Li Keqiang have set for themselves.

Less than a decade ago, virtually all the members of the Politburo—the approximately 25-person body that is the core center of power in Beijing—had been trained as engineers; the vast majority of provincial chiefs were also engineers. This made sense for an economy whose primary objective was the build-out of roads, railways and airports. But, interestingly, amongst the ten new members elevated to the Politburo last year, only two have engineering degrees. Of the 25 or so provincial bosses (governors and party secretaries) appointed by Hu Jintao in his last five years, only one had an engineering background. Instead, recent appointees have diverse educational backgrounds, in economics, history, law and politics.

Recent promotions further make clear that it is no longer possible to rise to the summit of the Chinese political system—the seven to nine-member Politburo Standing Committee—in the way that Hu Jintao himself did: by spending virtually an entire career prowling the corridors of power in Beijing. To reach the top one must have demonstrated administrative and political competence as an executive at the provincial level. The message is clear: to get ahead today in the Chinese bureaucracy, political and governance skills now matter more than construction skills. **This signals that the paramount tasks of the next decade or two are essentially political, not economic, in nature.**

For as long as we have lived in China, a chorus of voices has said something like: *“The progress of the past 10 years has been impressive, but the problems of the next 10 years will be far more difficult and cannot possibly be solved unless there is fundamental change in the political or economic structure.”* And for the last twenty years this chorus has been proven spectacularly wrong. How much of a track record is required before this inane formulation is driven to the extinction it richly deserves?

Unfortunately, it is always possible for fundamentalists of various stripes to gain a hearing by confidently declaring that complex problems can be solved by waving a magic wand called ‘markets’ or ‘democracy.’ Meanwhile, Chinese policymakers ignore the sorcerers and stick to a pragmatic formula: when something works they do more of it, when it doesn’t work they stop doing it. Mainly this argues for incrementalism, but occasionally bolder steps are taken. Three recent examples of big things that weren’t working and were therefore abandoned were:

- The old state-owned enterprise system, which in 1998 began to be dismantled in favor of the leaner SOE system of today;
- Employer-allocated housing (ended in 2000, to the great benefit of the commercial real estate market) and
- The once-sacred US-dollar peg of the currency, which was jettisoned in 2005.

The most important point is that a vast number of incremental moves on many fronts can, over a sufficiently long period, generate fundamental change. Fifteen years ago, most urban Chinese got assigned jobs by the state right out of school, worked for the state, got their houses from the state, and didn’t own property. Today, most urban Chinese find their own jobs, work in the private sector, and own property. The only thing that hasn’t changed is that the CCP still monopolizes political power.

But the Party has changed too: 15 years ago, ultimate power was wielded in secret by a group of 80-year-old revolutionary leaders who held no formal titles but told the title-holders what to do. Since then there have been three peaceful transitions of leadership at the top, leaders are forced to retire at the age of 70 and lose virtually all of their policy influence when they do so, and no leader is allowed to pick his own successor. That may not be fundamental enough change for some, but it is certainly significant change.

This is not to belittle the political risks potentially hovering over China – but the point we have tried to make is that political risks are hardly

concentrated on the Middle Kingdom and that China may well be more socially stable than most investors discount. Meanwhile, could the rise of political instability instead be a global problem? Indeed, one of Karl Marx's main (and most possibly only decent) idea was that the political structure of a country was the reflection of that country's economic super-structure. What Marx meant was that the economic powers that be would organize a political structure favorable to their own interests.

When Marx presented this idea, most of what we know as the developed world was going through a massive economic transformation, away from agriculture (where political power was held by big land-owners; watch the UK TV show *Downton Abbey* for an example), to an industrial society. In the new 'industrial' political model, political organizations wanted to get bigger and bigger, build large pyramids with lots of foot soldiers at the bottom, reacting to the orders of some chief at the top. This was the age of the big MNC, the age of big armies, with tanks and artillery battalions. The age of the Soviet Union, or the European Union, of large welfare states...

And this is the problem we face: more and more economies, and individuals, are moving away from this vertically-integrated, pyramid model. Aside perhaps from China, and a few other emerging markets, most important countries are no longer living in an industrial age where the political challenge is to have a chief on top, giving orders to a multitude of indians. Today, corporate structures are becoming ever lighter. People move around and not only change jobs, but careers. This is not a Chinese problem but a global one. The reality is that we no longer are in the age of army battalions, but in the age of SEAL-commando units. It is no longer the age of Citigroup, but the age of hedge funds...

Returning to Marx, disconnects between the economic and political super-structure are what trigger revolutions. And today, this disconnect is increasingly a global affair, begging the question of who will best be able to reform their political super-structure the fastest and most efficiently? The ageing democracies, when the political wishes of ageing

populations is usually to maintain the status quo, and who are currently using their printing presses to paper over the nascent tensions? Or China's technocracy which is already embarking on the path of political reform? Given the track record of Chinese domestic reform over the past thirty years, writing China off as marked for revolution seems like an odd bet. **Revolutions occur when systems refuse to change – and China is changing fast.**

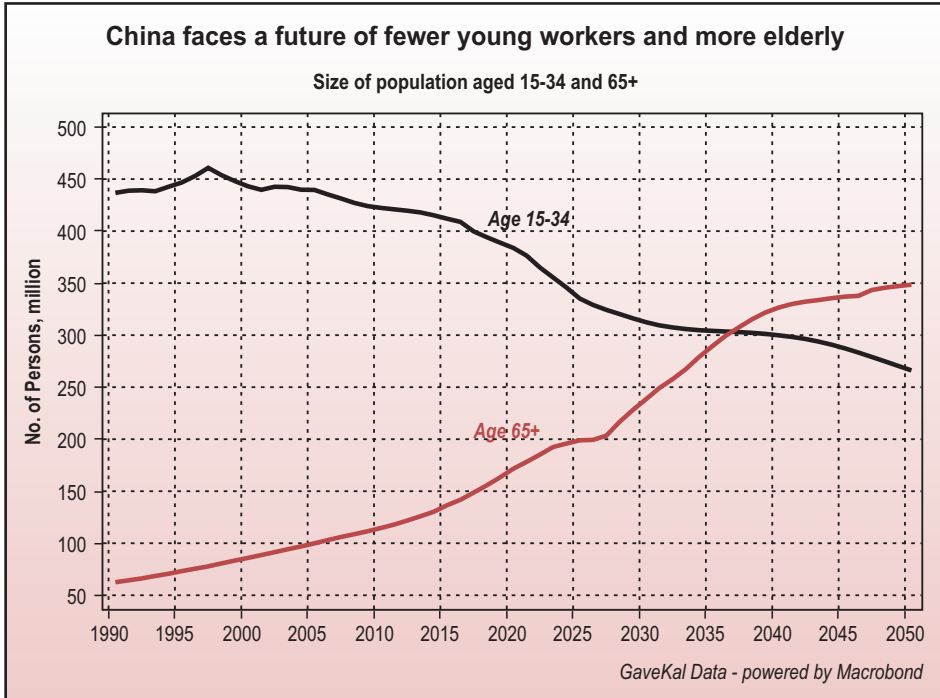
And if the weight of history, the Chinese character, and the legitimacy and ability to reform of the CCP are not sufficient enough to convince our reader that China does not face the threat of imminent revolution, then perhaps the next chapter, which focuses on demographics, will.



Old People Don't Throw Stones at Policemen

In a typical economy, demographic shifts usually unfold at a glacial pace. In the absence of pandemics, war or famine, changes in fertility or mortality levels are a very slow moving affair. **The outlier to this rule has been China which, in the 1970s, embarked on the biggest demographic experiment of all time: the one-child policy.** Fast forward a couple of generations and, as the 2010 census showed, China's population growth has lately been slowing far more quickly than generally expected. Between 2001-10, China's population inched up at just 0.57% annually—only about half the level of the previous decade, and only one-fifth of the level in 1970. The census also showed that there are fewer young people and more old people than forecast. By 2010, nearly 14% of Chinese citizens were over 60, and nearly one in 10 were over 65. In short, China is already an ageing society.

Professor Wang Feng, a recognized expert in China's demographic transition, highlighted the following arresting trends in our 2Q12 issue of *The China Economic Quarterly*: “The driving force of China's slowing population growth rate is its low fertility rate, which has languished well below the replacement level of 2.1 for two decades. The 2010 census confirms that China's total fertility rate is among the lowest in the world, at only 1.4 per couple, China's fertility level is far below that of the United States, the United Kingdom or France (all around 2.0), and is on par with those of Russia, Japan, Germany and Italy—all countries with declining populations. In fact, for more than a decade, China has repeatedly failed to reach population targets supposedly put in place to control growth—undershooting by a huge margin.”



As a result of such trends Professor Wang argues that China's demographics are worse than the already gloomy consensus predictions. **In 2010, there were 116 million people aged 20 to 24; by 2020, the number will fall by 20% to 94 million and by 2030 to 67 million.** And because of the sharp increase in higher education enrolment, the number of this cohort actively seeking work will be lower still.

This shrinking youth workforce puts the past few years' increase in labor costs, and the pronounced desire of companies such as Foxconn to do ever more with robots, into context. Indeed, with the youth work force being squeezed on both sides by a) fewer people and b) more youngsters heading to university, China's manufacturers may well find that the Robolution is actually a blessing in disguise; allowing China's manufacturing leaders to continue producing, and exporting, at competitive prices (in that regard, a weak yen which allows China to import cheaper, much-needed, machinery from Japan may also not be a negative for the Chinese economy).

Beyond the immediate demographic impact of fewer cheap and easy to move factory workers, it is worth highlighting the other obvious consequences of booming university enrolments; namely the change in aspirations. Indeed, the 6 million or so students who graduate from China's universities each year have little interest in working on a factory floor, going down a coal mine, or laying concrete for a high-rise tower. Instead, most aspire to hold a job that promises a cell-phone, a desk, a PC and the ability to purchase a car and then an apartment. **And this may be China's greatest challenge; for over the coming years it won't be as if six million white-collar workers will be retiring every year, making room for new graduates.** Over the coming years, China will have to create millions of service-sector jobs that simply do not exist today. And while a strong central government may be extremely efficient in implementing a large infrastructure roll-out, deciding where factories should be built, etc. it is much more challenging to dictate on a top-down basis the creation of advertising agencies, money management firms and internet companies.

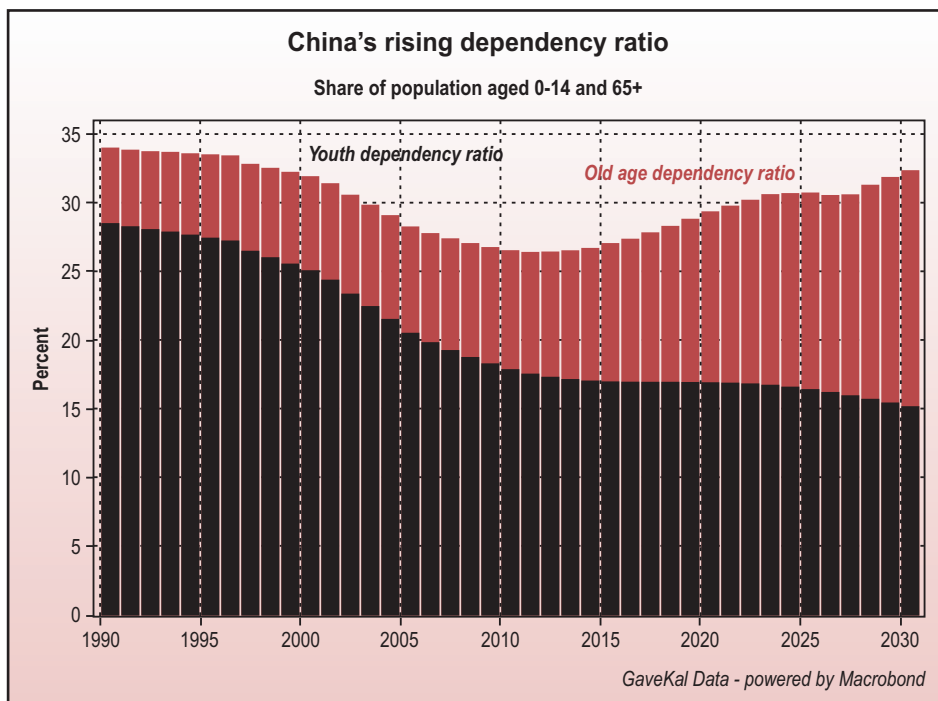
Now if one really wants to look for potential social instability, one probably need look no further than the rapid rise in university enrollment (from 300,000 university graduates twenty years ago to 6 million today). In the late 1960s and early 1970s, when university enrolment in the Western economies doubled under the weight of the baby boomers, we saw May 1968 in France, the Prague Spring, the hippie and anti-Vietnam War movement in the US, etc. Throughout history, educated youth have proven to be far more troublesome than toiling farmers. Back in the late 1960s and 1970s, Western societies were flexible enough to adapt to the young generation's demands (contraception, civil rights, a more extended welfare state, the right to wear long-hair if you were a guy, and short-hair if you were a girl...). One interesting question is whether China will prove to be as flexible?

Our answer is: very possibly. Already, China's social *moeurs* have changed dramatically in the past twenty years. Freedom of expression is expanding, as is the ability to launch new businesses in an ever growing

number of fields, the ability to move around the country is improving thanks to a gradual relaxation of the household registration, or hukou, system. **Finally, a very important factor mitigating against students taking to the streets in anger is the fact that almost all of them are single kids; and so mums and dads will not want to risk seeing their only child shot down by police** (incidentally, this also argues against China starting wars all over its neighborhood – parents simply would not accept losing their only child to an ill-thought out foreign adventure. Wars are the dirty business of demographically expanding countries-not demographically-shrinking ones).

So, as the number of young workers falls, as the number of university graduates expands, and as the share of elderly people rises, Chinese society is changing dramatically. Here is Professor Wang again:

“China already has 180mn people aged over 60, and this is set to reach around 240mn by 2020 and 360mn by 2030. These are minimum numbers, which will most likely only increase with rising life expectancy. Meanwhile, should China’s current low fertility of 1.4 children per couple be sustained (a likely development given the drop in the number of women in child rearing ages), the population share of people aged over 60 could reach 20% by 2020 and 27% by 2030. Using the more conservative international definition of elderly—people aged 65 plus—one in five Chinese citizens will be elderly by 2030. To put this number in perspective, it will take less than 30 years for the share of the population aged over 65 to rise from the current 9% to 25%. In other aging countries like Italy, Germany, and Russia, it will take the best part of a century. China’s demographic experiment is simply unprecedented.”

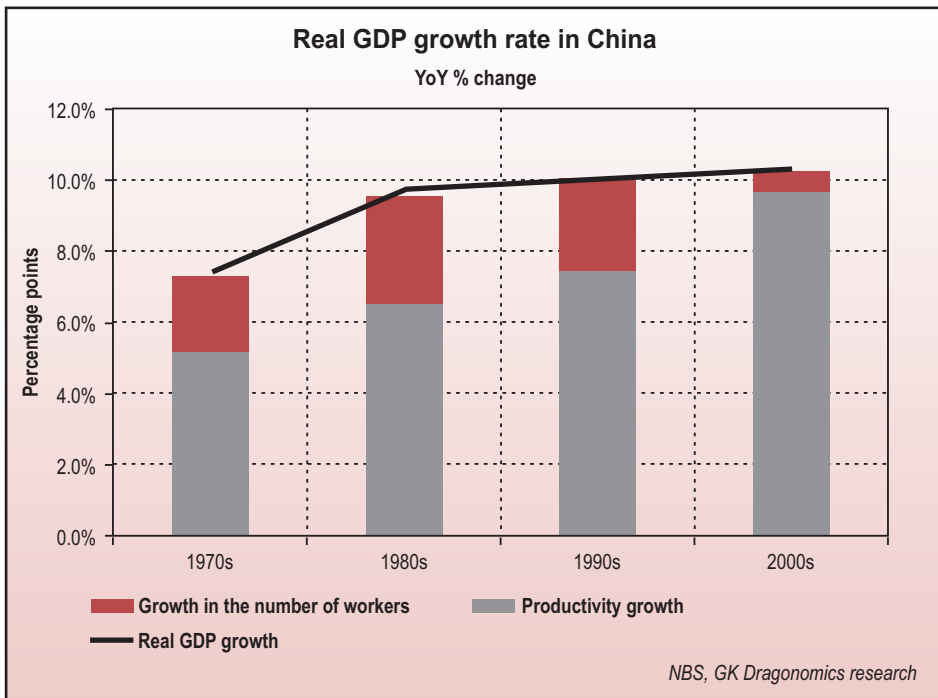


Undeniably, this is worrying. The humanist philosopher Jean Bodin once wrote *“Il n’est de richesses que d’hommes”* (the only wealth is man). This simple remark has always been the driving force of our global view and is as anti-Malthusian a statement as can be made (which makes Jean Bodin an impressive thinker as he expressed this thought in the very Malthusian 16th century). Nevertheless, the question can perhaps be raised as to whether a young man and an old man are of equal value? We do not mean to be offensive, and we do realize that Sam Walton founded Wal-Mart at 57 years young, that two of the three founding partners of GaveKal are on the long side of sixty, and that Ronald Reagan was the oldest, and one of the very best US presidents. Nonetheless, will a society in which more than a fifth of the population is aged over 65 be as entrepreneurial, dynamic and risk-taking as the one that preceded it? It seems unlikely.

Instead, it seems more likely that China will be the first major economy to grow old before it grows rich. In itself, this could prove

deeply problematic as China’s social infrastructure—especially its pension and health care system—are still too weak to support the burden that is about to be thrust upon them. And while relying on the state will not be a good idea, having four grandparents depend on one grandchild is also sub-optimal, especially for the grandchild. After all, as Victor Hugo wrote: *“One father can support eight children, but eight children cannot support a father.”*

China’s rapidly aging population will thus have enormous economic and social implications. The demographic dividend China enjoyed over the past 30 years—especially in 1980-2000—has been cashed in. Indeed, between 1980 and 2010, China had an almost perfect demographic profile: few old people and few young people. Everyone was working, saving and consuming and the dependency ratio was at lows typically only seen in countries of high immigration like Australia, Canada or the US. The effect of this favorable population age structure accounted for between 15% and 25% of per-capita GDP growth. But looking ahead, and as China’s demographic fortunes reverse, the economy will slow down regardless of other factors driving growth.



China's deteriorating demographic profile will hit overall growth by reducing the number of workers. But it will also put into question China's current growth model. Indeed, for the past three decades, China's economy has been driven by high inputs of cheap capital and labor. Looking ahead, we know that the cheap labor part of the equation will disappear. But what about cheap capital? One concern has to be that, as the population ages, private savings will continuously decline as a share of GDP. But that is not all: fiscal imperatives brought about by demographic changes are also likely to change the growth outlook markedly. Here is Professor Wang again: *"Over the next 20 years, the ratio of workers to retirees (if workers continue to retire at 60) will drop precipitously from roughly 5:1 today to just 2:1. Such a drastic change implies that the tax burden for each working-age person must rise by more than 150%."*

Unfortunately, rising tax burdens typically do little to boost economic growth. Especially if the increase in tax goes to pay the consumption and healthcare costs of retirees, i.e., hardly a productivity-enhancing investment.

Thirty years ago, when China introduced the one-child policy, the social contract was suddenly altered; the new contract was simple: *"Have fewer kids, and down the road, we will take care of you"*. The problem is that in the coming thirty years, this contract will get very expensive to fulfill. So who will pay? However one cuts it, the tax intake in China will have to rise; either through tax increases (not great news for growth) or through a crackdown on large-scale tax evasion. But increasing taxes could in itself open a whole new can of worms for the government.

Indeed, if Beijing demands that taxpayers pay more, the public will likely demand better scrutiny of how these dollars are collected and spent. This is the current political paradox of China: on the one hand, the rapid ageing of the population should make for a very stable social environment. After all, as mentioned above, 60-year-olds do not take to the street, cover their faces with red bandanas, smash cars and throw stones at the police (not even 60 year old French trade-unionists do that;

though that may be because, by that point, most have already been retired for a decade). So as China ages, the risks of a ‘revolution’ or even large revolts diminishes greatly. Yet at the same time, the likely increase in taxation to pay for all the retirees will trigger much greater demands for public account scrutiny. But can this happen without a significant change in China’s political landscape? Probably not, which is why the current path to political reform mentioned above is so important.

The underlying truth about any society is that no one likes to pay taxes. Pretty much everyone (rightly) feels better equipped to spend their own money than the government (and anyone who pretends differently is a hypocrite; or did not earn their money by themselves). **This is why, the more taxes one pays, the greater the demand for a clear accounting of the services provided in return.** Taxation without a reciprocal provision of services, and information on the allocation of funds, can, in the long run, only lead to tax evasion on a grand scale or open rebellion.

Historically, the need for accountability has become increasingly apparent when the state’s tax demands on individuals’ pockets increased. In both England and France, parliaments developed mainly as a mechanism to control the Crown’s expenditure. And, of course, the US was born on the premise of “*no taxation without representation*”.

With this in mind, it is interesting to note that to this day, around two thirds of China’s corporate tax receipts come from state owned enterprises, collective enterprises and other entities basically controlled by the government. Needless to say, an SOE paying tax creates no demand for representation because it is simply an internal loop: the state paying itself. It is a different story when a private taxpayer—either individual or corporate—hands over his own money to the state.

As the state’s demands rise to pay for the growing army of retirees, private taxpayers are likely to respond in one of two ways—evade taxation, or demand more accountability in the use of their money. So far, China is still seeing a lot more of the former than the latter. When foreign

enterprises are included, around a third of China's tax receipts come from the private sector (with two thirds (of that one third) being foreign enterprises who don't usually have the option of dodging taxes, and one third (of one third) being Chinese private sector entities).

This looks very small compared to the almost two-thirds private-sector contribution to GDP. The fact that the private sector's share of the broad economy is far larger than its share of corporate taxes paid implies that private enterprises are evading tax on a significant scale—a phenomenon also visible in personal income tax returns. In turn, this leads us to the following conclusion: for **the past three decades, Beijing has silently acquiesced to a simple political pact: the government surrenders some of its taxation power over the middle class, in order to deny the middle class political representation.** So far, the middle class has taken that deal: it prefers to pay less tax and not vote, rather than buy its right to elect the government by paying more taxes.

Unfortunately for the authoritarian state and the tax-lite middle class, this “no taxation and no representation” pact is now being undermined by demographic developments. So does that imply an inexorable path to democracy? That's hard to say: a rebellious society may want more democracy before it pays more taxes; a timid one may prefer to pay more taxes rather than demand political change. In addition, Beijing has shown itself adept at co-opting potentially troublesome private-sector businesspeople by recruiting them into the Chinese Communist Party (now at 80 million members) and the parliamentary-type bodies; National People's Congress and the Chinese People's Political Consultative Conference (CPPCC).

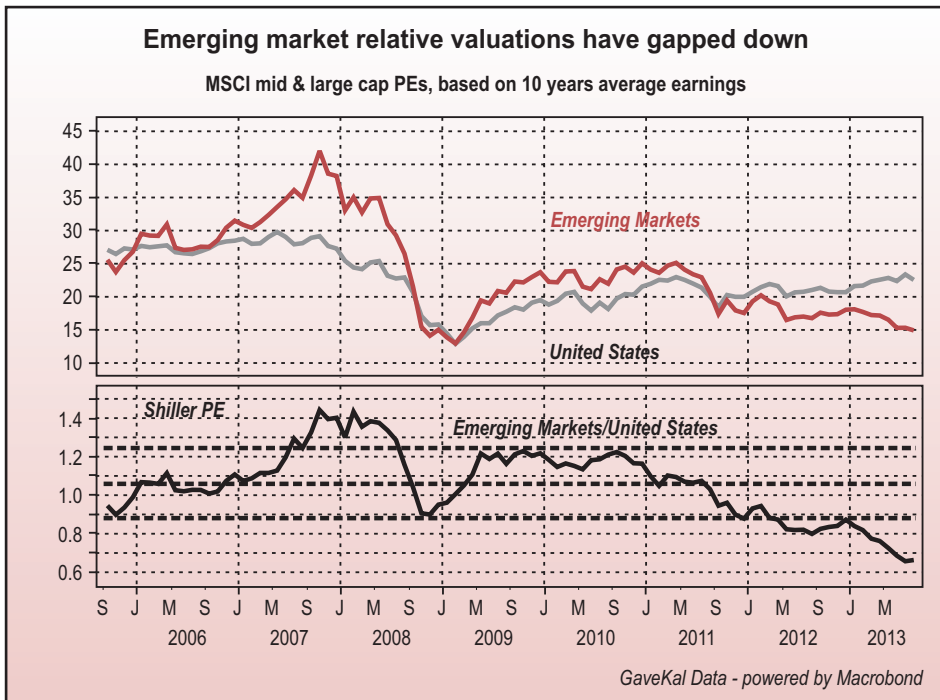
Still, it is very hard to believe that in 15-20 years, when the middle class could be asked to pay 30% or more of its income in taxes, and both Chinese society and the world at large have become more open, that this rump of society will happily stay out of politics. By then, nearly two-thirds of China's population will live in cities, compared to just 52% today. The new urban residents will need a sounder welfare system to

replace the security system they have given up (their farmland). Perhaps more importantly, an urban middle class that no longer fears being outvoted by a rural majority may become more assertive about political representation, since there is no risk that this class will lose control of the system.

Over the past two decades, the government has tolerated large-scale tax dodging in order to forestall demands for democracy. **And turning a blind-eye to widespread tax evasion has sustained the bids under the world's scarcity assets; after all, what can one do with money one isn't supposed to have? The answer: buy gold, bottles of Petrus, Picasso paintings, apartments in Hong Kong, Macau, or Vancouver, Ferrari cars, LVMH handbags, Rolex watches etc.** But this 'recycling of money' tailwind risks running out of steam as taxes rise under the demographic pressure. If death and taxes are certain, then so perhaps, is some form of democracy in China? And if so, then perhaps some form of democracy in China, combined with higher taxes, will reduce the attractiveness of the scarcity assets used to recycle China's shady money?

China's Under-Reported Positive Impact on Emerging Markets

As we write, the single biggest concern of investors might well be the impact that China's slowdown will have on global growth, not least of which emerging markets. Indeed, as a direct consequence of China's slowdown emerging market equities have been sold aggressively and the valuation differences between the emerging market MSCI index, and the US MSCI is reaching new extremes daily:



The logic is simple enough: the China boom of the past decade was led mostly by fixed asset investment. This meant that, for ten years, China had an insatiable thirst for raw materials. As China imported copper from Chile, soybeans from Brazil, iron-ore from Australia, coal from Indonesia... not only did China dish out badly needed foreign exchange earnings around the third world, but simultaneously China encouraged the roll-out of large infrastructure spending plans with terrific externalities. As our friend Miles Morland of Blakeney Investments (one of the largest institutional investors into Africa) put it to us: *“China’s boom did more for African infrastructure then sixty years of Western aid”*. But now, the logic seems to be going into reverse: China’s fixed asset investment growth has peaked, so commodity prices start to head down, most emerging markets can no longer make the easy money... ergo, a de-rating of the entire asset class. The China global boom hopes is thus followed by the China emerging markets bust fears.

But this is needlessly reductive. As we have tried to show, China’s economic (and political) structure are changing for the better. In turn, this could have a very positive impact on a number of emerging markets. Indeed, a typical, non-oil exporting emerging market policymaker (whether in Turkey, Philippines, Vietnam, South Korea, Argentina, India...) usually has to worry about three things that are completely out of his control:

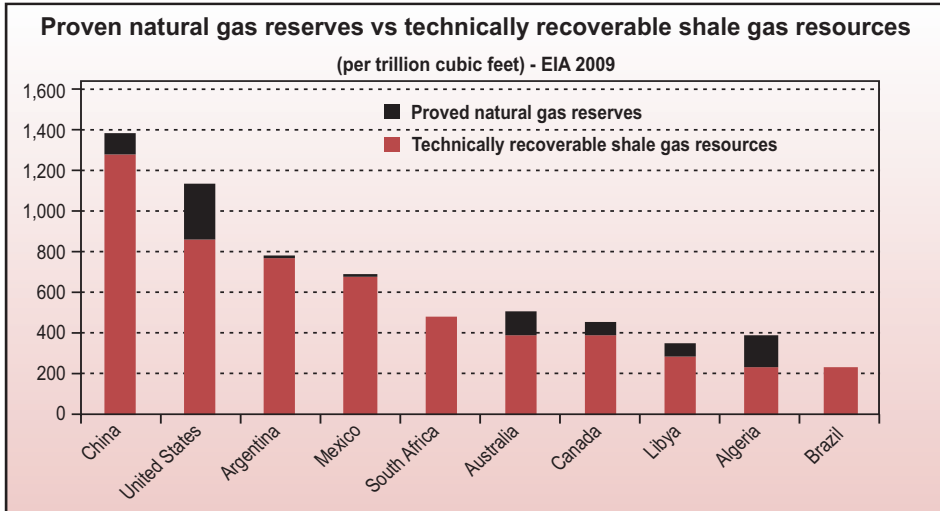
Concern #1: A spike in the US dollar. Whenever the dollar shoots up, it presents a hurdle for growth in most emerging markets for a number of reasons. The first is that most trade takes place in dollar, so a higher dollar means having to set more aside for working capital needs. The second reason is that most emerging market investors tend to think in two currencies: their own and the dollar. Enter a cab in Bangkok, Cairo, Cape Town or Jakarta and ask for that day’s dollar exchange rate and chances are that the cabbie will know it within a decimal point. This matters because when the dollar rises, local wealth tends to leave local currencies (sell domestic assets) and buy dollar assets (typically Treasuries). But when the dollar falls, the reverse is also true.

Concern #2: A rapid rise in oil, or food, prices. – Violent spikes in oil and food prices can be highly destabilizing for developing countries where the median family spends so much more of their income on basic necessities than the median Western family. Thus, sudden spikes in the price of food or energy can easily create social and political tensions. And that's not all, for oil importing countries, a spike in oil prices can lead to a rapid deterioration in trade balances. These tend to scare foreign investors away, thereby pushing the currency lower and interest rates higher, which in turn leads to weaker growth etc...

Concern #3: A rapid deterioration in trade balances. Most emerging markets have to maintain a careful eye on their central bank reserves, if only to buy oil and other necessary commodities. Meanwhile, the more domestic consumers buy abroad, the more reserves flow out at the door.

Now looking through these three concerns, it is hard to escape the conclusion that, perhaps, being a policymaker in an emerging market will, over the coming years, be a pleasant enough experience. After all:

- China's policy of renminbi internationalization should mean that most emerging markets will be able to gradually weaken their dependence on the dollar. And as they do, spikes in the value of the dollar will become ever less painful.
- The shale gas revolution in the US should mean that oil prices should stay under control, if not even fall outright. This is doubly true if other countries (UK, Poland, Australia, China, Brazil...) start to follow the US lead and embrace hydraulic fracturing for energy recovery. After all, why should the US be the only country to enjoy a new-found Ricardian comparative advantage?



- As China moves to export higher value-added goods at very competitive prices, the terms of trade of many developing countries could actually improve dramatically while simultaneously upgrading capital stocks. Think, for example, of an electronic contract manufacturer in Malaysia that will soon be able to buy the Foxconn robots for a fraction of the cost of a Fanuc or an ABB? Or simply the middle-class doctor in Pakistan who, instead of having to spend many years of salary in order to buy a VW or a Toyota, will now be able to buy a Chery QQ Automobile instead.
- As China slows, the competition for resources is also slowing. So countries like India, or Thailand or the Philippines which, just a few years ago, feared being 'priced out' of their development opportunity by a commodity hungry China that gobbled everything it could can now breath a sigh of relief.

Which brings us back to the main meme of this book, namely the fact that there is always *“what you see and what you don't see”*. What everyone sees today is the slowdown in China and, to a lesser extent, the US energy boom. But fundamentally, these two events could be very positive for the long-term health of emerging markets. With the biggest shock to emerging stability typically coming from dollar squeezes or higher oil, emerging markets should welcome the thought

that, thanks to the shale gas revolution, oil prices are most likely done rising for a while and that, thanks to renminbi internationalization, the impacts of a dollar short squeeze should diminish over time.

But if China's financial sector reform path, the end of 'Peak Oil', and the steady climb up the value-added ladder of China's exporters really are trends that are fundamentally bullish for emerging markets, why are emerging equity markets behaving so badly and de-rating so aggressively? Are markets blind to the changes ahead? Our answer would be a resounding "no" – instead, the current emerging market bear market is simply yet another 'indexing' bear market.

There is little doubt that indexation is the cheapest way of capturing the attractive long-term returns offered by the capitalistic system in most markets. From there, it would be easy to deduce that one should have part, if not all, of one's portfolio indexed. But, as the performance of emerging markets have shown in 2013, this conclusion would be wrong, for indexation works on three basic premises, legitimate at the microeconomic level, but chaos-inducing on a macro scale. They are:

- Active money managers allocate capital according to what they perceive to be the future marginal returns on invested capital (ROIC).
- Few active (stock selection) money managers will outperform the indices over the long term.
- Very few active money managers will add value through asset allocation. Massively diverging from indices does not work.

These three founding principles are fine on their own but **internally contradictory**. Indeed, the system can work only as long as active money managers attempt to do the job for which they are paid i.e., allocating capital according to what they perceive to be the future ROIC in the different investments which they consider at any given point in time. **Most of them will fail, but the process of screening for future ROIC is vital for the wellbeing of the capitalist system.** Winners emerge, losers collapse. In this creative destruction (or is it destructive creation?), capital is allocated efficiently through a constant system of trial and error.

To put it in another way: the active money managers (and their clients) support most of the costs; the indexers get most of the rewards. Without a doubt, this is what happened in the 1980s and 1990s. So why did it stop working? Easy. The active money managers, chastised by years of underperformance, were forced to become ‘closet indexers’. In January 2000, some of our clients in the City got fired from their fund management job for refusing to own France Telecom or Nokia. Back then, this behavior brought the entire system down. The business of money management had become so big after a decade long bull market that it had been taken over by ‘professional people’, advised by consultants. Often, these management teams wanted to conserve, and not create. They were accountants, not entrepreneurs. The management of the firms (not money managers themselves anymore) attempted to reduce the unpredictability of the results of their money management teams by preventing them from taking risks. And risk was defined as a deviation from the index against which the money managers were measured (hence the introduction of ‘risk controls’, ‘tracking errors’ etc...).

This was the Western world in the late 1990s and early 2000s. And it has also been the case in emerging markets in recent years due to increased usage of exchange traded funds and other tracking products. No-one symbolizes more this evolution than the Hong-Kong money manager Value Partners; a terrific firm which, as its name indicates, was founded on the premise of identifying, and buying, undervalued equities around the region. But as the emerging market bull market matured, Value Partners has increasingly focused on ETFs... What were the results of these changes? To put it succinctly, indexation became a victim of its own success for two reasons.

The first consequence of the indexation trend is that money management evolved from being an exciting and intellectually stimulating business to a boring and mind-numbing number-crunching game. This was a blow to a number of individuals who had spent their lives in the industry; it also meant that money management started to attract a different type of character than it did a decade ago (i.e., originals, free-thinkers, crazy people...).

The second, **most harmful consequence, is that capital started to be allocated according to size, rather than future returns on invested**

capital. Indeed, relevant indices are, for the most part market-weighted. In simple English, which we don't always understand but profess to speak, this means that investments get allocated to companies according to their stock market size, or their free-float. This allocation of capital according to size was tried out before, and, the last time we checked, the Soviet Union was not doing that well.

Indeed, in an ironic twist of history, in its hour of triumph over communism, capitalism devised a socialist way of allocating capital.

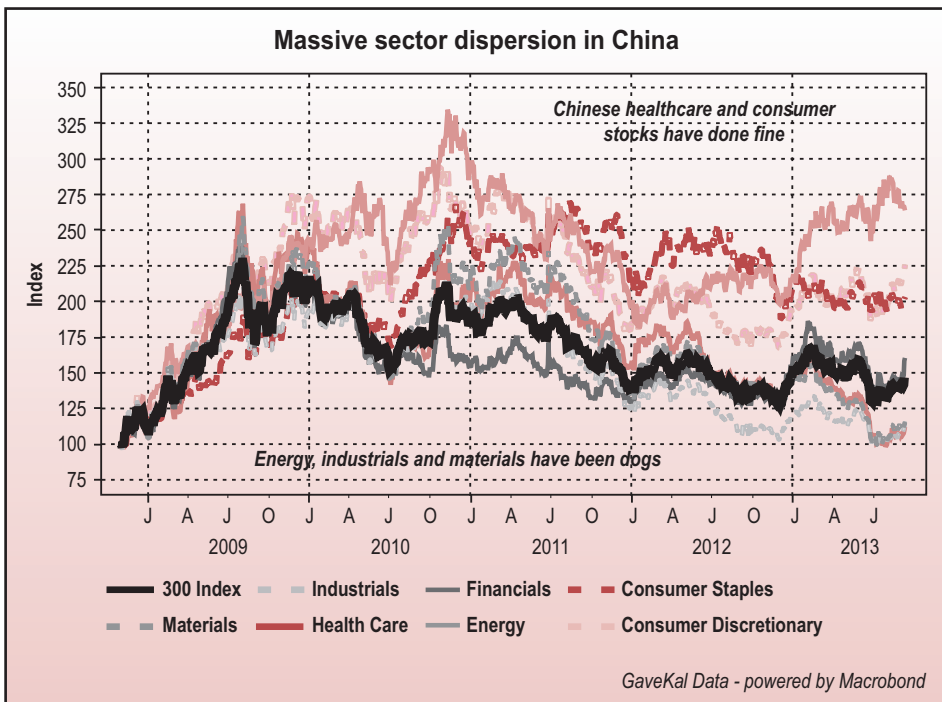
All of a sudden, investors across the capitalist economies decided that it was better to invest in companies according to their size than according to their marginal returns on invested capital. And the capital allocators did this supposedly for the benefits of workers (the future retirees). Unfortunately, if this system was pushed to its logical conclusion, the workers would be left holding the bag. As the Holy Catholic Church states, and history shows, the road to hell is paved with good intentions.

Behind this switch to allocating capital according to size, one finds hundreds of studies, published by thousands of scholars and consultants (and financed by Wall Street dollars) justifying indexation. But what the studies do not acknowledge is that the data on which conclusions are drawn represent a period where active management was both truly active and dominant. In other words, indexing represents a form of black box investing; but black box investing can only work if a) volumes are kept fairly low, b) nobody knows that a black box is operating (see the disaster behind the portfolio insurance of 1987) and c) nobody knows how the black box works. Clearly, none of these three rules apply to indexing.

The more money flows into indexation strategies, the more capital gets invested according to size, and the more capital is misallocated. This can only lead to a lower return on invested capital, which, in turn, can only lead to a lower growth rate and, more often than not, to huge disturbances in price levels. As the late 1990s craze showed, indexation is a guarantee for capital to be wasted, which automatically leads to lower growth and lower long-term stock market returns. So we could have a paradoxical result: indexers might keep outperforming but long term stock market

returns decline, as a sign that the economy’s structural growth rate is falling.

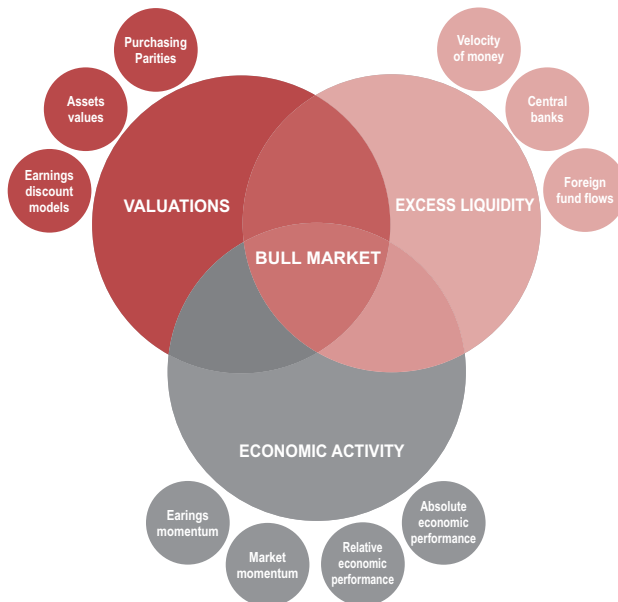
At the risk of massively repeating ourselves, we will return to Bastiat’s law that: *“There is always what you see and what you do not see”*. We see the underperformance of active money managers. We shall not understand the result of them being forced to index: the long term decline in the rates of returns in the stock markets. A study of the recent emerging market bull and bear markets nicely illustrates our point. In 2009-11 we had the perfect case of stock markets going up strongly in indices because a few big stocks, mostly linked to commodity extraction, were bought massively first by money managers, then by indexers. And now that the drivers of emerging market growth have evolved, we find emerging market indices laden with commodity and deep cyclical stocks whose outlook are anything but sunny. Meanwhile, with massive sector dispersion, the opportunities for stocks pickers abound:



Adapting

Dean Martin once said, *“I feel sorry for people who don’t drink. They wake up in the morning and that’s the best they’re going to feel all day”*.

If our reader has made it this far, we imagine that this might be how he or she feels. In the previous pages, we have done little but raise questions, identify problems, and offered very few investment recommendations. One reason is that markets are always in a constant flux, with asset prices usually driven higher, or lower, by three separate forces: excess liquidity growth, changes in economic activity, and inflation. And so what might appear to be a very interesting investment today may be much less so in a couple of years:



But for what it's worth, here is the recap of what we think will be the key trends in the coming years:

- **The collapse in the velocity of money**

This is undeniably the most problematic and hardest trend to get one's head around. Indeed, given the low cost of money, velocity should accelerate: why save if we are not being rewarded for those savings? The answer lies in the outlook for inflation or deflation. If the deflation that currently seems to be unfolding perseveres, then real interest rates will continue to rise past the structural growth rate of the major economies, and the risk of a deflationary bust will be very real. Such an outcome would be extremely negative for anything but the highest quality assets.

In order to avoid such a deflationary bust, we have to hope that the structural economic growth rate will accelerate; i.e., that we witness some steady, or perhaps even accelerating, productivity gains. There is some chance that this outcome may materialize. In the meantime, investing without keeping tabs on monetary velocity is about as smart as entering an orienteering race without a compass. And, for us, keeping tabs on velocity means building indicators and models to follow:

- a) **The Wicksellian spread** (between real rates and an economy's structural growth rate) across the key economies.
- b) Monitoring **changes in fund flows** across the dominant asset classes (equities, government bonds, corporate credit, commodities...) in key markets.
- c) **Changes in bank lending growth** in the world's major economies (US, EMU, UK, Japan, China, Korea, India, Canada...).
- d) **Changes in credit spreads**, (whether corporate spreads, mortgage bond spreads, country spreads etc...).
- e) **Changes in the growth of central bank reserves held at the Fed for foreign central banks.** Indeed, if the velocity of money in the US

decelerates while, at the same time, the US moves to import less manufactured goods (see **Robolution**) and less energy (see **Shale Gas Revolution**), then very quickly users of dollars outside of the US will turn to their domestic central banks in order to get the dollars that they need (whether for investments, working capital, etc.). In that regard, it is important that contractions in central bank reserves usually mean that whoever is running current account deficits (today, it is India, Brazil, Egypt, Indonesia, Turkey...) or large negative cash-flows (the mining industry?), typically finds itself squeezed when central bank reserves shrink.

- **Viva la Robolution**

The robotics wave is set to generate a surge in productivity gains. Thanks to smarter automation, better software and more flexible robots, we will continue to be able to produce more with less at an accelerating pace. The only question is how the spoils of these productivity gains will be split within developed countries? And between developed and developing countries? With fiscal and political structures built for another era, the further concentration of wealth that will emanate from the Robolution could lead to strong social tensions. A lot of investors tend to believe that China is especially vulnerable on this front – but why should China be more vulnerable than European countries with 25%+ youth unemployment, rapidly ageing populations and falling real estate prices? The Robolution also casts a serious challenge to emerging markets in that providing cheap labor will offer a diminished comparative advantage – how different countries deal with this new reality will likely be a key driver of performance. To monitor the development of this important trend, we would focus disproportionately on:

- a) **Changes in the US trade deficit** – the continued improvement in the US trade balance is announcing a shift in the global terms of trade that a number of companies around the world will find very challenging.

- b) **Manufacturing job growth** in the US, Japan, Germany and the overall OECD.
- c) **A revival in real estate prices in the Western World's industrial centers**, whether the US Mid-West, Japan's Honshu island, the German Ruhr,...
- d) Growth in Japanese exports.
- e) The share price of ROBO.US.

- **The Shale Revolution**

The end of 'Peak Oil' fears is an undeniably bullish development and is a key pointer that productivity is set to soar. All of a sudden, in the US, it is possible to satisfy one's energy needs at a fraction of the 2008 cost. This new comparative advantage has made US assets the 'cleanest dirty shirt' and triggered an impressive re-rating in both real estate and equity markets. But, at the same time, the fact that North America could start to approach energy self-sufficiency, while simultaneously re-shoring a lot of manufacturing activity, points to trouble for the 'US Dollar Debt Standard.' This is because the US will simply no longer export enough dollars for the world's needs. Of course, this could be adjusted through a surge in the dollar exchange rate - but the Fed's policies seem designed to prevent any rise in the dollar... hence the Catch 22.

On the positive side, the move towards energy self-sufficiency should trigger a second 'peace dividend' for the US which will be able to retreat from involvement in the Middle-East, or in the policing of the sea-lanes. Such a development might be bullish for the US (less defense expenditures), but perhaps less bullish for other parts of the world such as Europe or Japan (less free protection). Against this backdrop, Japan is likely to continue boosting its defense spending - just as China will continue to look for islands around the Pacific and Indian oceans to use as bases from which to project the naval power it will need to protect its oil shipments. That is, unless China develops a shale gas revolution of

its own? Should China credibly develop a domestic natural gas industry, then China's impact on the world will go back to being extremely bullish, if very different.

And needless to say, China will hardly be the only country to try and follow the trailblazing US down the path of increased energy production. The UK is already embracing tax credits for developing Lancashire shale, Poland and Bulgaria both intend to become energy producers, Australia is making leaps and bounds down that path.... To monitor and participate in this trend, it probably makes sense to focus on:

- a) **US Master Limited Partnerships (MLP)** - As these can best be described as the toll-roads on the US new energy superhighway. In recent years, MLPs have been a strong performing asset class and a continued outperformance seems likely if the US shale revolution turns out to be as transformative as we expect.
- b) **The Oil Price** - Logically, the shale gas revolution should keep global energy prices under pressure. And a weaker oil price would lead to a rapid improvement in the trade balances of the US, China and most of Western Europe.
- c) **The Russian Ruble** - Given an already weak economy and an oil price at the time of writing at around US\$100 per barrel, Russia could potentially be the victim of weaker oil prices. The impact of weaker energy prices, and of a further deterioration in Russian growth could, however, be absorbed through a weaker currency...
- d) **Changes in Chinese Energy Policies** - the big question is whether China will start to deregulate electricity prices and stop subsidizing heavy-industry producers, while simultaneously hosing consumers.
- e) **Shipping Rates** - As China, and other countries, increase domestic gas production, the corollary should be that less coal, and perhaps even less oil, than originally expected ends up on boats to cross the Indian or Pacific oceans. Other things being equal, shipping

rates should remain under pressure. A new spike in shipping rates would thus probably mean that the progress on the energy front are somewhat underwhelming.

- **Renminbi internationalization**

China is attempting to deal with the fact that cheap labor is no longer such an advantage by moving up the export value chain. The game is no longer about selling cotton t-shirts but earth excavators. To succeed in this transition, China is internationalizing the renminbi in what could be the most significant financial development of the decade. If the renminbi manages to become the deutschemark of emerging markets, then this will be extremely bullish for emerging markets for two reasons. Firstly, the link to the US will be broken; this will make emerging market assets less correlated to what happens in the US, and thus more attractive from a portfolio diversification point of view. The second reason is that, if China manages to industrialize the third world by selling cheap machines financed in RMB, then we can only rejoice as the world will be a far more productive, and wealthier place. For the internationalization to succeed, the renminbi needs to be stable, as does the renminbi bond market. This means that, unless an enormous crisis erupts in China, the renminbi bond market will continue to offer the more compelling risk-return profile in the fixed income world. To know whether this important, and positive, change factor for global financial markets remains on track, we should monitor the following:

- a) **The renminbi-dollar exchange rate** – As long as the 12 month rate of change of the renminbi remains in positive territory, we should be able to conclude that the Chinese leadership is still looking to move up the export value chain.
- b) **Stability in the dim sum bond market** – As long as the volatility of the renminbi investment grade bond market remains lower than that of the US, or eurozone, bond markets, we can assume that the growth of the renminbi bond market remains a key goal of the new Chinese administration.

- c) **Share of Chinese trade being settled in renminbi** – In 2009, none of China’s trade was denominated in renminbi. As of the summer of 2013, this figure now stands at 15%. On the current trajectory, we should assume that a quarter of Chinese trade will be settled in renminbi by end 2014. In turn, this will mean that a lot of companies, especially in emerging markets, will be earning renminbi and looking for ways to use that cash.
- d) **Monitoring China’s export mix** – As the renminbi internationalizes, China’s export mix should continue to shift away from the high volume/low margin/highly commoditized goods such as textiles, toys, shoes etc... and towards the higher margin/higher value added sectors such as autos, machinery, technology etc...
- e) **China’s financial centers, namely Hong-Kong and Singapore, should continue to thrive** – The renminbi internationalization phase should mean that Hong Kong and Singapore end up even more crowded, and less livable, than they are today!

Putting it all together, it would be easy to embrace Lord Salisbury’s negativity on change. Indeed, with Western policymakers following the same trail blazed by Japan in the past two decades (ZIRP, keeping dead companies on life support, refusal to restructure bust banks...), and marveling that the results are turning out to be broadly the same, one might be tempted to become despondent. However, there are also reasons to be optimistic. Look at it this way: an investor who, in 1989 had been told what a disaster zone the Japanese financial markets would turn out to be over the following twenty years would likely have concluded that the world was doomed. After all, in 1989, Tokyo was the shining city on the hill, with the grounds of the imperial palace worth more than California. These were the days when most teenagers believed that, if they did not learn Japanese, they would never find a job (I once went to a 1980s themed party where one of my friends had a yellow SONY Walkman in which he was playing Japanese language tapes – genius!). Of course, what our Japan-bear in 1989 could not have foreseen was the

way the internet would change our way of working, saving, playing and consuming. It would have also been tough to predict that China would become a global powerhouse (let's not forget that, in 1989, Deng Xiao Ping was ordering Li Peng to gun down students). Or that the 1990s would witness the collapse of the 'Evil Empire' and the harvesting of a decade-long 'peace dividend'...

So today, even as policymakers, at least in the West, seem to be doing their best to repeat the Japanese experiences, we must not forget that a number of productivity-enhancing trends are unfolding. Some are starting in Japan (the Robolution), some in the US (shale), others in China (cheap machinery, renminbi financing...) and each has the potential to reap attractive rewards for investors. Together, these trends may yet make for a potent mix.

This leads me to conclude with the words of my departed friend Clay Allen: *"Remember Louis, money managers are not paid to forecast. Money managers are paid to adapt."* Unfortunately, adapting to this ever-more rapidly changing world is not always easy – but there is no other recipe for making money in today's world.



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