



We Build Arks

“We neglected the Noah principle: predicting rain doesn’t count, building arks does.”

- Berkshire Hathaway annual letter to shareholders 1981 -

Heyokha's Arks

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What we have learned this quarter

We Build Arks

One of the members of your Heyokha team recently fell sick when travelling in the US. While he was very grateful for the dedication of the healthcare professionals, plus the quality and timeliness of the healthcare service in America, he also came to realise why the US healthcare system is often said to be in disarray (more of this story on appendix IV in page 26). In particular, when presented the hospital bill for two-weeks of hospitalisation, the concept of disinflation was suddenly thrown out of the window.



The fortunate thing for our colleague was that the insurance company fully covered the hospital bill. However, with the insurance premium itself going up around 10% every year, it is borderline unaffordable.

This whole chain of events illustrated that living without health insurance coverage is simply an idea too horrifying to contemplate.

A recent Bloomberg article titled “What it’s like living without health insurance in America” narrated several stories in which American families share their struggles of living without health insurance.

These families are part of the 27 million Americans who remain uncovered despite the Affordable Care Act.

Artist’s impression of our team member in the US Hospital

On average, the annual cost of a widely-used prescription drug in the U.S. reached \$12,951 in 2015, compared to only \$4,202 in 2006 according to the American Association of Retired Persons (AARP). This translated to a staggering 22.9% of median U.S. household income, and an annual increase of 13.3%, compared to the average inflation of only 2.2% in the same period.

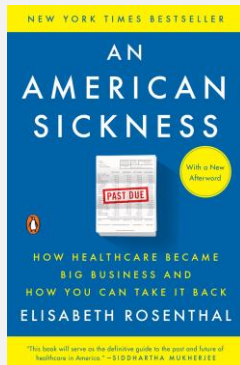
“I live in a constant state of fear”

-Whitney Whitman, American mom of a family of four-

How did the US healthcare industry become so profitable?

The healthcare system in the US seems to have devolved from a caring endeavour to the most profitable industry.

A recently published book by Dr Elizabeth Rosenthal titled *"An American Sickness: How healthcare became big business and how you can take it back"* chronicled the exorbitant healthcare costs in the US.



Dr Rosenthal is a former ER doctor and has also been a reporter at The New York Times for two decades. This means she is uniquely positioned to observe how the American healthcare system has been exquisitely tuned for profitability.

The book discussed how hospitals have been re-engineered for profits and how doctors have been taught to bill like lawyers. Dr Rosenthal also talked about strategic billing, whereby consultants advised hospitals to stop billing for items which insurers rarely or never reimbursed and to boost charges for services like oxygen therapy and prescription drugs. It was all about optimising payment by raising prices on certain items.

Dr Rosenthal pointed out that pharmaceutical industry has grown twice as fast as the economy since 1990. And it is not because loads of highly effective drugs have hit the market. It has more to do with the notion that the importance of the bottom line far outranks the greater good.

Facility fees, that Dr Rosenthal argues are a unique construct of American healthcare and its business model, are increasingly accepted for major outpatient care. New machines were purchased based on financial calculations, not because of medical necessity or utility.

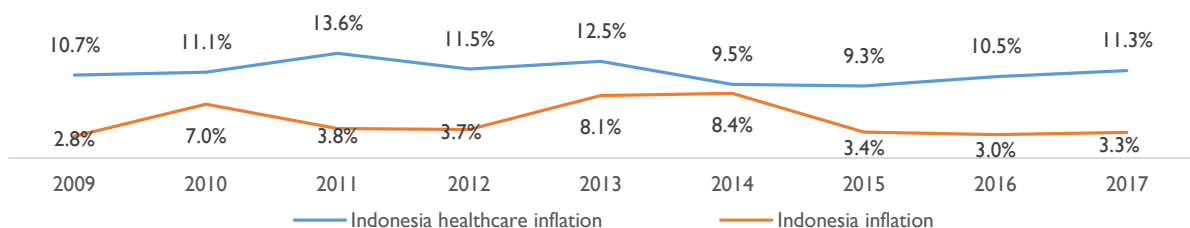
Another way to improve profitability is changing how hospitals compensate their physicians. Thus, rather than paying them a fixed salary, hospital doctors are compensated in proportion to the relative value units (RVUs) of the care they dispense. RVUs are assigned based on the complexity and treatment plans that the doctors administer.

In the investment world, this would probably be considered conflict of interest.

For sure, high inflation on healthcare is not an exclusive US phenomenon, as indicated in the chart below.

Healthcare inflation in Indonesia far outpaced overall inflation

Change in Indonesia healthcare cost and Indonesia CPI YoY



Between 2008 to 2017, healthcare cost increased by a CAGR of 11.1%, significantly higher compared to only 4.8% for headline inflation.

Source: Willis Towers Watson, National Bureau Statistics

As anyone with kids would recognise, it is not just healthcare expenses that have been rising rapidly. For example, closer to home, back in 2009 one of Heyokha's team members paid a tuition fee of IDR 350,000/month (US\$ 25) for high school in his hometown Pekanbaru, Sumatra, Indonesia. Nowadays, the tuition fee is IDR 1mn/month (US\$71.4), meaning it has increased by a CAGR of 14.0%. This handily beats Indonesia's inflation figure of 5% p.a.



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Unfortunately, the rising cost of education does not only apply to private school. For instance, the popular state-owned university Bandung Institute of Technology (ITB) has increased tuition fee by a whopping 17.5% CAGR over the past decade.

Education cost – private school				
	2009	2017	Total Increase	CAGR
St. Maria, Pekanbaru, Riau, Indonesia (private school) monthly tuition fee (Rp)	350,000	1,000,000	185.7%	14.0%
Indonesia inflation			48.2%	5.0%

Education cost – public university				
	2007	2017	Total Increase	CAGR
Bandung Institute of Technology (public university) monthly tuition fee (Rp)	2,500,000	12,500,000	400.0%	17.5%
Indonesia inflation			69.2%	5.4%

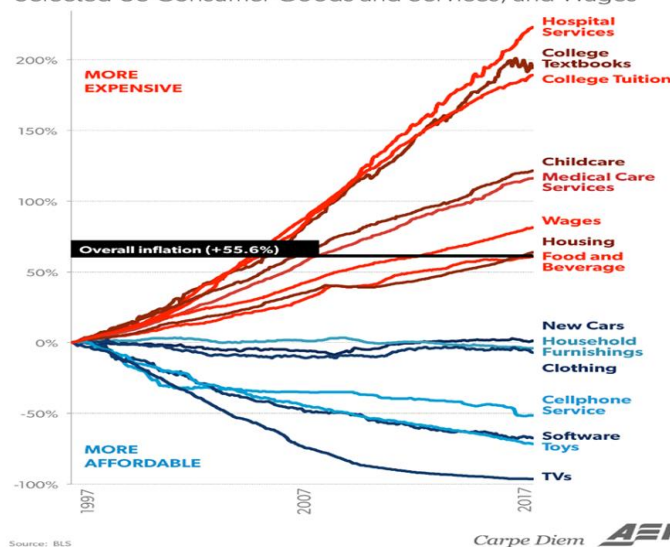
Source: Heyokha, National Bureau Statistics

As you can see in the graph below, inflation has many components. Some components may matter more than others depending on your personal situation. For instance, parents who have to cover education for their kids and medical expense for elderly family members may have a whole different perception of inflation as compared to young adults who are likely to spend more on items represented by the blue lines in the graph below. From a financial perspective, you may want to reconsider adding more kids to your family.

While certain forms of inflation seem to be specific to a certain group of people, we notice some trends that may impact everybody across the board. We will discuss more in the next section.

Price changes (Jan. 1997–Dec. 2017)

Selected US Consumer Goods and Services, and Wages



Inflation in healthcare and education far surpassed overall inflation, while prices of technology products keep declining. We are now living in the world with cheap “entertainment” and expensive education.

Source: Bureau of Labour Statistics, American Enterprise Institute



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Potential inflation drivers

1) Quantitative tightening

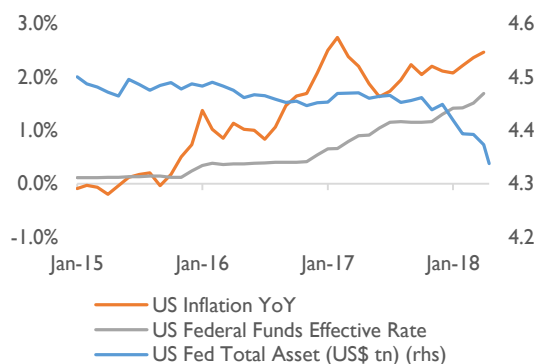
Intuitively, current quantitative tightening is deflationary. That's probably true in theory. The reality is that it could have the opposite effect.

We will not go into the details about why that could be the case (we are no economist nor macro strategist). The simple logic is that there will no longer be "free" money to fuel capacity addition everywhere. Slower supply growth could have upward pressure on prices.

In fact, one interesting observation is that reflation actually began to accelerate shortly after the Fed's initial rate hike in December 2015.

Inflation rising amidst monetary tightening

US CPI YoY, The Fed Funds Rate and total balance sheet



Source: Bloomberg

In addition, quantitative tightening may also mean that there is less money available for tech start-ups globally.

During the earlier fast growth period, these tech companies with their customer subsidy programs helped to drive prices lower. Less money available for tech start-ups would weaken these powerful deflationary forces. Current anti-tech backlash won't help the situation either.

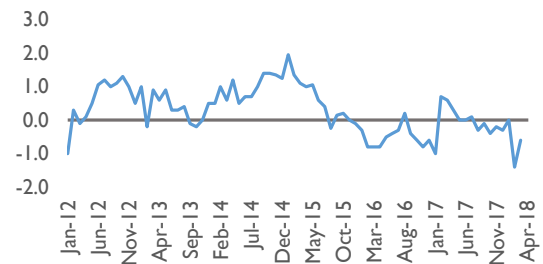
Not to mention, the monopolistic nature of these tech companies (winner takes all) will at some point monetise and start raising the prices after achieving dominance. Facebook and Google sound familiar?

2) China and inflation acceleration

The world has seen how China was able to spread deflation to the rest of the world between 2012 and

2016. As such, this should invite an apparent question: will China also be able to send inflation beyond its border?

China Real Interest Rate (%)



The Chinese real interest rate entered negative territory, -0.6% in March 2018

Source: Bloomberg

The days of the world free-riding China's industrial capacity, at the expense of their environment, are over and perhaps for good.

As the Chinese are getting wealthier, their environmental standards are also changing very fast. This change is secular in nature and will translate into higher prices globally.

During the 19th National Congress of the Communist Party of China in October 2017, President Xi Jinping stressed China's commitment to solving its current environmental problems, reducing emissions, and promoting green development.

The Chinese government is reforming the environmental regulation system, cutting the root of China's environmental issues by enforcing stricter standards on the discharge of pollutants.

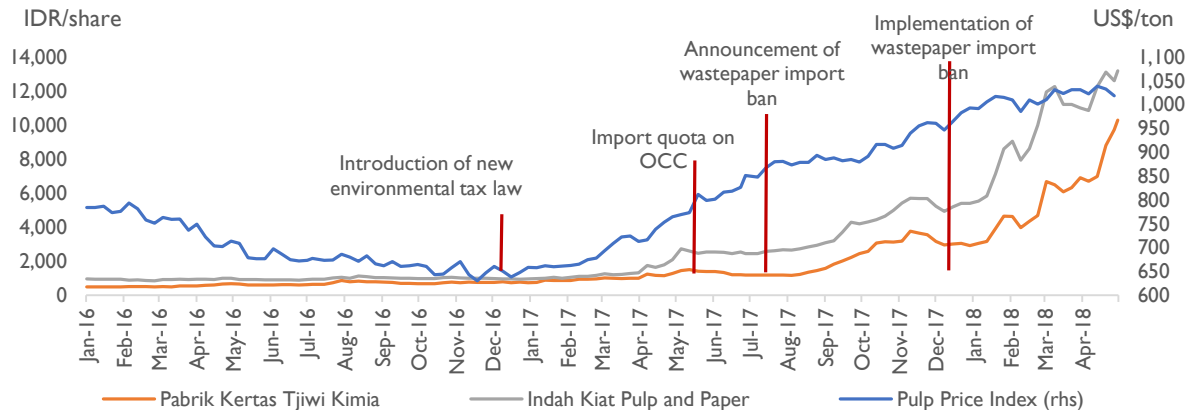
Case in point is simply just the ban on wastepaper imports announced in July 2017 and came into force on January 1, 2018. Waste imports have been causing serious pollution in China, as the country has been the top importer of recyclable trash.

The ban was implemented even though it comes at a cost of harming several industries and end-users for paper products including paper mills, logistics and e-commerce. This sends a clear message on the seriousness of China's environmental reform.



Chinese government effort in addressing environmental issues has a profound impact globally. The case of pulp and paper industry

PT Indah Kiat Tbk. (INKP JJ) and PT Tjiwi Kimia (TKIM JJ) share price in IDR and Pulp price index in US\$



China's attempt to address an environmental problem has added to the inflation of the pulp price (due to wastepaper import ban). Pulp and paper stocks Indah Kiat and Tjiwi Kimia have been big winners following the ban.

Source: Bloomberg

Separately, an FT article written by Diana Choyleva in December 2017 titled "Don't rejoice when China exports 'bad' inflation" pointed out that China's inflation story is not just down to the cost-push dynamics of excess capacity reduction and prioritising a more environmental friendly economy.

China's inflation will also be driven by a large overhang of money that has been injected into the economy since the global financial crisis. The ratio of broad money to GDP surged to 244% at the end of 2016 from 174% in 2008.

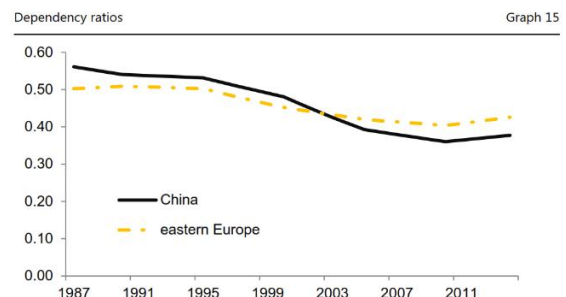
Through strict enforcement of capital controls since the end of 2016, Beijing has forced households — and, increasingly, companies — to bottle up their money at home yet again.

A recent pick-up in the speed at which money changes hands in the economy (velocity) could be a pointer to an acceleration of inflation in coming quarters. The overall impact of Chinese export price inflation on global inflation is about 13 percent. This is not insignificant.

What is more, a research paper by BIS showed a fascinating correlation between demography and inflation. The demography boom in China and Eastern Europe have created a large pool of cheap labour that has been constraining inflation since

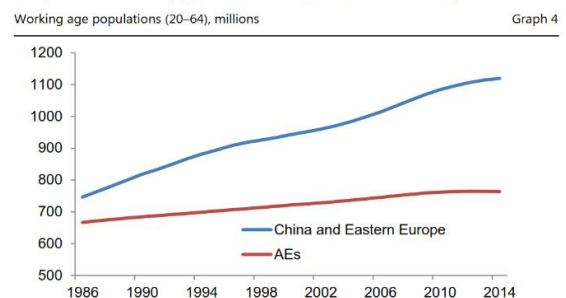
the 1980s. Has the trend been reversed? More of this in appendix I on page 17.

Total dependency ratio in China and eastern Europe was falling sharply, and is now turning up



Source: UN World Population Database.

The positive labour supply shock from China and eastern Europe



Source: UN World Population Database.

AEs = advanced economies

Source: UN World Population Database, BIS Working Paper



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3) Oil prices heading higher

The fact that oil prices are climbing a wall of worry deserves our attention. Especially, when considering that every big inflation since 1973 started with surging oil prices.

We observed the following trends that may further constrain supply of oil and put further upward pressure on prices in the near future:

1. Major oil producers are holding back on capex;
2. Rising tensions in the Middle East;
3. Limited growth of U.S. shale oil production;
4. Extended production cuts by OPEC and other oil producing countries.

We are of the view that the trend of higher oil prices will continue as the math is in favour of the oil bull. Our observation on the side of higher oil price is laid out in Appendix II on Page 18.

4) Food security, again?

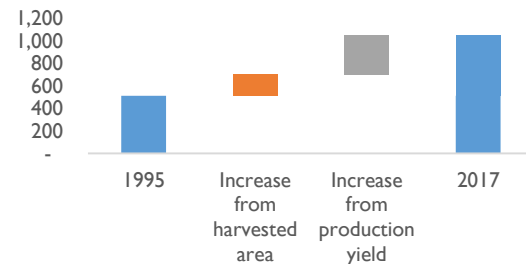
Shrinking farmland, falling water tables and eroding topsoil have always been regular topics but yet food prices are still range bound.

We think prices remained low because above effects were mitigated, at least in part, by innovations in agriculture. For example, the use of genetically modified (GM) seeds has improved crop production yield significantly.

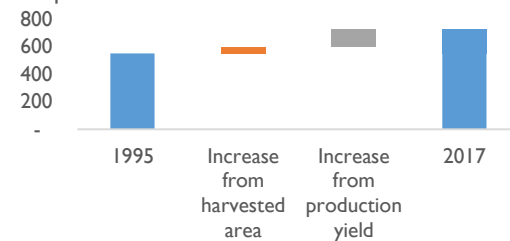
Although the adoption of GM seed seems to be nearly maxed out, there are some other technologies that could significantly improve food crop production yields. Examples are gene editing technology such as Crispr and precision farming.

Increase in global food production was mostly driven by yield improvement

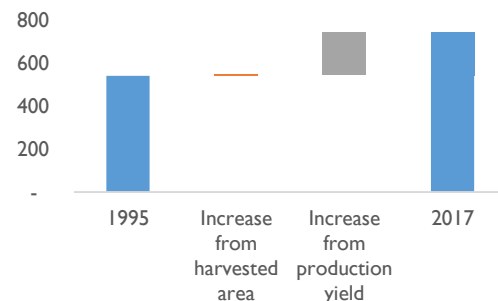
Corn production in million metric ton



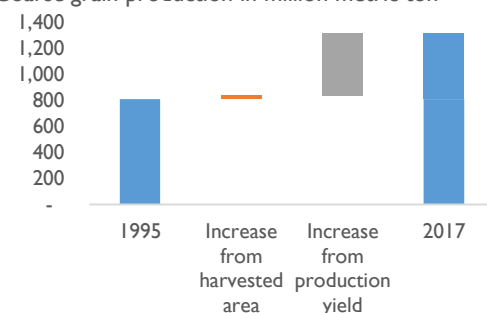
Rice production in million metric ton



Wheat Production in million metric ton



Coarse grain production in million metric ton



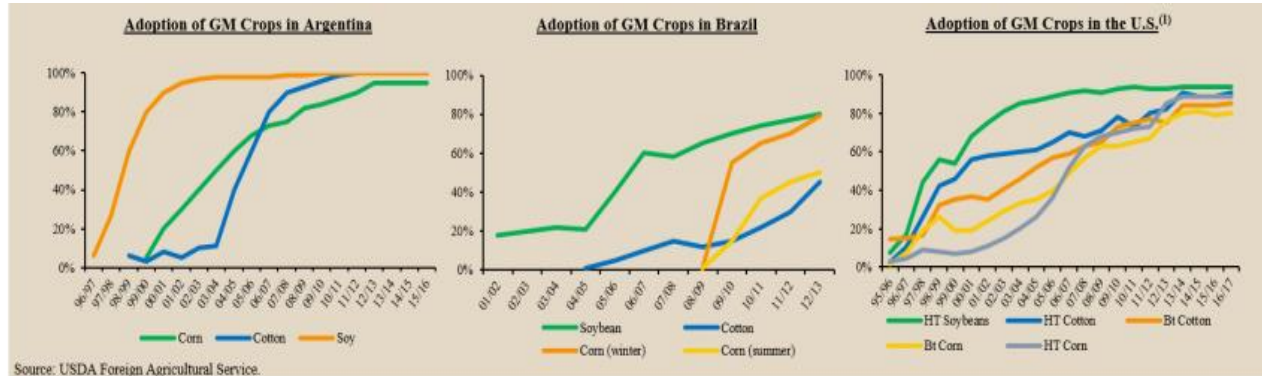
Increase in food production in the past 22 years mostly came from yield improvement, thanks to the technology advancement, particularly due to GM seed adoption.

Source: US Department of Agriculture



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GMO seed adoption in top three agriculture products exporter countries



The top three corn and soybean exporting countries' GMO seed adoption has now maxed out. Yield is set to be plateauing?
Source: US Department of Agriculture

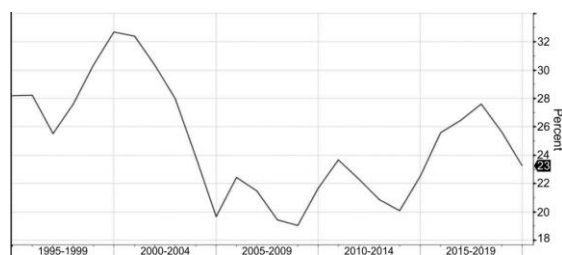
Assuming new technology successfully improves farm productivity, it could help to meet the increase in food demand in the coming years.

However, life is full of uncertainties. For example, there may be structural weather changes and farmland area may shrink faster than expected.

Bottomline, the margin of safety is not that great, and the world could see the return of agflation before we know it.

Grain output falling behind demand

World corn, wheat, and soybean as % of consumption



US Department of Agriculture expects global grain inventory as % of consumption to decline in the next two years approaching 2012 level, the last time the world saw agflation.

Source: Bloomberg, USDA



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Investing in the new era

We are neither economists nor macro strategists. But we believe that it is important to see and invest along the big trends. In particular, we believe that it is very important to recognise an inflexion point, a time of significant change in a situation.

Considering that inflation is set to rise in the coming years, as discussed in the previous sections of this report, investors also need to re-examine the most important factor in valuing companies, i.e. interest rate levels.

"The most important item over time in valuation is obviously interest rates. If interest rates are destined to be at low levels. ... It makes any stream of earnings from investments worth more money. The bogey is always what government bonds yield."

-Warren Buffett-

One can imagine that when you get to the point as extreme as negative real rates, we must be near the top of the disinflation cycle / beginning of an inflation cycle.



As interest rates play an important role in calculating the present value of future cash flows, the level of these rates impacts the value of assets.

Thus, a higher interest rate environment presents a challenge for investors.

In our previous reports, we have been writing about commodity producers such as precious metal miners as one way to hedge against inflation. Yet, some businesses may also offer good protection against inflation. We don't need to pick one over the other.

In choosing which companies to invest in, we think it's worth spending some time re-reading Warren Buffett's Berkshire Hathaway older letters. Berkshire has started in 1965 and went through many inflationary cycles, including the great inflation of the 1970s.

In particular, in Berkshire's 1981 letter, Buffett discussed several characteristics that a good company should have during inflation. He wrote that such company must: (i) have pricing power, (ii) generate cash flows, and (iii) be able to grow without spending much capex.

- **Pricing power.** The company must be able to increase the selling price even though the product demand is flat or the capacity is not fully utilised without fear of losing sales volume or market share.

- **Cash flow generation.** Invest in companies that generate cash rather than consume it. A business that requires high levels of working capital will be struggling during inflationary periods because to meet the same volume of demand, the working capital will increase as prices go up.

- **Ability to grow without spending much capex.** As growth is often driven more by higher prices than volume during an era of inflation, it is essential for a firm to be able to accommodate large dollar volume increases in business, with only minor additional investment of capital.

Usually, a company with a strong moat such as a strong brand or valuable know-how possesses most of the attributes discussed above.

The challenge is that these companies typically trade at a substantial valuation premium. Also, as pointed out in Berkshire 2017 annual letter, competition to buy a good business at a sensible price is very tough,



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especially since there is cheap debt available in the current market.

Leading companies in the internet sector, like Amazon and Facebook, certainly generate plenty of cash and have demonstrated strong pricing power. However, valuation is also very demanding. Given the limited choice eligible companies, it is interesting to see what Berkshire has added to its portfolio in 2017.

For example, in 2017, Berkshire accumulated shares in Monsanto and owned about 2.6% of the company by the end of the year. As we are finalising this report, Berkshire bought more in IQ 2018 which made them the 4th largest shareholder in Monsanto.

Monsanto produces hybrid- and genetically modified seeds which rank amongst the highest yielding in the world, thanks to its global gene library of food crops. As such, they have established a strong brand and pricing power in the global agriculture market.

This seed business is very cash-generative, has high margins and is not capex intensive. With the attributes above, Berkshire would not mind paying up for quality. Monsanto stock price was hovering around US\$ 110/share in 2017 which implies a forward PE multiple of 22x.

"A business earning 20 percent on capital can produce a negative real return for its owners under inflationary conditions not much more severe than presently prevail."

-Warren Buffet-

An Indonesian case

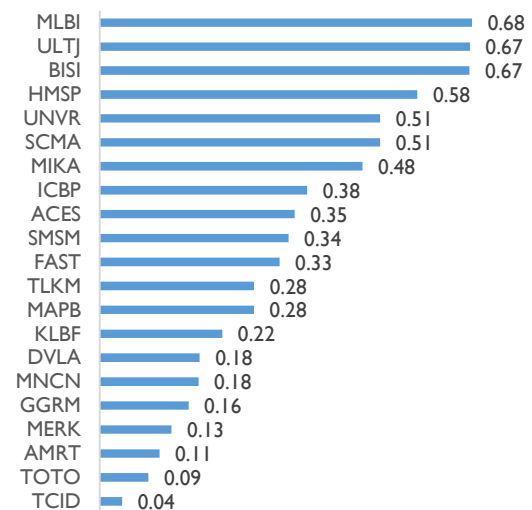
We embarked on an exercise to see if there are any Indonesian companies that have the desired characteristics to deal with inflation. We use the following criteria as a proxy for Buffet's attributes to identify the companies:

1. Own a strong brand (as a proxy for pricing power)
2. Have high operating cash flow as % of sales (as a proxy for cash flow generation)

3. Have low capex as % of sales and high sales CAGR in the past 10 years (as proxy for capital allocation efficiency)

Ability to grow without spending

Additional cash generated by selected Indonesian companies for each additional invested rupiah, over the years 2008-2017.



Note: the values in the graph above are calculated for each company by dividing the increase in NOPAT (Net Operating Profit After Tax) over the 2008-2017 period, by the increase in Invested Capital over the same period.

Source: Bloomberg, Heyokha

The chart above shows a list of companies that satisfy the screening criteria, and are ranked by their ability to generate additional net operating income after tax (NOPAT) from every additional dollar spent on invested capital.

Obviously, the challenge is to find companies that rank high on these metrics, yet the valuation is still reasonable. Also, we prefer those companies that we think can withstand headwinds from disruption.

For example, Unilever Indonesia (UNVR) and Indonesian leading cigarettes maker HM Sampoerna (HMSP) with their brand and supply chain moat are trading at very high multiples.

Interestingly, the company that ticks all the boxes is actually one of our portfolio companies BISI. This company happens to be the partner of Monsanto in Indonesia.

We mentioned this Indonesian seed maker in our earlier reports but in this report, we would like to



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focus on the ‘anti-inflation’ characteristics that BISI has.



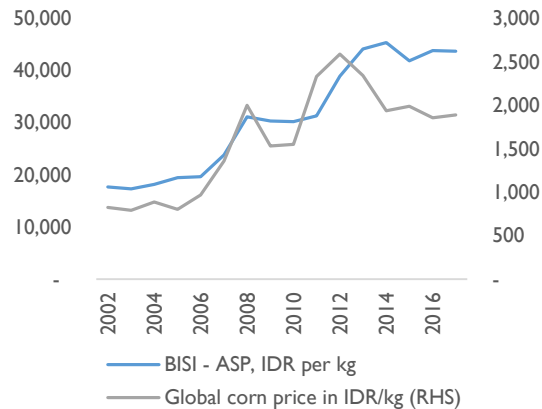
Click [here](#) for our IQ 2016 report

Pricing power

BISI has a very strong brand which enables them to command more than 50% market share in Indonesian corn seed market. The ability to increase seed selling price regardless of the global corn price cycles in the past 15 years is a fitting testament to BISI's pricing power.

BISI pricing power

BISI corn seed average selling price vs. global corn price in IDR



BISI average selling price has been increasing steadily and accelerates when corn prices spike up

Source: Bloomberg, Company data

Granted that the Indonesian government has restricted corn imports since 2015, delinking Indonesian and international corn prices. Yet, we observe that BISI also managed to raise its selling prices prior to this de-linkage, regardless of the international corn price volatility (2002-2014).

The charts above are consistent with what we learned from talking to agri shop owners in some corn producing areas in Indonesia.



Eye-level is buy level. BISI corn seed dominated all eye-level shelves in an agrishop in Mojokerto, East Java, Indonesia. Previously, it was occupied by Monsanto and Pioneer (Dupont). Source: Heyokha

Many have shop owners decided to give more shelf space to BISI and cited that farmers are not very sensitive to the price of corn seed. This is rational given that the cost of seeds makes up only 6-7% of total planting cost.

As an aside we would like to point out that without corn import restrictions, the domestic corn price wouldn't be much different from current landed imported corn prices, thanks to rupiah depreciation and increase in transportation cost.



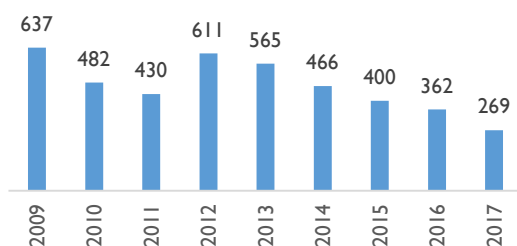
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Cash flow generation.

With the prudent working capital management accompanying pricing power, this business is a cash cow. The highlight of this company has been consistent free cash flow generating capability and high dividend payout.

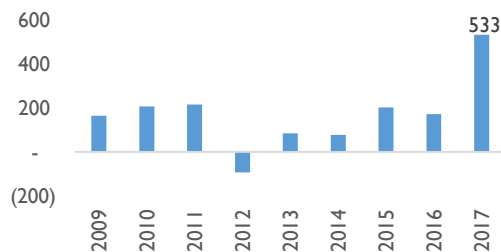
BISI cash flow generation

BISI cash conversion cycle in days



Since the new CEO took over in 2009, BISI working capital has been steadily improving. The long cash conversion cycle is compensated by high profit margins.

BISI free cash flow in billion rupiah



Assuming stable margins and cash conversion cycle, every dollar in sales will translate to thirteen cents of operating cash flow or eleven cents of free cash flow.

Source: Company data

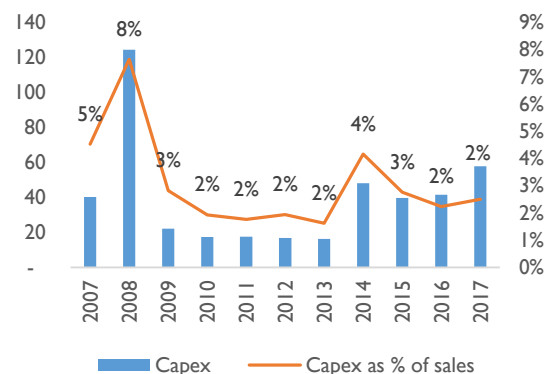
Cash conversion chart ABOVE suggests a relentless focus to improve on working capital management (left). BISI has paid-out almost 90% of cumulative free cash flow to its shareholders since 2011 (one year after they are in net cash position), a good indication of capital discipline.

Ability to grow without spending much capex.

For BISI to grow its business, not much investment is required. As the chart below shows, BISI sales grew rapidly without much capex. The capex to sales is as low as 2%.

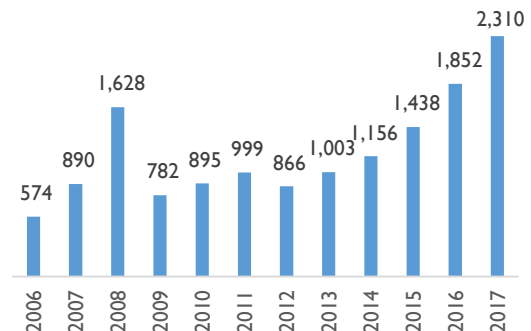
By only spending capex around 2-4% of sales per year. . .

BISI capex in billion rupiahs and as % of total sales



. . .BISI sales grew nearly threefold in the past five years

BISI revenue in billion rupiah



Source: Company data

We would like to add that thanks to BISI's dominance in the corn seed industry and long-term partnership with Monsanto, it was in a very good position to acquire Monsanto Indonesia's state-of-the-art production facility at a very attractive valuation (discussed more below).

As a result of this acquisition, BISI managed to expand its seed production capacity by 60% from 40k tons to 64k tons without having to do the heavy lifting, precisely when the demand momentum is building up.



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On seasonality and volatility...

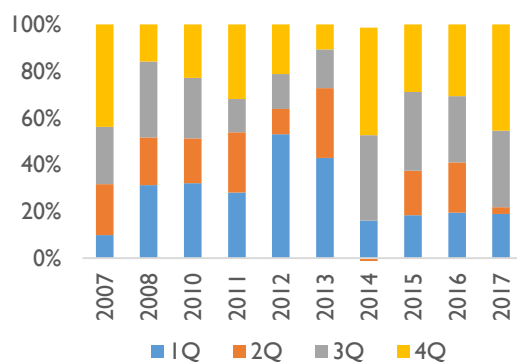
In a world of passive investing, in addition to low liquidity and volatile quarterly earnings (weather can shift the planting seasons), BISI's shares have been overlooked by the market and valuation-wise trades below its (even inferior) peers.

This presents a great opportunity to accumulate shares in a business that should be able to perform well even when inflation strikes.

In fact, during the agflation periods in 2007-2008 and 2010-2012 BISI managed to increase both its top line and bottom line. In other words, past experience suggests that agflation may serve more as a tailwind than headwind for this business.

BISI quarterly EPS volatility

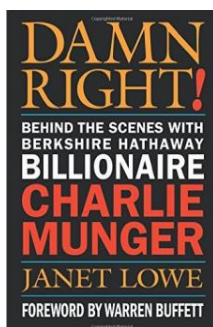
BISI quarterly EPS as % of full-year EPS



BISI average selling price has been increasing steadily and it will accelerate when corn price spiked up

Source: Bloomberg, Company data

As for Bisi's seasonal earnings that are driven by weather-related planting seasons, it is a good idea to read "*Damn Right, Behind the Scenes with Berkshire Hathaway Billionaire Charlie Munger*" by Janet Lowe. In this book, the lessons that Buffett and Munger learned from See's are clearly outlined.



One of the lessons is that a "volatile" business can be a good business – See's business is very seasonal, with more than 90% of sales being generated in the three weeks leading up to Christmas.

Yet, it is very profitable. In case other investors price in

this "risk", you may find the price to be a bargain, according to Munger.

Nothing is more obstinate than a fashionable consensus.

-Margaret Thatcher-

How does BISI turn into a local champion?



Ex-Monsanto state-of-the-art seed a factory in Mojokerto, East Java
Source: Heyokha

Recently, we visited BISI's new seed processing plant that they acquired from Monsanto Indonesia. In November 2017, BISI paid Rp164bn (US\$ 12mn) for Monsanto's state-of-the-art production facility in Indonesia together with rights to produce and market Monsanto's corn seed brand, Dekalb.

Previously, BISI already had a close working relationship with Monsanto through a licensing agreement for some of the BISI's corn seed products. However, BISI and Monsanto were also competing fiercely in the market, with Monsanto running its own brand Dekalb.

The asset divestment by Monsanto's marks its exit from the Indonesian market after just 8 years of operation. Despite having the advantage of access to a global gene library and a big global scale operation, Monsanto found it very challenging to

compete with leading local players in Indonesia, BISI in particular.

In addition to possessing local knowledge of which seeds are more suitable for certain areas/climate in Indonesia, BISI also boasts about its unmatched sales team and distribution network. BISI's salespeople managed to connect better with their farmer customers.

Moreover, BISI has developed a strong relationship with various governmental bodies. This tie-up with the government allows BISI to participate in the seed subsidy program.

Participation in this program is important not only for the immediate impact to earnings but also for the opportunity to introduce their hybrid seed brand to farmers.



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After three consecutive years of losing market share, Monsanto's plant was only running for four months in FY2017. The utilisation rate was even lower, less than 20%, suggesting they were incurring big losses.

For Monsanto, it made a lot more commercial sense to work together with BISI and earn a royalty fee for the corn seed that is based on Monsanto's gene.



BISI sponsored a local event, mass circumcision for the young boys from the neighborhood. We were there and saw that the program received a very warm response from the locals.
Source: Heyokha

In addition to poor utilisation, Monsanto was also facing an uphill battle dealing with the surrounding locals. Their relationship was not exactly harmonious and marked by several protests and even a gate blockage.

The reason that triggered the protest was trivial in nature, such as a lack of understanding in participating in some local events. We trust that BISI, with their localised approach, will be able to turn the situation around and improve the relationship with the locals.

That's already half of the game in this industry. Already, community leaders have been invited to visit the factory by BISI, the new owner.

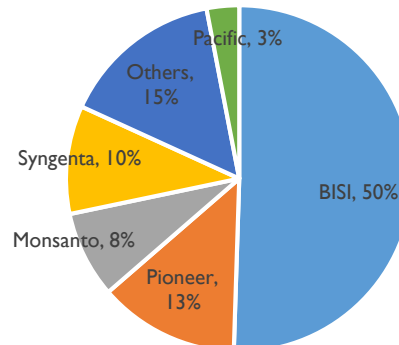
For BISI, we believe that the deal is very lucrative given that the price tag of merely US\$ 12mn will expand its production capacity by 60%.

Replacement cost, apple to apple, is a multiple of this amount. Not to mention that BISI also secures a very valuable license to produce and market

Monsanto's products, cementing the existing relationship between the two companies. Also, by taking over Monsanto's facilities, BISI gains a rare chance to learn from international best practices in seed making.

BISI is the market leader

Hybrid corn seed market share in 2016



Source: Bloomberg, Company data

Another important aspect of this BISI-Monsanto deal is the realisation that BISI's profitability is more of an exception rather than the norm in the industry.

Before the acquisition, Monsanto commanded 8% market share, yet it was still bleeding. It is hard to imagine that other competitors such as Syngenta, with a market share that is only marginally better than Monsanto, is in a much better position than Monsanto.

In fact, an USDA report¹ stated that the seed subsidy program of the Ministry of Agriculture has eroded margins for seed producers, leading to cash flow problems and a drop in seed production.

We believe this applies to most of the other seed companies, especially the smaller scale players. Going forward, with weakening competition, the incumbent will certainly have stronger bargaining power in terms of pricing and payment terms.

¹Sugiarti Meylinah (2017, November). "Indonesia Grain and Feed Update November 2017" USDA Foreign Agricultural Service. Retrieved from

https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Grain%20and%20Feed%20Update_Jakarta_Indonesia_11-30-2017.pdf

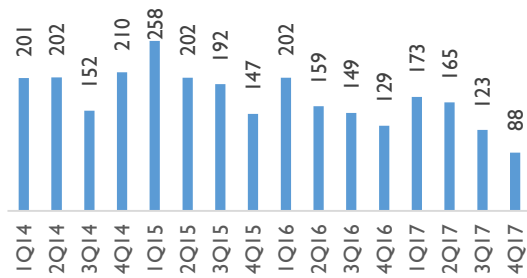


**HEYÓKHA
BROTHERS**

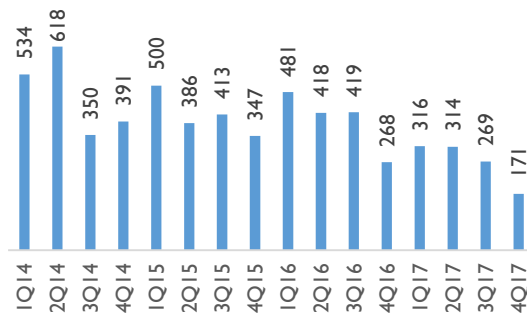
This has started to happen as indicated by the charts below.

Dominant market share has improved collection days and overall working capital

BISI quarterly receivable days



BISI quarterly cash conversion cycle



BISI's improving working capital is the reflection of the company's stronger bargaining position. BISI could grow even more dominant in the coming years, as competitors are struggling.

Source: Company data

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-The End-

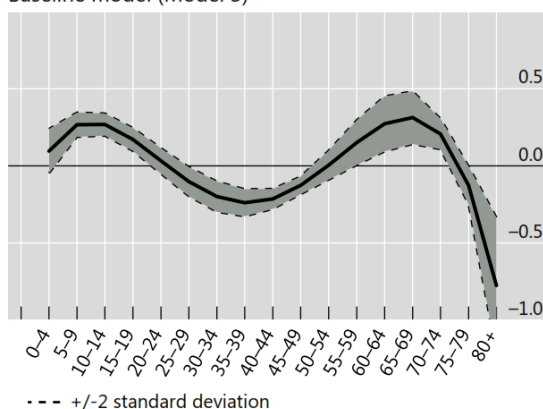
----- Appendix I -----

The relationship between demography and inflation

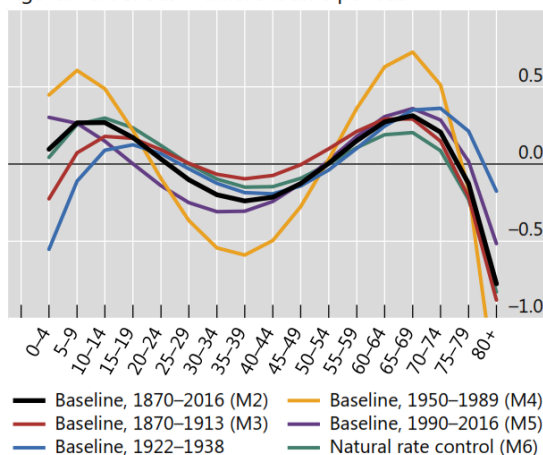
Credit to Matthew Sigel from CLSA, we came across a thought-provoking viewpoint on inflation. A study by Bank for International Settlements (BIS) shows that there is a relationship between demography and inflation. The current emerging inflationary trend could be amplified by the changing global demographic structure.

The working age population group creates disinflationary pressure as they save more than they consume to prepare for retirement. On the other hand, inflation comes from the old and young population (the dependents) as they are spending more than they save. The gap is more evident in emerging markets where social safety nets are less strong (government benefits).

Baseline model (Model 3)



Age-cohort effect in different time periods



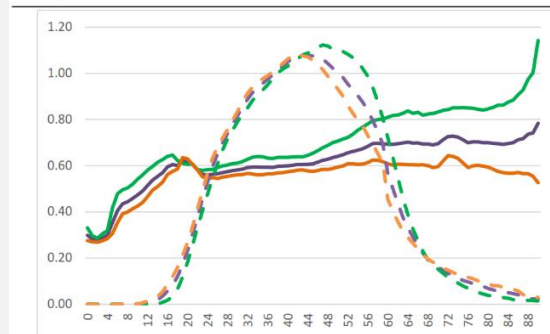
The working age creates disinflationary pressure, while the young and old population creates inflation (except for the very old population). Horizontal axis represents age group and vertical axis represents the effect on inflation.

Source: BIS Working Paper

Consumption rises over the life cycle¹

Annual per capita normalised flows of incomes, in dashed lines, and consumption, continuous lines.

Graph 6

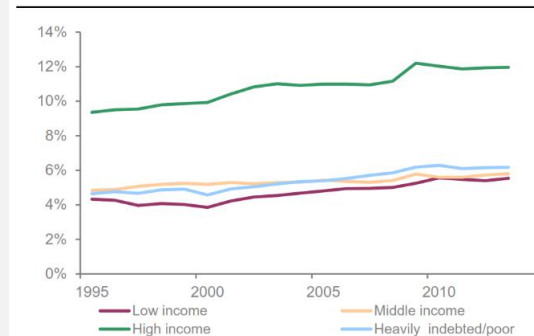


¹ Values are normalised by dividing the simple average of labour income for individuals 20–49 years old.

Health expenditure rising globally

Health expenditure as a percentage of GDP

Graph 7



On the left, dotted line represents saving and solid line represents consumption. The young and old population consumes more than they save, also caused by higher health expenditure for older population.

Source: National Transfer Account, BIS Working Paper, World Bank

In the last few decades, global inflation was constrained by the increasing portion of the working age population since the late 1960s. Good examples would be China and Eastern Europe.

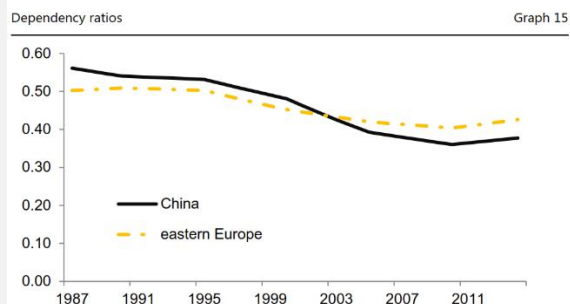
The demographic boom has caused their dependency ratio to fall since the 1980s, which created an abundance of cheap labour that subdued global inflation for a long time.

Now the trend has reversed. The increase in dependency ratio has started to put inflation on wages, while at the same time it stimulates consumption and lowers saving.

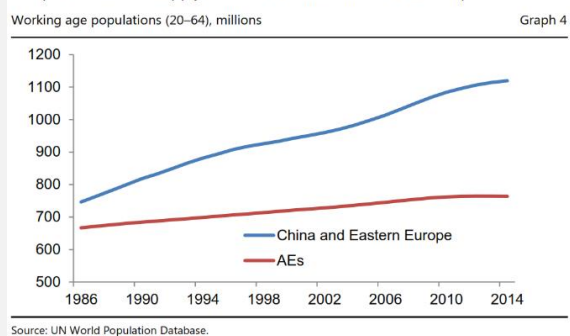
What makes it more impactful is that this occurrence is not specific to China and Eastern

Europe, but it is a global trend. Demography is now in the favour of inflation.

Total dependency ratio in China and eastern Europe was falling sharply, and is now turning up



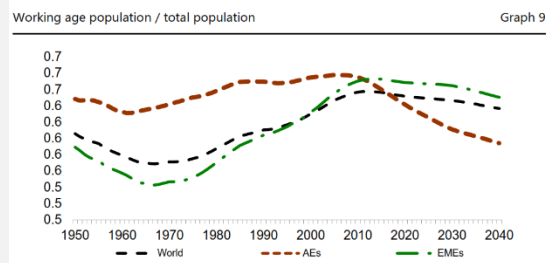
The positive labour supply shock from China and eastern Europe



AEs = advanced economies

Source: UN World Population Database, BIS Working Paper

Size of the working age population is already falling

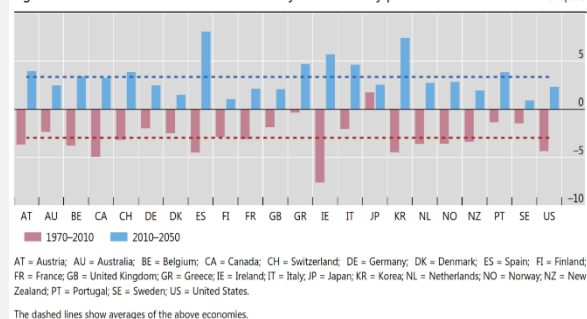


Source: UN World Population Database, BIS Working Paper

The research estimates that over the 1970-2010 period, inflationary pressure has been lowered by approximately 3% in total due to the growing portion of the working age population (red dotted line on the chart below).

Now, the opposite will occur as decreasing working age group may add inflationary pressure by around 3% (blue dotted line on the chart below) for the 2010-2050 period.

Age structure effect: a turn from disinflationary to inflationary pressure



Source: UN World Population Database, BIS Working Paper

Catalysts for higher oil price

A major part of the recent rally in oil prices was due to disruptions to the supply side, and we believe that these supply interruptions are likely to persist. We discuss below the findings that support our bullish view on oil prices.

• Major oil producers are still holding back on expansion

As conversed in a Wall Street Journal article “*Big Oil Firms Hold Back on Drilling*” dated 27 April 2018, ConocoPhillips’ share price rallied when it announced a share buyback, rather than an increase in capital spending.

In contrast, the share price of Exxon tumbled as the company announced that they have not reinstated the share buyback program, saying that they put higher priorities on reinvesting in attractive energy prospects.

The point is that the risk and reward system encourages energy companies to focus on short-term return, at the expense of lower capital spending and long-term value creation. Investors prefer oil producers not to sow the seeds of higher oil production to meet demand, despite signs showing that the oil glut era has come to an end.

Although oil prices have surged by around 50% since last year, drilling budgets at the oil-and-gas companies globally increased by only 11% for 2018, according to Wood Mackenzie.

Capex plan of major oil producers				
US\$ bn	2017	2018 Plan	Change (\$)	Change (%)
Chevron	19.0	18.3	(0.7)	-3.7%
Brisith petroleum	16.7	15-16	(1.2)	-7.2%
Royal dutch shell	25.0	25-30	2.5	10.0%
Total	14.4	14-15	0.1	0.7%
Petrobras	13.6	17.3	3.7	26.8%
Exxon	23.1	24.0	0.9	3.9%
All	111.8	117.1	5.3	4.7%

Source: Company data, Heyokha

A study by Norwegian research firm Rystad Energy pointed out that oil companies discovered less than seven billion barrels of oil and gas in 2017. This was the lowest number on record, replacing only 11% of 2017 oil and gas production.

The last time the world discovered enough oil and gas to entirely replace production was in 2006. Equally thought-provoking, since the beginning of

the shale revolution a decade ago, we have discovered 110bn barrels of oil vs. total consumption of 360bn barrels. The deficit certainly has only grown.

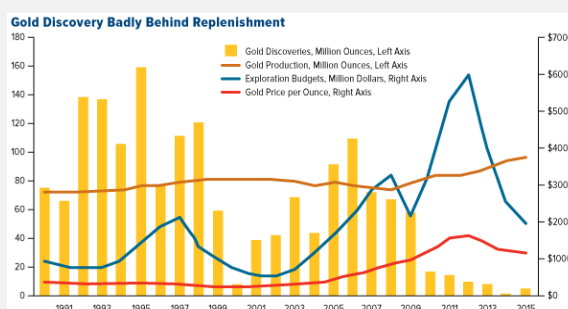
According to BP, global proven oil reserves increased by only an annualised 0.1% from 2013 to 2016, down from 4.9% in 2007-2010. Meantime, global oil consumption increased by an annualised 1.6% from 2013 to 2016.

As an aside, what is going on in the oil and gas industry, i.e. oil and gas discovery is not enough to replace production, is also occurring in the gold mining industry.

Gold miners’ capex is still kept at a low level and production by far surpassed new discoveries. In 2010 - 2015, the discovery of gold deposits only managed to replace around 12% of production.

According to Pierre Lassonade, the founder of Franco-Nevada, every decade between the 70s to the 90s, the industry found at least one 50+ million-ounce gold deposit, ten 30+ million-ounce deposits, and a countless of 5 to 10 million-ounce deposits.

However, in the past 15 years, there is no new discovery of 50-million-ounce deposit, no 30-million-ounce deposit, and only a very few 15 million-ounce deposits.



Source: Randgold Resources, MiningWeekly, U.S. Global Investors

• Growth in U.S. shale oil production is likely to be limited for a while

Shale oil has been a major contributor to oil production growth from the U.S. However, it has become increasingly more difficult to discover

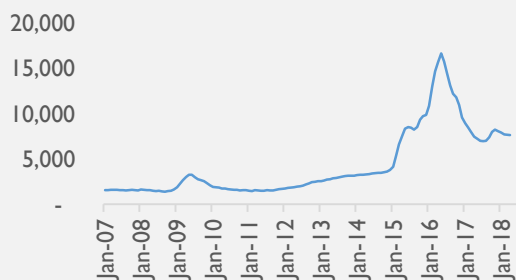
productive shale oil wells, as shown by the decline in average oil rig productivity.

Also, Midland oil price (the benchmark price for Permian Basin oil, the biggest U.S. shale field) is at a huge discount compared to WTI oil benchmark, due to capacity limitations on the existing oil pipeline and other infrastructures in the area.

Furthermore, there is no major pipeline in the Permian Basin that is expected to open before 2H19; we believe that production growth in the biggest shale field is limited for now.

Average U.S. shale oil production per rig

In barrels/day

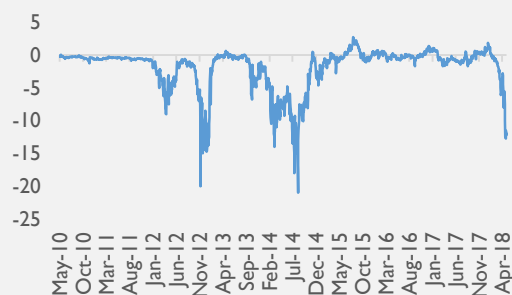


Weighted average of U.S. shale oil production in top seven shale regions in the US: Anadarko, Appalachia, Bakken, Eagle Ford, Hynesville, Niobrara, and Permian basin

Source: Bloomberg, OPEC

US Midland Oil Price Discount to WTI

In US\$/barrel



Source: Bloomberg, U.S. Energy Information Administration

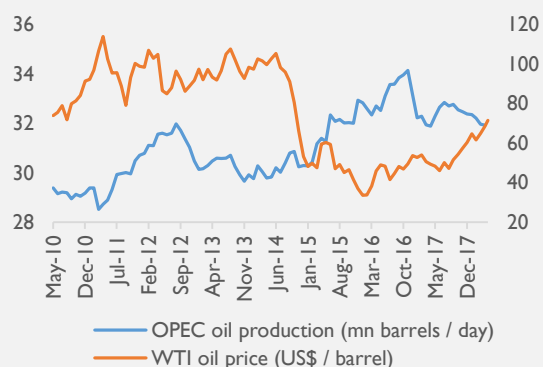
• Extended production cut by OPEC, Russia, and other oil producing countries

OPEC and ten non-OPEC oil producers including Russia have agreed to extend oil production cuts until the end of 2018. In March 2018, OPEC oil output dropped to an 11-month low, and compliance rose to 159% of the agreed production

cut. Interestingly, there was no signal from other producers to compensate the declining output from Venezuela.

Oil output from Venezuela has plummeted to almost a 30-year low, excluding the major strike in 2003. The flight of talents since 2003 did not help. Considering social-political issues, shortage of

OPEC oil production vs. oil price



Source: Bloomberg, OPEC

Venezuela Oil Production

in thousand barrels per day



Source: Bloomberg, OPEC

talent, equipment, and investment, combined with the possibility of US sanctions, it is hard to imagine the trend will reverse anytime soon.

• Middle East risks: domestic issues alone are enough to send oil price higher?

Tensions in the Middle East have continued to escalate, creating fear that it would morph into a full-scale war and as such poses a threat to global oil supply.

The good news is that appetite for war seems to be already so reduced in the Middle East. By this time, the region is exhausted from all the fighting.

We are hopeful that the conflict in the Middle East can be resolved peacefully and there are reasons to believe that this might be the case. We doubt that Israel has any appetite for a major conflict.

They are by and large on a defence mode. In general, it is known that Israel will never enter into a war unless they are 99% sure they will win the war. And the regional development suggests that the odd is increasingly stacked against them.

A case in point is Iran, one of Israel's major rivals in the region. Under the leadership of Iran-Iraq war survivor Qassem Soleimani, the Quds force – the foreign expeditionary army of Iran's Islamic Revolutionary Guard – has now turned into a sophisticated hybrid army.

From what we have been reading, the Quds force is comprehensive with sophisticated intelligence, cyber warfare abilities, a network of insurgents, and financial backing.

However, even without a major conflict in the Middle East, we may still have to be prepared for an era of higher oil prices. We believe that the domestic issues surrounding some of the most important oil-producing countries in the Middle East are enough disruption to global oil supply.

Saudi is struggling with its own domestic issues surrounding the reform effort. Even Aramco IPO plan is not yet certain. Saudi can barely manage the mess in neighbouring Yemen.

Meanwhile, Iran is facing major economic difficulties that are worsened by the recent imposition of economic sanctions by the US. A war will be very costly for Iran when real growth is under 2%.

The Rial is a warning signal. The country may be on the verge of social unrest and we are talking about a nation that contributes around 4% of global oil production.

The risk of splintering Iraq, war or no war, could also be very challenging for oil price. An imploding Iraq could send oil price much higher since Iraq supplies 5% of oil globally.

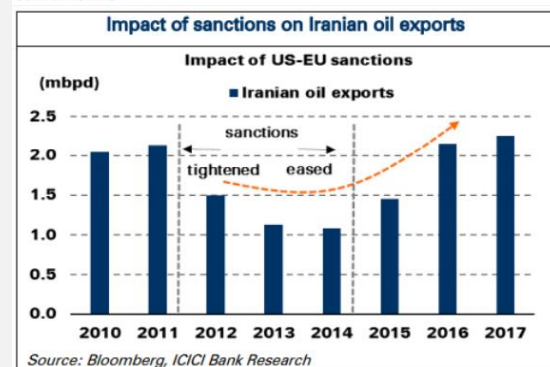
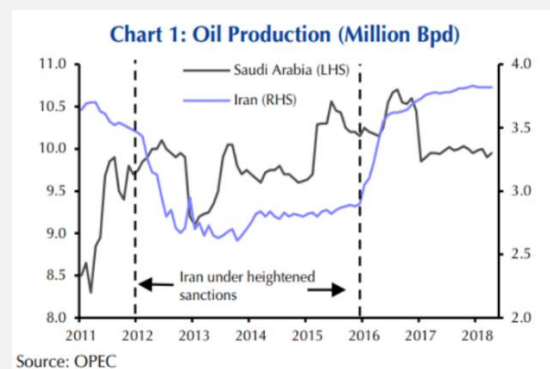
Lybia post-Gaddafi is already a failed state and the country is responsible for 1% (down from 1.7% during Gaddafi era) of the global oil production.

Little by little, at the end everything adds up big.

Re-imposition of U.S. sanctions on Iran

In May 2018, the U.S. decided to withdraw from the Iran nuclear deal and re-impose economic sanctions on Iran. The prohibition of companies to do business with Iran will lead to many foreign investors pulling out of the country.

For instance, Total SA, Iran's largest foreign investor in the energy sector, is planning to back out from its \$1bn gas project in Iran within six months, unless they can get a waiver from U.S. sanctions.



When Iran was previously sanctioned in 2012, the country's oil export declined by 50% or around 1 million barrels per day. This represented 1% of the global production volume.

Source: Marketwatch, OPEC, ICICI Bank Research

Update on agriculture data: the incremental/growth is real

In 2Q 2017, we wrote about the latest data from Ministry of Agriculture in 2016. Recently, both Ministry of Agriculture and US Department of Agriculture Jakarta office also issued the latest number on rice and corn production and harvested area.



Click [here](#) for our 2Q 2017 report

We understand that conflicting data exist regarding the Indonesian agriculture sector. The government and other non-government institutions have a different approach and method in calculating the farmland area, production, and import.

Since it would require a good amount of resources to verify the agriculture data, we choose to focus on the “delta/growth” since the government starts to revamp the agriculture sector.

In 4Q 2015, we wrote about Indonesian government’s agriculture reform program. Since then, data indicated that agriculture activities continued to pick up. There are numerous programs that continue to support the sector such as dam and irrigation development, free hybrid seeds and farming equipment to modernise Indonesian farming.



Click [here](#) for our 4Q 2015 report

The government planned to build 49 dams in the 2015-2019 period and by end of 2017, there were 36 dams in construction. It is 73% of total target within three years.

Credit goes to Ministry of Public Works Basuki Hadimuljono, considering the size of the land needs to be acquired to build a dam. In 2017 alone, Ministry of Public Work has built 117 retention basins and 226,000 ha irrigation, beating their initial target.

Aside from the Ministry of Agriculture and Ministry of Public Works, the central government also helped to accelerate the village development through the village fund program.

As we wrote in 2Q 2017, there are approximately Rp500tn (US\$ 38bn) total funds flowing to the villages. Most of the village fund is spent on last mile irrigation, retention basin, and basic infrastructure which will drive the agriculture activities.

According to American anthropologist Clifford Geertz, adoption of the better types of seed and fertiliser will gain momentum only once the leading input, i.e. irrigation, was in place. India is a case in point.

A study by Bhalla and Alagh² in 1979 found that access to irrigation networks allowed farmers in many areas to take advantage of the new technologies, leading to significant yield improvement.

As such, we continue to see a significant increase in food crops harvested area and production.

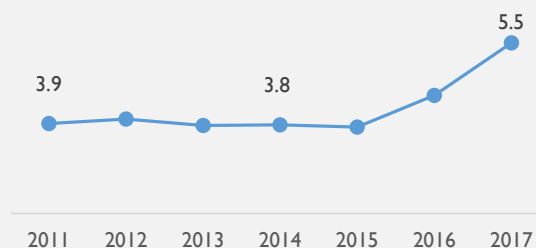
² Bhalla, G.S. and Alagh, Y.K. (1979) Performance of Indian Agriculture: A District-wise Study, Sterling, New Delhi.

Corn harvested area: MoA vs. USDA data

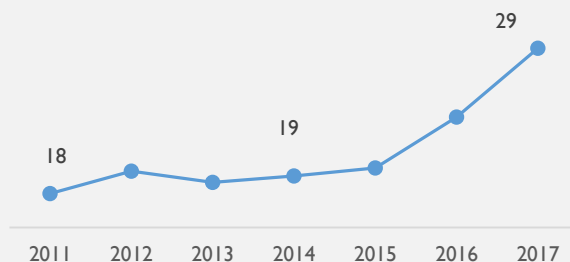
Ministry of agriculture data

Corn harvested area and production, rice harvested area and production 2011-2017

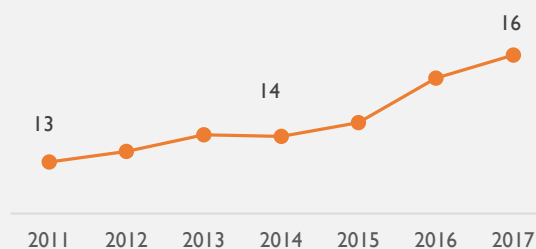
Corn harvested area in million ha



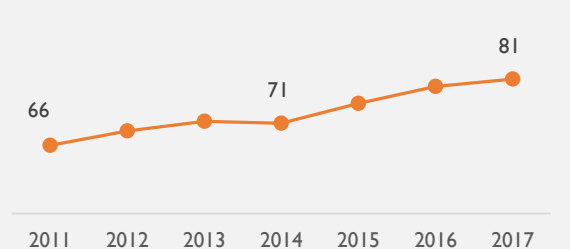
Corn production in million ton



Rice harvested area in million ha



Rice production in million ton

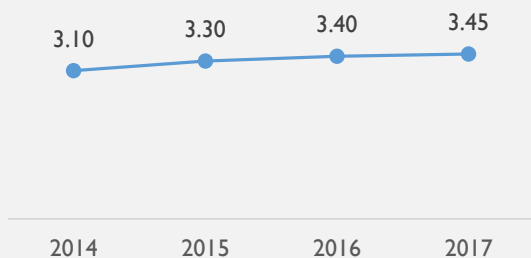


The government's effort in reforming the sector continues to bear fruit. In particular, corn harvested area have been expanding rapidly thanks to the well-executed corn seed subsidy program and utilisation of idle land, such as young forestry area and palm oil plantation.
Source: Ministry of Agriculture

USDA data

We also would like to call attention to a contrasting data from USDA (US Department of Agriculture) that suggested a significantly lower growth in the past four years. The gap with the government's data is big. In 2017, government data suggests 5.5mn ha corn harvested area. USDA's number is 3.45mn ha, which means a gap of 2.05mn ha!

Corn harvested area in million ha



We believe that USDA data tend to understate the corn area expansion. Take a look at pesticide sales data, for example. We argued before that pesticides sales by commercial producers should be a fair proxy to indicate production trends in farming activities.

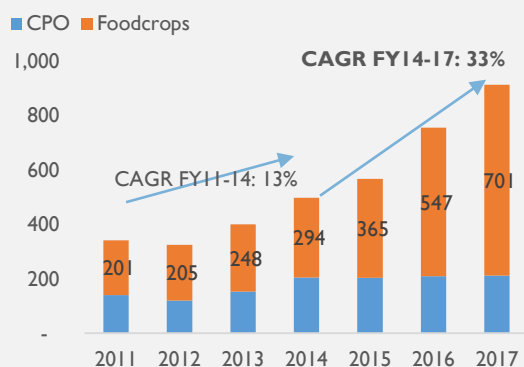
Unlike seed and fertiliser, pesticide is least prone to substitution effects. For example, commercial seed purchases can be substituted by seeds grown by farmers themselves, while commercial fertilisers can be substituted by organic waste.

Source: US Department of Agriculture (USDA Indonesia)

For pesticides, however, there are hardly any substitutes. Homemade organic pesticides, for example, are barely scalable and too ineffective to save one's farmland from becoming an all-you-can-eat buffet for insects and pests.

BISI pesticide sales accelerated since the agri reform in 2014

In billion rupiah



Source: Company data

BISI reported +33% CAGR pesticide sales growth in the food crops area growth during the Jokowi agri reform (2014-2017) while its market share did not change much. It is a significant acceleration from the 13% CAGR 2011-2014 before the reform kicked in.

Another set of data also indicates that USDA data are too conservative. If we look at data from SOE Forestry company Perhutani 2016 annual report, no less than 118k ha of their forestry area have been allocated for corn intercropping by the local farmers.

Separately, the SOE plantation company PTPN 2 has stated that approximately 73k ha of corn has been intercropped by local farmers in the PTPN's palm oil areas. Young palm oil trees are not yet productive, thus planting corn as the intercrop makes sense.

The sum of 118k ha from Perhutani and 73k ha from PTPN 2 alone is 191k ha incremental corn harvested area. This is already bigger than the entire increase in corn harvested area from 2015 to 2017 based on USDA data!



Young forest and CPO area owned by SOE utilised by local farmers to plant corn.

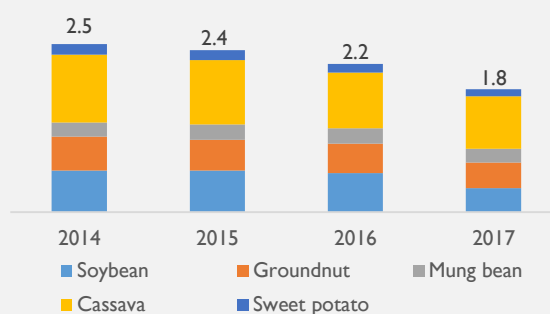
Source: Agribisnis, Heyokha

Moreover, we do not believe that the government data on planted areas is so inflated given that the increase in corn harvested area could be explained by the shrinking harvested area of other food crops.

From 2014 to 2017, corn harvested areas have increased by 1.7mn ha. And the expansion is being compensated by other food crop areas shrinking by 0.7mn ha in the same period.

Other food crops harvested area excluding corn and rice

In million hectares



Corn harvested area has been increasing at the expense of other food crops. We believe these areas could only be converted to corn since rice/paddy requires irrigated area.

Source: Ministry of Agriculture

The explanation for the expansion in corn harvested area is mainly economics, as favourable domestic corn price has encouraged farmers to switch to corn farming.

Another reason is that some other crops have yields that are not competitive globally. For instance, Indonesian soybean production yield is only 1.5 ton/ha.

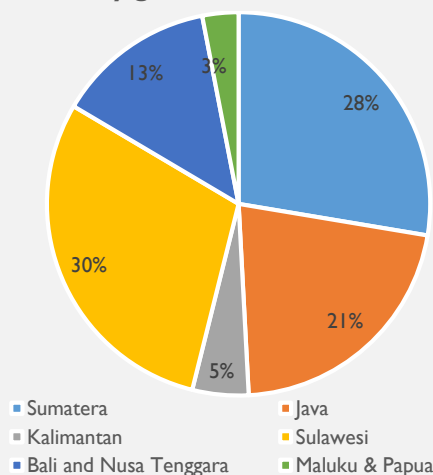
This is less than half of US yield of 3.4 ton/ha using GMO seed. In the end, soybean is more ideal for subtropical countries rather than tropical given that soybean is more drought sensitive relative to corn.

In summary, adding corn intercropping from young forest and CPO areas and conversion from other food crops already explains 0.9mn ha out of 1.7mn ha increase in corn harvested area.

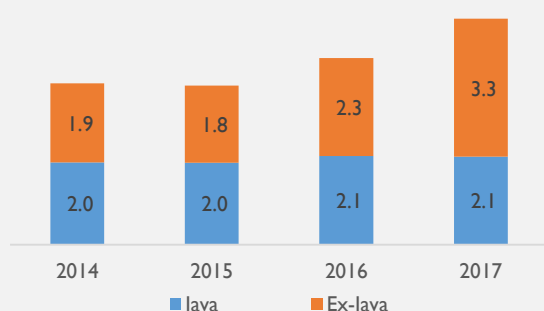
The rest could easily be explained by recent village infrastructure build up. New dams, water basins, and better irrigation systems have increased the number of plantings per year.

And of course, the free hybrid corn seed program makes a big difference. Given that there is less room to expand the corn area in Java due to the population density, Ministry of Agriculture has been focusing on creating new area outside of Java

Corn seed subsidy distribution geographically, Java only got 20%



Corn harvested area outside Java is greatly expanded, thanks to corn seed subsidy



Free hybrid corn seed distribution has been well executed since it has led to an increase in corn harvested area, especially outside Java. Well-targeted corn seed subsidies have created new corn belts. Ex-Java such as Sumatera, Sulawesi, and Nusa Tenggara have transformed into new corn belt.

Source: Ministry of Agriculture

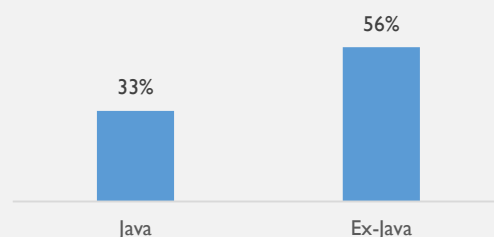
through allocating 80% of hybrid corn seed program in the regions other than Java.

Islands outside of Java have seen a significant increase in corn harvested area after receiving sizable hybrid seed allocation. This indicates that a lot of the free seeds are distributed to create new corn area the increase of total corn harvested area.

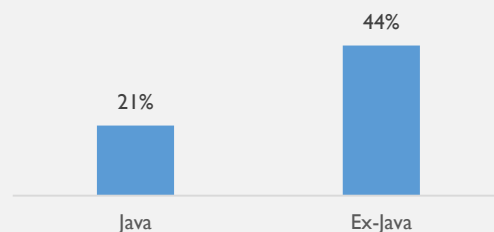
To verify this data, we compared with BISI sales growth based on geographic and indeed the ex-Java regions experienced a stronger sales growth than Java.

BISI sales outside Java growing stronger than Java, which is in-line with the govt data

BISI corn seed sales growth in 2017



BISI pesticide sales growth in 2017



Source: Ministry of Agriculture

To sum up, there is no way to know exactly which data is accurate. This gap of 2mn ha is so big that it needs closing. Simple approaches, however, suggest that the actual figure is somewhat closer to Indonesian government's data.

What if question

By now, it is clear that the current Indonesian government prioritises agriculture reform. As we are soon entering the election year in 2019, the question is what will happen next.

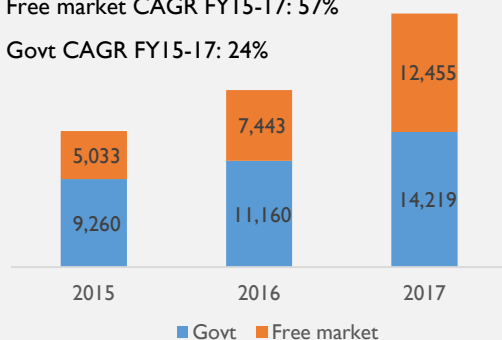
If President Jokowi manages to secure a second term, it is obvious that he will continue the reform agenda. In fact, his agri reform efforts may even be accelerated. However, in the less likely scenario

Corn seed sales to the free market have been the growth driver for BISI sales

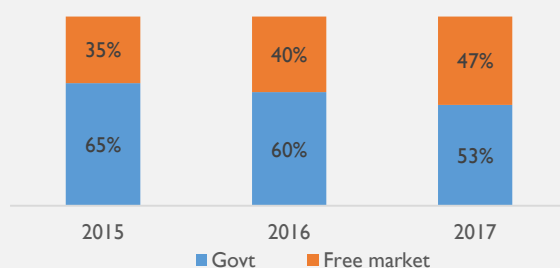
BISI corn seed sales volume in tons

Free market CAGR FY15-17: 57%

Govt CAGR FY15-17: 24%



BISI corn seed sales breakdown



Strong free market growth indicates a follow-through demand of hybrid seed after experience farmers tried free corn hybrid seed from the government.

Source: Company data

(based on current surveys) that the opposition wins the 2019 election, we believe the impact to the sector might not be very significant. This is because of a very simple reason: the new government can't undo the basic physical infrastructure that the Jokowi administration has built.

For instance, all the irrigation and dams that are currently being built will increase the harvested area further. The change is already structural and can't be rolled back.

It is true that some policies are reversible. For example, the hybrid seed program can be cancelled. Still, we do not think the majority of farmers will switch back to the conventional seed.

As the chart shown above, BISI saw a strong growth in the free market segment from 2015-2017. This indicates the willingness of farmers to pay up for good quality seed after they experienced much-

improved productivity post receiving free hybrid corn seed from the government.

Hence, even if the free hybrid corn seed were removed, it should not result in a significant decline of hybrid corn seed adoption as farmers have experienced high yield and significantly higher income.

To be conservative, even if sales volumes would contract after the removal of the free hybrid seed program, BISI would be compensated by a higher average selling price (and of course this means higher margin too). Therefore, the impact to the net income is minimum, at worst.

4Q 2017 result as a crystal ball for the "what if" scenario

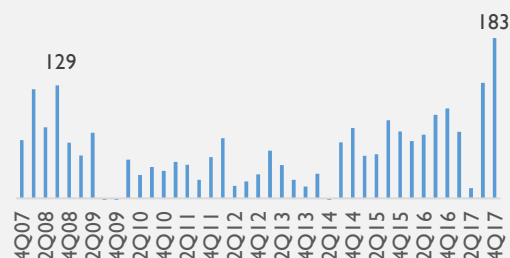
To get a preview on how BISI financials would look like if the seed subsidy program would be scrapped, we can look at BISI's 4Q 2017 financial statement.

The reason is that more than 80% sales in that quarter went to the free market segment, as the government had completed their 2017 seed disbursement in the previous quarters. Despite that, BISI sales growth remained robust, registering 27% growth YoY, reflecting farmers' willingness to pay up for quality seed.

Equally interesting, is that BISI reported the strongest EBIT and net income ever (in absolute number), even surpassing the levels during the soft commodity boom in 2008. In 4Q 2017, the company showed how profitable their business is, without the government seed subsidy program.

BISI quarterly net income

In million hectares



In 4Q 2017 BISI quarterly net income have surpassed 2008 level

Source: Company data

A life lesson from a laundry lady

By Wuddy Warsono

Okay, by now I had fully accepted that I would be spending Chinese New Year's Eve alone, in my hospital room in New York.

Since this was my first time doing so, I was tempted to read some tips on how to deal with New Year blues. Admittedly, I typed "How do you deal with loneliness on New Year's Eve?" on Google, but then decided not to proceed. I suspected I would feel even more miserable after reading the tips.

Then, around 6 pm, someone knocked on my door. It was the lady who helps me with the laundry. Earlier today, she asked me if I wanted anything for New Year's Eve. I told her that – me being Indonesian – nasi and mie goreng would do the trick. She didn't respond...

Now there she was again. It didn't take long before a familiar spicy aroma filled the room and gave away what was in her bag; nasi and mie goreng!

I asked her if she would join me for a bit and she gracefully accepted. I am sure her family was waiting for her. Yet, she was willing to spend about half an hour with me, so that I felt better. I tried to pay for the food, but the lady said she was happy to treat me. She declined the money.

Maybe all along I have been too busy, too absorbed by a demanding work schedule, to notice kind acts by strangers around me. Or maybe such kindness is rare. I really don't know.

What I do know is this: what she did was sweet and generous, especially because she doesn't know me. The kind act of a stranger is very contagious. I feel like being helpful to people around me, whether I know them or not. I want to "repay" the sincere kindness of this lady.

In other words, she made the world a better place, if only for a little bit, through a simple yet powerful act.

We actively look for the antidote for loneliness in our portfolio

The experience with the laundry lady inspired us and reminds us of what is really important in life. One area that we have been focusing on - and more so in the future – are investable solutions to one of the biggest endemic problems in today's life: despair over loneliness.

Former Surgeon General Vivek Murthy summarised his experience as a doctor in an article in The Harvard Business Review: "During my years caring for patients, the most common pathology I saw was not heart disease or diabetes; it was loneliness."

The irony is that despite technological progress and prosperity, more and more people are feeling lonely and alienated. While technology is not the only reason, it is clearly a key driver in feeding this epidemic of loneliness and social isolation. In many places, the urbanisation trend has contributed to forming a generation that is uprooted from their traditional ways.

We have been investing in what we believe are the antidotes for loneliness. One such investment is the Hong Kong based pet supply retailer Whiskers N Paws. This company has created an opportunity to get away from the hustle of Hong Kong's busy city life and connect with others who share their love for animals.

We trust that animals, like dogs, nurture empathy and will do a better job at that than even the most sophisticated AI aiming to simulate it. And empathy, we believe, is the ultimate antidote for loneliness and despair.

We will continue to look for more investment ideas in this area.