EXCHANGE RATES COULD BE NEXT MONSTER TO TEST CLEAN ENERGY INVESTORS

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In the film *Jurassic Park*, the park warden Robert Muldoon, played by Bob Peck, focuses on the movement of one escaped velociraptor so completely that he fails to notice a second creeping up beside him. "Clever girl!" he says, as he finally turns and sees the threat. These are his last words before being munched.

I am not going so far as to predict such a grisly fate for the clean energy sector. Still, there is a risk that focusing on two of the great financial markets – equities and debt – has distracted developers, investors and manufacturers in recent years to such a degree that they've failed to notice the threat that could rear its ugly head from a third direction – that being the world's foreign exchange markets

Since the crisis of late 2008, significant movements in forex rates, in particular euro-dollar rate and dollar-yen, have been dwarfed by the more eye-catching paroxysms in equity and debt markets.

The 76% fall in the WilderHill New Energy Global Innovation Index (NEX), from its peak in late 2007 to fresh eight-year lows this month, has severely dented the ability of clean energy companies to raise equity capital from the public markets. In each of the last two quarters, they have managed to raise less than $1bn – a far cry from the quarterly figures of $3-13bn achieved in 2007. The bear market has made exits difficult for venture capital and private equity investors, in turn limiting their ability to recycle their money into new, young clean energy firms.

Meanwhile, the travails of the debt markets have barely been out of the news in the past four years. Even when they have not seized up almost completely – as they did in Q3 2008, then again last summer, and possibly again this quarter – sharp increases in banks' cost of funding have squeezed the availability of construction and project finance for renewable energy, slowing investment in wind and solar, particularly in Europe. Utilities, for their part, have entered a wholly unwelcome period of capital rationing, pursued by the fear of credit downgrades by newly risk-aware ratings agencies. In the first three months of 2012, asset finance worldwide in clean energy – at $24.2bn – was 41% below the quarterly average for last year and the lowest for any quarter since Q1 2009.

EXIT GREECE STAGE LEFT?

So why might foreign exchange crash the sector's party from now on? The most obvious reason is the possible departure of Greece from the euro area within a few weeks –- or even perhaps a few days. The inevitable accompanying slump in the value of a newly recreated drachma would create sleepless nights for investors in clean energy projects in Greece with euro-denominated debt. And any developers who have borrowed euros for turbines or panels, only to find their future revenue denominated in new drachma, might actually prefer to be transported to Jurassic Park.

That might be only the start. Greece is a relatively modest clean energy market, with just over 400MW of solar photovoltaic capacity and somewhere north of 1GW of wind installed by the end of 2011. Much more worrying would be the impact of a Greek exit followed by Portugal, Spain or Italy leaving the single currency zone. Lenders to, and investors in, a far larger number of existing renewable energy projects could face painful losses in that event. Suppliers of equipment would see confirmed orders falling through, and customers going out of business. The only positive in this scenario is that the clean energy industry would not be the only one under the hammer. That is not our central scenario, because it is likely that Germany will put up a far harder fight to keep those countries in the euro than it has done up to now for Greece.

But we are not done yet. Southern Europe is not the only currency pressure-point in the world. There are also signs of currency strains involving important emerging economy currencies. The Indian rupee has fallen from 45.2 against the dollar a year ago to 54.4 late this month – a depreciation of 17%. Against the Chinese yuan, the rupee has fallen nearly 19% in that time. The Brazilian real has also dropped, by 22% against the dollar in the last year.

These trends, if extended, could affect the ability of some of the most significant growth markets to buy imported clean energy technologies. For projects already installed, they could inflate the value of any dollar-denominated debt that has not been hedged, threatening to squeeze out equity investors. At the very least, the moves in the rupee and real could put the brakes on wind and solar photovoltaic power in India and Brazil – in particular the latter. Our research suggests that a 15% fall in the Brazilian real adds 6% to capex costs for wind projects in that country, since most of the blades, gearboxes and generators are sourced from abroad.

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Brazil's clean energy auctions have resulted in very low prices, and with few domestic manufacturers, a weaker real means developers are struggling to build their projects profitably with imported equipment. While this may encourage international equipment makers to consider setting up local factories, the last thing the clean energy sector needs now is more manufacturing capacity.

CHINA'S STARRING ROLE

The second reason for suspecting that the importance of foreign exchange movements may be increasing is that global equipment manufacture in recent years has become more concentrated in one country, China. Six out of the 10 largest PV manufacturers are now Chinese, as are four out of the top 10 wind turbine makers. Some 72% of PV production last year was in China.

This makes exchange rates against the yuan of vital importance in the sector – whether it is the euro-yuan rate for customers in the European single currency area, the dollar-yuan rate for customers in the US, or other bilateral rates against the Chinese currency elsewhere. I should say that the issue is never quite as simple as it first might appear, because in practice China-made PV modules contain inputs from elsewhere and European- and US-made PV modules contain inputs from China.

China's controversial policy of managing its exchange rate to keep its industry ultra-competitive had a pretty dramatic effect on the clean energy industry last week, when the US slapped anti-dumping duties on Chinese-made PV cells of 31%. Had there not been a background level of unhappiness among the US public with China's predatory exchange rate, it is highly unlikely the solar industry would have been singled out in this way. Elsewhere, China's exchange rate stance has given its turbine makers an advantage in price-competitive new markets – including Brazil, where Sinovel clinched its first contract last September, and Lesotho, where China Ming Yang Wind Power is in pole position to benefit from the small African country's ambitious plans.

In the short term, China's response to the US anti-dumping ruling has been to call it "unfair" and express "serious concern". In the longer term, and without ever them admitting fault, it just might force China to allow the yuan to appreciate more rapidly than it has done to date. On the other hand, the Chinese economy may be faltering at a time when the US economy is recovering, albeit fitfully, which could suggest the next move may be in the other direction. Either way there is now more uncertainty about the future direction of the yuan than there has been for a long time.

MANY MORE ACTORS

The final reason why forex might be about to crash the clean energy party is the flipside of an otherwise positive trend: the diversification of clean energy investment into more and more countries – many of them developing economies – outside the previous hubs of the US, the euro area and China. That diversification means that more projects are happening in places, such as Mexico, Ukraine, Romania, Turkey, Indonesia, Kenya, Saudi Arabia and Morocco, where the movements of national currencies against the dollar, euro and Chinese yuan are especially unpredictable.

If we restrict ourselves to the dollar, the euro and the yuan, how might the next round of changes in relative currency strength affect different actors in the clean energy sector?

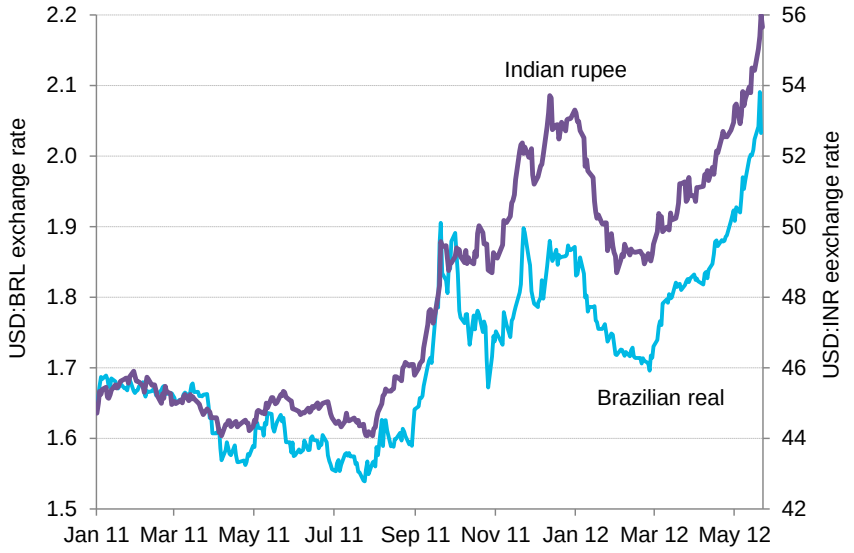
Looking first at a weak euro scenario, since that is the one which looks most likely right now, sharp falls for the single currency against the dollar and the yuan would give European solar and wind manufacturers some respite in their vicious competition with Chinese rivals in their own countries, as well as in emerging renewable power markets of South America, Africa, the Middle East and southern Asia.

However the same shift would pose problems for European biomass generators, which are importing pellets from Canada and the southern US. A weak euro, if it was across the board, would be a boon for any developer which has borrowed euros, with unhedged revenues in another currency, even one on the peripheries of the continent.

What about a weak dollar scenario? The first beneficiaries would be US-based manufacturers such as General Electric in wind, and First Solar and SunPower in PV, gaining a competitive boost in domestic and overseas markets. Chinese exporters could be squeezed, although the US could ease up on its trade sanctions on China as a result of the exchange rate move. US bioenergy exports would gain market share.

Finally, there is the weak yuan scenario. Trade tension would almost certainly intensify significantly unless it was felt by the US and Europe that the Chinese economy was in significant distress. Proponents of cheap clean energy might smile privately, because the availability of cheaper Chinese PV panels and turbines tilts the cost comparison with fossil-fuel power ever more towards renewables. Meanwhile Chinese technology, as long as it could prove its reliability, would be more attractive for projects in the developing world, from wind in Ethiopia to PV in the Sahara, though Chinese turbines would still find it hard to be considered bankable in the core markets of Europe and North America.

Exports to India and Brazil may decline on weaker currencies



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FIGHTING THE MONSTER

What can the clean energy sector do to position itself, if forex markets are going to be more volatile than of late? Well, for one thing, more than ever project owners need to avoid unhedged foreign exchange debt; in particular, developers need to find ways of hedging their exposure between ordering and paying for their generating equipment; manufacturers should look at shifting production to factories in their key markets, to ensure they can remain competitive in any future forex scenario.

Organisations that can address forex exposures are likely to assume greater importance, from export credit agencies such as Denmark's Export Kredit Fonden – which announced a new, DKK 10bn ($1.7bn) partnership with the country's PFA Pension fund last week for the provision of debt to projects in all sectors, including renewables – plus Germany's Euler Hermes and EximBank of the US, to private sector insurers and banks offering hedging products. Other winners would include multinationals with significant global operations and the ability to match cash flows with investment opportunities globally, such as General Electric and Siemens, as well as the big Asian trading houses of Mitsui, Marubeni and Mitsubishi Corporation.

In *Jurassic Park*, you knew from the start that the cute kids would not be eaten: those in real danger were those playing bit parts. In the grand dramas unfolding in the world economy, the same principle probably holds. I'll leave you to consider what that might mean for the clean energy sector.

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