NINE RIVERS CAPITAL

7th April, 2016

Aurum Small Cap Opportunities & Aurum Growth Portfolio

13th Quarterly Update – QE March 2016

Dear Investor,

For some time now, RBI has been exhorting PSU banks to realistically recognize credit NPAs. Finally, things came to head in Q2/Q3 FY16 with PSU banks making large scale NPA provisions leading to sharp decline in profits(or losses in some cases). As the banks in general piled the system with bad results, equities reacted nervously. Since small and mid caps corrected much more than the wider market, we used this opportunity to invest in companies that were on our approved list but out of our valuation range hitherto. On the banking front, we appreciate the tough stand taken by RBI and think this is a prelude to the much needed consolidation of Indian PSU banks and stealth divestment thereof.

Disruption, the new normal

The small cap and mid cap composite portfolio have clocked a CAGR of 56% & 42%, respectively and significantly ahead of the bench mark indices. As would be evident, portfolio out-performance tends to accelerate as the composite portfolio matures, in line with our long term approach to stock

Germany – Flag bearer of Solar Energy

RWE & E.ON are large German utilities with presence in electricity generation (largely conventional), gas distribution, renewable and lignite. RWE & E.ON, collectively have 71.8 GW or ~ 40% of installed power capacity in Germany and serve ~57 m customers with electricity & gas supply and employ more than 100,000 people. The history of both these companies (in their various avatars) can be traced back to about 100 years.

Given the pedigree of these companies, large institutional investors have invested in their equity and bonds on account of their 'perceived' steady state of business and revenue visibility. However, as would be evident from the price charts (Chart 3) given below, stock prices of RWE and E.ON, have lost ~80% of value since CY10 and witnessed rating downgrades.

Sharp decline in stock price of German energy utilities

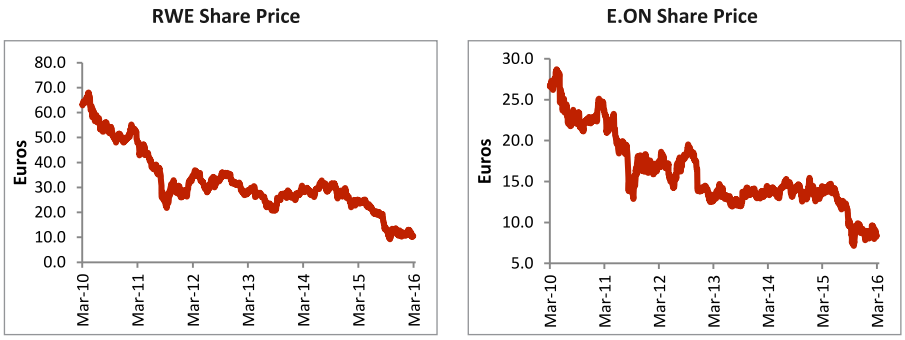

Chart 3: Google Finance

The sharp decline in value of RWE and E.ON can be attributed to their deteriorating financial health (Chart 4), especially over the last 6 years.

Stock prices of German utilities, RWE and E.ON, have lost ~80% of value since CY10 and witnessed rating downgrades.

German power utilities – Deteriorating financial health

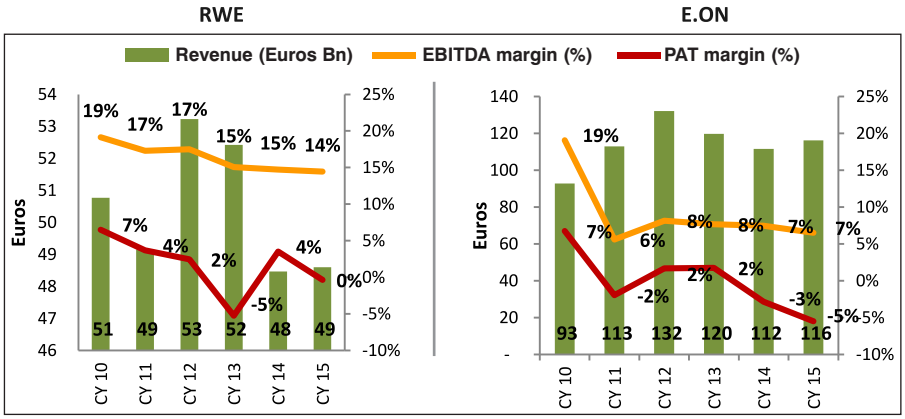

Chart 4: Company Annual Reports

RWE & E.ON: Sharp drop in profitability

CY10-CY15	Revenue CAGR (CY10-CY15)	EBITDA CAGR (CY10-CY15)	PAT CAGR (CY10-CY15)
RWE	-0.9%	-6.3%	-115.2%
E.ON	4.6%	-15.7%	-200.3%

Table 3: Company Annual Reports

As would be evident from Table 3, while revenues clocked a flat to modest growth, EBITDA and PAT saw disproportionate decline from CY10 to CY15. We believe this trend is unlikely to be reversed in near future. This colossal financial decline can largely be attributed to combination of following factors:

- **Growing solar power generation in Germany:** Backed by an enabling solar energy policy *(compulsory net metering of roof top solar and preferential tariff)*, solar power consumption grew from ~2% (CY10) of total energy consumption to ~6%(CY15) Chart 5.In the renewable energy space, solar in particular stands out because of its relatively stable generation profile vis-a-vis wind, especially during peak hours.

In Germany solar power consumption grew from ~2% (CY10) of total energy consumption to ~6%(CY15)

Germany – Sharp increase in solar energy consumption

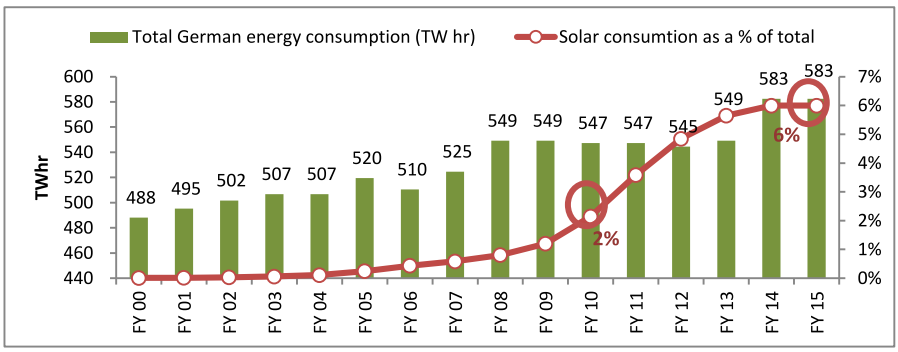

Chart 5: Indexmundi

- **Decline in net realization of power sold to consumers:** Growing solar power production during peak hours, coupled with stagnating energy demand, saw net realization of conventional power decline *(partly because of negative tariff, i.e. paying to feed into the grid, especially during peak hours)*. Chart 6.

In Germany, growing solar power production during peak hours, coupled with stagnating energy demand, saw net realization of conventional power decline

Germany- Steady decline in per unit realization for utilities

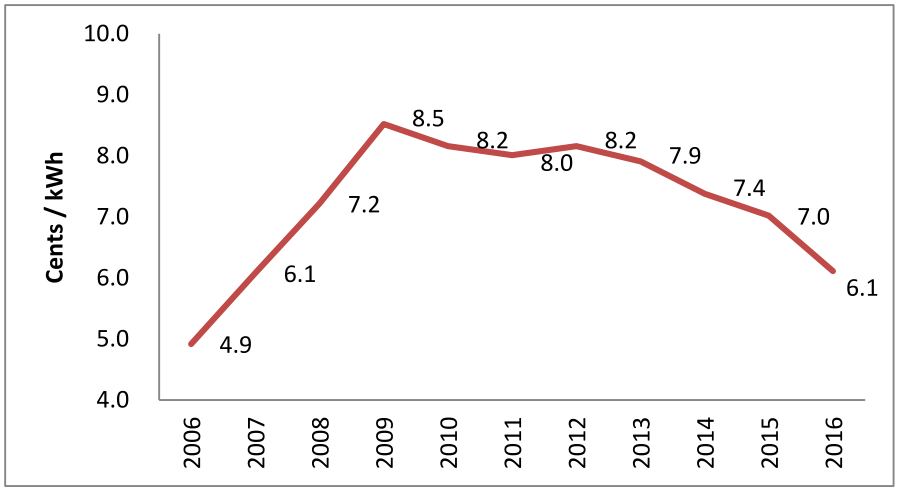

Chart 6: Cleanenergywire.org

Resultantly, German utilities saw a structural decline in profitability, plummeting return on capital and consequent impairment of conventional power producing assets. It would be pertinent to note that loss of marginal profitability (profit from last unit sold) has a disproportionate impact on overall business profitability.

India – Achtung!

Can Indian utilities go the German way? Seems a ridiculous question at this point of time but we believe a wake-up call is in order.

Currently, in India, ~2% (4.7 GW) & 9% (24.8 GW) of installed energy capacity are solar and wind, respectively. As per government initiatives, solar capacity is likely to go upto 18% (100 GW) of installed energy capacity by FY22. Consequently, going forward, solar energy could translate into 6-8% of total power generated in India.

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Solar power capacity in India: % of total installed capacity

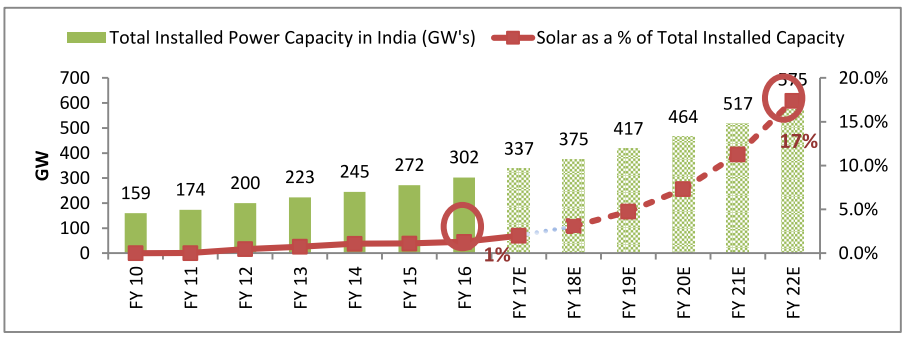

Chart 7: Bridge to India

If the said target is achieved, theoretically, implications for power discoms / utilities in India can be as dire as in Germany but for different reasons altogether. According to us, it would be a confluence of the following factors:

- **Domestic solar capacity and power generation to grow exponentially:** We expect solar capacity & generation in India to continue to grow at an exponential rate (Chart 7). This growth is supported by:
  - **Decline in per MW capex:** Capex per solar MW has fallen sharply from INR 150 m/MW (FY12) to INR 60 m/MW in FY15. (Chart 8)
  - **Decline in solar tariff:** Correspondingly, tariff has also reduced sharply from INR 9.63/ unit (FY12) to INR 4.3/ unit (FY16) (Chart 8), close to long term levelized grid tariff. Trend is likely to continue, albeit at a slower pace.

Solar Capex & Tariff- downward trend

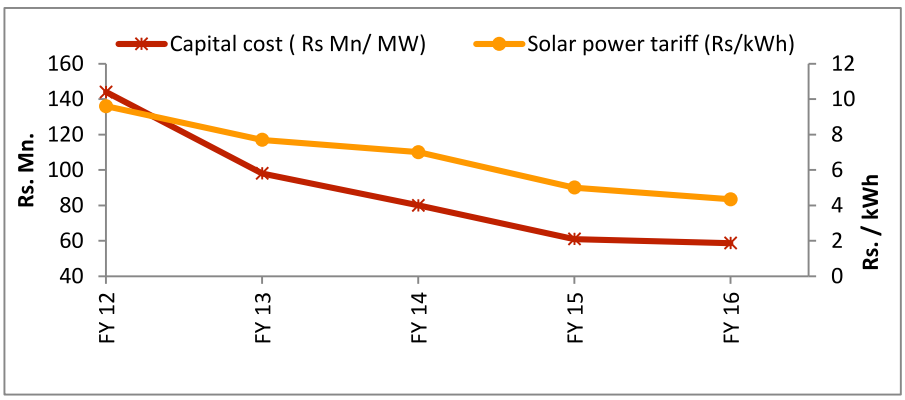

Chart 8: CERC

- **Emergence of Producer-Consumer:** Of the proposed 100 GW solar installation by FY22, 40% is expected to be rooftop installations. The investment in rooftop installations & power consumption thereof will be largely be by industry, commercial complexes, government agencies and urban households, often called **ProCons (Producer-Consumers).**
  - **Procons (Producer Consumers):** Currently, this category of consumers in India consume ~50 to 60% of power and pay tariff in range of Rs. 4-9 / unit (Chart 9). The above average tariff paid by ProCons, effectively subsidise sub optimal tariff consumers (such as agriculture) as well as power theft and commercial losses of discoms.

ProCons consume ~50-60% of power & pay tariff in range of INR (4-9)/unit

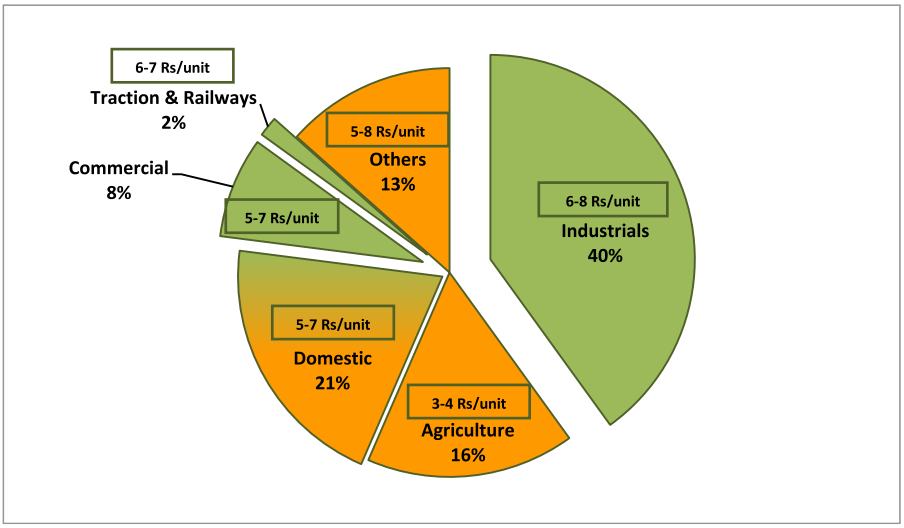

Chart 9: Central Electricity Authority

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- **Discoms continue to wallow in losses:** Overall, T&D loss in India continues at ~30%. Resultantly, discoms in India, had a collective annual loss of INR 600bn (~ USD 9 b) in FY 15 (Chart 10). These loss can be attributed supply of power at sub optimal rates, power theft and commercial loss.

Annual collective loss of Discoms in India

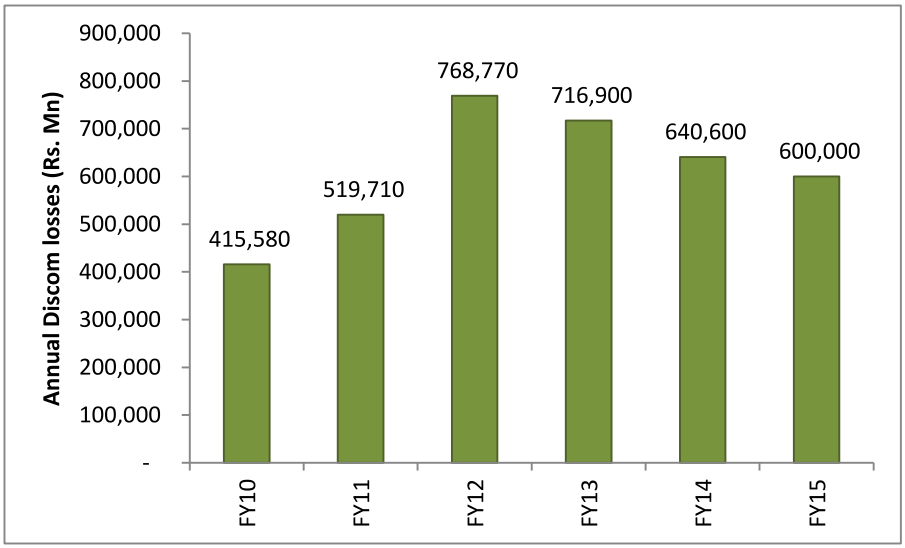

Chart 10: UDAY Document

- **Softening of peak hour energy demand from ProCons to hit Discoms hard:** Going forward, an enabling policy environment will incentivize ProCons to invest in roof top solar capacities, primarily for self-consumption. Resultantly, we are likely to witness a softening of demand for grid power from ProCons, especially during peak hours. Since peak hour power supply to commercial consumers is the most profitable segment for Discoms, any softening of demand from this segment will significantly impact the financial health of discoms. Peak hour demand and tariff from ProCons largely subsidises loss-making segments such as agriculture as well as power theft and commercial losses. Hence, the emergence of Procons will impact the financial health of Discoms unless they 'pull up' their socks.

Mitigation

While we have drawn up a doomsday scenario, not all is lost. To begin with;:

- **India, energy deficit state:** Unlike developed markets like Germany, India, an energy deficient state, will continue to see robust growth in demand for electric energy over next many years
- **UDAY (Ujjwal Discom Assurance Yojna):** One of the key objectives of UDAY is to reduce national T&D loss from ~30% to about 15% in the next 5 years. If successful, it could not have come at a better time
- **Enabling policy environment for Utilities to invest in 3rd party roof top solar:** We believe, an enabling policy environment will be created for utilities to invest in 3rd party roof top solar infrastructure, sell power from such installations and to ensure smooth payment mechanism & protection of assets. Post which, large scale investment by utilities in 3rd party roof top systems will gain further traction and will be beneficial to all parties involved.

Impact on other industries

Apart from the energy industry, we foresee significant impact across different sectors as given below:

- **Coal:** An anemic growth or marginal reduction in demand for coal likely to put a cap on profitability of coal producing units.
- **Railways:** Coal accounts for 46% of goods transported (tonnage) and approximately 39% of railways revenue. Pressure on the same is likely to have a cascading impact on the financials of Indian Railways.
- **Grid Response & Metering Solution:** With solar net metering likely to gain wide currency, investment in smart grid (power surge response & stabilizing systems) infra is likely to see significant investment.

3D Printing - A Primer

Continuing with our thought on disruptive trends, we present a short piece on 3D printing.

3D Printing simplified: *'Additive manufacturing'* or 3D printing, is a process by which a three-dimensional object of any shape or complexity is made from digital design, by placing material, layer after layer, followed by sintering. Contrary to additive printing (3D), traditional manufacturing is based on subtractive processes, involving cutting, drilling, machining etc., with an estimated loss of 80% of manufacturing material as in a CNC machine.

3D printing technology has been around since the 1980's. However, it is only in the last 5 years that it gained serious traction offering a serious value proposition beyond merely prototyping, tooling and hobby printing. 3D printers have become more versatile & robust, capable of using varied material like carbon fibre, metals, plastic, cement, wood, protein (biological material), etc.

Usage: Currently, 3D printing is being used to build custom/complex or low-volume/high value products. Some of wider areas of application are **medical** (prosthetics, orthopedic implants, dental implants, artificial human organs etc.), **aerospace**(engine parts & turbine, space stations & satellite parts), **auto** (motor racing car parts), **sports** (bespoke insoles & equipment), **tooling** etc. SpaceX recently declared that they would 3D print most of the rocket engine parts used in Dragon 2 Capsule. As we speak, 3D printing is being harnessed on International Space Station to print plastic parts used there, instead of they being hauled up from earth. It is estimated that revenue from 3D printed products are in range of USD 5 b and growing @ 30-50% pa.

Benefit: Some immediate benefits of 3D printing are development of complex products with better mechanical properties, less complex manufacturing lines and lower logistic expense, significantly lower energy & material consumption and lower waste generation. 3D printing is spurring innovation as prototyping has become cheaper, enabling faster product development and time to market. However, currently, 3D printing faces issues such as lack of speed, relatively high cost and a closed ecosystem structure.

Impact: Individual consumers will move towards customised products especially in areas like medical implants, sports goods, etc. Industrial establishments will be able to rationalise their inventory and enhance response time to customers. Consequently, manufacturing & logistic ecosystem is likely to undergo significant rationalisation, impacting global shipping. As wastage during production reduced, demand for raw material will also moderate.

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The question that begs an answer is - how fast could the disruption in businesses happen? Here's an example - US hearing aid industry converted to 100% additive manufacturing in less than 500 days and all the companies that stuck to the traditional way of manufacturing perished.

The Future: As 3D manufacturing gets more routine & product customization more frequent, we are likely to move towards an era of distributed manufacturing, closer to demand sources (US & EU, regional demand centres, etc). This movement will impact mass manufacturing capacities for engineered products in developing countries like China, India and Taiwan. However, initially this shift is likely to be confined to high-tech, complex or high value products.

That apart, we expect, geographically distributed service centres to have 3D printers to manufacture specific parts instead of stocking parts. This will help rationalise inventory management and logistic infrastructure cost. Going forward, companies may very well sell designs and not products to consumers, who in turn will buy designs and manufacture their own products. However, a more likely scenario is re-organization of the current manufacturing and logistics infrastructure to enable interweaving of traditional manufacturing with new additive techniques and co- existence of both in some form.

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Given here under are comparative products using conventional manufacturing process and 3D Printing.

Fig A: Economist

Fig B : Economist

Component in Fig A is designed using traditional method of casting & welding. The two components shown in Fig B have similar or higher strength, have been designed by computer and 3D printed with 40%-75% weight saving for similar usage and physical properties.

Currently companies like ***3D Systems, Stratasys, EOS, Materialise,*** etc. are leaders in the space. While there are a few Indian companies providing 3D printing solution, sadly, they have a long way to go before they can compete with global leaders of 3D printing.

New Portfolio Additions in FY16, Q4: 3 new companies were approved for investment in the last quarter. We are in the process of adding these new companies to the relevant portfolios. The new additions are as follows:

Ground realities indicate that the Indian economy continues to be lethargic. Banks are either not in a position or mood to lend. Stretched balance sheets and idle capacities are limiting corporate's enthusiasm to make fresh capital investments. The tech and start up segment is also getting a reality check as investors are re-assessing business plans and investment horizons.

However, all is not lost and buried. Implementation of a slew of government initiatives/reforms are expected to bring about significant socio economic change in the rural and weaker section of population. Some of these are;

- Launch of government projects to empower the wider population through participative health insurance, life insurance, pension and farm insurance
- Development of electronic database for land records and soil card
- Extension of DBT beyond LPG / kerosene to fertilizer consumption by farmers and other welfare schemes
- Sitting at the base of it all is the robust roll out of Aadhar and Jan Dhan Yojana

On the corporate / industrial front, we are likely to see the benefit of;

- Contemporizing of applicable labour & company laws
- Progressive tightening of environmental and operating laws and stricter implementation there of

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The last budget has very clearly laid emphasis on re-jigging the tax administration system to make it more effective and less corrupt. This is a step in the right direction and can become the mainstay for ease of doing business. Further agricultural reforms are on the anvil. Also possibly for the first time in India, business houses with historic ability to access & game the banking system are being forced to sell assets to meet their commitment to banks. All these steps are transformational and augur well for the long term prospects of the economy.

As a country we are in a phase *change mode*, wherein the quality of future growth will be better and not merely powered by capital availability & ability to manage the system. As investment managers, we continue to remain cautiously bullish.

Warm regards,

Sandeep Daga

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