2015 – China’s Annus Horribilis

For the Japanese, their *anni horribili* at the end of the 1980s are chiefly remembered for overpaying for the Rockefeller Center and golf club acreage. When the Brazilians come a cropper, it’s a case of party like its 1959, and return to the basics of fresh air, coconuts and sunshine. But when it comes to *hubris* the Chinese, as in everything, outdo everyone. The new self-proclaimed *Masters of the Universe* have managed to end the year choking themselves, and their economy, to death in a cloud of Purple Fumes (cue the Performer once known as Prince) and shown that as for regulation (and development) of financial markets the Chinese, to put it more politely, could not run a booze-up in a brewery.

The last weeks of 2016 saw several prominent financial market figures disappear and then reappear (including the reputed Chinese version of Warren Buffett), the aforementioned pollution disaster and the start of criminal investigations relating to the FANYA schemozzle. There is an innate tendency for institutions in the capitalist side of the Chinese economy to deteriorate into illegality and irregularity with remarkable speed. In this aspect the Chinese system appears most akin to the rip-roaring US markets of the late 19th century when Robber Barons ruled the roost on Wall Street and established suffocating and anti-competitive cartels/trusts.

FANYA

For the mining community the most important thing about China is the demand aspect as this has driven so much of the global mining industry’s thought process over the past 20 years, however for the

The establishment of the FANYA Exchange with its focus on specialty metals seemed like a logical and inevitable evolution of the Chinese dominance of the production of (many) specialty metals and the substantial position it also held as a processor and end-user. FANYA initially started out with specialty metals and then diversified into fixed income products. The problems in the Bismuth, Indium and Antimony trading by the exchange’s investor base are well documented now.

In mid-July Metal Bulletin reported that the Fanya Metal Exchange had suspended accepting applications from companies to sell Indium, Germanium and Bismuth on the exchange between June 23 and August 31. An official from Fanya, who refused to be named, cited “Liquidity-related problems” were the major reason for the decision. That there should be “liquidity problems” in trading notoriously illiquid metals in the pre-FANYA era, comes as no surprise to participants in the global market for specialty metals.

While FANYA has been most (in)famous its metals trading, it has also had a fixed-income element, which not unsurprisingly has reputedly also gone bad. The Financial Times reported in September that “hundreds of well-heeled urban professionals who had purchased high-interest rate products from the Fanya Metal Exchange united with distribution agents who sold them in an unusual protest….in the financial heart of Beijing”.

The FT captured the moment at which the head of FANYA, Shan Juiliang was manhandled by a crowd in Shanghai. They dragged him off to the police to have him arrested. Whether his potential fate at the hands of the crowd or in the Chinese legal system will be a better one will remain to be seen.

The big question, as everyone knew six months ago that FANYA was going down in a welter of financial irregularities, is why did it take so long to look into the matter? Obviously people in high places wanted to cover their behinds (and unwind positions) before the Great Unwashed cottoned on. However, the public are now so far ahead of the authorities in catching a whiff of scandal that the Powers that Be are last to know.

Chinese "Statistics"

Time and again we have seen the Chinese "issue" with deceptive practices on bonded warehouses and the collateralization and double-counting of fictitious or "massaged" inventories. It is very easy to create theoretical liquidity by miscounting (read exaggerating) warehouse numbers then creating paper instruments based on the bogus holdings, trade them fast and furiously and voila, liquidity. The whole scheme (never let the word "Ponzi" cross our lips) comes apart at the seams when someone wants physical delivery and then the game is over. In China of course the small and medium sized investor can be stalled for a while, while the big fish exit their positions and when the curtain is eventually pulled back to reveal that the "cupboard is bare" then the recriminations start flying. A few random death sentences may be meted out (involuntary organ donations, anyone?) and the matter is regarded as swept under the rug until the next time.

The result though is that China has blown up chances of being taken seriously as a locale for trading of commodities due to this repeated flaunting of warehouse statistics which are at the root of the credibility of any market in the metals trading world.

Bubbles

The Chinese cannot be criticized for having "bubbles" in their stock exchange(s) for the US is a repeat offender in this regard, with Alan Greenspan being a notorious bubble-blower with a goodly part of the US economy and the High Net Worth sector regularly refilling their coffers through repeated pump and dumps on a truly grand scale. However in the case of China a casino-ish atmosphere has not only existed, but been encouraged. The closest that the US has come to this was the dot-com era market of 1998-2000, which was mainly tech/media/telecoms (rather than a whole market) and 1929, which was a very long time ago and before hardly any legislation governed markets.

While regulators in the West, in the wake of a market bust, go into a frenzy of reregulating and attempting to close the gate after the horse has bolted, the Chinese on the other hand are quite shameless with the goal being to reinflate the bubble as fast as possible. Investors in the West go into soul-searching wondering why they were suckered or why they suckered themselves, whilst in China introspection seemingly has no place and mass amnesia is seen as the cure for all ills.

Robber Barons

China looks like the US in the Age of the Robber Barons in the late 1800s. The trouble for China is that we are talking about 130 years ago. It is not that hard in this day and age to be up to date in regulatory and supervisory matters and systems. If you can have stock tickers wrapped around office blocks then why can’t you buy in some skillsets on market regulation? The answer is largely because the authorities don’t want to appear to be taking advice from the *Gwai Lo*. Frankly they could save themselves (and everyone else) a lot of grief is they forsook the financial Wild West (East?) and got their house in order in 2016.

Riding the S-Curve

Or we could less charitably say going down the S-bend! We found an interesting thesis, posited by a Charles Hugh Smith, that tallied with our own view that China is following a well-trodden path down which Japan, Taiwan and South Korea have already travelled. China would like to think it is different and heading down some Middle Kingdom version of the Thousand

Year Reich (oops!) when in fact it is just doing what all economies have done since the dawn of time, and that is pursuing an S-shaped trajectory.

We have seen this process described as being somewhat akin to a rocket's trajectory with an ignition phase as the fuel of financialization and untapped productive capacity is ignited. The high growth rate of credit and production overwhelms all other factors, as rising profits and production increases wages which then support further expansion of credit and consumption which then supports more production (or excess-capacity).

After this the thrust that comes from "financialisation" is exhausted, and the previously fast-growing economy moves forward on momentum alone. As the economy weakens, this momentum is to the downside. This is where we find ourselves now in the China cycle as everything that worked in the boost phase reverses, as nothing works any more. Investors in China's "markets" lose every bet and officialdom's efforts to reverse the decline end in repeated failure.

Conclusion

While many in Western markets (and particularly in the US) are used to complaints that the system is rigged against the investor class by the Powers that Be, the complaints are usually just hyperbole and blame-searching after the one a decade meltdowns that we have become inured to. In China though, like all casinos, the House always ends up winning and the punters, by and large, end up going home without their shirts. The markets in the West may end up occasionally ripping off investors whereas in China they seem to be set up with the explicit purpose of fleecing the lambs. The results is that the middle and lower middle classes keep having their savings confiscated for the greater good of those higher up the totem pole that mastermind, tolerate, encourage and then cover-up the scams. It is like China is in the grip of a horde of Bernie Madoff clones.

If 2015 was bad then 2016 has got off to an even worse start with two suspensions of trading on the Stock Exchange in the first few days of the New Year. This was followed by the same old intervention which obviously failed in the first instance because it had to be applied again a few days later. The “Street cred” of the Chinese “powers that be” that pull the financial levers is totally shot. Major figures on the financial stage appear and disappear like characters in a Feydeau farce. Re-education used to involve years in the paddy-fields and now consists of a weekend of being brow-beaten in a board room at the Ministry of Finance. Maybe the old ways were better!

Once a soap bubble is burst there is no reinflating it. The Chinese should face the fact and move on. They are now in a new place that the rest of us in the Western economies have been in all too frequently in recent decades and they may care to learn from it… even if it means having to lose a little face.

FANYA – Good Girl Gone Bad

As we have written in the past the Chinese are not as infallible as they would like everyone to believe. Economic booms of the intensity of that which the Chinese have experienced over the last 15 years can bring the tendency to become self-declared Masters of the Universe. Look at the Japanese in the late 1980s, where pride definitely came before a fall and a long and depressing two lost decades for the

Japanese economy. One could also say that the Vietnam War was the Waterloo of the US dominance after twenty years of post-War economic mastery over the global economy. That war saw the baton of net savings/wealth pass to the oil states of the Middle East and to the Japanese.

One of the attributes of these periods of fleeting dominance is an attitude *internally* of superiority over other economic systems (particularly over that of the displaced power). Then the attitude is manifested *externally* with criticisms about how other economies, have become fat or lazy or decadent.

FANYA – Good Girl Gone Bad

The establishment of the FANYA Exchange with its focus on specialty metals would seem a logical and inevitable evolution of the Chinese dominance of the production of (many) specialty metals and the substantial position it also held as a processor and end-user. Alas though there is an innate tendency for institutions in the capitalist side of the Chinese economy to deteriorate into illegality and irregularity with remarkable speed. In this aspect the Chinese system appears most akin to the rip-roaring US markets of the late 19th century when Robber Barons ruled the roost on Wall Street via massive cartels/trusts and rampant stock market manipulation schemes.

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Once again we have seen the Chinese “issue” with deceptive practices on bonded warehouses and the collateralization and double-counting of fictitious or “massaged” inventories. It is very easy to create theoretical liquidity by miscounting (read exaggerating) warehouse numbers then creating paper instruments based on the bogus holdings, trade them fast and furiously and, voila, liquidity. The whole scheme (never let the word “Ponzi” cross our lips) comes apart at the seams when someone wants physical delivery and then the game is over. In China of course the small and medium sized investor can be stalled for a while, while the big fish exit their positions and when the curtain is eventually pulled back to reveal that the “cupboard is bare” then the recriminations start flying. A few random death sentences may be meted out (involuntary organ donations, anyone?) and the matter is regarded as swept under the rug until the next time.

Not just Metals

Like any good scheme, over-reaching (mission-creep?) sets in. While FANYA has been most famous its metals trading, it has also had a fixed-income element, which not unsurprisingly has reputedly also gone bad. The Financial Times reported this week that earlier this week “hundreds of well-heeled urban professionals who had purchased high-interest rate products from the Fanya Metal Exchange united with distribution agents who sold them in an unusual protest….in the financial heart of Beijing”.

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Conclusion

The collateral damage to the metals markets has been brutal but hopefully short-lived. Antimony and Bismuth have seen large amounts of product tipped out into markets that are illiquid at the best of times with particularly damaging effects for Antimony that has gone from $9,000 per tonne down to $6,000 in a the space of a few months.

While the FANYA bust-up looks like a Chinese Madoff-like moment that will pass quickly, we doubt it. China was well positioned five years ago to have the Shanghai Metals Exchange become the leading global market for metals. Repeated scandals (most notably the copper inventory scam that caught Standard Chartered and Citibank amongst others) mean that the SME’s warehouses have zero credibility. The LME has shown through its long existence that credibility is everything and the SME had a chance to grab some of that credibility for itself. It should take at least ten years to rebuild that trust, but maybe the moment has been lost.

As for FANYA, there is no chance of redemption. China’s own position as the dominant force in the specialty metals world is slipping away due to over-exploitation and erratic export/import duties and other examples of unreliability. FANYA’s arrival meant there was a chance to create a legacy overlordship by creating a financial dominance, even as a role as a leading producer leaked away (much as Britain did with the LME). Instead the sleazy operators at the FANYA put on their suicide vest and blew up any chance of China controlling the “trade” in specialty metals. In a world of increasing “discovery” in both price and volumes in so many products, the Chinese authorities let some cowboys essentially create a noxious fog of misinformation which has choked a large group of investors and justified Western observers’ growing belief that there are “lies, damned lies and Chinese inventory statistics”.

Bismuth – the X Factor in the Chinese Dominance Challenge

It seems that there is no end to the number of metal that have gradually fallen totally under the sway of the Chinese. In fact thinking back over the years since the Industrial Revolution in the mid-1800s it is hard to think of another country that ever had such a corner on so much of the periodic table. Before anyone cries “Foul” the Chinese have managed to achieve this NOT by being colonialists and going forth and conquering resource rich regions but by cultivating their own extensive domestic resources. Interestingly though it’s not the bulk metals that the Chinese have the stranglehold on, but rather those metals that are up and coming technology metals or alternatives to existing metals that for one reason or another (mainly environmental) are in the dog-house. Lead being a good example.

That is not to say that some of the actions of China in central and southern Africa in recent times have not had a neo-colonialist tint to them. However, these are not the difference between dominance or not in a particular metal.

According to British Geological Service (BGS) data China is the leading producer of 22 metals, with the next largest being Australia and South Africa, with three each. The position in Rare Earths is well known and we have mentioned the role in Antimony before. Then there is Germanium and Gallium and the subject of this piece, Bismuth.

The Extent of Control

Frankly when we came to look at this metal we were surprised that China should have such a grip. We had imagined that as a well-known ancillary metal in many lead or copper deposits that the production mix would have made its production sources more widely distributed. Looking at the BGS Risk List of Critical Metals (the latest being that of 2012) the rankings have Bismuth at number four on the list (behind Rare Earths, Tungsten and Antimony). The world market for Bismuth is ~20,000 tonnes per year with China accounting for 60% of world reserves and 80% of world production.

Thus we see that when China sneezes (just like in REE and Antimony) the rest of the market catches a cold. In Bismuth we have seen in recent years a repeat what happened in those other elements with it closing 20% of its production due to environmental and mine safety issues. Then it announced policies to restrict exports. Sound familiar?

The Nature of the Metal

Bismuth (with the chemical symbol Bi) has been known from ancient times, although until the 18th century it was often confused with lead and tin, which share some physical properties. However, Bismuth chemically resembles arsenic and antimony. Elemental bismuth may occur naturally, although its sulfide and oxide form important commercial ores. The free element is 86% as dense as lead.

The etymology is uncertain, but possibly comes from Arabic *bi ismid*, meaning having the properties of antimony or German words *weisse masse* or wismuth ("white mass"), translated in the mid-sixteenth century to New Latin bisemutum.

Bismuth is a brittle metal with a silvery white color when freshly produced, but is often seen in air with a pink tinge owing to surface oxidation. Bismuth is the most naturally diamagnetic element, and has one of the lowest values of thermal conductivity among metals.

Usage – Replacing Lead

Bismuth compounds account for about half the production of bismuth. They are used in cosmetics, pigments, and a few pharmaceuticals, notably Pepto-Bismol. It is also used in the manufacture of ceramic glazes, crystal ware, and pigments, and as an additive to free-machining steels and malleable iron castings. Bismuth’s unusual propensity to expand upon freezing is responsible for some of its uses, such as in casting of printing type.

Bismuth has unusually low toxicity for a heavy metal. As a result of moves to reduce exposure of the population to Lead, a wider market opened for bismuth as a metallurgical additive to lead-free pipe fittings and fixtures, and bismuth use in water meters and fixtures has increased in recent years. As the toxicity of lead has become more apparent in recent years, there is an increasing use of bismuth alloys (presently about a third of bismuth production) as a replacement for lead. Researchers in the European Union, Japan, and the United States continued to investigate the use of bismuth in lead-free solders.

Some feel that there is significant growth potential in the use of zinc-bismuth alloys to achieve thinner and more uniform galvanization. Another new application is the use of a bismuth-tellurium oxide alloy film paste for use in the manufacture of semiconductor devices.

One of the more intriguing uses we found out about (which is also massive) is in windscreen “frit”. This is the darkish colouring around the edges of a windscreen that protects the glue that holds the glass to the vehicle. This “trivial” usage is on a truly monumental scale with two ounces of Bismuth per car on 80 million vehicles per annum.

Research examining liquid lead-bismuth coolants for use in nuclear reactors was also ongoing. Work was proceeding toward developing a bismuth-containing metal-polymer bullet. However a key thing to remember is that if Bismuth is to even fractionally replace Lead usage then its production would have to be much larger than the current 20,000 tpa. Moreover we would note that Bismuth currently trades at seven times the price per lb for Lead.

Supply – Tight

As already mentioned the Chinese have a stranglehold on supply but this does not need to be the case, for as we shall see there are quite a lot of bismuth deposits (mostly as a secondary by-product) around the world.

One of the main reasons that China has pulled ahead was because the La Oroya Metallurgical complex in Peru was shuttered in 2009 owing to financial and environmental problems. According to the USGS though, Zinc production was reported to have begun in July 2012 and the lead smelter reportedly resumed operations during the first half of 2013. Although prior to the shutdown the La Oroya complex had been a significant producer of bismuth, it was uncertain whether bismuth production had resumed. Canadian production dropped significantly in recent years owing to ore depletion and closure of the Lead/Zinc Bathurst Mine in New Brunswick.

The chart below shows the estimated Bismuth reserves of the countries with most of the world's known Bismuth. On Canada we would note that it consists of 5,000 tonnes of "Others" and 49,000 tonnes at Fortune's NICO deposit.

The United States ceased production of primary refined bismuth in 1997 and is highly dependent on imports for its supply. A small amount of bismuth is recycled by some domestic firms. Bismuth is contained in some Lead ores mined domestically, but the bismuth-containing residues are not processed domestically and may be exported. In 2013 the value of reported consumption of bismuth was approximately $17 million.

Bismuth Plays

As far as we can work out the plays with meaningful Bismuth in the mix include:

- Blaze International (BLZ.ax) and Meteoric Resources (MEI.ax) at Barkly Creek
- Emmerson Resources (ERM.ax) at Chariot East
- Fortune Minerals (FT.to) at NICO
- Frontier Resources (FNT.ax) at Stormont

Fortune –Cobalt with a Bismuth Chaser

The thing that initially piqued my interest in Bismuth was a conversation with Fortune Minerals, a TSX- listed silver producer that also holds a coal project in BC and a Gold/Cobalt/Bismuth/Copper project in the North West Territories. While our enthusiasm for Cobalt has been aired here before, the Bismuth was the really surprising thing because of the sheer size of the Bismuth resource which represents around 12% of global reserves in this metal in what is also the world's largest Bismuth deposit. The Proven & Probable Reserve of Bismuth at NICO is 102.1mn lbs.

Without going into too much detail at this point, NICO is envisioned by Fortune to hopefully be, when in production, a reliable North American vertically integrated producer of Cobalt and Bismuth. The capex though is a doozey at CAD$589mn.

Conclusion

While China has the overwhelming proportion of the reserves compared to any other country there is no reason why the other countries with Bismuth reserves should not have a higher collective market share than the current mere 20% of global production. Slippage in non-Chinese production has allowed this woeful situation to develop. Canada probably has the most potential to push back into the top ranks with one deposit potentially skewing things in Canada’s favour. However, development of a number of mid-sized Cu/Au deposits in Australia might give a small fillip to that countries current poor positioning. On a broader scale though, the West’s decline might also be attributed to the lack of work on new Lead/Zinc mines. This is a situation we see being reversed in coming years with Zinc back into favour.

Investors should now be on the lookout for Bismuth as a kicker in the by-product mix of up and coming projects. The more metals in a polymetallic equation the better the chance that project’s bottom line will come out positive, with Bismuth being a positive X factor in such an equation.