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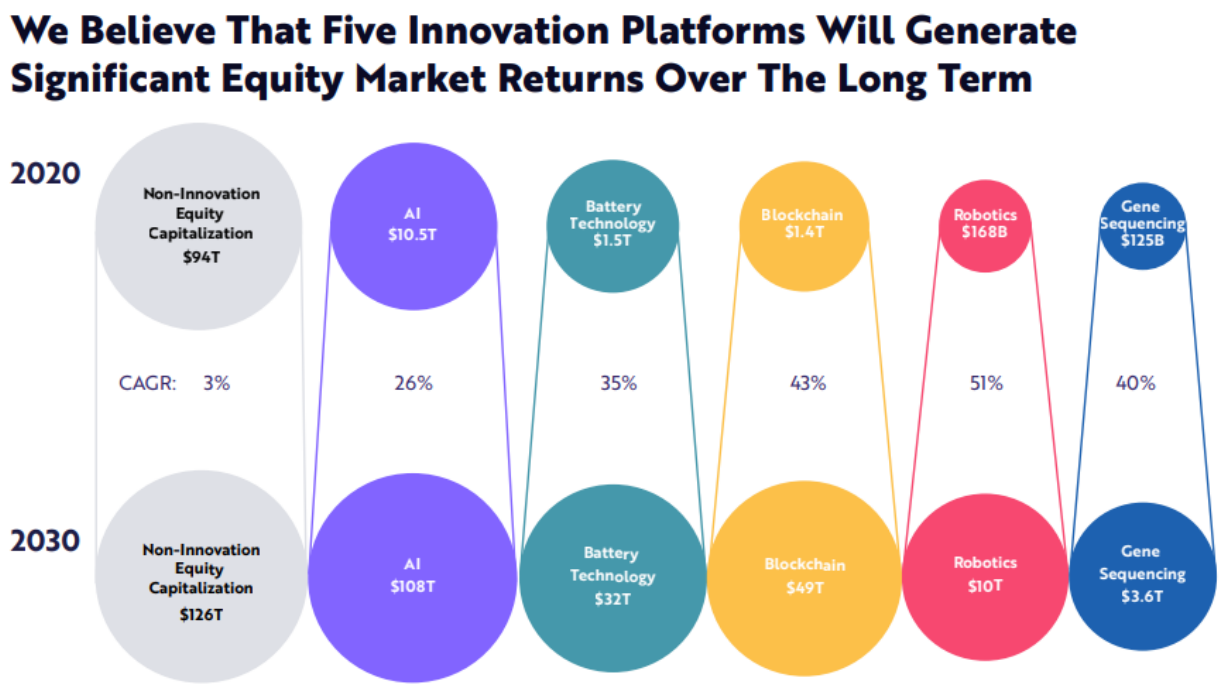
Valuations, Geopolitics and Energy

By now the Tech bubble seems to have burst and there has been a clear rotation from growth to value stocks in recent weeks. With global GDP at $85trn, global equity markets are priced prohibitively expensive at $125trn, as during normal times GDP has generally traded above equity valuations[1]. Perhaps out of desperation and in order to make sense of Ark's investment valuations, Ark Invest published their "Big Ideas" this week, in which they explain their growth assumptions, as per below. It's pretty amazing how they believe that global equity valuations will reach $328trn in only eight years and 2/3 of this valuation is in the sectors they invest in. Global GDP doubled over the last two decades mostly due to the rise of China. As geopolitical tensions ratchet up, the safest place to be over the next 2-3 months is probably energy, which has outperformed any other sector in January…[2]

Ark Invest Big Ideas 2022



Source: Ark Invest

[1] https://twitter.com/NorthmanTrader/status/1486772138715533323/photo/1
[2] https://www.yardeni.com/pub/peacockperf.pdf

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Geopolitics: The West vs. the China-Russia-Iran-Pakistan(-Kazakhstan-Uzbekistan) Alliance

As we face a potential invasion in Ukraine by Russia, a takeover of Taiwan by China and a nuclear bomb by Iran, geopolitical tensions have never been higher since the fall of the iron curtain. With the chaotic withdrawal of the US from Afghanistan, a new alliance of China, Russia, Iran and Pakistan has formed to take advantage of the power vacuum[3]. What makes this alliance so special? It's energy.

Expanding the alliance to Kazakhstan and Uzbekistan, the alliance is producing 29% of the world's natural gas, 58% of the world's uranium, 19% of the world's oil and 55% of the world's coal. And while the US is relatively self-sufficient by producing 23% of the world's natural gas production, 20% of the world's oil production and 7% of the world's coal production, and at the same time, US uranium producer Cameco could boost production to 24mio pounds (12% of world uranium production)[4] if prices were to recover, the EU is heavily dependent on energy from other countries, such as Russia. This makes the EU and other countries powerless against an expansion of power by the alliance of China-Russia-Iran-Pakistan. At the moment, the EU is basically funding Russia's (& China's) military by buying their energy (& products) at record prices.

The EU has got only two choices: Increase energy production or buy energy from someone else. While there are high capital expenditures into renewables, these projects won't conclude in a matter of months – as per below UK's wind farms, which usually take a decade to generate electricity, since an entire grid needs to be created. One would expect more drilling for oil and gas in the North Sea at this point, but it might not occur to the degree needed. The EU hence needs to get their energy supply from somewhere else, which in turn could not only increase energy prices further, but also heighten demand for oil and gas tankers to ship the energy from the Middle East, the US and Africa to Europe. In this sense, the sectors that should continue to outperform are upstream oil & gas producers, oil & gas equipment manufacturers and services and marine specialists.

Nonetheless, the EU will struggle to move away from Russian energy, as they currently import 27% of their oil demand, 41% of their natural gas demand and 47% of their coal demand from Russia[5]. This has also been the reason why Germany and France have remained relatively neutral when Russia invaded Georgia in 2008.

[3] https://www.mfa.gov.cn/ce/ceuk/eng/zgyw/t1907880.htm
[4] https://www.cameco.com/media/news/camecos-commentary-on-the-ongoing-situation-in-kazakhstan
[5] https://ec.europa.eu/eurostat/cache/infographs/energy/bloc-2c.html#:~:text=In%202019%2C%20almost%20two%20thirds,and%20Norway%20(both%207%20%25).

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Natural Gas Production

Country	Natural gas production (in exajoule)	In %
USA	33	23%
Russia	25	18%
Iran	8	6%
China	7	5%
Canada	6	5%
Qatar	6	4%
Australia	5	4%
Norway	4	3%
Saudi Arabia	3	2%
Algeria	3	2%
Top 10	101	73%

Source: IEA, 2020

Uranium Production

Country	Uranium production (in tonnes)	In %
Kazakhstan	19,477	41%
Australia	6,203	13%
Namibia	5,413	11%
Canada	3,885	8%
Uzbekistan	3,500	7%
Niger	2,991	6%
Russia	2,846	6%
China	1,885	4%
Ukraine	744	2%
India	400	1%
Top 10	47,344	99%

Source: World-nuclear.org, 2020

Oil Production

Country	Oil production (in barrels per day)	In %
USA	19	20%
Saudi Arabia	11	12%
Russia	11	11%
Canada	5	6%
China	5	5%
Iraq	4	4%
UAE	4	4%
Brazil	4	4%
Iran	3	3%

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Kuwait	3	3%
Top 10	67	72%

Source: EIA, 2020

Coal Production

Country	Coal production (in metric tonnes)	In %
China	3,690	50%
India	743	10%
Indonesia	529	7%
Australia	459	6%
USA	491	7%
Russia	394	5%
EU	297	4%
Rest of World	835	11%

Source: IEA, 2020

Wind farms will change the UK's Energy Grid

Currently the UK generates around 10GW/h (10,000 MW/h) in electricity from offshore wind farms and has another 6GW/h under construction with first electricity expected to be generated in 2022/23. During high winds, wind farms can generate as much as 20GW/h for the UK grid (including onshore wind farms), which makes up 50% of the 40GW of demand[6]. The latest massive auction of Scottish wind farm leases would add another 25.8GW to the grid with first electricity expected after 2030, and, in combination with other projects in England currently consented, a total of 45.5GW is being added on top of the 10GW currently installed. 1GW can generate enough electricity for 1mio household as a rule of thumb. The UK has around 28mio households, which means during high winds by the end of 2023 we might be able to generate most of UK's 40GW/h power demand from wind farms, and by mid-2030 UK would become an exporter of wind energy. However, it is worth noting that for around 600MW to 1GW in wind farms, ~£2.5bn capital expenditures are incurred. With around 45.5GW being either under construction or planned, the total capital expenditures could amount from £125bn to £200bn for these projects combined. The high costs make wind farms a lot less profitable compared to equivalent energy from natural gas and makes the energy produced more expensive (£57.5 to £140/MWh for wind farms for 15 years[7]). This shows that the high natural gas prices we currently pay (£64 to £140/MWh) are likely here to stay in a

[6] https://grid.iamkate.com/
[7] https://www.morayeast.com/news/moray-east-celebrates-installation-last-turbine

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transition towards renewable/wind farm energy, if we chose to abandon natural gas – alternatively, most of the operators of those wind farms will likely lose money on their projects.

UK Offshore Wind Farms

Status	Site	Developer	Capacity (in MW)	Expected electricity generation year
Operational	North Hoyle	Greencoat	60	2003
Operational	Scroby Sands	EON Renewables	60	2004
Operational	Kentish Flats	Vattenfall	140	2005
Operational	Barrow	Orsted	90	2006
Operational	Burbo Bank	Orsted	348	2007
Operational	Lynn and Inner Dowsing	Centrica/TCW	194	2009
Operational	Rhyl Flats	Npower	90	2009
Operational	Thanet	Vattenfall	300	2010
Operational	Robin Rigg	RWE Renewables	174	2010
Operational	Gunfleet Sands	Orsted	184	2010
Operational	Walney	Orsted/SSE	1,026	2010
Operational	Greater Gabbard	SSE Renewables	504	2012
Operational	Ormonde	Vattenfall	150	2012
Operational	Sheringham Shoal	Equinor/Statkraft	317	2012
Operational	Lincs	Centrica/Siemens/Orsted	270	2013
Operational	London Array	EON/Masdar	630	2013
Operational	Teeside	EDF Renewables	62	2013
Operational	Levenmouth	ORE Catapult	7	2013
Operational	West of Duddon Sands	Orsted/Scottish Power Renewables	389	2014
Operational	Humber Gateway	EON Renewables	219	2015
Operational	Westermost Rough	Orsted/Marubeni/GIB	210	2015
Operational	Gwynt y Mor	RWE/Npower/Stadtwerke Munich/GIB/Siemens	576	2015
Operational	Dudgeon	Equinor/Statkraft	402	2017
Operational	Hywind Scotland	Equinor	30	2017
Operational	Blyth Offshore	EDF Renewables	42	2017
Operational	Race Bank	Orsted	580	2018
Operational	Rampion	EON Renewables	400	2018
Operational	Aberdeen Bay	Vattenfall	93	2018
Operational	Beatrice	SSE/Red Rock Power	588	2019
Operational	Hornsea 1	Orsted/Global Infrastructure Partners	1,218	2020
Operational	East Anglia 1	Scottish Power Renewables/Vattenfall	714	2020
Operational	Kincardine FOW	Cobra/Pilot Offshore	48	2021

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Under construction	Moray East	Ocean Winds	950	2022
Under construction	Hornsea Two	Orsted	1,386	2022
Under construction	Triton Knoll	RWE Renewables	857	2022
Under construction	NNG	EDF Renewables/ESB	448	2023
Under construction	Seagreen 1	SSE Renewables/TotalEnergies	1,080	2023
Under construction	Sofia Offshore	RWE Renewables	1,400	2023
Consented	Seagreen 1a	SSE Renewables/TotalEnergies	420	2024
Consented	Inch Cape	Red Rock Power	1,080	2024
Consented	Moray West	Ocean Winds	850	2024
Consented	ForthWind	Cierco	12	2024
Consented	Doggerbank A	SSE Renewables/Equinor	1,200	2024
Consented	Doggerbank B	SSE Renewables/Equinor	1,200	2025
Consented	Doggerbank C	SSE Renewables/Equinor	1,200	2025
With seabed lease	Berwick Bank	SSE Renewables/TotalEnergies	4,150	2027
With seabed lease	Pentland FOW	Copenhagen Infrastructure Partners	11	2027
Lease sold	ScotWind 1	BP Alternative Energy Investments	2,907	2030+
Lease sold	ScotWind 1	SSE Renewables	2,610	2030+
Lease sold	ScotWind 1	Falck Renewables	1,200	2030+
Lease sold	ScotWind 1	Shell New Energies	2,000	2030+
Lease sold	ScotWind 1	Vattenfall	798	2030+
Lease sold	ScotWind 1	DEME	1,016	2030+
Lease sold	ScotWind 1	Falck Renewables	1,000	2030+
Lease sold	ScotWind 1	Ocean Winds	1,000	2030+
Lease sold	ScotWind 1	Falck Renewables	500	2030+
Lease sold	ScotWind 1	Scottish Power Renewables	3,000	2030+
Lease sold	ScotWind 1	BayWa	960	2030+
Lease sold	ScotWind 1	Offshore Wind Power	2,000	2030+
Lease sold	ScotWind 1	Northland Power	1,500	2030+
Lease sold	ScotWind 1	Magnora	495	2030+
Lease sold	ScotWind 1	Northland Power	840	2030+
Lease sold	ScotWind 1	Scottish Power Renewables	2,000	2030+
Under consideration	INTOG	-	4,000	2030+
Under consideration	INTOG Innovation	-	500	2030+

Source: Projects, Wikipedia, govt.scot, offshorewindscotland.com

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