STMicroelectronics(STM)

HOLD: $ 36,6 (+0,27%)

Equity Research Division 12th December 2022

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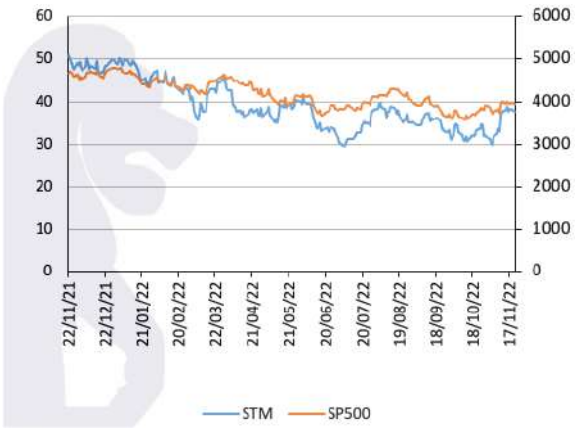
Basic Information	
Last Closed Price	$ 36,50
Target Price	$36,60
+/- Potential	+0,27%
Bloomberg Ticker	STM
GICS Sector	Technology
GICS Sub-Industry	Semiconductors

12 Month Price Performance (Yahoo Finance)



Key Financials	
Market Cap	$33,33B
52-Wk High	$28,35
52-Wk Low	$51,52
Fiscal Year End.	31 December 2022

($Mln)	FY19A	FY20A	FY21A	FY22E
Revenue	9.556	10.219	12.761	16.050
EBITDA	2.256	2.459	3.801	5.473
EBIT	1.035	1.233	2.452	3.867
Net Income	388	696	1.717	4.230

Key Executives	
Mr. Jean-Marc Chery	Chief Executive Officer
Mr. Lorenzo Grandi	Chief Financial Officer

Company Description

STMicroelectronics N.V. (referred also as St or StMicro) is a Dutch multinational corporation and technology firm operating in the Semiconductors industry. It was founded in 1987 as the result of the merger of two government-owned semiconductor companies: Italian SGS Microelettronica and French Thomson Semiconducteurs. The company addresses four end markets: automotive, industrial, personal electronics and communication equipment, computers and peripherals. The firm counts over 80 sales offices in 35 countries, serving more than 200,000 customers around the world.

Summary

The aim of this report is to assess whether, considering the current prospects, STM is a good investment. We first conduct a company-specific and industry overview. We then proceed to perform a financial analysis and valuation of the company. The latter is performed by employing a DCF model and market multiples. The target price obtained with the DCF is $33,66, which would lead to a "Sell" recommendation. However, by performing a relative valuation, we notice a significant undervaluation implicit in all the multiples employed. The difference in the values obtained can be explained by the differences between valuation and pricing. The value of a business is determined by the magnitude of its cash flows, the risk of these cash flows, and the expected level and efficiency of the growth that it will deliver. The price of a stock is set by demand and supply, and while value may be one of the inputs into the process, it is one of many forces and may not even be the dominant one. The tools for estimating value and price reflect the differences in the processes. To estimate value, we use DCF models. To figure out a price, we look at how "similar" assets are being priced and estimate a price for the company. The divergence between the DCF value and market prices for the overall industry suggests that investors are not valuing but pricing semiconductor companies and that they are therefore likely to be impervious at least in the near term to fundamentals. To obtain the target price, we choose to give more weight (90%) to the value obtained by fundamentals, leading to a "Hold" recommendation.

Company Overview

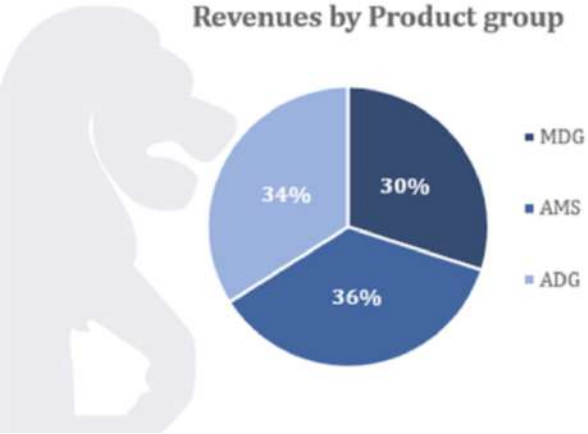
STMicroelectronics N.V. is a Dutch multinational corporation and technology company with headquarters in Plan-les-Ouates, Switzerland. The company originated from the merger, in 1987, of Thomson Semiconducteurs of France and SGS Microelettronica of Italy, and then grew by acquiring companies such as Inmos, WaferScale Integration Inc., Genesis Microchip, and relevant divisions of other companies, such as Nortel's semiconductor division and Alcatel's Microelectronics division.

STM has 14 main manufacturing sites and 80 offices in 35 countries, serving over 200.000 customers worldwide, with top clients such as Apple, Tesla, Bosch and HP. It has 48.000 employees worldwide, with 8.400 working in R&D and product design, and boasts around 18.500 active patents, with 550 new filings in 2021 and investments in R&D of 13,5% of revenues in 2021.

The company product portfolio includes discrete and general-purpose components, application-specific integrated circuits, full-custom devices and semi-custom devices and application-specific standard products for analog, digital and mixed-signal applications, and it addresses four end markets: Automotive Industrial, Personal electronics, Communications equipment, Computers & Peripherals. The product groups are: Automotive and Discrete Group (ADG), comprised of dedicated automotive integrated circuits and discrete and power transistor products; Analog, MEMS and Sensors Group (AMS), comprised of analog, smart power, low power RF, MEMS sensors and actuators, and optical sensing solutions; Microcontrollers and Digital ICs Group (MDG), comprised of microcontrollers, memories and RF communications. Revenue % by product is reported in figure 1.

The president and CEO is Jean-Marc Chery, and the company is public since 1994, traded in New York, Paris and Milan.

Figure 1. Shareholder composition



Source: Annual Report 2021

Industry Outlook

Key Highlights

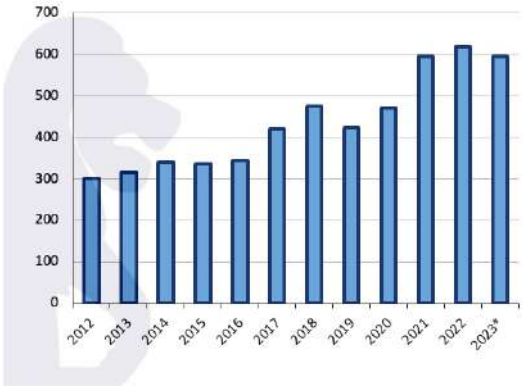
Over the last decade, revenues generated by the global semiconductor industry have steadily increased, surpassing 550 billion USD dollars in 2021: in 2016 the semiconductor market was valued at 343,5 billion USD, and it is forecasted to reach approximately 940 billion USD by 2030.

Semiconductors are a key component of many commonly used electronic devices including smartphones, tablets, and PCs. Smartphones are expected to command an important part of the semiconductor market going forward, particularly the continued development of image sensors in such devices (AR, VR etc.). In fact, in 2020, the smartphone semiconductor market was valued at 116 billion USD, with projections suggesting this is likely to rise to 162 billion USD by 2025.

Regional distribution

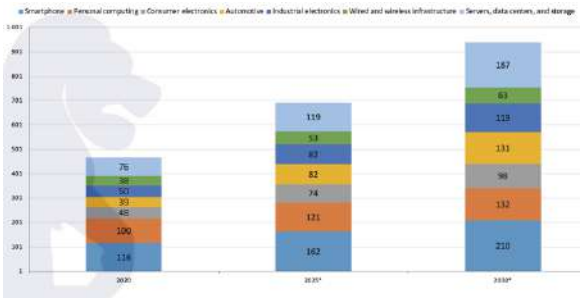
From a regional distribution standpoint, China makes up the largest share of semiconductor sales with 188,4 billion USD, with the rest of the Asia Pacific region recording 147,8 billion USD in semiconductor sales. From the Americas' side, they amounted to 117,2 billion USD, while Europe accounts as the lowest share before Japan, with a market size of 46,7 billion USD in 2021.

Figure 2. Semiconductors industry revenue worldwide from 2012 to 2023 (in billion U.S. dollars)



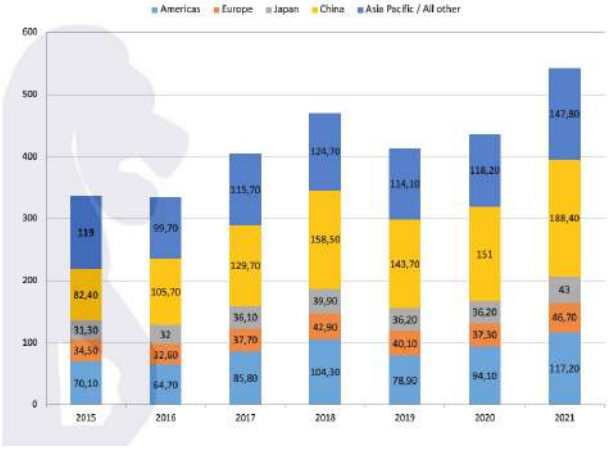
Source: Statista

Figure 3. Semiconductor market size worldwide in 2020, 2025, and 2030, by application (in billion U.S. dollars)



Source: Statista

Figure 4. Semiconductor sales worldwide from 2015 to 2021, by region (in billion U.S. dollars)



Source: Statista

Figure 5. SWOT analysis

Source: Minerva Investment Management Society

Segmentation

By components, the industry is divided into five main categories. Among them, the most profitable is the Integrated Circuits, which in 2021 reached 463 billion USD revenues. The revenues gap between the IC and the Logic Semiconductor is substantial: in 2021 Logic semiconductors produced 154,84 revenues, followed by Memory semiconductors (153,84 USD billion), Micro semiconductors (80,22 USD billion) and Analog semiconductor (74,11 USD billion).

Modern trends

Before the coronavirus pandemic, the semiconductor industry was predicted to grow mainly to the 5G rollout and the incoming usage in new sectors like the automotive and industrial applications. In 2020 predictions changed since the first regions hit by the crisis were the most productive- China and Taiwan. After a quick recovery, in 2021 new surges in demand and challenges in chip capacity allocation caused chip shortages. The consequences of the shortage may be seen in the latest releases of the major tech companies: from Apple to Samsung and Sony. Since the global chip shortage may continue beyond, new challenges are open to semiconductor companies, like Intel and TSMC that announced a major investment in manufacturing facilities to boost chip capacity.

SWOT Analysis

Strengths

Strong relationship with customers - The company sells to over 200.000 customers. Major customers include Apple, Bosch, Continental, Delta Electronics, HP, Huawei, Intel-Mobileye, Samsung, Seagate and Tesla. The broad product portfolio of STMicroelectronics helps foster closer, strategic relationships with customers. In addition to that, the firm has an expanding number of costumer alliances, which provides it with valuable systems and application know-how and access to markets for key products.

Broad product portfolio - The company designs, develops, manufactures and markets a broad range of products used in a wide variety of applications for the four end-markets it addresses: automotive, industrial, personal electronics and communications equipment, computers and peripherals. This broad product breadth provides opportunities to enable application solutions and to supply customers' requirements for all their product and technology needs.

Weaknesses

Intense competition - STMicroelectronics faces significant competition from major international semiconductor companies. Smaller niche companies are also increasing their participation in the semiconductor market, and semiconductor foundry companies have expanded significantly, particularly in Asia. This has led to an erosion of the company's market share.

Opportunities

Sector growth - 2021 was a year of strong demand across all the company products. There was an unprecedented demand for automotive products, driven by the rebound of the automotive industry and an accelerated transformation towards higher levels of vehicle electrification and digitalization. In the industrial sector, factory automation was one of the main drivers of extraordinarily strong demand. Smartphone volumes returned to modest growth and there was a continued adoption of 5G-related products as well as a sustained demand for PCs. These trends are continuing in 2022 and are expected to continue in the future

Threats

Tariffs - The institution of trade tariffs globally, as well as the threat thereof, could negatively impact economic conditions, which could have negative repercussions for the business. In particular, trade protection and national security policies of the U.S. and Chinese governments, including tariffs, trade restrictions, export restrictions and the placing of companies on restricted entity lists, have and may continue to limit or prevent the company from transacting business with certain of its Chinese customers or suppliers; limit, prevent or discourage certain of its Chinese customers or suppliers from transacting business with it; or make it more expensive to do so.

Further erosion of market share - The semiconductor industry is intensely competitive and characterized by the high costs associated with developing marketable products and manufacturing technologies as well as high levels of investment in production capabilities. As a result, the semiconductor industry has experienced, and is expected to continue to experience, significant vertical and horizontal consolidation among the company's suppliers, competitors and customers. Consolidation in the semiconductor industry could further erode the firm's market share. Moreover, it could face more competition as a result of China's programs to promote a domestic semiconductor industry and supply chains.

Financial Analysis

Profitability

To assess the profitability of STMicroelectronics we chose to look at the return it produced in comparison to its assets and to its equity over the period 2017-2021. STMicroelectronics's profitability has been outstanding compared to its industry peers; meaning that the company has managed skillfully its assets and resources. In fact, despite 2017, ROA and ROE have always been more than twice higher than the competitors' ones. Overall, the ROA had an upward trend, going from 2,08% in 2017 to 10,46% in 2021. The impressive ROA achieved in 2018 (13,87%) is mainly due to the huge increase in Net Income (+623,45% from 2017 to 2018). Although revenues rose by 13,57% between 2017 and 2018, the major causes for this surge might be identified in the financial activities. Indeed, these represented a cost of $735 mln in 2017, whereas a gain of $397 mln in 2018. This difference reflects, in both years, the IFRS accounting of convertible bonds: the 2018 amount includes a gain of 405$ mln for the fair value adjustment of outstanding convertible bonds (compared to a net loss $323 million in 2017).

Regarding 2021, ROA went up due to the strong revenues increase ($1.717 million, +147% with respect to 2020).

The ROE experienced an upward trend as well, rising from 3,88% in 2017 to 17,92% in 2021. During 2018, such a ratio skyrocketed from 2,71% to 16,92% for the same reason as the ROA; the fair value adjustment of outstanding convertible bonds. The main drivers of this upward trend can be investigated through the DuPont Model.

For what concerns the Asset Turnover, its value is fairly stable around 0,75 over the period taken into consideration. The same is valid also for the Equity Multiplier, with the exception of 2018, where the value declined to 1,65 from 1,87. Therefore, the key driver of this increase in ROE is the Net Profit Margin. It surged from 2,71% to 13,46% between 2017 and 2021: indeed, the company managed to increase its profitability by boosting revenues (+52,88%) while having an increase in costs of only +36%. Concerning the recent incredibly high profitability, it is unlikely that STMicroelectronics will maintain such a high level for the next years. Two main factors threaten the firm's profits: the high fixed costs and fluctuations in exchange rates. STM operations are characterized by high fixed costs which are difficult to reduce. Indeed, STMicroelectronics operates its own manufacturing facilities. When there is an adverse factor (demand decreases, competition increases) the company is driven to reduce prices and is not able to reduce total costs by the same amount. As a result, the costs associated may not be fully absorbed, leading to unused capacity charges, higher average unit costs, and lower gross margins. Demand has seen strong growth up to now; however, if demand growth faces a decline, the effects of the high dependence on fixed costs could be significant. Furthermore, currency exchange rate fluctuations affect the firm's results of operations. Indeed, the company incurs a limited portion of its revenue and a significantly higher proportion of its costs in currencies other than USD, which is its reporting currency. Since February 2022, the dollar has appreciated with respect to the euro, boosting the company's profits. However, a future depreciation of the dollar with respect to the euro could drive down profits.

Cash Conversion Cycle

The Cash Conversion Cycle (CCC) for STMicroelectronics is determined by Day Sales Outstanding (DSO), Days of Inventory Outstanding (DIO), and Day Payables Outstanding (DPO). The CCC formula is used to understand how efficiently a company is managing its working capital: the shorter the cash conversion cycle is, the better the company is at selling inventories and recovering cash from these sales while paying suppliers. Furthermore, a short CCC has a positive impact on the investment flows of the company thanks to the faster and greater availability of cash. STMicroelectronics had a stable DIO and DSO, respectively around 95 and 58 between 2017 and 2021. The DPO, instead, increased from 52,5 in 2017 to 66,2 in 2021. Consequently, this lowered the CCC (from 92,9 to 84,6) which strengthened the liquidity availability of the company. Moreover, the company showed a rise in working capital over the past 5 years. This is mainly due to the increase in inventories and accounts receivable that were more than proportional with respect to the increase in accounts payable. Additionally, the surge in the working capital can be seen also by the outcome coming from the analysis of the cash conversion cycle: the cash and cash equivalents surged by 83,34% from 2017 to 2021.

Liquidity

Observing STMicroelectronics' financial statement data for the last 7 years, from 2015 to 2021, it's clear how the results of the current ratio have varied minimally, from a low of 2,5 to a high of 3. In 2021, with a value of 2,7, the company can easily meet its short-term liabilities using current assets. Going deeper into the analysis, studying the degree of short-term coverage that the firm can maintain with its short-term assets net of inventories (and pre-paid expenses), which possess a lower degree of liquidity, we observe that the values are even more stable and equal to 2 in 2021.

Figure 6. DuPont Analysis

	2017	2018	2019	2020	2021
Net Profit Margin	2.71%	16.92%	4.06%	6.81%	13.46%
Asset Turnover	0.77	0.82	0.75	0.67	0.78
Equity Multiplier	1.87	1.65	1.78	1.84	1.71
ROE	3.88%	22.94%	5.42%	8.38%	17.92%
ROA	2.08%	13.87%	3.05%	4.55%	10.46%

Source: Minerva Investment Management Society

Figure 7. Cash Conversion Cycle Table

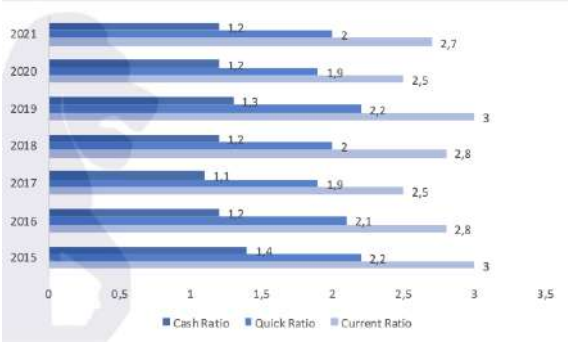
Cash Conversion Cycle	2017	2018	2019	2020	2021
Payable days	52.50	56.70	58.30	58.70	66.20
Receivables days	55.60	54.80	60.70	62.80	57.40
Inventory days	89.80	91.00	100.40	100.20	93.40
Cash Conversion Cycle	92.90	89.10	102.80	104.30	84.60

Source: Minerva Investment Management Society

Figure 8. DuPont Analysis

Source: Minerva Investment Management Society

Figure 9. Liquidity Ratios



Source: Minerva Investment Management Society

Figure 10. Solvency measures

Source: Minerva Investment Management Society

The company is therefore in excellent shape from the point of view of liquidity and manages to maintain constant liquidity levels over the years. While looking at the current and quick ratio trends, it's interesting to notice that the portion of inventories is the most volatile, albeit to a limited extent, as demonstrated by the variability of the current ratio compared with the quick ratio. Finally, as a sign of the extreme liquidity of STMicroelectronics, we see how the company can currently (=1,2) meet its current liabilities by only using Cash and Equivalents.

Solvency

Throughout the years, STMicroelectronics' financial structure remained fairly stable, as evidenced by the D/E which indicates that the company's leverage only varied from 35% in 2015 to 30% in 2021, suggesting a low degree of indebtedness.

Moving deeper, analyzing the ratio of only long-term debt to equity, we note how this ratio varies little from the previous one, denoting a limited impact of short-term debt on total debt, except in 2020, with a 10% difference between the two ratios.

To observe the relationship between corporate solvency and profitability, we introduce the Interest Coverage Ratio, to better study the company's ability to meet interest expenses through the EBIT generated.

Despite maintaining its financial structure almost constant - and thus its level of indebtedness - STMicroelectronics has managed to increase its operating income from year to year more than proportionally, leading to an ICR from an insufficient level of 0,3 in 2015 to an incredible 50,9 registered in 2021.

Valuation

Final Target Price: $ 36,6

Our analysis follows two main approaches:

- An intrinsic valuation regarding the asset-side DCF model (Free-Cash-Flow to the Firm approach)
- Relative valuation with stock market multiples of comparable companies

Free Cash Flow to Firm Approach

Among different valuation methods, we choose the DCF asset side model. This method allows us to estimate the value of an asset based on its expected future cash flows. With this approach, we compute the Enterprise Value. The value of equity is then calculated by adding Financial Investments and subtracting Net Debt, Minority Interest, and Other Non-Operating Payables. The target price obtained is $33,66, below the current market price, leading to a "Sell" recommendation. Proceeding step by step, the first element we compute is the cost of equity, based on the following assumptions:

Risk-free rate (2,86%)

Given the period of high volatility currently experienced in the bond market, we decide not to use current yields; on the contrary, we choose to compute an average of the 10-Year US Treasury Bond yield over 2022.

Equity Risk Premium (4,59%)

According to Damodaran's analysis on equity risk premia, the aforementioned value denotes the premium an investor will require to invest in the stock rather than in the risk-free security.

Figure 11. Valuation Summary

Cost of Equity	8,95%
TV Growth Rate	2,86%
Discounted Cash Flows	5.463
Discounted TV	25.591
Equity Value	30.639
Net Debt	-646
Enterprise Value	31.054
N° of Shares (in millions)	910,33
Share Price Target (DCF)	$33,66

Source: Minerva Investment Management Society

Figure 12. Sensitivity Analysis

	WACC								
33,66 €	7,29%	7,68%	8,08%	8,51%	8,95%	9,40%	9,87%	10,37%	10,88%
2,74%	46,82	42,90	39,38	36,21	33,35	30,88	28,63	26,56	24,67
2,77%	47,00	43,04	39,50	36,31	33,43	30,94	28,68	26,60	24,70
2,80%	47,19	43,19	39,61	36,40	33,50	31,00	28,72	26,64	24,73
2,83%	47,38	43,34	39,73	36,50	33,58	31,06	28,77	26,68	24,76
2,86%	47,57	43,49	39,86	36,59	33,66	31,13	28,82	26,72	24,79
2,89%	47,76	43,65	39,98	36,69	33,73	31,19	28,87	26,75	24,82
2,92%	47,95	43,80	40,10	36,79	33,81	31,25	28,92	26,79	24,85
2,95%	48,15	43,96	40,23	36,89	33,89	31,31	28,97	26,83	24,88
2,98%	48,35	44,12	40,35	36,99	33,97	31,38	29,02	26,87	24,91
3,01%	48,56	44,28	40,48	37,09	34,05	31,44	29,07	26,91	24,94

Source: Minerva Investment Management Society

Beta (1,33)

To compute the beta, we apply the so-called bottom-up approach:
In particular, we first compute the levered beta of the comparable firms we used in relative valuation, we then use Hamada's equation to unlever the latter and calculate the average unlevered beta of the sector, and, finally, we use the firm-specific debt ratio (7,43%) and marginal tax rate (25,80%) to get the levered beta of the firm. This approach focuses more on fundamental determinants of risk rather than historical returns. Additionally, since multiple cross-sectional comparisons are run instead of a single regression, as in the classic approach, the standard error in the estimate is reduced. The value of the beta calculated with this method is 1,34. We also compute the beta by running a regression against the SPX Index. This method determines the level of systematic risk by confronting the return offered by the target stock with the one displayed by the so-called market portfolio (e.g., the SPX Index). By applying this approach, we obtain an adjusted value equal to 1,15 (namely, after executing the so-called Blume adjustment). However, we choose to adopt exclusively the beta obtained through the bottom-up approach in our computation of the cost of equity as this value, being strictly referred to fundamentals, turns out to be more reliable than any other value obtained employing alternative methodologies.

Cost of Debt (2,68%)

Based on the synthetic rating obtained with the interest coverage ratio (AAA).

Cost of Equity and WACC (8,95% and 8,95%)

We use the Capital Asset Pricing Model (CAPM), a theory based on the stock's volatility and level of risk compared to the general market. Thus, we assumed that that the expected cost of equity Ke is:
Ke = $rf + \beta \times [E(rm) - rf]$ = 8,95%
Where rf is the expected return of a risk-free asset, $E(rm) - rf$ is the equity risk premium, and β is calculated following the bottom-up approach described above. As net debt is negative, WACC is equal to the cost of equity.

Findings

In the valuation, we apply a three-stage growth model. For what concerns the explicit forecast stage we use estimates provided by analysts for 2022 and then estimate the growth rate for the rest of the period based on growth for the overall sector and STMicroelectronics' expected market share. To compute the Terminal Value, we apply a long-term growth rate of 2.86%, equal to the risk-free rate as a proxy, reflecting that no firm can grow forever at a rate higher than the growth rate of the economy in which it operates. After calculating the FCFOs and the Terminal Value, we use the WACC to discount them, thus obtaining the Enterprise Value. This value is then decreased by Net Debt, Minority Interests, Unfunded Pension Obligations, Options and Other Nonequity claims and increased by Financial Investments to get the Equity Value.

Figure 11 summarizes the results of the asset-side DCF model, while Figure 12 offers a sensitivity analysis to analyze how the value might change by changing the assumptions regarding the terminal growth rate and the WACC.

Relative valuation

To complete the valuation process, we need a further estimate of the share price, using a market multiples approach analysis. We decide to use a medium-to-large sample of comparable international companies in terms of size - by looking at market capitalization - industry, business model, and both cash flow and earnings trends, so that we can perform the analysis based on a sample that is as representative of STMicroelectronics as possible.

We use equity-side and asset-side multiples to capture a broader set of information. For the valuation method, we chose not to limit the estimation to a simple average of the comparables' values, opting to carry out regressions. In this way, we obtain a result whose significance we can test, resulting in a series of regression equations, formed by the dependent variable to be estimated - the multiple in question - and the dependent variables - the drivers - multiplied by coefficients.

Concerning the choice of equity-side multiples, we opt for the P/E TTM - the meaning of which is to estimate the market share value in relation to the earnings that the share can generate - regressed using the expected growth rate of earnings as a driver. The result obtained is a P/E TTM of 18,06 which, when multiplied by 3,68 - STM's EPS TTM - guides us towards a share value of $66,45, suggesting a strong buy.

This share value is confirmed when valuing the firm using the P/B multiple, which compares the market value of equity with the book value of equity, regressed using Return on Equity as the driver. The P/B obtained through the regression is 6,85, which multiplied by $9.581.000.000 – STM's Book Value of Equity- and divided by the number of shares, yields a value of $72,08, again confirming a strong buy.

These values seem to contrast with the intrinsic value found through the DCF analysis performed previously but are further confirmed when analyzing the firm using EV/EBITDA, an asset-side multiple.

This multiple is chosen as it can more easily be used to compare firms with different financial leverage, and is deemed superior to EV/EBIT, as the latter is influenced by accounting choices on depreciation and amortization, making EV/EBITDA a more reliable measure.

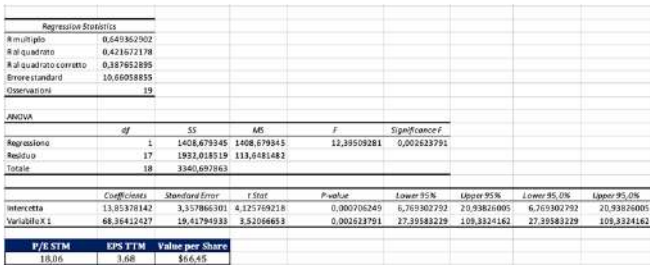
When regressing EV/EBITDA using the expected growth rate of earnings and the adjusted Beta as drivers, the result is 12,01, which yields an EV of $57.864,1 when multiplied by STM's EBITDA of $4.820. To find the share price from this asset side multiple, we adopt the same bridge-to-equity applied in the DCF analysis, resulting in a share price of $63,11, in line with share prices obtained through equity side multiples.

Figure 13. P/E TTM and growth rate for comparables

	P/E TTM	g
STMicroelectronics		6,15%
ASMedia Technology	17,01	-3,18%
Synaptics Inc	10,21	3,50%
ASPEED Technology	40	27,68%
Intel Corp	15,8	-10,37%
Realtek Semiconductors	8,8	-4,69%
Nordic Semicondiconductors	28,67	35,93%
Qualcomm	10,06	-1,16%
Broadcom	21,5	15,51%
Melexis	18,95	10,80%
Infineon Technology	19,36	9,91%
NXP Semiconductors	15,2	20,00%
Monolithic Power Systems	46,75	27,25%
Skyworks Solutions	10,89	-1,13%
Analog Devices	18,59	10,80%
Advanced Micro Devices	38,73	29,65%
Mediatek	8,82	7,64%
Texas Instruments Incorporate	18,17	8,83%
Taiwan Semiconductor	14,24	21,51%
NVIDIA	55,38	16,65%

Source: Minerva Investment Management Society

Figure 14. P/E TTM Regression



Regression Statistics	
R multiplo	0,649362902
R al quadrato	0,421672178
R al quadrato corretto	0,387652895
Errore standard	10,66058855
Osservazioni	19

ANOVA

	df	SS	MS	F	Significance F
Regressione	1	1408,679345	1408,679345	12,39509281	0,002623791
Residuo	17	1932,018519	113,6481482		
Totale	18	3340,697863			

	Coefficienti	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercetta	13,85378142	3,357866301	4,125769218	0,000706249	6,769302792	20,93826005	6,769302792	20,93826005
Variabile X 1	68,36412427	19,41794933	3,52066653	0,002623791	27,39583229	109,3324162	27,39583229	109,3324162

P/E STM	EPS TTM	Value per Share
18,06	3,68	$66,45

Source: Minerva Investment Management Society

Investment Risks

Changes in the demand

Since the last decade, the demand for semiconductors has been growing steadily. Therefore, it is likely that in the future the pace of growth will stabilize at a lower level. Moreover, demand is driven by a variety of factors, including consumer spending, consumer preferences, the development and acceptance of new technologies, and prevailing economic conditions. If the projected industry growth rates do not materialize as forecasted due to changes in demand, the spending of the company on the process and product development ahead of market acceptance could have a material adverse effect on the financial condition of the firm.

Exchange rate risk

STMicroelectronics conducts the business on a global basis in various major international currencies. As a result, it is exposed to fluctuations in foreign exchange rates, primarily with respect to the dollar and euro. As explained in the profitability section, a future dollar appreciation/depreciation with respect to the euro will affect the firm's profitability as the revenues are recorded in dollars while the costs are incurred mainly in euros.

China-USA tariffs conflict

USA and China's trade protection and national security policies, including tariffs, trade restrictions, export restrictions have and may continue to limit or discourage certain Chinese customers or suppliers from transacting with the firm, or at least making it more expensive to do so. Furthermore, STMicroelectronics could face competition as a result of China's programs to promote a domestic semiconductor industry and supply chains (including the "Made in China 2025" campaign).

Appendix

Consolidated income statement (In Millions of USD)

	DEC'17	DEC'18	DEC'19	DEC'20	DEC'21
Sales	8.308	9.612	9.529	10.181	12.729
Other revenues	39	52	27	38	32
Total revenues	8.347	9.664	9.556	10.219	12.761
Cost of sales	-5313	-6096	-6300	-6819	-7708
Gross profit	3.034	3.568	3.256	3.400	5.053
Selling, general and administrativ	-1.001	-1.109	-1.099	-1.123	-1.319
Research and development	-1.054	-1.127	-1.208	-1.272	-1.388
Other income	117	64	142	292	176
Other expenses	-17	-41	-56	-64	-70
Operating profit	1.079	1.355	1.035	1.233	2.452
Finance income	42	453	81	105	13
Finance costs	-777	-56	-607	-544	-441
Share of profit of joint ventures	-1	8	1	2	
Profit before income tax	343	1.760	510	796	2.024
Income tax expense	-117	-125	-122	-100	-307
Net profit	226	1.635	388	696	1.717
Attributable to:					
The equity holders of the parent	218	1.629	387	694	1.711
The equity holders of the parent	8	6	1	2	6
Net profit	226	1.635	388	696	1.717

Consolidated statement of financial position (In Millions of USD)

	DEC '17	DEC '18	DEC '19	DEC'20	DEC'21
Assets					
Non-current assets					
Property, plant and equipment	3.224	3.715	4.219	4.778	5.778
Goodwill	105	103	158	312	295
Intangible assets	1.192	1.220	1.191	1.294	1.407
Investments in joint ventures	45	49	-	-	-
Other non-current financial assets	44	43	57	68	65
Deferred tax assets	709	367	391	487	438
Other non-current assets	454	434	414	698	596
Total non-current assets	5.773	5.931	6.430	7.637	8.579
Current assets					
Inventories	1.335	1.567	1.693	1.838	1.978
Trade accounts receivable	1.149	1.277	1.380	1.465	1.759
Other current financial assets	472	335	156	259	6
Other receivable and assets	384	414	434	520	575
Short-term deposits	-	-	4	581	291
Restricted cash	-	-	10	-	-
Cash and cash equivalents	1.759	2.266	2.597	3.006	3225
Total current assets	5.099	5.859	6.274	7.669	7.834
Total assets	10.872	11.790	12.704	15.306	16.413
Equity					
Equity attributable to the equity holders of the parent	5.759	7.062	7.086	8.250	9.517
Non-controlling interests	63	65	68	58	64
Total equity	5.822	7.127	7.154	8.308	9.581
Non-current liabilities					
Interest-bearing loans and borrowings	1.577	1.758	1.200	1.821	2.391
Other non-current financial liabilities	571	166	532	625	755
Employee benefits	458	496	566	634	564
Deferred tax liabilities	12	15	49	63	48
Non-current provisions	312	37	1	-	-
Other non-current liabilities	90	64	94	101	109
Total non-current liabilities	3.020	2.536	2.442	3.244	3.867
Current liabilities					
Interest-bearing loans and borrowings - current portion	118	146	869	796	143
Trade accounts payable	893	981	950	1.166	1.582
Other payables and accrued liabilities	340	328	260	274	266
Employee benefits - current portion	577	554	572	696	775
Current provisions	52	25	13	6	6
Other current financial liabilities	1	34	392	732	125
Income tax payable	49	59	52	84	68
Total current liabilities	2.030	2.127	3.108	3.754	2.965
Total equity and liabilities	10.872	11.790	12.704	15.306	16.413

	2022	2023	2024	2025	2026	Terminal value
Revenue	16.050	17.100	18.219	19.411	20.681	
Revenue Growth Rate	25,77%	6,54%	6,54%	6,54%	6,54%	
EBITDA	5.473	5.248	5.032	4.887	5.207	
% margin	34,10%	30,69%	27,62%	25,18%	25,18%	
- D&A	*1.606*	*1.942*	*1.757*	*1.497*	*1.330*	
EBIT	*3.867*	*3.305*	*3.275*	*3.389*	*3.877*	
- Tax on EBIT	*580*	*568*	*644*	*764*	*1.000*	
NOPAT	*3.287*	*2.738*	*2.631*	*2.626*	*2.877*	
Add D&A	*1.606*	*1.942*	*1.757*	*1.497*	*1.330*	
- Capex	*3.500*	*3.021*	*2.733*	*2.329*	*2.068*	
- Δ NWC	*190*	*431*	*480*	*178*	*189*	
FCFF	*1.202*	*1.228*	*1.175*	*1.616*	*1.949*	39.294
Timing	1	2	3	4	5	
Discount factor	*1,09*	*1,19*	*1,29*	*1,41*	*1,54*	
Discounted FCFF	*1.104*	*1.034*	*909*	*1.147*	*1.269*	25.591

DCF Analysis

Valuation		
Discounted cash flows		5.463
Discounted TV		25.591
Enterprise value		$31.054

Enterprise Value	31.054
-Net Debt	-646
+ Financial Investments	264
-Unfunded Pension Obligations	1.054
-Other Nonequity claims	72
-Options	199
Equity Value	30.639
# shares	910.332.582
Share Price	$33,66

Assumptions	
Tax Rate	25,80%
WACC	8,95%
Terminal Growth Rate	2,86%
Cost of Equity	8,95%

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