

AI Tipping Point

A Deep Dive Into Semiconductors

Authors

Vishal Hindocha
Global Head of Sustainability Strategy

Genevieve Gilroy
Equity Research Analyst



To listen to the
full conversation

AI will have different impacts on companies in the semiconductor sector

The rise of artificial intelligence was unexpected and has driven an explosion in interest across cloud service providers, enterprises and consumers. Investors are still working out the long-term implications; the MFS® global technology sector team are unpacking what AI means for different business models and how it will impact companies, whether, for example, it will be disruptive or positive for software business models.

In the semiconductor sector, there are many companies benefiting from the training of large language models, such as chip manufacturers, data centers and software designers. We are confident AI will be long-term positive for semiconductor businesses and are looking for companies underappreciated by the market. There is a wide range of outcomes from the perspective of units, prices, market share and gross margins as new competition will emerge to rival existing players. Being anchored in valuation helps us stay away from the AI hype cycle while understanding each of these businesses helps us uncover the opportunities and risks.

Geopolitical tensions affect companies, but supply chains are highly interconnected

Deglobalization risks have been one of the biggest focus areas of the global sector team for several years. Given the supply chain, semiconductors are one of the most globalized industries: Semiconductor design companies are centralized in the United States, capital equipment companies are in the US, Netherlands and Japan, manufacturers are largely out of Taiwan while the chemicals used during manufacturing come from all over the world. This is because the semiconductor sector lends itself to small niches, such as the design of manufacturing equipment or process technology.

The highly focused, niche-based model has led to a diverse but interconnected supply chain, making it challenging for any of these businesses to pull out of the system. As investors, we need to analyze their financial statements and understand the impact of geopolitical tensions on metrics like units sold and market share. We also need to know the extent to which companies manufacture exclusively in one location or region, how much it would cost them to diversify and whether there is enough capacity elsewhere to appropriately diversify. It is more difficult for companies using more advanced technology to diversify than it is for those using older chips. We are consistently talking with companies and assessing the potential impact on units, prices, margins and capex across each of the businesses, as well the exposure in our portfolios.



Energy usage is important from sustainability and business model perspectives

Energy is vital to semiconductor-related companies. For example, cloud service providers developing large language models are constrained by their energy usage. This makes energy consumption a sustainability focus as well as critical to their business models. A prime example of the impact is the increasing demand for Nvidia's chips. Nvidia's graphic processing units are more powerful and efficient than traditional central processing units as their GPU accelerates a single workload, making the process faster and using much less energy than a CPU.

We're seeing semiconductor companies focusing on energy, trying to reduce their usage and managing energy flow efficiently through the computer system. From an investment perspective, we are assessing energy from both a sustainability and business model perspective.

We welcome the opportunity to discuss key sustainability themes with you. Please contact allangles@mfs.com and we will be happy to help.



MFS may incorporate environmental, social, or governance (ESG) factors into its fundamental investment analysis and engagement activities when communicating with issuers. The examples provided above illustrate certain ways that MFS has historically incorporated ESG factors when analyzing or engaging with certain issuers but they are not intended to imply that favorable investment or engagement outcomes are guaranteed in all situations or in any individual situation. Engagements typically consist of a series of communications that are ongoing and often protracted, and may not necessarily result in changes to any issuer's ESG related practices. Issuer outcomes are based on many factors and favorable investment or engagement outcomes, including those described above, may be unrelated to MFS analysis or activities. The degree to which MFS incorporates ESG factors into investment analysis and engagement activities will vary by strategy, product, and asset class, and may also vary over time. Consequently, the examples above may not be representative of ESG factors used in the management of any investor's portfolio. The information included above, as well as individual companies and/or securities mentioned, should not be construed as investment advice, a recommendation to buy or sell or an indication of trading intent on behalf of any MFS product.

The views expressed are those of the speakers and are subject to change at any time. These views are for informational purposes only and should not be relied upon as a recommendation to purchase any security or as a solicitation or investment advice. No forecasts can be guaranteed.

Unless otherwise indicated, logos and product and service names are trademarks of MFS® and its affiliates and may be registered in certain countries.

Distributed by: **U.S.** – MFS Institutional Advisors, Inc. (“MFSI”), MFS Investment Management and MFS Fund Distributors, Inc., Member SIPC; **Latin America** – MFS International Ltd.; **Canada** – MFS Investment Management Canada Limited. **Note to UK and Switzerland readers:** Issued in the UK and Switzerland by MFS International (U.K.) Limited (“MIL UK”), a private limited company registered in England and Wales with the company number 03062718, and authorised and regulated in the conduct of investment business by the UK Financial Conduct Authority. MIL UK, an indirect subsidiary of MFS®, has its registered office at One Carter Lane, London, EC4V 5ER. **Note to Europe (ex UK and Switzerland) readers:** Issued in Europe by MFS Investment Management (Lux) S.à r.l. (MFS Lux) – authorized under Luxembourg law as a management company for Funds domiciled in Luxembourg and which both provide products and investment services to institutional investors and is registered office is at S.a r.l. 4 Rue Albert Borschette, Luxembourg L-1246. Tel: 352 2826 12800. This material shall not be circulated or distributed to any person other than to professional investors (as permitted by local regulations) and should not be relied upon or distributed to persons where such reliance or distribution would be contrary to local regulation; **Singapore** – MFS International Singapore Pte. Ltd. (CRN 201228809M); **Australia/New Zealand** – MFS International Australia Pty Ltd (“MFS Australia”) (ABN 68 607 579 537) holds an Australian financial services licence number 485343. MFS Australia is regulated by the Australian Securities and Investments Commission.; **Hong Kong** – MFS International (Hong Kong) Limited (“MIL HK”), a private limited company licensed and regulated by the Hong Kong Securities and Futures Commission (the “SFC”). MIL HK is approved to engage in dealing in securities and asset management regulated activities and may provide certain investment services to “professional investors” as defined in the Securities and Futures Ordinance (“SFO”); **For Professional Investors in China** – MFS Financial Management Consulting (Shanghai) Co., Ltd. 2801-12, 28th Floor, 100 Century Avenue, Shanghai World Financial Center, Shanghai Pilot Free Trade Zone, 200120, China, a Chinese limited liability company registered to provide financial management consulting services.; **Japan** – MFS Investment Management K.K., is registered as a Financial Instruments Business Operator, Kanto Local Finance Bureau (FIBO) No.312, a member of the Investment Trust Association, Japan and the Japan Investment Advisers Association. As fees to be borne by investors vary depending upon circumstances such as products, services, investment period and market conditions, the total amount nor the calculation methods cannot be disclosed in advance. All investments involve risks, including market fluctuation and investors may lose the principal amount invested. Investors should obtain and read the prospectus and/or document set forth in Article 37-3 of Financial Instruments and Exchange Act carefully before making the investments; **Bahrain** - This document has not been approved by the Central Bank of Bahrain which takes no responsibility for its contents. No offer to the public will be made in the Kingdom of Bahrain and this document is intended to be read by the addressee only and must not be passed to, issued to, or shown to the public generally. The Central Bank of Bahrain assumes no responsibility for the accuracy and completeness of the statements and information contained in this document and expressly disclaims any liability whatsoever for any loss howsoever arising from reliance upon the whole or any part of the contents of this document. The Board of Directors and the management of the issuer accepts responsibility for the information contained in this document. To the best of the knowledge and belief of the board of directors and the management, who have all taken all reasonable care to ensure that such is the case, the information contained in this document is in accordance with the facts and does not omit anything likely to affect the reliability of such information.; **Kuwait** - This document is not for general circulation to the public in Kuwait. The information has not been licensed for offering in Kuwait by the Kuwait Capital Markets Authority or any other relevant Kuwaiti government agency. No private or public offering of the information is being made in Kuwait, and no agreement relating to the information will be concluded in Kuwait. No marketing or solicitation or inducement activities are being used to offer or market the information in Kuwait.; **Oman** - For Residents of the Sultanate of Oman: The information contained in this document does not constitute a public offer of securities in the Sultanate of Oman as contemplated by the Commercial Companies Law of Oman (Royal Decree 4/74) or the Capital Market Law of Oman (Royal Decree 80/98). This information is being circulated on a limited basis only to corporate entities that fall within the description of sophisticated investors (Article 139 of the Executive Regulations of the Capital Market Law). The recipient acknowledges that they are a sophisticated investor who has experience in business and financial matters and is capable of evaluating the merits and risks on an investment.; **South Africa** - This document has not been approved by the Financial Services Board and neither MFS International (U.K.) Limited nor its funds are registered for public sale in South Africa.; **UAE** - This document, and the information contained herein, does not constitute, and is not intended to constitute, a public offer of securities in the United Arab Emirates and accordingly should not be construed as such. The information is only being offered to a limited number of exempt investors in the UAE who fall under one of the following categories of non-natural Qualified Investors: (1) an investor which is able to manage its investments on its own, namely: (a) the federal government, local governments, government entities and authorities or companies wholly-owned by any such entities; (b) international entities and organisations; or (c) a person licensed to carry out a commercial activity in the UAE, provided that investment is one of the objects of such person; or (2) an investor who is represented by an investment manager licensed by the SCA, (each a “non-natural Qualified Investor”). The information and data have not been approved by or licensed or registered with the UAE Central Bank, the Securities and Commodities Authority, the Dubai Financial Services Authority, the Financial Services Regulatory Authority or any other relevant licensing authorities or governmental agencies in the UAE (the “Authorities”). The Authorities assume no liability for any investment that the named addressee makes as a non-natural Qualified Investor diligence on the accuracy of the information relating to the securities. If you do not understand the contents of this document you should consult an authorised financial adviser.; **Saudi Arabia** - This document may not be distributed in the Kingdom except to such persons as are permitted under the Investment Funds Regulations issued by the Capital Market Authority. The Capital Market Authority does not make any representation as to the accuracy or completeness of this document, and expressly disclaims any liability whatsoever for any loss arising from, or incurred in reliance upon, any part of this document. Prospective purchasers of the securities offered hereby should conduct their own due diligence on the accuracy of the information relating to the securities. If you do not understand the contents of this document, you should consult an authorised financial adviser.; **Qatar** - This material/fund is only being offered to a limited number of investors who are willing and able to conduct an independent investigation of the risks involved in an investment in such material/fund. The material does not constitute an offer to the public and is for the use only of the named addressee and should not be given or shown to any other person (other than employees, agents or consultants in connection with the addressee's consideration thereof). The fund has not been and will not be registered with the Qatar Central Bank or under any laws of the State of Qatar. No transaction will be concluded in your jurisdiction and any inquiries regarding the material/fund should be made to your contact outside Qatar.