

# ASML



## What it does

ASML stands for Advanced Semiconductor Materials Lithography. The company used to be part of Philips but was spun out in 1988. Their high-ticket lithography machines are used to design and make semiconductor chips.

## Why we own it

- Since 1965, when Gordon Moore coined the term, the continuing miracle of Moore's law has underpinned several decades of computing power revolution.
- The company in the world which is most key to this progress continuing is ASML. ASML is the dominant provider of high end lithography machines and as such it can pave the way for another 10+ years of computing power doubling every 18 months or so.
- We own it as the trajectory provided by its new generation Extreme Ultra Violet (EUV) machines could see ASML grow handsomely for many years. It is also an extremely important company for read-through implications to some of our other largest holdings – the likes of Amazon, Facebook, Tencent, Netflix and so forth all ride the wave of increased computing power bringing down costs and increasing capabilities over time.

## How it could be worth many times more

- ASML grow its top line 20% p.a. for seven years to €40bn (from c.€11bn in 2018), and the operating margin expands from 28% to 35%.
- This gives c.€14bn operating profit in 2024 for which a 25x multiple would be justifiable, c.5x upside.

## Where we might be wrong

- Moore's law finally comes to an end.
- The early promise of ASML's EUV machines doesn't translate into huge sales and 3 nanometre wafers (the generation after this new generation) prove too difficult to produce.
- There is a prolonged downcycle in the semiconductor memory industry and overall growth reverts to GDP type levels.
- Two key people – Wennink and Van den Brink – don't stay the course.

## Short 10 Questions

### CAN SALES DOUBLE IN THE NEXT FIVE YEARS? 1

Yes: sales have CAGR'D 16% the last five years and analysts assume a slowdown. With EUV machines growth of mid-teens (or better) can continue.

### TEN YEARS AND BEYOND? 2

This becomes dependent on next generation EUV keeping Moore's Law going and ASML remaining the dominant player. Far from certain.

### COMPETITIVE ADVANTAGE? 3

Technology – they are way ahead – and market share (dominant).

### IS THE BUSINESS CULTURE DIFFERENT? 4

A confident can-do culture espoused by Wennink and Van Den Brink that stays the right side of hubris.

### CUSTOMERS LIKE YOU? CONTRIBUTE TO SOCIETY? 5

Customers respect ASML for having the best machines and being at the forefront of technological advancement. Society has no idea how much it owes ASML – most of the conveniences and delights in our daily lives have been enabled by their lithography progress over the decades.

### ARE RETURNS WORTHWHILE? 6

Yes: currently operating margins are high 20s and ROCE high 30s.

### WILL THEY RISE OR FALL? 7

They have fallen and risen with semiconductor cycles over the years, but the technological lead of their machines plus top line growth could see returns increase from here, possibly to mid-30s operating margins.

### HOW IS CAPITAL ALLOCATED? 8

Big slugs into R&D to keep the technological lead. R&D spends rolls along at about 15% of total sales – a higher percentage of sales than the industry and an absolute figure which is a multiple of nearest rivals.

### COULD IT BE WORTH 5X AS MUCH? 9

Yes: ASML could make operating profits of €14bn in seven years' time and a 25x multiple would mean an increase of 5x market cap from here.

### WHAT DOESN'T THE MARKET UNDERSTAND? 10

Market over extrapolating cyclicity from the past without understanding the secular growth thanks to a new generation of technology.