

Has China's Cleantech Investment Bubble Burst?

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There has not been much good news for global cleantech investments over the last year or two and this has been particularly the case in China. There have been high profile companies that have raised significant investment only to find that investor confidence has been lost and the share price is now very low. The reasons for this range from the commercialisation process taking longer than planned to government support being removed to cash flow forecasts being reduced. Many Chinese cleantech companies have share prices that are a fraction of what they were 12 months ago.

So with all this bad news, has the cleantech bubble burst for forever or is this just a temporary setback in the growth of the dominant industries of the future?

On looking more closely at the cleantech sector in China, it can be seen that different parts of the cleantech sector are behaving differently. Cleantech includes many different types of companies working in different areas. The market demand and investment appetite for each of these areas is very different and investors should understand this to have the best chance of making profits.

To help investors find profitable cleantech investments there are three areas which are essential to understand:

- The historical performance of Chinese cleantech companies and why different areas of cleantech have outperformed the general market;
- How government policy and investment markets around the world have impacted the fortunes of Chinese cleantech companies; and
- How the psychology of climate change impacts the deployment of cleantech solutions.

Once these factors are understood then it is possible to consider the best options for investing in cleantech going forward. This article works through this process and ends with some specific suggestions on building a portfolio of cleantech investments that are most likely to succeed.

Historical Investment Performance

The growth of cleantech investing in China over the last few years has been outstanding. This has seen the establishment of global leaders in areas such as solar and wind, but also the development and investment in many companies involved in water, waste, hydro, energy efficiency and other cleantech sub-sectors.

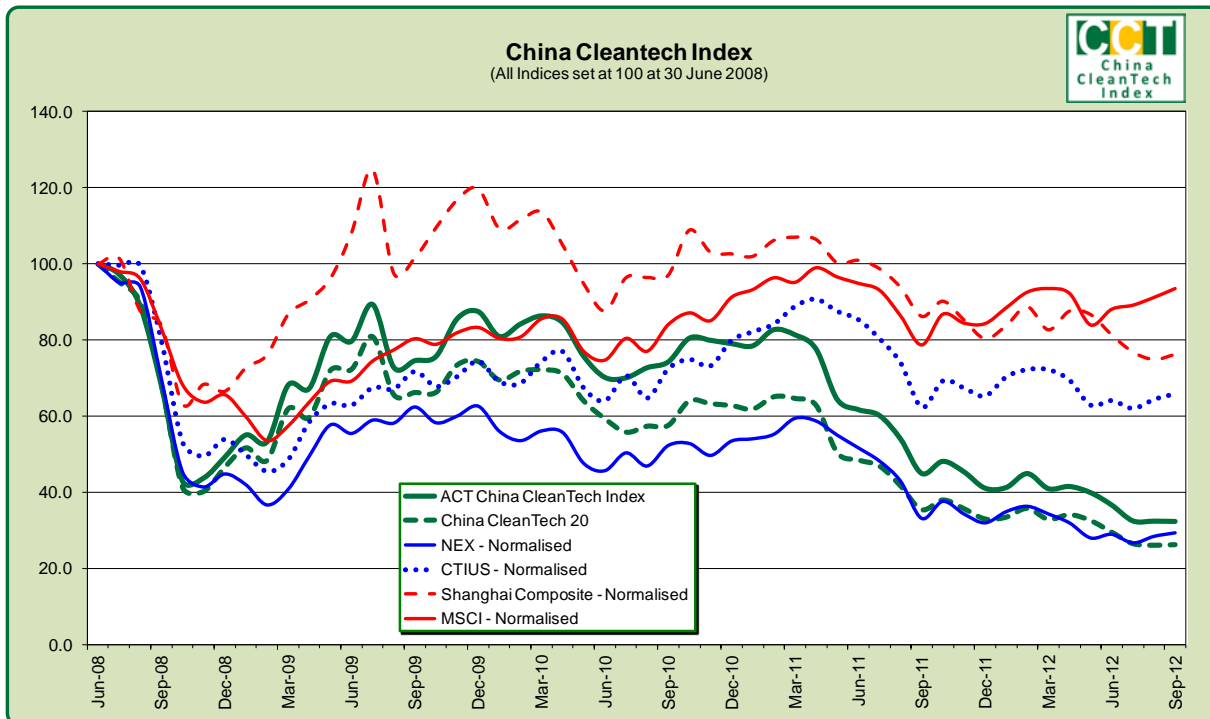
The China CleanTech Index provides the definitive measure of the performance of Chinese cleantech companies wherever they are listed. With nearly 150 companies falling under the coverage of the Index and with a combined market capitalisation of nearly 650 billion Renminbi, the China CleanTech Index presents for the first time a picture of the Chinese cleantech industry's growth in a single measure.

The Index is weighted by market capitalisation, rebalanced quarterly and is globally benchmarked. It peaked in February 2011 with a total market capitalisation of RMB 911 billion.

The Index as a whole has had a varied performance over the last few years. Its three year performance to the end of September 2012 is dismal showing a loss of over 50% compared to a mere 8% loss in global cleantech stocks, a 25% loss for the Shanghai Composite and a 16% gain in the MSCI World Index. Analysing the data behind the index shows that there has actually been a 60% loss over the last 18 months.

China CleanTech Index Performance

Percentage Change	2009	2010	2011	Third Quarter 2012	Last 12 Months	Last 3 Years
China CleanTech Index (CCTI)	77.5%	-9.6%	-48.0%	-11.7%	-28.0%	-56.5%
Global Cleantech Index (CTIUS)	38.1%	7.3%	-18.3%	2.8%	5.7%	-8.1%
China Shanghai Composite Index (SHCOMP)	80.0%	-14.3%	-21.7%	-6.3%	-11.6%	-24.9%
MSCI World (MSCI)	27.0%	9.6%	-7.6%	6.2%	18.8%	16.4%

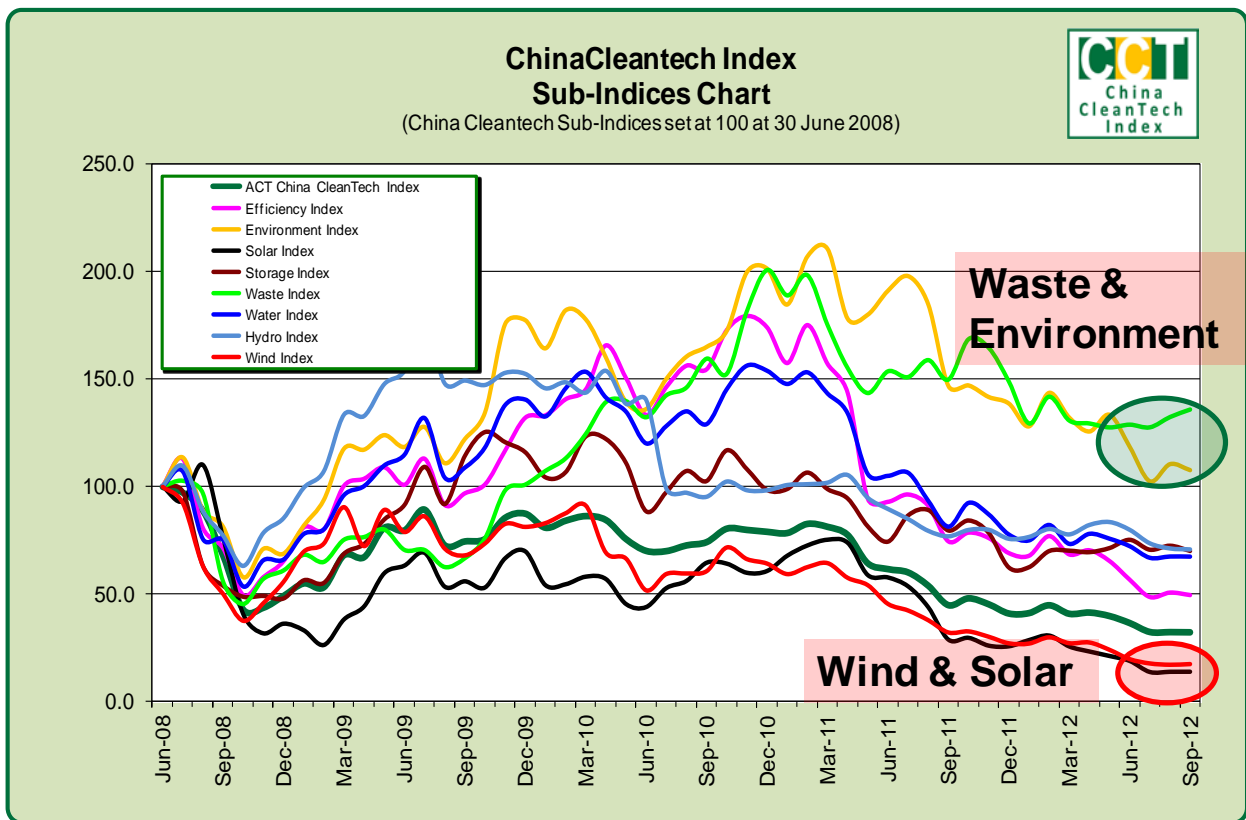


To provide an analysis of the China CleanTech Index, eight sub-indices have been developed. The performance of each of these sub-indices over the last three financial years is shown in the table and charts below.

Over the 12 months to September 2012, the China Waste Index and the China Hydro Index have performed best. Over the last three years, the outstanding performer has been again the China Waste Index with the China Environment Index a distant second place. The consistent worst performer in recent years has been the China Solar Index.

China CleanTech Sub-Indices

	2009	2010	2011	3Q12	Last 12 Months	Last 3 Years
China Efficiency Index	102.4%	31.8%	-60.4%	-12.6%	-34%	-49%
China Environment Index	157.4%	13.5%	-31.1%	-9.1%	-27%	-12%
China Solar Index	92.4%	-13.0%	-57.5%	-26.3%	-51%	-75%
China Storage Index	141.0%	-15.1%	-36.6%	-6.8%	-12%	-39%
China Waste Index	65.7%	99.1%	-25.9%	5.5%	-9%	104%
China Water Index	113.5%	9.6%	-49.7%	-6.8%	-17%	-38%
China Hydro Index	78.9%	-35.6%	-23.0%	-11.4%	-8%	-53%
China Wind Index	45.8%	-21.0%	-57.7%	-11.5%	-46%	-74%



Solar Markets Changing - The solar industry has been a victim of its own success. Having built a global leadership position through a massive expansion of capacity, it has suffered the most with the changes to the global solar market. These changes primarily stem from changes to government subsidies and tariffs.

Bloomberg New Energy Finance forecast that the total global solar PV capacity installed in 2012 will be 31GW (31,000 MW), 11% greater than the 28GW installed in 2011 and 72% greater than the 18GW installed during 2010. The market is therefore still growing quickly.

Until recently, more than 90% of solar panel products made in China were exported, with the US and Europe being the primary markets. In 2011, Europe imported PV products valued at US\$26.5 billion from China. To replace the falling international sales and stimulate domestic demand, the Chinese Government implemented a national solar feed-in tariff in late 2011.

From an installed solar capacity of only 893MW in 2010 China, an additional 1,700 MW was added in 2011 and, by the end of 2012, China is expected to surpass the US to become the third largest PV market in the world.

Waste Markets Booming - In contrast to the solar industry that was built on export orientated markets driven by global government subsidies, the Chinese Waste industry has had a much more domestic focus. The listed waste sector in China is also much smaller. At the end of September the China Waste Index had a combined market capitalisation of only RMB 16 billion compared to the RMB 74 billion for the China Solar Index.

The growth of the Waste industry is being driven by the increasing focus on waste management, recycling and the circular economy. As an example, Novarise Renewable Resources International, a world-leading polypropylene recycling company based in Fujian province and listed on the Australian Stock Exchange, will shortly increase its production capacity from 25,000 tonnes per year to 75,000 tonnes per year. This is being driven by strong government recycling mandates at throughout the country.

Government Incentives and the Global Financial Crisis

As we have seen above, some export orientated cleantech sub-sectors have suffered because of changing priorities of the governments in international markets. Much of these priority changes can be attributed to the Global Financial Crisis with Government's looking to reduce short term spending by reducing subsidies.

A big casualty of this has been many of the measures focussed on climate change mitigation and sustainability. The longer term benefits that these schemes had have become less important as countries have been trying to manage the short term prospects of their economies.

Another impact of the financial crisis has been that the rate of growth in emissions in developed countries has slowed as economic growth rates have slowed. This has again reduced the focus of governments to spend scarce funds on subsidies to reduce emissions when this is happening anyway.

In the US, there has also been a focus on job security. Cheaper imports of solar and wind products from China have lead to job losses in the US and claims of unfair subsidies in China to help undercut US made products. This has led to protectionist positions being developed and import tariffs being imposed.

All of these difficult situations are made worse by the fact that governments in developed countries have to think about the next election. Democracy has many benefits, but it is a very poor implementer of long term structural changes. Countries such as China, Korea and Singapore which all have stronger levels of government than Europe or the US have managed to take advantage of the opportunities being presented by the move towards sustainability.

The Chinese government has been driving change even more quickly than other countries. Much of this is focussed on improving environmental damage and delivering better air, land and water quality. That these moves are shutting down inefficient polluting industries and encouraging the growth of efficient industries and cleantech solution providers is actually just a fortunate side-effect.

For instance, the company based in Fujian province mentioned above is providing a solution to reducing the waste to landfill by recycling polypropylene (PP) back into other PP products. The growth in its capacity will lead to increased diversion from landfill. To help its expansion as a cleantech company it has received a number of incentives from government. These

have included access to land, easier planning approvals, reduced taxes and reduced energy costs. These measures are provided to help encourage innovative companies to grow and drive environmental improvements. The same types of subsidies however are now being used as the argument that Chinese cleantech exporters receive greater government assistance than those in countries such as the US.

These parallel circumstances of developed countries backing off from cleantech support and the Chinese government continuing to increase support has led to a rapid increase in China's influence and position in the global cleantech sector. Whilst some stock prices are suffering over the short term, this momentum provides encouragement for the overall position of the Chinese cleantech market.

Psychology of Sustainability

Most rational analyses of climate change, sustainability and cleantech issues would lead to a position that encourages action now to avoid the risk that drastic action will be required in the future. This 'rational' position is however generally not recognised across communities.

When this shift happens on a global basis, the full potential of the cleantech sector will be realised with strong companies experiencing exceptional growth. The shift however is only currently happening very slowly and is largely being driven by governments having to provide incentives or to enforce regulations to make the changes happen. The psychology of why the shift is not happening more quickly is therefore an essential element for advocates, policy makers and investors.

It is an area that is not widely considered and is rarely mentioned when discussing investment strategies. Professor of Psychology at Harvard University, Daniel Gilbert, has developed a theory of why humans are being ineffective in addressing long term climate change and sustainability issues.

Professor Gilbert argues that the human brain is poorly equipped to respond to these types of threats. He believes that evolution has conditioned human brains to react well to other types of threats and that climate change fails on all four of the tests that trigger immediate reactions. The four types of threats that humans react to most easily are those that are perceived to be:

- Intentional - The human brain is very aware of other humans intentionally causing harm. Climate change cannot be blamed on someone deliberately emitting carbon dioxide.
- Immoral - The brain will react strongly against actions it believes are against the morals of the day. Climate change does not violate our moral sensibilities.
- Imminent - The brain is very good at threats that have bad consequences in the very near term. Climate change is perceived as a future rather than an immediate threat.
- Instantaneous - The brain reacts well when it notices quick changes to its surroundings. Climate change proceeds gradually.

To develop a successful cleantech investment strategy, it is essential to understand how this will impact the future growth of companies. If their products and services can be framed in a way that can trigger one or more of the above threat triggers then they are more likely to have their products deployed widely. So cleantech solutions that remove visible pollution quickly, have immediate impacts or remove immediate health threats will be welcomed.

For those with only longer term benefits in terms of emissions reductions, then there needs to be non-environmental factors that make their purchase compelling. Energy efficiency solutions have a quick financial payback. Water efficiency technologies reduce the need for water and so can reduce the risk of disruptive water shortages.

Building a Successful Cleantech Portfolio

The key to building a successful Chinese cleantech investment portfolio is to understand the history of investor behaviour, the current trends in technology development and government policy and the likely future deployment trends for the different technologies.

The areas of cleantech that have historically seen less volatility in their share prices have been the more mature sectors such as water, waste and energy efficiency. The growth in these sectors in China and in the rest of the world has been driven to date by increasing regulatory measures rather than subsidies.

Whilst the impact of subsidies and regulatory measures can be similar, regulatory measures are more consistently applied and less likely to be reversed. Subsidies drive quick growth to secure the current economic benefits. The initial fast growth leads the investment market to be over-optimistic, whilst the inevitable crash on removal of the subsidies drives pessimism and under-pricing of strong and growing companies.

So to build a balanced portfolio of cleantech investments requires taking a portion of solid growth companies in sectors driven by increasing environmental regulation such as water, waste and energy efficiency and to then balance that with companies in subsidy driven sectors. The time to invest in subsidy driven suppliers is either at the beginning of the subsidy cycle as the market starts to back the sector or once the market has become overly pessimistic.

The solar market is now largely underpriced. There are still some risks of company failure but as the solar industry starts to reach grid parity for power generation in markets around the world it will transition from being a subsidy driven product to one that is driven entirely by economics. Once this occurs, it will then become a steady growth sector which is likely to lead to price recovery for the leading players.

Other areas that provide good options for investment can be seen from looking at what is driving current technology deployment. Overall the fundamental drivers of cleantech continue to grow. Populations are growing, getting richer and wanting cleaner environments at the same time as resources are being depleted and environmental damage is increasing. Cleantech provides the solutions to enable environmental improvements in a crowded world.

In China, much of the domestic activity is being driven by the 12th Five Year Plan. With its emphasis on emissions intensity, there is a huge need for technologies that provide industrial energy efficiency. The targets for water efficiency are even more onerous, so any technology that helps the country meet these targets is going to be in demand.

Another area of current focus for the government is environmental remediation using technologies involved with water, waste, recycling and waste-to-energy. Electric vehicles are also a strong current focus so good companies providing vehicles, batteries or recharging infrastructure are likely to succeed over the medium term.

There have been a number of cleantech US dollar billionaires so far, but as more of these appear, there is going to be increasing and continued investment into cleantech. China is positioning itself as the centre of the world's cleantech industry and will be seen as the leader in research, deployment and investment. It is likely to be seen in the same way that Silicon Valley is for IT investment and Australia and Mongolia are for mining investment.

In the longer term, the current reduction in many cleantech stocks will only be seen as a blip in the growth of the sector. The sector is adjusting from being subsidy driven into becoming standard practice. Looking back it will be seen as a momentary hesitation towards living in a more efficient world that utilises its waste, looks after its environment and creates healthy societies.

The bubble has not burst, it has just paused and corrected. There remains short term volatility as market leaders are established but there is no doubt that cleantech investing will provide very strong returns over the medium term.

John O'Brien is Managing Director of Sino CleanTech. Sino CleanTech (www.sinocleantech.com) is the Beijing based operations of Australian CleanTech, a research and broking firm that provides advice to cleantech companies, investors and governments seeking economic development. Australian CleanTech works across Australia, China, Korea and Malaysia and publishes the Australian Cleantech Review, the Australian CleanTech Index and the China CleanTech Index.