

Company: ASML Holding NV	Ticker: ASML	Current Price: \$ 807.45	Sector: Semiconductor	Sub Industry: Equipment Manufacturing
Target Price: \$812.19 Stop Loss: \$620 (20%) 52 Week Low / High: \$361.72-\$895.93	TTM P/E: 52.7 Forward P/E: 41.71 EPS: \$15.93		Beta: 0.95 Credit Rating: A2/A- (Moody's /S&P Global) Rating Outlook: Stable	Market Cap: \$338.24B Dividend Yield: 0.49%

Investment Thesis:

It is in our opinion that ASML Holding (NASDAQ: ASML) is a buy at its current price based on the following value drivers:

- Pent up demand from semiconductor shortage:** This year there has been high demand for many products without adequate supply to meet it. We believe the demand for semiconductors will not go away even when the supply chain gets better. Many electronic makers cite low semiconductor supply as a reason for rising cost and lower revenues. ASML is well positioned to capitalize on this high demand since their machinery is crucial in semiconductor manufacturers' challenge to meet this massive demand.
- EUV & DUV technology near monopoly:** ASML is the ONLY company on market with EUV technology which is required to make the smallest, fastest, and cheapest semiconductors. In addition to this ASML faces very limited competition in the DUV technology segment, with a strong 88% market share as of 2020. Both of these technologies are REQUIRED to make semiconductors today.
- High barriers to entry:** Lithography equipment manufacturing is not easy and requires a lot of smart individuals as well as a huge R&D budget. ASML is well positioned today due to limited competition, high switching costs, and buying pressure amongst ASML's key customers who buy the equipment from ASML to make semiconductors.

Company Overview:

ASML Holdings is a global innovation leader in the chip industry. ASML provides today's chipmakers with the hardware, software, and service they need to mass produce patterns and transistors on silicon through a process called lithography. The company sells three different types of systems that are used for different purposes. First the company sells Extreme Ultraviolet Lithography Systems (EUV), this is a lithography system that allows chipmakers to make the smallest, fastest, and most advanced chips on the market. This machine will be crucial in our society's transition to a smart world which demands more and high quality semiconductors. This technology represents 43% of 2020 revenues. The second type of machine ASML sells is a Deep Ultraviolet Lithography Systems (DUV). This machine is crucial to creating the first few layers of patterning. This machine is not as powerful as the EUV system, but chipmakers still require the DUV systems for their manufacturing needs. This segment represented 54% of 2020 revenue. The final product ASML sells is a metrology system, which acts as a "spell checker" to find and correct any mistakes created from the DUV or EUV lithography process. The metrology segment represented 3% of 2020 revenues.

Industry Analysis:

The semiconductor industry is the aggregate of companies engaged in the design and fabrication of semiconductors and semiconductor devices. The top 3 industries in R&D expenditures as a percent of sales in the US are pharmaceuticals and biotechnology, semiconductors, and software. Commonly, corporations and consumers globally use semiconductors in millions of devices. Most are commonly seen in our everyday lives such as computers, smartphones, medical equipment, and more. Due to the high cost of capital, only three firms are able to manufacture the most advanced semiconductors. Taiwan Semiconductor Manufacturing Company, Samsung, and Intel provide the largest percentage of the company's revenue.

Investment Risks:

Rise of Emerging Technologies: Given that growth projections stem from the profitability of EUV technology a rise in 3D NAND chips could raise concerns for the company. However, while manufacturers can create advanced memory chips in absence of the EUV technology, only 21% of the 2020 revenue was directed towards memory chips. This was split between NAND and DRAM chips. **Supply chain risk:** ASML has approximately 5,000 suppliers to develop the sophisticated parts that go into the lithography machines. Should these suppliers' default, ASML could be negatively impacted by these dependencies. To mitigate this risk the company has invested in strategic M&A activity. Notably, the company owns a large portion of Carl Zeiss, one of its key suppliers. **Political Risk:** The Wassenaar Arrangement was established to contribute to regional and international security and stability by promoting transparency and greater responsibility in transfers of conventional arms and dual-use goods and technologies.

Financial Performance:

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Revenue	12,926	13232	15959	21820	25693	30189	35321	40443	45498	51527	58355	66232	75174	85322
% Growth		2.4	20.6	36.7	17.7	17.5	17	14.5	12.5	13.2	13.2	13.5	13.5	13.5
COGS	6986	7321	8688	9676	11690	13736	16071	18401	20702	23445	26551	30136	34204	38821
Op. Ex.	2260	2777	2419	3536	4624	5434	6357	7279	8189	8837	10007	11358	12892	14632
EBIT	3679	3133	4851	6595	9378	11019	12892	14761	16607	19245	21795	24738	28077	31868
Taxes	415.3	214	685	920	1078	1267	1482	1697	1909	2213	2506	2844	3228	3664
D&A	499.3	502	1048	570	1136	1335	1563	1789	2013	2318	2626	2980	3382	3839
CapEx	678	858	1098	1116	1284	1509	1766	2022	2274	2576	2917	3311	3758	4266

Company Information		Financial Metrics			Valuation Metrics					
Ticker	Firm	Market Cap	Net Debt	Enterprise Value	EV/EBITDA	EV/EBIT	EV/Sales	P/E	P/FCF	P/B
ASML US	ASML	\$ 307,513	\$ 5,219	\$ 312,732	43.6x	47.4x	15.8x	55.3x	39.6x	18.1x
CAJ US	Canon Inc.	32,237	953	33,190	6.8x	131.6x	1.0x	13.9x	9.0x	1.2x
AMAT US	Applied Materials	115,819	-31	115,788	16.4x	17.6x	5.4x	20.0x	23.6x	10.9x
LRCX US	LAM Research Corp	77,450	-564	76,886	16.1x	17.2x	5.3x	20.5x	22.7x	12.9x
Top Quartile		163,742	2,019	165,024	23.2x	68.5x	8.0x	29.2x	27.6x	14.2x
Mean		133,255	1,394	134,649	20.7x	53.4x	6.9x	27.4x	23.7x	10.8x
Median		96,634	461	96,337	16.2x	32.5x	5.3x	20.3x	23.1x	11.9x
Bottom Quartile		66,147	-164	65,962	13.7x	17.5x	4.2x	18.5x	19.2x	8.5x
		EBITDA (LTM)	EBIT (LTM)	Sales (LTM)	Forward EPS	FCF per share	Book value	Price		
	ASML	\$7,168.40	\$6,595.20	\$19,810.50	\$19.76	\$18.86	\$16,950.50	\$746.57		
	CAJ US	\$4,869.30	\$2,376.20	\$32,208.89	\$1.74	\$2.70	\$26,951.00	\$24.20		
	AMAT US	\$7,045.00	\$6,583.00	\$21,628.00	\$6.43	\$5.46	\$10,578.00	\$128.71		
	LRCX US	\$4,790.00	\$4,482.80	\$14,626.20	\$26.90	\$24.34	\$6,027.20	551.64		

*not pure comps, lithography represents 96% of ASML revenue while our comps maximum lithography sales are < 20% of overall sales

Team Blue:
Jaden May & Katelyn Desautels

Sources: Bloomberg, Annual Report, Yahoo Finance

Discounted Cash Flow:

	2018-2021	2021-2031
Avg Revenue growth	18.55%	16.63%
Avg Operating Margin	27.14%	36.32%
Avg FCF / Margin	22.23%	32.14%
Tax Rate		11.5%
Hurdle Rate		9%
Perpetuity growth rate		3.5%

Analyst Opinion

Buy: 30	Hold: 8	Sell: 3
	Rating	Target
Bernstein	Hold	\$779.00
Aletheia Capital Ird.	Buy	\$1,00.00
Average Consensus	Buy	\$889.02

	5 Year Return	YTD Return
ASML	693.99%	62.75%
S&P 500	121.34 %	25.17%

CSR Characteristics

	ASML	Comp Group
Governance Disclosure Score	95.00	58.00
ESG Disclosure:	50.83	40.08
Social Disclosure Score	61.40	27.19
Environmental Disclosure Score	41.09	34.50