

GLOBAL LONG-TERM UNCONSTRAINED

Stock Insights



MARTIN CURRIE
A Franklin Templeton Company

JANUARY 2023 For professional and wholesale investors only

Our monthly highlights on company newsflow

ASML and Semiconductor special

- Capital Markets Day delivers visibility on thematic semiconductor demand drivers over the next decade
- Impact of US export controls and US Chips act on semiconductor companies



Zehrid Osmani

Head of Global Long-Term Unconstrained

Our long-term fundamental approach

Our research is focused on finding undervalued companies operating in industries with high barriers to entry, and that have dominant market positions, strong pricing power, low disruption risk, high structural growth prospects, generating high returns or with the potential to generate high returns over time, with solid balance sheets and compounding cash flows, and that have strong corporate culture and quality management, and sustainable business models well positioned in a transitioning world.

Our three mega-trends, (i) **Demographic Changes**, (ii) **Future of Technology**, and (iii) **Resource Scarcity**, provides us with opportunities to capture long term structural growth themes. Within these mega-trends, there are thematic opportunities with supportive structural growth prospects, such as the eight medium-term opportunities that we have identified.



Future of Technology

Resource Scarcity

Green & Alternative Energy



Future of Technology

Resource Scarcity

5G Telephony



Future of Technology

Resource Scarcity

Energy-efficient Infrastructure



Future of Technology

Cloud Computing & Cyber Security



Future of Technology

Resource Scarcity

Electric transportation - High Speed Railways & Electric Vehicles



Future of Technology

Resource Scarcity

Robotics & Automation



Future of Technology

Demographic Changes

Healthcare Infrastructure



Future of Technology

Metaverse & Quantum Computing

The information provided should not be considered a recommendation to purchase or sell any particular security. It should not be assumed that any of the securities discussed here were, or will prove to be, profitable.

ASML, Netherlands, Information Technology

Capital Markets Day delivers visibility on thematic semiconductor demand drivers over the next decade

In our view, ASML, the Dutch semiconductor equipment manufacturer, is one of the few companies that can talk credibly about 2030's outlook, despite today's low macroeconomic visibility. We attended the Capital Markets Day (CMD) in November and have since followed up with Investor Relations in December.

Global trends expected to double semiconductor market by 2030

ASML highlighted analyst estimates that the semiconductor market is set to double by 2030, with sales increasing from US\$0.6 trillion in 2020 to US\$1.0-1.3 trillion. This translates into 9% growth p.a. supported by all areas of the market - with datacenter, automotive and industrial applications set to outperform.

In the company's view, strong growth rates across markets, continued innovation, more foundry competition and technological sovereignty drive an increased demand at advanced and mature nodes, which requires wafer capacity additions of over 780 thousand wafer starts per month per year, or a CAGR of 6.5% (2020-2030).

Source: ASML, Gartner, November 2022. Analyst estimates are from Tech Insights, McKinsey & Company and Semi.

Energy transition - a key driver of semiconductor growth into the next decade

As stated above, semiconductor growth is coming from all areas of the market, supported by three trends in 'Connected World', 'Climate Change and Resource Scarcity' and Social and 'Economic Shifts'

The one area ASML underestimated the growth of semis was in resource scarcity and climate change. In particular, energy transition was not on 'the radar screen', this is in tandem with electrification and mobility. Both of which align with two of the eight mid-term opportunities outlined at the start of this document.

Energy transition in ASML's view will be one of the drivers over the coming decades, as green energy requires higher power semiconductor content. For example in generation, wind power requires ~€3,000 of semiconductors per MW of power, and solar €4,000¹. The drivers are not limited to this, and semis will play an important role in storage, consumption and distribution, including smart grids.




Electric mobility, particularly of that autos, is an area we as an investment team have highlighted in the past as a key driver in the demand for semis. Electric vehicles have a far higher requirement for semis than their internal combustion engine counterparts. What ASML highlighted that within the cars' different systems there is demand for both mature and more advance semi nodes from 40nm through to 5nm.

Overall, the auto and industrial (through energy transition) sectors, will be the key drivers of the more mature node market as opposed to the more advanced chips. In the latter case, augmented and virtual reality will be important drivers.

Technological sovereignty is driving ASML's need to expand capacity

Technological sovereignty and competition between foundries, is in ASML's view, the rationale to expand capacity. Countries are seeking gain their fabrication footprints, and foundry companies may create overcapacity to gain market share. The top three semiconductor firms, TSMC, Intel and Samsung investing US\$ 300 billion in capacity across the globe.

To support semiconductor industry growth, ASML are implementing a phased capex approach, investing €0.5 billion p.a. over five years. This will increase the firm's production space by >65,000m². The systems increase is shown below:

	Number of units 	Productivity 	Litho wafer capacity* 
DUV capacity growth to 600 systems/year in 2025-2026	~2.5x	~1.2x	~3.0x
Low-NA EUV capacity growth to 90 systems/year in 2025-2026	~3.0x	~1.7x	~5.0x
High-NA EUV capacity growth to 20 systems/year starting in 2027-28 and growing over time	≥ 20		

Source: ASML as at 11 November 2022. *Litho wafer capacity=units x productivity; numbers provided are capacity plans, not shipment plans.

ASML having applied the learnings from the introduction of previous EUVs, have reduced the risk of introducing the new High NA EUV systems, and therefore we would expect a smoother transition than before.

¹Source: ASML, as at 11 November 2022.

The information provided should not be considered a recommendation to purchase or sell any particular security. It should not be assumed that any of the securities discussed here were, or will prove to be, profitable.

Future engagement to follow up technology road map and disruption risk

Following the CMD, we would like to follow up on ASML's technology roadmap and R&D approach. We have visibility on the drivers of growth and capex requirements; however, we would like to learn more about the development of new technologies to support this. In addition, while there has been a strong focus on expectations of the firm's systems, we would like to understand how they seek to navigate potential disruption risk, for example from new materials. We are looking to carry out an on-site visit in 2023 to gain further insight in these areas.

Impact of US export controls and US Chips act on semiconductor companies

In the previous section, we've highlighted that ASML are seeking to expand capacity to meet the demands of growing domestic production, driven by countries seeking technological sovereignty. The US export controls on semiconductor technology and the 2022 US Chips act are key examples of this.

ASML CEO, Peter Winnik opposes further restrictions on China

In an interview in December, ASML's CEO Peter Winnik, discussed the recent US push to get the Netherlands to adopt new rules. He remarked 'ASML has already sacrificed', for example ASML has been restricted since 2019 in exporting its most advanced lithographic machines.

In our view, if the Netherlands were to follow the US, there would be wider negative implications beyond servicing older machinery that has already been exported. We would need to see the shape of any legislation would take, whether they would ban DUV or more advanced immersion machines, even though the latter would still have further implications on DUV exports.

In our October issue of 'Stock Insights', we highlighted that China accounted for ~15% of ASML equipment and service sales, which is at risk. China is an important market for mature node production, as outlined earlier, particularly in the automotive and industrial markets. We therefore believe there may be negative implications for growth into the middle and later part of this decade as result. There may be however, positive offsetting factors from production shifting to other regions which may have a lower level of efficiency. In addition, we continue to see major regions in the US, Japan, and Europe look to expand funding to localize semiconductor manufacturing as part of "tech sovereignty" ambitions.

Taiwan offering tax breaks

Taiwan is introducing a new law, that will offer a 25% tax cut for R&D and a 5% cut for fab equipment outlays. This appears to higher tax break than was previously offered to companies such as TSMC. In our view, this fits into the wider geopolitical context, as some industry analysts view this as response to the US Chips act (offering funding to boost research and manufacturing). What is interesting about this the new law offers the same treatment to international companies, and we await to see whether any US chip manufacturers such as Nvidia respond.

The information provided should not be considered a recommendation to purchase or sell any particular security. It should not be assumed that any of the securities discussed here were, or will prove to be, profitable.

Important information

This information is issued and approved by Martin Currie Investment Management Limited ('MCIM'), authorised and regulated by the Financial Conduct Authority. It does not constitute investment advice. Market and currency movements may cause the capital value of shares, and the income from them, to fall as well as rise and you may get back less than you invested.

The information contained in this document has been compiled with considerable care to ensure its accuracy. However, no representation or warranty, express or implied, is made to its accuracy or completeness. Martin Currie has procured any research or analysis contained in this document for its own use. It is provided to you only incidentally and any opinions expressed are subject to change without notice.

This document may not be distributed to third parties. It is confidential and intended only for the recipient. The recipient may not photocopy, transmit or otherwise share this [document], or any part of it, with any other person without the express written permission of Martin Currie Investment Management Limited.

This document is intended only for a wholesale, institutional or otherwise professional audience. Martin Currie Investment Management Limited does not intend for this document to be issued to any other audience and it should not be made available to any person who does not meet this criteria. Martin Currie accepts no responsibility for dissemination of this document to a person who does not fit this criteria.

The document does not form the basis of, nor should it be relied upon in connection with, any subsequent contract or agreement. It does not constitute, and may not be used for the purpose of, an offer or invitation to subscribe for or otherwise acquire shares in any of the products mentioned.

Past performance is not a guide to future returns.

The distribution of specific products is restricted in certain jurisdictions, investors should be aware of these restrictions before requesting further specific information.

The views expressed are opinions of the portfolio managers as of the date of this document and are subject to change based on market and other conditions and may differ from other portfolio managers or of the firm as a whole. These opinions are not intended to be a forecast of future events, research, a guarantee of future results or investment advice.

The information provided should not be considered a recommendation to purchase or sell any particular strategy/fund/security. It should not be assumed that any of the securities discussed here were or will prove to be profitable.

The analysis of Environmental, Social and Governance (ESG) factors forms an important part of the investment process and helps inform investment decisions. The strategy/ies do not necessarily target particular sustainability outcomes.

Risk warnings - Investors should also be aware of the following risk factors which may be applicable to the strategy shown in this document.

- Investing in foreign markets introduces a risk where adverse movements in currency exchange rates could result in a decrease in the value of your investment.
- This strategy may hold a limited number of investments. If one of these investments falls in value this can have a greater impact on the strategy's value than if it held a larger number of investments.
- Smaller companies may be riskier and their shares may be less liquid than larger companies, meaning that their share price may be more volatile.
- Emerging markets or less developed countries may face more political, economic or structural challenges than developed countries. Accordingly, investment in emerging markets is generally characterised by higher levels of risk than investment in fully developed markets.

For wholesale investors in Australia:

Any distribution of this material in Australia is by Martin Currie Australia ('MCA'). Martin Currie Australia is a division of Franklin Templeton Australia Limited (FTAL), (ABN 76 004 835 849). Franklin Templeton Australia Limited is a wholly owned subsidiary of Franklin Resources, Inc., and holds an Australian Financial Services Licence (AFSL No. 240827) issued pursuant to the Corporations Act 2001.



MARTIN CURRIE

A Franklin Templeton Company

Martin Currie Investment Management Limited, registered in Scotland (no SC066107),
2nd Floor, 5 Morrison Street, Edinburgh EH3 8BH

Tel: (44) 131 229 5252 Fax: (44) 131 228 5959 www.martincurrie.com

Authorised and regulated by the Financial Conduct Authority. Please note that calls to the above number and any other communications may be recorded.

© 2023 Martin Currie Investment Management Limited.