

A close-up photograph of a white sign with the letters 'ASML' in a bold, blue, sans-serif font. The sign is slightly tilted and has a black border. The background is a blurred blue circuit board pattern.

ASML Holding Equity Research Report

CUIRS GET Team

Sky Wang | Eileen Wang | Simone Liu | Khoi Lam | Anna Nguyen



ASML Holding | Europe

Global Leading Advanced PLM Manufacturer: Benefiting from the Growing Demand in Advanced Processes and Fusion in Supply Chain

Stock rating | Target Price
Over-weight | € 768.9

Stock Rating	Over-weight
Target Price	EUR € 768.9
Share price (09/01/24)	€ 654.8
Up/downside (%)	17.4%
52-Week Range	€ 534.4-698.1
Shares Out. (mn)	394.6
Mkt Cap	€ 258.4 bn
EV/EBITDA	26.5x
Diluted EPS	19.3x
P/LTM EPS	33.3x

Key Positive

The continued growth of semiconductor industry and demand for lithography due to the robust chip business for transformative technologies

Semiconductor has enjoyed a rapidly growing significance in the fourth Industrial Revolution - being the key driver for essential technologies today, and catalyst for transformative technologies tomorrow. In 2022, the industry achieved a record turnover of \$574.1 bn (according to *Semiconductor Industry Association*) and is widely expected to maintain an annual growth of 6-8% to reach the market value of over US\$1 tn by 2030. This positive forecast will also give hope to the same promising prospect for activities along the value chain of the semiconductor industry, including machine and equipment. Machine and equipment play an important role, providing tools for processes that add huge values to the chip production. The area is expected to grow right in line with the whole semiconductor industry, with its market value due to reach \$130 bn in 2023.

ASML's long-standing dominance boosted by the sole position in EUV technology

ASML has had a strong and huge hold onto the area of semiconductor machine & equipment for a long period of time. The company has claimed top spot in the industry's revenue ranking since 2005, and has maintained a market share of over 80% for nearly 10 years. The company offers lithography machines driven by both prominent technologies of DUV (Deep Ultraviolet) and EUV (Extreme Ultraviolet). EUV is increasingly replacing DUV as the premier technology in the field of lithography, as it enables the production of higher-performing, more sophisticated chips that can fuel new technologies like artificial intelligence, autonomous vehicles but are more cost-effective. ASML has enjoyed superiority by a vast margin from other competitors in producer DUV machines, while it's until now the only supplier of EUV equipment in the world. The extremely high barrier for other companies to catch up in this area means ASML's current immense advantage will not be threatened anytime soon.

Exhibit 1 : Global Semiconductor Market Value by Vertical (\$ bn)

(Source: McKinsey)

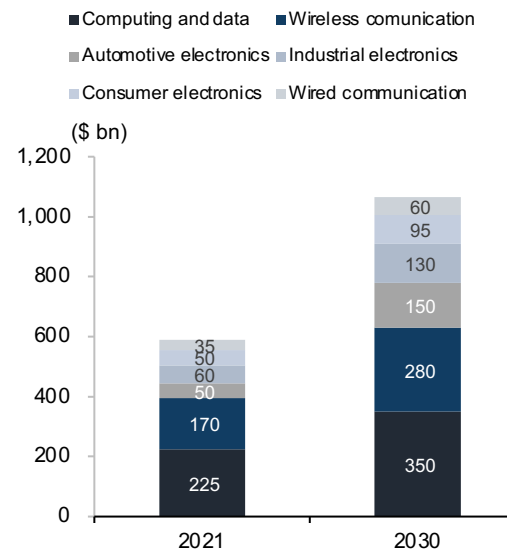


Exhibit 2 : ASML's Position in the Value Chain of the Semiconductor Industry

(Source: ASML annual report)

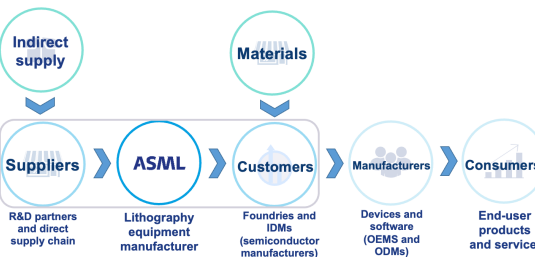
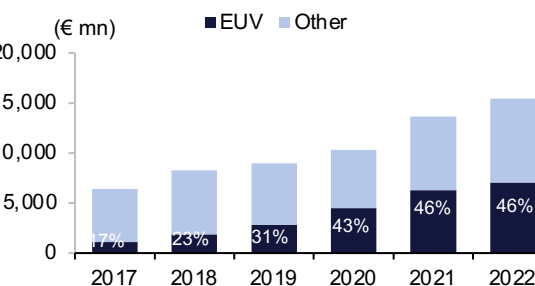


Exhibit 3 : Share of EUV to the total net sales of all ASML's technologies

(Source: ASML annual report)



Global Equity Team

Sky Wang
Head of GET
Skywangcuhkirs2022@gmail.com

Eileen Wang
GET Analyst
eileenwangcuirs@gmail.com

Simone Liu
GET Analyst
simonieliucuir@gmail.com

Khoi Lam
GET Analyst
lamkhoi2001@gmail.com

Anna Nguyen
GET Analyst
annanguyencuir@gmail.com

Fiscal year (12/31 End)

(US\$ mn)	2021A	2022A	2023E
Revenue	18,611	21,173	27,573
YoY (%)	33%	14%	30%
Gross Profit	9,809	10,700	14,118
GPM	23%	19%	28%
EBIT	6,536.4	6,500.7	9,045.8
OPM (%)	35%	31%	33%
Net Income	5,883	5,624	7,673
NPM	32%	27%	28%
Basic EPS	14	14	19

(Source: Bloomberg, Morningstar, Yahoo Finance, CUIRS estimate)

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Key Risk

Heavy exposure to geopolitical instability

For the last few years, the semiconductor industry has been used as a pawn in major geopolitical conflicts, given its increasing indispensability to the global supply chain, or even more critical, the world's development. One ongoing example is the the ban of export of semiconductor products to China imposed by the United States, as well as its allies, including the Netherlands with the export of ASML's EUV-driven lithography machines. Chinese market is forecasted to account for 60% of the growth of the global semiconductor industry's market value to over \$1 tn by 2030; however, increasing barriers will pose grave threats to the sector and its entire value chain's development. ASML will be hit especially hard by any unfavorable development in China, as in the 3rd quarter of 2023, sales to the Asian take up 46% of its revenue. Threat will also come from the boiling tensions over Taiwan, who for many years has taken up 20% share of the global semiconductor market. Any further situational aggravation, especially the explosion of a military conflict, will lead to a heavy disruption of chips supply as well as curtailment in the semiconductor sector's growth.

Highly cyclical nature of the entire industry

Semiconductor is a highly cyclical industry, with its well-being highly dependent on the prospect of the global economy. When the economy is strong, the demand for electronic devices/equipment will expand in any side of consumption – civil, corporate, government – and that in turn will boost the demand of chips. Furthermore, given that the sector typically depends largely on external financing, a favorable economic condition will be so helpful, during which credit markets are loose and companies may have easier access to debt at very low costs. Technological development is also a big factor in semiconductor's well-being. The industry will see a steep rise in innovation and demand when a technological transformation takes place, which calls for newer, more advanced chip products that can accommodate the innovation. Similarly, a decline will be triggered when new technology becomes more widely adopted and the sector loses the momentum for advancement. At the moment, the semiconductor industry is well-supported by the drastic development in artificial intelligence as well as other technological innovations such as autonomous vehicles. The high interest rates and tight credit access also do not pose any grave threats, as enormous stimulus packages have been sanctioned by the governments for semiconductor companies to expand their operation. Nevertheless, it will become inevitable that the sector incurs a downturn, albeit for a while, when the current transition is over.

Exhibit 6 : Global Semiconductor Sales by Geographic Location in September 2023 (in US\$ bn)

(Source: Semiconductor Industry Association)

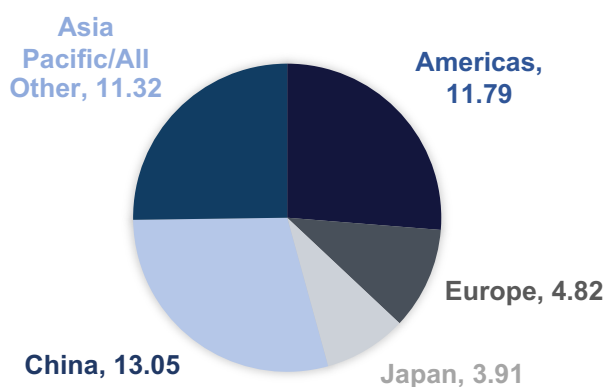
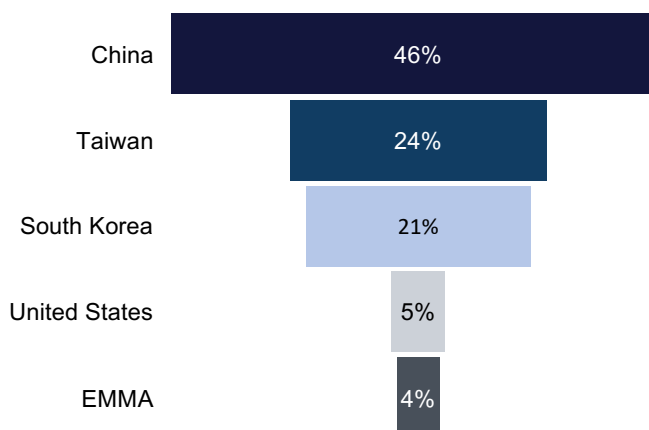


Exhibit 7 : Shares of ASML's Sales by Region in 2022

(Source: ASML annual report)



(Source: Company report, Capital IQ, Bloomberg, CUIRS estimate)

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Financials

Income Statement

We modeled ASML's net income growth at a +20.33% CAGR in 2022A-27E, with revenue and EBIT growth at +16.1%/+20.9% 5-yr CAGR, reaching 27E € 44.6 bn revenue scale (Exhibit 8) and € 14.2 bn net profit.

Revenue growth will be mainly driven by EUV/DUV sales and economics of scale

From 2018 to 2022, the company's operating income continued to grow. Total revenue in 2022 was €21.2 bn (a YoY increase of 14%), corresponding to a CAGR of 18% from 2018 to 2022. We projected the revenue would grow at 1-yr/3-yr/5-yr CAGR of +30.2%/+18.5%/+16.1% mainly being contributed to its existing orders of EUV/DUV and its economics of scale as the worldwide factories been built for the capacity improvement.

Profitability: A little fluctuating but favorable profit margin

The gross profit margin in the past two years has been close to 50%, slightly ahead of its competitors. The company's gross profit margin in 2021-2022 has increased from 43.1% in 2018, mainly due to the optimization of the company's EUV lithography machine volume and product mix. In 2022, the decrease in gross profit margin is mainly due to the increase in material, freight and labor expenses caused by inflation, as well as the increase in factory costs caused by increasing production capacity and meeting customer demand. Looking forward, the company's future gross profit margin is expected to continue to increase as the shipment volume of EUV lithography machines.

Stable Margin and R&D proportion based on dominating pricing power

As for net profit, ASML achieved significant growth, mainly benefiting from the growth in gross profit. The company's GAAP net profit in 2022 was €5.6 bn (-4% YoY), and the company's GAAP net profit margin in 2022 was 26.6%. We prospected the profit margin of ASML at 51%/54%/55% for 2023E/2025E/2027E, and as for the cost and expense side, we model the SG&A as % of COGS, R&D as % of COGS at stable level at 8% and 30% for the coming years, respectively, due to ASML's current R&D policy and dominating pricing power for its products metrics.

Exhibit 17: Income Statement Key Metrics

EUR in mn	Historical		Fiscal Years Ending December 31					
	12/31/2020	12/31/2021	12/31/2022	12/31/2023	12/31/2024	12/31/2025	12/31/2026	12/31/2027
Total Revenue	13,979	18,611	21,173	27,573	28,179	35,231	40,849	44,636
Gross Profit	6,797	9,809	10,700	14,118	14,879	19,131	22,589	24,550
Net Income	3,554	5,883	5,624	7,673	8,308	10,959	13,168	14,189
EBIT	4,052	6,536	6,501	9,046	9,791	12,966	15,596	16,811
D&A	475	370	497	524	544	564	584	604
EBITDA	4,527	6,907	6,998	9,570	10,335	13,530	16,180	17,415
Basic Weighted Avg	418	410	398	400	400	400	400	400
Basic EPS	8	14	14	19	21	27	33	35
Key Ratios (%)								
Revenue growth	-	33%	14%	30%	2%	25%	16%	9%
COGS growth	-	23%	19%	28%	-1%	21%	13%	10%
Gross Margin	49%	53%	51%	51%	53%	54%	55%	55%
SG&A as % of COGS	8%	8%	9%	8%	8%	8%	8%	8%
R&D as % of COGS	31%	29%	31%	29%	30%	30%	30%	30%
EBIT Margin	29%	35%	31%	33%	35%	37%	38%	38%
Net Income Margin	25%	32%	27%	28%	29%	31%	32%	32%
R&D/Sales	15.7%	13.7%	15.4%	14.4%	14.2%	13.7%	13.4%	13.5%
SG&A/Sales	3.9%	3.9%	4.5%	4.0%	3.9%	3.8%	3.8%	3.8%

(Source: CUIRS Estimate, Company Reports, Bloomberg, Capital IQ)

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Valuation

Absolute Valuation (DCF) – € 768.9 Per Share, +17.3% upside

Followed from previous base case projections on ASML (Net income growth at a +20.3% CAGR in 2022A-27E, with revenue growth at 16.1%, reaching 2027E € 44.7 bn revenue scale and € 14.2 bn net profit), our € 768.9 price target is based on a DCF model reflecting long term growth of ASML with terminal exit year of 2027. We further applied 7.6% WACC (Note: Beta calculated with comparable company unlevered beta: 1.05, The Netherlands 10-year treasury yield: 2.32%, AEX 10 yr annualized market return 7.6%, cost of debt: 5.5%) and a 2.18% terminal growth rate that implies 19.8x exit EV/EBITDA multiple, yielding our TP for € 768.9 target price from absolute valuation methodology.

Cash Balance:

We used the 23E total debt and total cash balance for our valuation in our net debt calculation to reflect the real cash balance and light-debt structure as before.

Exhibit 19: DCF Valuation – TP at € 768.9

Discounted Cash Flow								
EUR in mn	Historical			Fiscal Years Ending December 31				
	12/31/2020	12/31/2021	12/31/2022	12/31/2023	12/31/2024	12/31/2025	12/31/2026	12/31/2027
Cash Flow from Operations								
Revenue	13,978.5	18,611.0	21,173.4	27,573.4	28,179.4	35,231.5	40,848.8	44,635.9
YoY	18%	33%	14%	30%	2%	25%	16%	9%
EBITDA	4,526.7	6,906.8	6,997.6	9,569.9	10,335.1	13,529.7	16,179.7	17,415.3
EBITDA Margin	32%	37%	33%	35%	37%	38%	40%	39%
EBIT	4,051.5	6,536.4	6,500.7	9,045.8	9,791.0	12,965.6	15,595.6	16,811.2
EBIT Margin	29%	35%	31%	33%	35%	37%	38%	38%
Tax rate	15%	15%	16%	16%	16%	16%	16%	16%
EBIT* (1-Tax)	4,650.8	7,497.8	7,540.8	10,493.1	11,357.5	15,040.0	18,090.9	19,501.0
(plus) D&A	89.0	956.0	38.7	44.4	51.4	59.1	68.1	73.4
(less) Changes in Working Capital	(741.4)	910.6	(1,952.7)	(938.7)	99.8	(1,234.5)	(945.2)	(800.1)
(less) Capex	(95.4)	(72.2)	(74.5)	(85.4)	(104.8)	(116.1)	(134.6)	(156.0)
Unlevered Free Cash Flow	3,903.0	9,292.2	5,552.3	9,513.4	11,403.9	13,748.5	17,079.2	18,618.2

Enterprise Value	
Net Present Value	60,883.8
Terminal Value	
Perpetual growth rate	2.18%
Terminal Value	320,667.1
Implied EV/EBITDA	19.8x
Present value of terminal value	222,097.7
NPV of present value	60,883.8
Enterprise Value	282,981.5
Total debt	209.06
Cash	9,191.14
Net Debt/ Net Cash	(8,982.1)
Minority interest	0.0

WACC Calculation	
Beta	1.05
Risk free rate	2.3%
Market premium	5.1%
Cost of equity	7.6%
Cost of debt	5.5%
Debt/(Debt+equity)	0.02%
Effective tax rate	-16%
WACC	7.6%
Equity Value	291,963.5
Number of share outstanding	380
Indicated per Share Price (EUR)	768.9

(Source: CUIRS Estimate, Company Reports, Bloomberg, Capital IQ)

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Industry Analysis

The growing demand in semiconductor industry market thanks to advanced chips' needs

In 2022, the semiconductor industry increased the output to over 1.11 tn chips, which fed a \$618 bn market. The market is predicted to reach over \$700 bn in 2025. This positive outlook on the current market size and market opportunity derives from new trends in demands. The high demand for ASML's products (especially EUV and DUV) derives from major semiconductor and foundry customers' needs to manufacture advanced tools for memory and logic applications.

These applications are used to produce downstream products, namely smartphone, personal computing or data services and storage, which are predicted to grow at a CAGR of 5.5%/16.5% in 2025/2030.

ASML is the market leader in EUV, AMAT, and LRCX

ASML is the leader in research and development in this area with an overall market share of more than 80%. ASML holds a high market share in less-advanced DUV lithography systems, which progressively outpaces two competitors namely Nikon Corporation and Canon Inc. As these two competitors lack the necessary revenue in the lithography system to invest in R&D as ASML does.

Moreover, ASML is the pioneer and a leader in EUV and other extended technological advancements (EUV High-NA). Realizing a huge profit from EUV, some companies including Applied Materials (AMAT) and Lam Research (LRCX) also jump into this field. However, they are well behind ASML in terms of R&D and customer base for EUV.

Exposure to economic and geopolitical issues might hinder growth rate of ASML, and semiconductor industry can also be cyclical

ASML's main customers are in Asia, while the US and Europe together account for less than 10% of revenue. However, geopolitical instabilities in the Asian region affects the company's revenue. For the China market, ASML shares were pressured in 2022 because of the reduced demand for personal electronics, prohibitions on shipping high-technology products to China. Furthermore, in 2023, the Netherlands government published its plan to restrict exports to China, aiming at the export of EUV lithography machines from ASML. Sales from South Korea market occupied for one third of total sales are threatened due to the worsening relationship and war outbreak between South and North Korea. Meanwhile, the largest market in Taiwan is under risk because of China's more aggressive actions. Therefore, any geopolitical issues can reduce the manufacturing capabilities of ASML's customers then pull down the company's revenue.

From 1977 to 2021, turnover increased by 11% per year on average based on the constant drive to produce more efficient semiconductors. However, the high demand for innovation also leads to short production life cycles. It is reported that the sales will decline in every third year on average. First, this industry closely relates to economic factors. Every economy-related series such as exchange rates, inflation, growth or global economic impacts can easily affect the revenue. For example, a weakening global economy, tightening credit markets, and rising interest rate can lead to difficulties to raise capital and finance purchases of manufacturing companies, then resulting in sales decline. Second, clients have incentives to alter demand for predecessor products before the launch of new chip generations, meanwhile, semiconductor products take a long time to be produced. This means that the supply is very inelastic whereas the demand is super elastic with market adjustments.

Exhibit 15: Semiconductor market share worldwide in 2022, by function

■ Logic ■ Installed Base Management ■ Memory

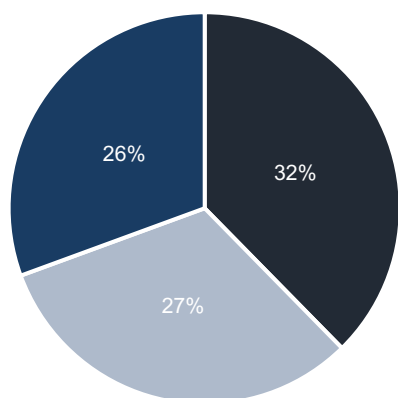
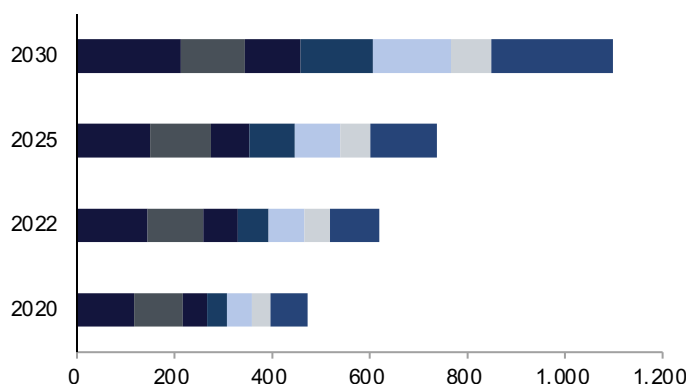


Exhibit 16: Semiconductor market revenue worldwide from 2020 to 2030, by application (in bn USD)

■ Smartphone ■ Personal computing
 ■ Consumer electronics ■ Automotive
 ■ Industrial electronics ■ Wired and wireless infrastructure
 ■ Servers, data centers, and storage



(Source: Company report, Capital IQ, Bloomberg, Statista, CUIRS estimate)

For the full version of the report including financial forecast, valuation, company and industry summary, please comment on our LinkedIn post with your email address.

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