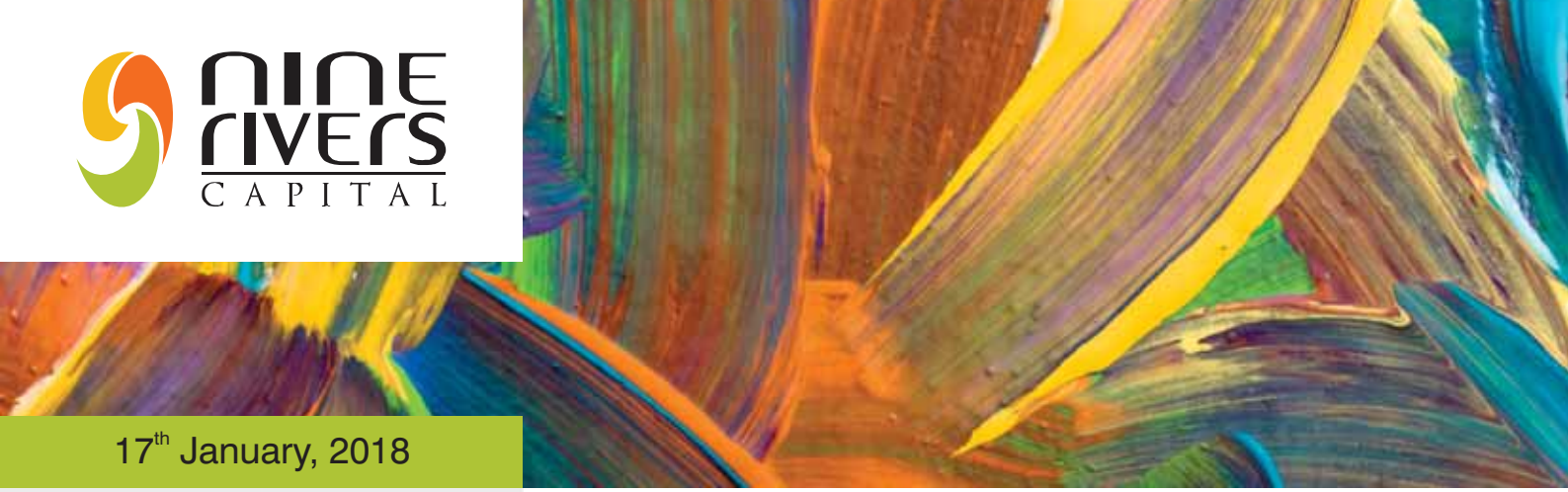


17th January, 2018

Aurum Small Cap Opportunities & Aurum Growth Portfolio

20th Quarterly Portfolio Update – QE December 2017

Dear Investor,

We completed five years of our small cap PMS in Dec 2017! The private equity approach to building and managing small cap portfolios is now well demonstrated in our consistent long-term outperformance. In recent times though, the overall market has seen an unprecedented rise and we are often posed with the question as to whether the long-term approach that we pursue will indeed reward investors? My response to this question has been in two parts, namely ; a) Capital preservation is as much important as generating returns and as such a long-term investor needs to reflect on the same in these markets & b) The power of compounding is what creates superior long-term returns and this aspect often gets ignored in a runaway market.

For last couple of quarters, we have been trying to gather courage to write on the vastly complex subject of agriculture. There have been several internal debates on this subject with varying viewpoints and differing opinions. However, we have come to the conclusion that there are strong undercurrents that indicate tectonic changes in agriculture in not too distant future. So finally, we decided to bite the bullet and pen down our views on agriculture not just through an economic lens but also reflecting on its social side.

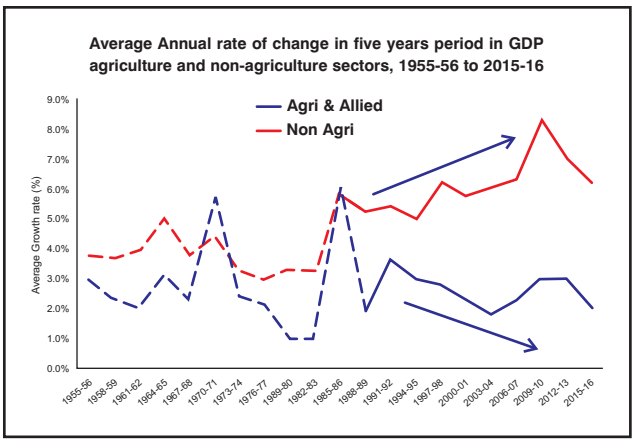
Agriculture – Poised for a take off…….soon

Until 1991, agricultural economy (and allied activities) and non agri economy (manufacturing, services and mining) grew more or less in tandem at an anaemic rate of 1-5%, exhibiting high correlation (Chart I). Post 1991, however, non agri economy broke this pattern and charted an upward trajectory leading to a CAGR of ~8% leaving the agri economy far behind!

Post 1991, non agri economy broke this pattern and charted an upward trajectory leading to a CAGR of ~8% leaving the agri economy far behind!

Madhya Pradesh, which was dubbed as a BIMARU state not too long ago, has witnessed an agricultural revolution in the last decade with the agriculture growing at an astounding compounded growth rate of over 10%*.

Chart 1



Source: Niti Aayog Website

With unleashing of economic liberalization in 1991, industry was largely freed from license raj & bureaucratic red tape to decide its own destiny. As government progressively moved from a controlling to an enabling role, industry found its own feet and became more dynamic and resilient.

On the other hand, agriculture & allied sectors continued with its historical anaemic growth rate of 2-3%, as the Government continued to play a paternalistic role, smothering the sector with frequent (and often non consistent) policy interventions, controlled market dynamics and restrictive trade practices.

However, even though agriculture has been a laggard and a drag on the economic growth, there are a few stories of redemption that need to be highlighted for the rest to draw inspiration from! Madhya Pradesh, which was dubbed as a BIMARU state not too long ago, has witnessed an agricultural revolution in the last decade with the agriculture growing at an astounding compounded growth rate of over 10%*. How did this happen? Well our research suggests that this was achieved through a confluence of several factors - decreasing cost of cultivation (input & credit cost), increasing productivity (mechanization), improving water management (leading to better irrigation), *shift towards high value crops* (revenue optimization), better prices for products (support price and reduction of middle men) and risk mitigation (insurance & compensation). Government of MP proactively worked towards creating cohesive policies and a strong framework for implementation of the same.

*(https://upsctree.com/2017/05/03/society-madhya-pradesh-agriculture-revolution/).

GoI's audacious goal – to double real farm income by 2022/23!

In an otherwise dismal historical scenario, it is interesting to note that Government of India has an audacious goal to double the real farm income by 2022/23. That would require agriculture to grow at ~@12% CAGR. Unreasonable as it may sound, we do believe that a high agri growth is possible by substantially replicating the Madhya Pradesh model, namely; shift towards high value crops, better water management, micro irrigation, market reform and access to credit & insurance. Further an important additional catalyst that can trigger higher growth is the advent of digital technology that enables precision farming and also help accelerate disintermediation in the farm to fork value chain.

We are cognizant of the fact that vested interests and a lackadaisical bureaucracy can hinder and derail the most well thought out policies and meeting the aforesaid goal can be an uphill task for GoI.

What should be done by Central & State Government(s)?

Currently, farming is largely a state subject. Policy in respect of irrigation, minimum support price, access to market & mandis (APMC) and other laws are framed/administered by the states. In their current form, in most states these laws are either outdated or stacked against farmer's interest and favour middlemen. Given the political and vested interests at play, most states have shied away from reforms that require making relevant changes to these laws or scrapping some of them altogether. On the other hand, laws regulating sale of seeds and pesticides are enacted by Central Government but implementation is by state governments, resulting in lax implementation. The following amendments, if and when carried out, will go a long way in making farming more sustainable;

- ✓ Providing open market access to farmers by amending/scrapping APMC Act, to enable free movement of products within and across states
- ✓ Strengthening laws to criminalise sale of spurious seeds and pesticides
- ✓ Constitution of Statutory state level boards (on the lines of TRAI or IRDA) to enumerate a consistent rule based minimum support pricing policy
- ✓ Bundling of farm credit with crop insurance

Rollout of 4G networks and penetration of smartphones into rural India has created an enabling environment for digital interventions that can improve farming outcomes significantly.

Ag Tech – digital intervention led farming – potentially, big game changer

In the above mentioned cacophony of policy and political discussion, what has gone unnoticed is the unprecedented action in the early stage ecosystem, where a clutch of agri related tech start-ups have secured several rounds of VC funding. This is not only true for India but also in developed markets like the US. Most noteworthy is Farmers Business Network (FBN, www.farmersbusinessnetwork.com) of the US that has recently raised $110m in a Series D round from marquee investors. Follow the link to know more about FBN's latest funding round.

(https://techcrunch.com/2017/11/30/farmers-business-network-just-raked-in-a-whopping-110-million-in-series-d-funding/)

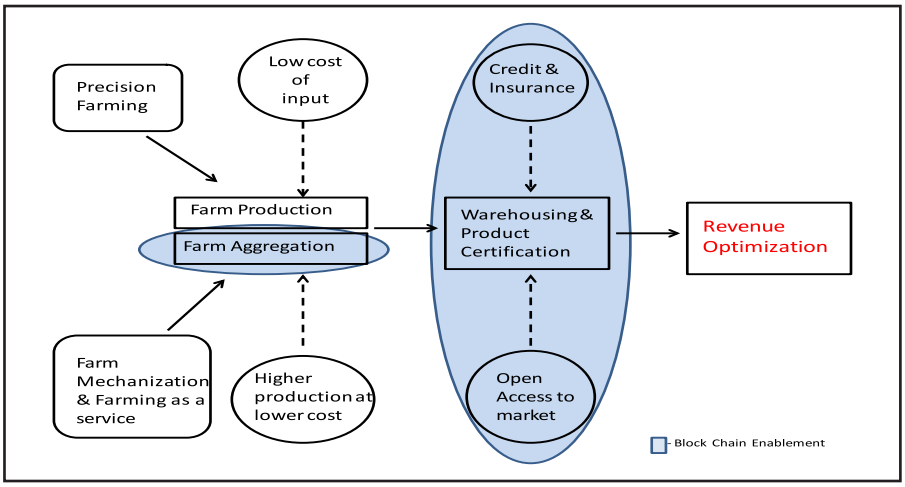
Given our legacy of VC/PE investing, we dug deeper to find out what is it that is exciting VCs in US, India and elsewhere to invest in agri technology ventures. What we learnt opened our eyes to a new set of possibilities in agriculture. Moreover, like what happened in the case of telecom, aided by digital tech there is a clear and present opportunity for India to leapfrog in agriculture and compete with the best in the world both in terms of yields and quality. Further, rollout of 4G networks and penetration of smartphones into rural India has created an enabling environment for digital interventions that can improve farming outcomes significantly.

Where is the action in Ag Tech space?

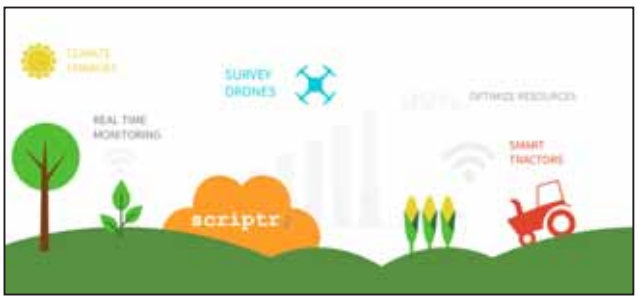
Table 1

Segment	Service Description	Companies	Websites
Precision farming	Application of imaging and data analytics to ensure precise and timely application of water, fertilizer or pest control to optimize yield	CropIn RML AgTech SatSure Aibono	www.cropin.co.in www.rmlagtech.com www.satsure.in www.aibono.com
Farm mechanisation & farming as service	Pay per use for tractors and other farm implements	Ravgo EM3 Agri Services GoldFarm Trringo	www. ravgo.com www.em3agri.com www.goldfarm.in www.trinngo.in
Warehousing & allied service	Backend to generate warehouse receipts and product certificates		
Market place access (input & Output)	Input & output price discovery and transaction facilitation	Ekgaon CroFarm Sabziwala Agrostar	www.ekgaon.co.in www.crofarm.com www.sabziwala.com www.agrostar.com
Organic / Ethical farm & allied agri	Organic input & ethical practise	TruTrade SafeHarvest Farmery	www.trutrade.org www.safeharvest.co.in www.farmery.in

Chart 2 - Agtech Application overview



Precision Farming



Precision framing applies analytics and artificial intelligence to data gathered on weather, soil, water and plant to assess and monitor health of plants as they grow (almost on a real time basis) and provide for active & precise interventions, as required.

Agri input costs account for about 15-20% of the total cost of doing agriculture. Since the green revolution of the 60s, usage of pesticides and fertilizers has seen a continuous increase to an unsustainable level leading to traditional farming becoming unprofitable for small farmers. Further, rampant usage of such chemical inputs has also substantially destroyed the delicate & natural balance of farm eco-system, killing many natural pest control organisms and adversely impacting human beings as well. Moreover, residual pesticide level in end produce has also become a serious concern forcing the developed markets to impose stringent standards for import of horticultural and other agri produce. Precision farming, using digital and other technologies, may well be the answer to not only reduce input costs but also enhance yields and decrease residual chemical content in end produce!

Precision framing applies analytics and artificial intelligence to data gathered on weather, soil, water and plant to assess and monitor health of plants as they grow (almost on a real time basis) and provide for active & precise interventions, as required. The confluence of agri science with digital technologies has led to creation of crop specific algorithms that can predict outcomes, suggest improvements and actions to be taken based on specific events to effectively deal with pest attacks or changed weather conditions. As per our interaction with some agri experts, adoption of digital tech aided Precision farming has the potential to reduce input costs by as much as 50% and increase the yield by 2–3x!

Adoption of digital tech aided Precision farming has the potential to reduce input costs by as much as 50% and increase the yield by 2–3x!

In India itself there are ~10 companies providing precision farming services to farmers. Their pricing models seem to be quite reasonable, though we must admit that they are still in their infancy and perhaps burning VC money for customer acquisition. As Precision Farming gains critical mass, we believe, usage of chemical inputs (fertilisers, pesticides, weedicides etc) and water per acre should witness marked reduction before tapering off to an optimal level. Over the long term (5 years and beyond), this may not be good news for the chemical fertilizer and pesticides industry.

Farm mechanisation & farming as a service (or pay per use)

The Uberisation of farm tractor and implements has begun and it will only gather further pace.

Farm labour costs have gone up significantly in the last decade mainly due to rising MNREGA pay outs by the Government, diverting labour towards MNREGA jobs. Labour costs account for about 40-50% of total cost in the case of small farms. However, If we assume that 50% of this labour is put in by the farmer's family, cash cost of labour halves to about 25% of the total cost. It is virtually on this labour and land arbitrage that a small farmer today tries to survive and is definitely not sustainable.

Given these labour dynamics, even a small farmer is in need of mechanisation. However, high capital costs of mechanization (tractors, harvesters, etc) does not allow the small and mid sized farmer to embrace the same. Enter, *tractor & implement renting & service companies or 'pay per service' companies.* Powered by digital connectivity and smart algorithms, companies like Trinngo, EM3 and Goldfarm are setting up farm service centres to cater to the mechanisation requirement of farmers or to provide farming as a service.

In theory, this is a win-win situation as those who could not afford mechanization earlier can now do so and the equipment owning companies will see better sweating of their assets leading to healthy RoA.

We believe, the Uberisation of farm tractor and implements has begun and it will only gather further pace. Tractor and farm implement making companies themselves may be forced to move to a renting model and that may mean erosion of equipment sales and in the longer term that would need to be supplemented by service revenues. As tractor and implement companies move from a pure B2C model to a mix of B2C & B2B, some companies may even have to go out of business!

Use of block chain technology for certification of produce that allows for complete traceability up to the farm level is likely to be adopted by many states. That, accompanied by open access to markets will help farmers access back to back bank credit, bypass middlemen and directly reach larger buyers.

Warehousing & Certification of Produce

In our estimate ~30% of India's agricultural produce is lost (waste, decay, pilferage) due to improper storage and handling. Further, lack of adequate infrastructure to validate / certify quality and grade of produce also inhibits better pricing of produce. Creating warehousing and cold chain infrastructure has been a priority for the Government for over a decade now. However, we found that a lot of such infrastructure has come up only to enjoy the 'subsidy' and is suboptimal in terms of location, size, equipment and tech enablement. We are seeing some early stage companies that are focused on deploying smart warehousing technologies that allow for integrated management of warehouses remotely.

The use of block chain technology for certification of produce that allows for complete traceability up to the farm level is likely to be adopted by many states. That, accompanied by open access to markets will help farmers access back to back bank credit, bypass middlemen and directly reach larger buyers.

Price Discovery and Market Access Platforms

As mentioned above, once produce certification and preservation is taken care of, farmers require transparent price discovery & open access to markets. That can only happen if the APMC Act is scrapped! Currently, farmers are subject to the APMC Act of different states that was designed to protect the interests of farmers and require farmers to sell their produce only at designated market places (mandis), where they are supposed to get a fair value for their produce. In reality, however, these APMC market places are controlled by politicians and their affiliated middle men (traders) who have cartelized the operations to suit their vested interests. Usually, once the farmer comes to the APMC mandi, he has no other option but to sell his produce regardless of the price because of the significant logistics cost involved and the strangle hold of agents. The way forward, therefore, is to give them direct access to buyers, through a transparent price discovery system. The price discovery platform can well be the government sponsored 'National Agri Network' or any other private exchange platform like Ekgaon, Crofarm, Sabziwala (www.ekgaom.co.in, www.crofarm.com, www.sabziwala.com). Membership of these government and non government information and trade

platforms should be open to industry and corporates, creating an immediate interface between them and farmers, managed by a clearing agency. Grading and certification of produce and generation of warehouse receipt would be an important and significant enabler in the process.

Other Key Developments

Other key developments likely to have long term implications for farming are development of lab meat, movement towards organic or ethical farming and hydroponics farming.

Lab Meat

There are consumers who do not have meat for ethical reasons, ie; killing of animal. However, they are as such not averse to consuming meat, other than for ethical reasons. In certain countries, such consumers now have access to lab grown meat, ie; meat in a lab environment or a large petri dish. Significant investment have been made in companies such as Memphis Meat, and Super Meat by Bill Gates, Richard Branson, amongst others. While it is yet to attain critical mass, we are optimistic on this front over the long term

Traditionally, every kg of meat grown requires about 10x feedstock, with all the attendant impact on the ecosystem. We believe, on a real cost basis, 'protein from farm animals', is no longer ecologically or economically sustainable. With cost of energy (powered by renewable energy) likely to decline in the future, lab meat is likely to become more cost competitive and more widely acceptable. As it gains critical mass, it would release large tracts of land from industrial scale animal farms and corn farms meant for animal feedstock and their possible reversal to either other farm produce or forest land! Another fallout maybe the use of corn to produce bio degradable plastic, given the menace of plastic garbage plaguing the globe. This would impact economics of crude based industrial plastic complex.

Ethical / Organic farming

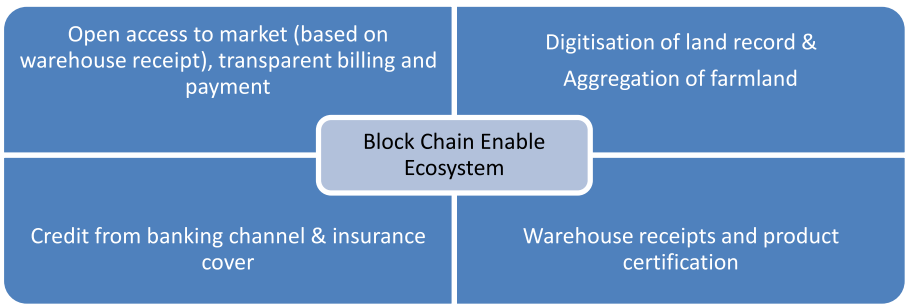
Under consumer pressure, chemical fertilisers and pesticides are being gradually replaced with bio pesticides, bio fertilisers and hormone based pest control measures. In extreme cases of organic farming, farm input is being limited to mulch, manure and water. This trend is likely to continue to gain momentum as the adverse impact of usage of chemical fertiliser and pesticide becomes glaringly apparent. Currently, bio products account for about 10% of pesticide and fertiliser consumption in India from less than 2% about 10 years ago! We believe, this trend will continue to gather momentum and negatively impact consumption of chemical fertilisers and pesticides over the long term, across the globe.

Role of block chain technology in farming value chain

In a country like India, where land record system is not trustworthy and open to manipulation, block chain based record keeping would be of immense value. Such record keeping would be easily applicable in case of land records, farm data (for credit & insurance), storage & certification of produce, payments, etc. In other words, to the entire farm value chain:

Immediate application of block chain in the agri ecosystem is as depicted in chart 3:

Chart 3: Block chain enable agri ecosystem



Block chain would be a big catalyst to revolutionize the farm value chain and would be a precursor to aggregation of smaller farms without putting at risk the ownership rights of small farmers.

Digitization of land records – Currently, most land holding records are in abysmal conditions. This, makes them vulnerable to manipulation in favour of large farmers and money lenders. A political will to digitize land record using block chain technology will help eliminate the menace of land record manipulation. We believe this would be a big catalyst to revolutionize the farm value chain and would be a precursor to aggregation of smaller farms without putting at risk the ownership rights of small farmers. **Incidentally, while we write this, state of Andhra Pradesh and Telangana are actively digitizing land records using block chain!**

Aggregation of farm land - As things stand today, about 80% of land holding in India are highly fragmented with average holding of less than 2 hectares. This sub optimal land holding is possibly the biggest problem plaguing agriculture across the developing world! Aggregation of farm holdings to do large scale farming can bring economies of scale. However, for that to happen a small farmer needs to be sure that his farm will not be usurped by the larger fish by manipulating land records. *Digitized land records, based on block chain tech, can give assurance & comfort to all land owners to participate in aggregation of farm land without compromising their ownership rights.* This is akin to the mid and late nineties where dematerialization of shares and other securities created a sense of comfort in minds of the small investors and participation in equities exploded thereafter! Once the menace of land record manipulation is stoutly defeated using technology, a farmer would also be emboldened to rent (& earn) out his farm to agencies for aggregation of land holdings and application of optimum technology input without compromising his ownership rights.

In Conclusion

Government's plan to double real farm income by 2022/23, over 2016, is an audacious and a challenging goal. We believe, the only way to get to these numbers or beyond them is to treat farming as a profession or business, optimal mix of policy initiatives & technology to optimise inputs, open access to market, credit & insurance. An immediate policy step in that direction would be to amend the APMC Act and open access to markets across state boundaries.

Application of digital and other technologies are likely game changers and as and when they gain critical mass, agriculture will witness a sharp, non-linear growth. Consequently, we believe, the next boom in consumption in India will be in rural & semi urban India. Moreover, this boom is unlikely to be restricted to segments or price points, usually associated with rural consumption. The consumption pattern will be in line with modern India and rapidly move up the price point!

For further information, please contact:
Nine Rivers Capital Holdings Pvt. Ltd.
511-512, Meadows, Sahar Plaza, Andheri - Kurla Road, Andheri (East),
Mumbai - 400 059 India.
Tel: +91 22 4063 2800 • Fax: +91 22 4063 2801 • Email: info@nineriverscapital.com