Bugger Off, I'm Full!

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In Monty Python's "Meaning of Life", there's a nauseating but equally watchable scene in which, Mr Creosote (he's enormous), slumped at a table in an upmarket French restaurant, orders and eats everything on the menu, washed down with crates of beer and wine. When asked by the French Maitre D' (played by John Cleese) whether he would like a "wafer thin mint" Mr Creosote (played by Terry Jones), replies, "Bugger Off, I'm full" (his actual response was somewhat more graphic). Just like Mr Creosote, there's now compelling evidence to suggest the earth is full and that this is placing an increasing and unsustainable strain on the planet's resources and its ability to cope.

In my lifetime (I was born in 1966), the world's population has more than doubled; output as measured by GDP has grown 33 times[1]. We have witnessed massive (3 fold) increases in global food production. Prosperity has spread from the developed world to the developing world. China, with a population of 1.3 billon, has seen its income per capita increase from just $US 99 in 1966 to $5,445 in 2012 (according to the World Bank).

And this growth is set continue. The UN predicts that by 2050, and using its' medium (variant) projections, that global population will stand at 9.3 billion, an additional 2 billion people from where we stand today. Much of this population growth will come from developing as opposed to developed countries, from Africa and Asia. An offset against this, not be overlooked, is the fact that many countries and regions are now experiencing significant falls in their fertility rates (this includes China, Bangladesh, India and not only the expected Western World. Some such as China now have fertility rates below replacement rate (which implies falling population at some stage in the near future).

The OECD predicts that the World Economy will grow on average by 3.5% per annum between 2010 and 2050, with much of the growth coming from the BRIICS (average growth at 4.5% per annum in real terms). All this translates to a global economy which is predicted to be more than three times the size of the one today. Set against the backdrop of the GFC, this all sounds incredibly positive and much of it is. But there is a challenge. Like Mr Creosote, the earth is full.

The Global Footprint Network (a scientific group) elegantly communicates this (complex) issue. Using thousands of data points annually from countries around the world, they determine how much land we (I use the global royal we inferring Mankind) need to support our economy and lifestyle; and then compare this with how much suitable land is available. The most recent study carried out in 2008 indicated that each year, we are using 150% of available land to run the global economy or 1.5 planets. Put another way, and according to this survey, it takes 1.5 years for the earth to regenerate the renewable resources that people use and absorb the waste (mainly in the form of CO2) in any given year.

Relating it to the financial world, just as it is possible to withdraw money from a bank faster than to wait for the interest, so it is possible to harvest renewable resources faster than they can be re-grown. But just like going over-drawn, sooner or later the resources, our natural capital, will be depleted and ecosystems will fail if left unchecked. The world is in biological overshoot and it is getting worse every year. Using "business as usual" assumptions, by 2050, it is predicted that we will be using 2.9 planets per year! The evidence of this overshoot manifests itself in many ways…

A big one is climate change. Global CO2 emissions are set to grow and with it, global temperatures. There is considerable scientific consensus that to achieve temperature rises of no more than 2 degrees Celsius over the next century (to 2100), CO2 concentrations must stabilise around 450 parts per million (ppm) (this may be a generous assumption – leading environmental group 350.org believes the figure should 350 ppm, unsurprisingly). Using business as usual projections, CO2 concentrations could be as high as 975 ppm and temperatures rise as much as 4.8 degrees. This would likely prove catastrophic for the human population (leading to melting ice caps, rising sea levels, extreme weather patterns inc. drought and failed harvests etc).
The advanced summer melt of the Arctic Ice Cap in 2012 highlight how real climate change is becoming and how rapid it is advancing. Major organisations such as the International Energy Agency, The World Bank and the IMF have all issued dire warning over the past 12 months. Without strong action, "future generations will be roasted, toasted, fried and grilled" (IMF Chief, Christine Lagarde recently stated).

But there are other sign including the over pumping of aquifers. Agriculture in many parts of the world relies on these aquifers. If they fail, agricultural production falls. Irrigated land accounts for 1/5th of grain production in the US, and 3/5 and 4/5 respectively of grain production in India and China; depleted fishing stocks (the Atlantic cod has declined on average by 74% over the past 50 years); severe degradation and pollution of land (go no further than the Aral Sea as a good example).

And don't forget, this all has an economic impact. Sir Nicholas Stern put the cost of unchecked climate change at 20% of GDP. 35,000 Newfoundland fishermen lost their jobs when a moratorium was placed on fishing in 1992. What happens to grain production in India, China and the US when water supplies fail?

The key point is that there is a physical limit to how much the global economy can grow and we are seeing the effects of that coming through and will do increasingly in the decades to come.

So what does this mean for us as investment professionals?

Growth projections are probably unrealistically high long term. There is an imbalance between what the projections are saying in terms of growth and what will likely happen. The planet is already under huge strain and in parts is failing to cope. To me it is likely the long term economic growth projections are simply too high and that over the next few decades average growth will be lower.

There are potential major risks to some sectors such as the oil, coal and gas industries. Recent reports by a number of organisations such as the International Energy Agency all point to the same conclusion, and that is that the world is fast running out of time if it is to avoid warming of greater than 2 degress. The IEA stated in its annual Global Energy Outlook in 2012 that "no more than one-third of proven reserves of fossil fuels can be consumed prior to 2050 if the world is to achieve the 2 °C goal, unless carbon capture and storage technology is widely deployed". The Carbon Tracker Initiative in its report, "Unburnable Carbon 2013" estimates that between 60% and 80% of coal, oil and gas reserve of listed companies are unburnable if the 2 degree warming ceiling is to be achieved with a high level of probability. This has serious implications for listed companies whose share price is influenced by the level and value of their known reserves.

And all the time, renewable energy is getting cheaper, its use more widespread. Recent analysis by Bloomberg New Energy in Australia concluded that unsubsidised renewable energy (in this case wind) was cheaper than new build coal and gas fired generation (and that solar PV was not far behind and catching fast). Assisted by government subsidies, in its 2012 World Energy Outlook, the IEA estimates that by 2035, almost a third of global electricity output will be from renewables resources.
For these reasons therefore it is essential that greater emphasis is placed on responsible investing that either naturally migrates to more sustainable areas or better incorporates the risks associated with investing in sectors such as fossil fuel (whose assets could become stranded).

This can all sound a tad negative. But I don't think it needs to be. There are significant benefits (survival being one of them) of shifting to a lower carbon and less consumption focussed economy. Fuelled by government support, there are likely to be some fantastic investment opportunities for businesses who embrace cleaner and more efficient technology. It wouldn't surprise me if the big oil companies of today are at the vanguard of the emergence of renewable energy.

China in particular, may have a key role to play. As Jeremy Grantham surmised in a recent article, China is "capital": rich, suffers from appalling air pollution in its major cities and substantial investment in renewables could leave them as the low cost energy player in global trade.

Finally mankind has a great ability to (as Churchill said) do "what is needed". Here a very promising example.

The "Iter" international project centred in France is a collaborative effort by 34 nations to develop a nuclear fusion reactor that can commercially produce electricity from water (essentially isotopes of hydrogen). Unlike existing nuclear technology, nuclear fusion reactors do not produce high level radio-active waste and do not use carbon intensive fossil fuels. As it stands and all things going to plan, the first commercial nuclear reactor could go online in the 2050s.

In closing, back to Mr Creosote. Unfortunately, he couldn't resist the temptation. He ate the "wafer thin mint" and promptly exploded.

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[1]This figures seems remarkable. The data is sourced from the UN (http://data.un.org). According to this data set, in 1966 global GDP stood at $US2,109,664,666,124.2. In 2011, global GDP had grown to $US70,020,432,007,743.0, or thirty three fold on its 1966 level.