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Better-Management Newsletter 23 June

An ode to progress: the rise and fall of the world's economies

To the man in the street, everything looks rosey, but is it?

Prior to the start of the 20th century the cycles and rhythms of nature determined how the ruling classes viewed events and as a result they took care that we protected natural resources of land, water and air. Then came the toxic mixture of oil and the ideas of John Maynard Keynes. Gradually the natural cycles were replaced with a mania for “progress at all costs”....and when that faltered, the concept of globalisation for achieving the best progress took over. The objective was growth and wealth for all of humanity and for the elites in particular.

Nothing but growth could be tolerated. “Progress” was an objective and growth an end point for which everything else became secondary.

Oil, which provided a seemingly inexhaustible one-time energy endowment, allowed the masses to move off the land and petrochemical fertilisers ended the need for crop cycling. Exhaust the land with GE monoculture?...well then, just add more NPK.

The doctrines of J M Keynes provided us with economists who rated money and monetary growth (aka GDP) as the two most important assets of civilisation. This was followed by the twin objectives of setting interest rates to maximise consumer demand. Without exponential growth, borrowing does not yield a sufficient return to pay interest. Yet we still live in the same finite world that we once did before oil and electricity and whether we like it or not the seasons and nature determine whether we live or die. It is trite to say, but nature always bats last.

The endowment of natural resources is so large that within the last century, its ongoing bounty has been regarded as a given. So we have always taken first what we could of the best and richest resources, and having accessed the easiest, cheapest and most profitable, we now find ourselves with the dregs and that places us on the edge of a precipice. Those of us who dare look, now stare down at the blood of past civilisations on the rocks far below.

Those of us who have been happiest with the bounty we have enjoyed (living of course within the OECD) have much further to fall than the peasants scratching out a bare existence on subsistence farms in China, India and Africa. Those of us who have relied on fossil aquifers of fresh water are also at increasingly grave risk. We can make sea water into fresh water, but that costs in real terms (energy and capital).

Two weeks ago I described in one of my emails, what I thought was about to happen, the obvious things that show our economic society is dysfunctional and why. But I went on to explain that there were yet underlying reasons and trends that no-one in any government considers.

Our predicament...after seven fold population growth of our “progressive society” in the last 150 years is now that, while we face economic depression within the short to medium term, we may also face the end of Western Civilisation shortly thereafter.

There is no sign of a return to rational economic governance, as evidenced by this article below...and the thousands of examples that are available if we choose to look.

<http://www.internationalman.com/articles/burning-down-the-house>

The central bankers, politicians and economists can only come up with a variety of doctrinaire philosophies and consequently implement bizarrely extreme kneejerk reactions, without consideration of root cause. For causation we must look to history.

This sort of news.... from Seeking Alpha...does not change things...

“**Japanese exports fell** for an eighth consecutive month in May as shipments to China, the U.S. and Europe slumped, and the Kumamoto earthquake led to supply chain disruptions. According to the Ministry of Finance, overseas shipments declined 11.3% from a year earlier. The data foreshadows gloomy trade prospects for the current quarter and could undermine Prime Minister Shinzo Abe's efforts to revive the economy.”

And

“**Greece could lift most** or all capital controls imposed at the height of the eurozone crisis by the end of the year, the head of the country's banking association, Louka Katseli, said on Saturday. The controls, which restricted the amount of cash that can be withdrawn from banks to €420 per week, were imposed last June as Athens became embroiled in acrimonious bailout talks with its international lenders.”

“Economic progress” has been designed towards efficiently stripping the world’s resources, so rather than take our foot off the accelerator, we endeavour to accelerate faster until the precipice is reached...a precipice of falling returns, stagnation, exhaustion of fish stocks, pollution of land, sea and air, and genetically modified agriculture that relies on increasing quantities of fossil fuels for productivity and fertiliser. More people, equals more human entitlement to the Earth’s bounty, and thereby the exhaustion of finite resources at an ever faster rate.

The doctrinaire belief that resources will continue to be infinite (for all practical purposes), market forces, Moore’s Law and new but unknown technologies will solve physical constraints on our future and lead to substitution of palatable alternatives (to fossil fuels) to our existing energy mix, is now unlikely to prove correct and we have no fall-back position, as those holding entrenched doctrines tightly, move swiftly to outlaw any alternative views.

Every snippet of contemporary news relates to the re-arrangement of lifeboats on a version of the Titanic that is destined to sink....while no-one really wants to go down and find out why

the ship is sinking and what can be done to stop it. Causal information is not palatable for voters, so let's not look for cause on the watch of each successive crop of politicians....

So let's get to causation....much already discussed...

1. The population bomb

For some 200,000 years, humanity was subjected to severe cold from ice ages and needed to compete with the beasts of the field for survival. About 10,000 years BC, the last ice age came to an end and various societies tried their hand at establishing a civilisation that would work for them and graduated from hunter gatherers to farmers and builders. By 1AD, we had passed through the rise and fall of numerous civilisations in various places and with the Roman conquests well under way, were into the iron age. This allowed mankind to triumph against all predators. Then the human population on planet Earth got to between 240 to 270 million. Counting in all the livestock that humans possessed, the human proportion of all land mammals amounted to somewhere between 5 to 7%.

By 1AD, we homo sapiens had become the Apex Predator and the fate of all other species was sealed.

During the next 1,500 years (by 1500AD), humans doubled to 500 million... yet it wasn't until 60 years after the start of the industrial revolution (in 1810AD) that the population hit 1 billion. Already, exponential population growth was under way as it had only taken 300 years for global human population to double. But this was soon to speed up thanks to the use of coal, and then in 1859 the production of first oil. With access to an ever widening array of tools and fossil energies to replace the puny efforts of humans and farm animals, it took only 110 years for global population to double (2 billion by 1920).

The extra energy sources were augmented by the use of natural gas and the discovery of electricity. The petrochemical industry grew and the various fractions of crude oil allowed many new fertilisers and improvements to both farming and industry. The next 24 years saw the addition of a further billion humans by 1944, despite the ravages of WW2. Since then each further one billion in population occurred in shorter times, up to the present day when 7.45 billion humans have an annual rate of increase of about 83 million (net) per year. Only now in June 2016, together with our domestic animals, we comprise more than 97% of the Earth's land mammals. All other species are covered by the concepts of "The age of the Anthropocene" and the "Sixth Mass Extinction".

What spurred our growth was the change from what a man with a beast of burden could achieve, to what a huge increase in net energy could deliver with new technology and fossil fuels. The best warnings on the impact of exponential population growth were given by the mathematician Professor Albert Bartlett in his lecture series...starting 1 of 8...

<https://www.youtube.com/watch?v=F-QA2rkpBSY>

Our footprint is felt on land, in the seas and in the air we breathe. We have changed from being foragers and farmers to city dwellers with almost as many scientists on the payroll within the OECD, as there are farmers. So our human effort, which was once 94% focused on winning food, is now 6% focused on winning food.

We no longer make much in the OECD and having off-shored manufacturing to low wage economies, rely on others to work for us. However our “money” is getting just as debased as that of ancient Rome’s during its decline.

As the complexity of our world grows, the disparity between haves and have-nots grows. The depletion of key aquifers means droughts are mobilising as refugees, those in famine, and warfare (often with or due to resource grabs) is mobilising those under threat. As of this week UNCLOS reports more than 65 million people are dislocated as refugees....the largest number in UN history....and growing by the day.

2. Exponential growth in population meets finite resources and finite sinks for waste

So, to recap, we have exploited those resources that were easiest, richest, more abundant and cheapest to take first. We have stripped large areas of the resources they once held and filled all available sinks with our pollutants. The world is a big place but our appetites have proven larger. The massive energy endowment from fossil fuels is slowly but surely ending and as yet there is nothing to replace it. This practice of exploitation of all available (and cheap) sinks has ranged from land based pollution when we finish extraction, to filling the sea with plastic, sufficient to form huge rubbish gyres in Pacific and Indian oceans. Airborne pollution kills millions of humans each year.

What about those first oil wells?

<http://www.bloomberg.com/news/articles/2016-06-20/in-the-birthplace-of-u-s-oil-methane-gas-is-leaking-everywhere>

The first oil wells were gushers. They were easy to find due to surface seeps and easily recognised geological formations. For every barrel of oil we put into winning crude oil, we would get back 200 to 300 barrels at a minimum. That is referred to as the Energy return on energy invested (or “EROEI”). Displayed as a 300:1 return.

By 1930, the average on a global scale was around 200:1. Now, shale oil EROEI is between 18:1 to 25:1 and tar sands is between 4:1 and 8:1. There is extreme risk in exploration (there always was, but then the net payback was greater). There are also major logistical issues and declining resource quality and thereby utility. Each year the portion of “oil” that is in the category of “Sweet, light crude” is less and any liquids containing hydrocarbons are now

commonly referred to as “oil”. And that oil is in ever higher demand as the populous emerging economies use more oil than that saved within the OECD...

http://www.rigzone.com/news/article.asp?hpf=1&a_id=145200&utm_source=DailyNewsletter&utm_medium=email&utm_term=2016-06-21&utm_content=&utm_campaign=feature_2

So far, we have extracted the easiest 1.5 trillion barrels of oil from the ground. As it is won, it is used up, with only about 3 billion barrels of oil held in storage today (about 6 weeks inventory) and today, the new Saudi oil minister (Khalid Al-Falih) reported that on a daily basis, supply and demand are now in balance. The only remaining easy/cheap oil tends to be in OPEC countries and the volume they each have access to is a state secret. So where lies the edge of that cliff?

For all minerals such as those.... ranging from coal to gold.... the returns in exchange for the amount it costs (in both dollars and energy) to extract from deeper deposits, has typically fallen with every new find after 1950. All new mines have on average an inferior assay to those existing, the depth is greater, so the overburden is more problematic and costly. New finds are much smaller. The oil scenario of 2015 during which 32 billion barrels of oil were consumed globally but only 6 billion barrels of new resources was found, indicates that future supplies will get costlier and harder to obtain. That is typical for most essential minerals.

By 1971 a study by MIT researchers found that humanity would start exhausting both supplies of essential raw materials and fill the sinks with waste, by about 2040. This was reported in a book by Meadows, Randers and Meadows, called “Limits to Growth”, to a group of concerned scientists in Rome in 1972. They were dubbed the “Club of Rome” and the unpleasantly realistic news led to their vilification. More recent studies have confirmed the predictions are running to course.

The US Geological Survey monitors the geological existence of every significant resource we use and while their reports are “sanitised” by political pressure, they tend to substantiate the “Limits to Growth” scenario.

Should anyone doubt this scenario, the abandoned and capped wells in Taranaki and the now empty Martha Hill Gold Mine in Waihi are worthy of inspection. All mines and wells have finite lives and all replacements are deeper and more costly – usually far smaller in resource volume and with inferior net payback. All require more energy to win the ore and more energy to process it to usable purpose. Then significantly more energy to remediate the land...if and whenever that occurs.

One of Earnest Hemmingway’s characters was asked, “How did you go broke?” ... the response was (paraphrasing) “Slowly at first, then very suddenly.”

Resource depletion has already slowly if inexorably added to the cost of maintaining our civilisation and it's "nice to haves", its "drone occupations" and its welfare beneficiaries. The realisation that while once oil would cost USD25/bbl to produce, now almost 50% of the entire industry cannot pay its way at USD50/bbl.

Growth has slowed and reliance on the inflation of cash and credit has taken over.

The pace of collapse – presently slow and not obvious to the average person - can only speed up until sudden collapse occurs.

3. How does this affect our industrial civilisation and resultant consumer society – inexorable increase in complexity

An archaeologist named Dr Joseph Tainter joined together the forensic results of all societal collapses since about 10,000BC and came up with the definitive book called, "The Collapse of Complex Societies".

Most scientific works get criticised by the authors' peers. But not this book because the archaeological evidence is pretty clear. Tainter's book points out that societal complexity inevitably led to greater cost and greater cost eventually overwhelmed governments and led to a total collapse. Governments started small and typically grew to dominate all wealth and resources, aided by a smaller and smaller elite.

Whether the factors were resource depletion or exhausting food supplies, eventually all civilisations reached the point where coping mechanisms and security for the have's became inadequate and complexity far too costly.

As of today, the price for Brent crude is just over USD50/bbl, yet the cost to produce Brent (deep sea) at between USD80 to 95 per bbl means that oil companies are losing a fortune. Every week, oil companies are going broke and creditors are being forced to write off hundreds of millions of dollars of loans. As of today, if oil prices rose to USD95/bbl, the increase would immediately start flowing through into the cost of all goods and services.

Hills Group oil consultants tell us that the oil industry lost more than USD1 trillion of capital available for expenditure on new exploration and development in 2015. As all oil fields deplete at more than 6%p.a. on average, this means that sooner or later we will hit the wall.

So our energy security (because 92% of transport fuel is oil based) is at risk.

For OECD countries which sent almost all of their manufacturing capability offshore to the cheap wage economies, the only response to falling real economic circumstances has been to print money and thereby inflate the global economy by using credit growth and zero interest rates, thereby bringing forward consumer demand from tomorrow to today. After several years of doing this, already interest rates are negative in many major economies and nominal growth rates are still falling.

As with ancient Rome, we are debasing our currency and via sports and welfare, resorting to the same "bread and circuses" that Nero used to keep his unwashed masses in line.

Real unemployment is increasing in the OECD economies which themselves are the customers of the low wage emerging economies. Falling imports, together with low oil prices for exporters have therefore resulted in disaster for emerging economies and petro-dependent states.

Economists who looked for increased productivity and growth within the OECD have been amazed that the much lower oil price over the last two years did nothing for their growth. Well, reduced petrol and diesel prices have led to an increase in the miles driven, but OECD economies as net oil importers, are not manufacturers and the public are already maxed out on debt. So the extra low oil price has had little practical effect to stimulate growth.

Meantime, the economic multiplier principal that caused economies to grow with each new dollar of debt, has dropped from 4:1 to now less – in some cases – than 1:1. Unfortunately for us China is in that last category!

With the highest global debt burden in history and complex financial derivatives to act as price smoothing, our global society has become too complex on a number of fronts...

- Debt levels where most sovereigns will never repay loans and cannot afford to pay much if any interest
- Forward welfare obligations that are un-funded
- Devaluation of fiat money is accelerating
- Financial engineering products and poorly regulated derivatives markets
- Resource depletion, leading to real cost increases and eventual scarcity
- Brittleness of agriculture when matched with renewable potable water supplies
- Acceleration of militarisation and Resource wars
- Population demanding ever more welfare for survival and increasing refugee flows
- Emergence of intolerance between religions, fomenting wider spread of terrorism
- Changing power blocs
- Globalisation of trade and finance flows mean every major bank is exposed to every other
- Insistence by bureaucrats that they be given increased centralised control
- Militarisation of police to control “the peace”

This complexity allows those with resources to accumulate more and, as the rich get richer and the poor get poorer, there are constant agitations for socialist solutions. “Robbing Peter to pay Paul and Mary” has become the norm.

The point at which real problems can be discussed openly is long past. Mention of population pressure gets conflated with eugenics. Mention of the need to invest in either fossil fuels for transition or nuclear power for constant electrical base-load, results in derision.

Resource depletion as an issue is still howled down by those who believe technology will win – not because of facts but because it was always thus. Politicians score brownie points for tax breaks for scientific endeavour but in practice spend a thousand times that for welfare. Government statistics become more unreliable and hyped with every successive administration, whose only real objective is to have nothing really bad leak out “on their watch”.

All discussion of monetary stupidity as fiat currencies and interest free credit are expanded, gets stifled by Keynesian economic dogma/BS. Failing policies are amped up not deemed inappropriate.

Politicians have handed control to banksters and economists, thereby abdicating their responsibility for all adverse policy outcomes.

The Bernankes, Draghis, Yellens, Abes tried to fix things with their weapons of financial rearrangement. But they failed because they did not understand the game was not just about money.

4. There are many imponderables

What will be the degree and extent of collapse? When will it start and spread? What will mitigate it? Will some forms of international trade endure? Will wars break out and if so, what damage will they do? Will the strong invade the weak?

Aside from recognising the cause of our issues and making a stab at likely timing, there is little point in going further. But there are many precedents for what can be done at a community, whanau and personal level. But preparations will mostly only be effective if done before collapse, rather than after.

5. On a personal level, we can prepare for:

1. The collapse of our bank. Holding small sums of cash at home (sufficient for two to three months expenses).
2. The collapse of our fiat currency. Holding small denominations of silver (1oz coins and one kg bars) and gold (quarter oz coins) in a safety deposit box.
3. The collapse of the financial system. Maintaining networks of neighbours, family and friends. Holding little funds on deposit with banks and holding non financial assets that provide an income stream. (real estate, shares in major utilities and productive farmland)
4. The collapse of law and order. Maintaining security networks. Holding weapons and ammunition and being trained in martial arts and the use of firearms.

This stuff is simple to conceive but involves wealth, time and cost to put into practice.

Frankly, no-one knows what the time line will be. Governments are already taking steps to avoid bank runs. But there will be other telltales as things deteriorate (which I am sure they will).

It is physically hard to operate a lifestyle block and survive on one's own garden, particularly when mass-produced agricultural products are so cheap and readily available. Yet that may not always be the case. What is prudent for all of us on an individual basis is undesirable from a societal basis (like holding cash off-line or possessing firearms).

For us older folks, we may satisfy ourselves with 5.1 and 5.2 above. But I admire those among us who have gone for the whole bundle of prepping items implicit 5.3 and 5.4 above.