Measuring the AI sector

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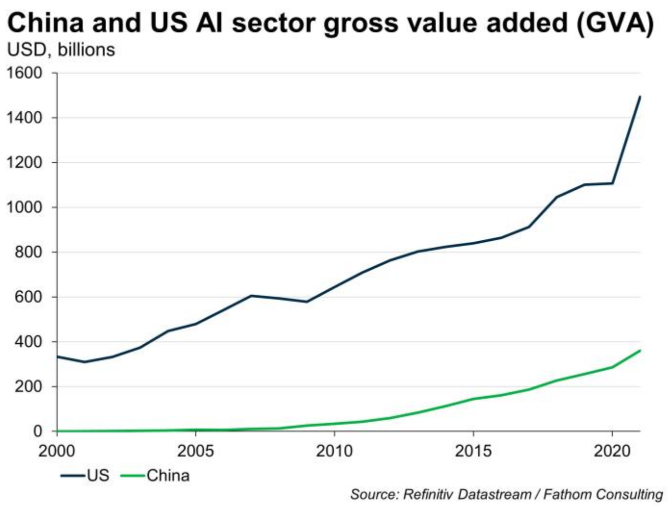
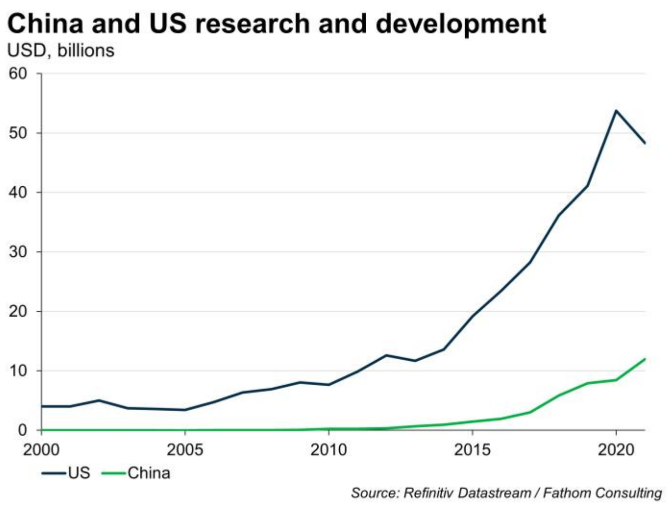
- We have produced a comprehensive, data-driven means of measuring the progress of the artificial intelligence (AI) sector in the US and China
- Using corporate-level data,[1] we find:
    - The gross value added (GVA, i.e., economic output) of the US's leading AI pioneers greatly exceeds the output of their Chinese peers
    - US AI-related research and development spending exceeded $50bn in 2020 — more than five times the equivalent amount for China





1,. Emerging technologies such as artificial intelligence are poorly reflected by traditional data sources, so we have constructed proxies for key macroeconomic variables. These indicators are built from the bottom up using company-level data. Crucially, our methodology is systematic and avoids leaning solely on 'expert judgement' to identify the right list of such companies. For more information, please see the full report https://www.fathom-consulting.com/welcome-to-the-machine/

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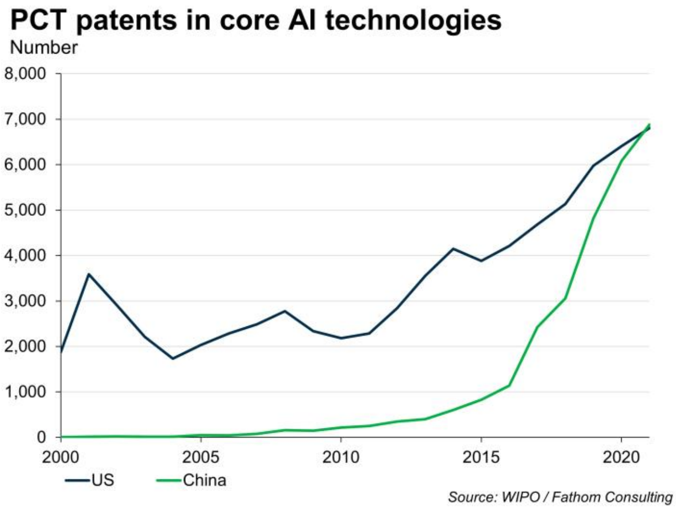
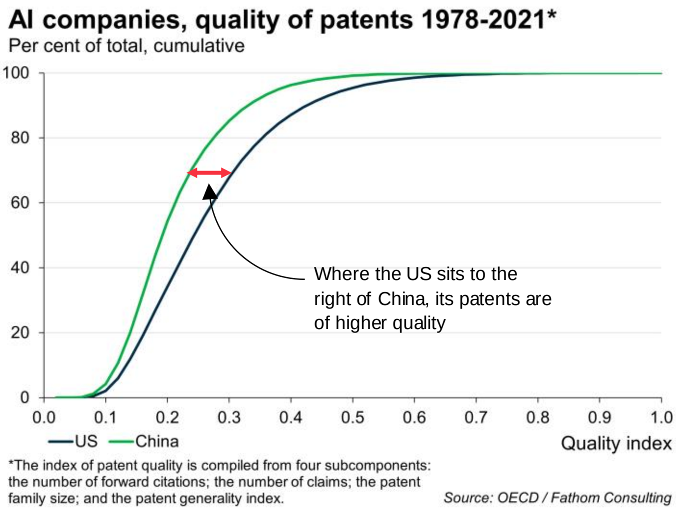
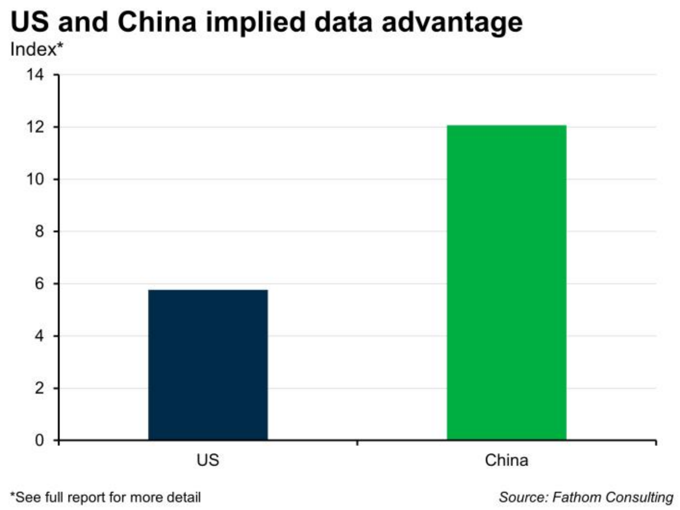
- US and Chinese firms now issue similar numbers of AI-related patents, but the US filings are typically of higher quality





- However, Chinese tech firms appear to have the edge in terms of measurable productivity (i.e. the portion of their economic output that cannot be explained by traditional factors of production such as employment and fixed capital)
- To the extent that AI relies on access to vast quantities of data, this productivity gap might reflect the greater volume of personal data at the disposal of Chinese companies, due to China’s less protective stance towards the right to privacy
- Taken together, we conclude that the US remains at the technological frontier of AI, but that China leads in the implementation of existing AI



Welcome to the machine

A comparative assessment of the USA and China to 2035, focusing on the role of technology in the economy

This note is the third in a series highlighting the findings of *Welcome to the Machine*, Fathom's recent report on techno-economic competition between the United States and China to 2035.

Read more from this series or read the report in full

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