



DE ZILVEREN RIJDER

Risk Analysis for ASML, Apple, 3M Company, and Microsoft

Group 1

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Introduction

This report will be analyzing the four technology stocks that De Zilveren Rijder has in their portfolio, these stock are ASML, Apple, 3M Company, and Microsoft. We will be conducting the regular three analyses but instead of researching one company we will be looking at the four mentioned. The goal of this research will be to see which of the four positions can be liquidated based on the their respective industries, fundamentals, and technical data. Creating a risk analysis for a portfolio was new territory for us but we welcomed the challenge and hope that it will prove useful for De Zilveren Rijder.

Overview of the companies

A small summary will be given of ASML, Apple, 3M Company, and Microsoft. These companies are all considered tech companies but they all operate in different industries which will be clarified below.

ASML

ASML is a business of Dutch origin that is officially considered a semi-conductor producer but they provide their customers with hardware, software, and all the service around these products (ASML, 2021). The company is located in Veldhoven, the Netherlands and was founded in the year 1984 by a joint-venture between the Dutch companies ASMI (Advanced Semiconductor Materials International) and Philips. The company became independent in 1988 with Philips now only owning a small portion of the shares. Over the years ASML has acquired quite some companies, for example they bought the Taiwanese HMI for 3.1 billion dollars (King, et al., 2016).

Apple

Apple is an American company that operates in the consumer electronics industry. They design, develop, and sell consumer electronics, computer software, and online services. Apple is considered to be one of the big four of tech companies which include Google, Netflix, Amazon, Facebook, and Apple (Rivas, 2017). Apple is famous for their superior branding and has been a fan

favorite when it comes to phones and laptops, this is due to their good customer service, their innovative spirit, and their design philosophy (Bajarin, 2012).

3M Company

3M is a conglomerate company and is active in many different sectors. The revenue is split in 5 segments: Industrial, Safety and Graphics, Electronics and Energy, Health Care, and Consumer (3M Company, 2020). Most people are familiar with their customer segment that includes things like sticky notes and tape, but the customer segment is actually one of the smaller segments. 3M was founded in 1902 so it has a long history. 3M stands for Minnesota mining and manufacturing company. And it has invented things like water resistant sandpaper. 3M also has more than 100,000 patents.

Microsoft

Microsoft is a software company and was founded in 1975 by Bill Gates and Paul Allen (Microsoft, 2021). Now Microsoft is one of the most influential organizations with sales exceeding \$150 billion. Microsoft owns Xbox, Microsoft Office, Azure and windows which are all big by itself. Microsoft invest in research and development a lot to be the leader in its field. Innovations is also one of Microsoft's core values next to diversity and inclusion, corporate social responsibility, AI, trustworthy computing and Responding to COVID-19 together.

Industry Analysis

As mentioned in the program report, ASML Holding, Apple inc., 3M Co., and Microsoft are all technology companies. However, their specializations differ, and so do their industry and macro environments. Within their industry, they all have in common that they are leading pioneers.

We will start with Apple who operates in the consumer electronics industry. The consumer electronics industry is highly driven by consumers' desire for more innovative and advanced technology that helps in fulfilling daily life requirements in hassle-free ways (FMI, 2021). This sentiment has played a significant role in stepping up innovation in the consumer electronics industry over the past decade. The efforts on the part of industry players to promote their innovative products to

find a foothold in the competitive environment are expected to reflect a steady growth between 2021 to 2031. According to FMI, the global consumer electronics market expanded at 3.8% CAGR (value) during the last 5 years from 2016 to 2020 and will grow by 5.6% from 2021 to 2031.

Secondly, we analyzed the (business) software industry where Microsoft operates in. The global business software and services market size was valued at USD 389.86 billion in 2020 (Grand View Research, 2021). It is expected to expand at a compound annual growth rate (CAGR) of 11.3% from 2021 to 2028. The rapid increase in the volume of enterprise data and growing automation of business processes across several end-use industries such as retail, manufacturing, healthcare, and transportation are expected to drive the demand for business software and services. The significant rise in deployment of enterprise software and services across IT infrastructure to enable better strategic decision-making, reduce inventory cost, enhance profitability, and enable organizations to improve their market position is estimated to drive market growth over the forecast period.

Thirdly, we analyzed the industrial machinery where 3M Co. operates in. Rapid advances in technology is expected to drive innovation in industrial machinery manufacturing, thus driving the market during the forecast period (Guirham, 2021). Furthermore, technologies such as 3D printing, artificial intelligence, and big data analytics are being used in manufacturing, resulting in higher productivity, lower operating costs, and higher margins. The market is valued at \$534.89 billion in 2020 and is expected to reach \$793.85 billion in 2025 at a CAGR of 9%.

Finally, we analyzed the semiconductor industry where ASML operates in. The semiconductor market's growth is attributed to the increasing consumption of consumer electronics devices across the globe (Fortune Business Insights, 2020). Additionally, the rise of Artificial Intelligence (AI), Internet of Things (IoT), and Machine Learning (ML) technologies is providing new opportunities to the market development. These technologies aid memory chips to process large data in less amount of time. Moreover, the increasing demand for faster and advanced memory chips in industrial applications will drive the market growth over the forecast timeline. The global semiconductor market size stood at USD 513.08 billion in 2019 and is projected to reach USD 726.73 billion by 2027 at a CAGR of 4.7% during the forecast period.

Fundamental Analysis

Service & Product Leadership Criteria

ASML

ASML is a monopoly and 90% in lithography. ASML has create the most advance equipment in the sector and has almost no competition. ASML has close relations with is customer to develop EUV solutions and use the product as intendent (Advisors, 2021).

Apple

Apple is one of the most valuable companies and has a very strong brand name and this allows them to have high profit margins. Apple has created an ecosystem which makes it hard for its customers to go for a competitor's product. Apple makes it products easy to use with other Apple products that if somebody owns an iPhone, they also buy a MacBook and AirPods and make use of Apples Appstore. A lot of Apples customers buy a phone every to years and this is enormous cash cow for Apple.

Microsoft

Microsoft is a software company with Windows and Microsoft office. Microsoft is a leader in those categories almost everybody uses Word and Excel or PowerPoint. In recent years Microsoft is also betting more on cloud services with Microsoft Azure and subscription models to have more reoccurring revenue. Many services run on Microsoft software and makes it great for feature retention.

3M

3M is a conglomerate company and generates revenue from sales of about 55,000 products across five segments: Industrial, Safety and Graphics, Electronics and Energy, Health Care, and Consumer. 3M has products that are very specialist for certain industries this makes for reoccurring

revenue and happy costumers (McFarlane, 2020). 3M invest in heavily in creating new and better products.

Management Culture & People Criteria

ASML

Top management of ASML is very experienced two of the six have been with ASML since its interception in 1984 (ASML, 2021b). All of the managers have good code of conduct for more than 10 years only Roger Dassen (Executive Vice President and Chief Financial Officer) joined in 2018 after being CEO of Deloitte Netherlands. Management has a great track record and has created shareholder value. ASML has a Glassdoor score of 4,1 with a maximum of 5 (Glassdoor, 2020a).

Apple

The average tenure for the leadership team of apple is 3,8 years and for the board members 9,5 years which is considered experienced (SimplyWallstreet, 2021a). Tim Cook is the CEO of Apple since 2011 first there were doubts if Tim Cook could replace Steve Jobs but Cook showed that he is highly capable of leading Apple. Apple is also great at attracting talent with high compensations and other benefits. Apple has a Glassdoor score of 4,8 with a maximum of 5 (Glassdoor,2021a).

Microsoft

The average tenure for the leadership team of Microsoft is 5,6 years and for the board members 5,3 years which is considered experienced (SimplyWallstreet, 2021b). Top management has shown to be highly capable in making strategic decisions like investing in the cloud and adopting subscription-based business model. Microsoft has a Glassdoor score of 4,4 with a maximum of 5 (Glassdoor, 2020b).

3M

The average tenure for the leadership team of 3M is 2,8 years and for the board members 5,2 years which is considered experienced (SimplyWallstreet, 2021c). Mike Roman is the Chairman of the board and CEO of 3M. Mike has been at 3M for over 30 years (3M Company, 2021). The company maintains a departmental organizational structure under the larger corporate hierarchical structure (Thompson, 2018). 3M has a Glassdoor score of 4 with a maximum of 5 (Glassdoor, 2021b).

Moats & Barriers to Entry Criteria

ASML

ASML as one of the strongest moats there is. ASML is a monopoly with 100% share of EUV lithography equipment so there is no competition in this field. There is a very high barrier to entry because to develop the technology would take years of expertise and expensive research. If you want to make the most advanced semiconductors you need to have equipment from ASML this gives them a lot of negotiating power.

Apple

Apple has a lot of competitors but has created an ecosystem around their products and services with one of the strongest brands. This has created a great moat for Apple. Apple is a massive company, and this gives them a lot of power against their suppliers. Apples main revenue driver is the iPhone and there is for now no threat of a substitute for a phone and when this may occur, we think that Apple will be able to adapt and use its resources to make itself a leader in the new industries.

Microsoft

Microsoft is a software company with Windows and Microsoft office. Microsoft is a leader in those categories almost everybody uses Word and Excel or PowerPoint and in recent times Microsoft Teams. This creates a great moat for Microsoft because its products and services are integrated.

Microsoft has a lot of power of its customers because many companies could not function without software from Microsoft.

3M

3M is a conglomerate company with many patents for different industries. Because of this 3M has almost no threat for a substitute, individual product does have substitutes but not all. 3M is a large company that also does a lot of manufacturing this also gives them a lot of power with their suppliers. And they also have a lot of power over buyers because without some specialized products the customers will have and hard time doing their job.

ESG Score Criteria

ESG score

ASML	Apple	3M Co.	Microsoft
12.8	16.9	34.9	14.6

What becomes immediately apparent in the EGS score comparison is that all companies are low risk except 3M Co. which is considered a high risk (Sustainalytics, 2021). Tech companies that have a low EGS score have continued to outperform tech companies that have a high EGS score (Bucak, 2020). In the case of 3M Co. the largest influence on the high ESG score seems to be the social risk factor and the environment risk factor, which is not a surprise since 3M is a conglomerate company that does not only have tech but also incorporates more products such as office products like adhesives and paper, and also health care products. However, given that all four of the shares are being kept in the portfolio as tech stocks it is worth noting that this difference is significant.

Valuation Criteria

P/E ratio and P/B ratio

	Price-to-earning	P/E ratio industry	Price-to-book
ASML	56,51	48,43	14,40
Apple	32,34	56,81	30,48
3M co.	20,40	26,53	8,43
Microsoft	34,28	42,98	13,35

The share price versus fair value can be seen in appendix 1.

Technical analysis

Trend and volume

The graphs for the respective stocks can be found in appendix 2. All these graphs were taken from Investing.com.

Microsoft

Looking at the moving average of Microsoft it can be concluded that the stock is in an uptrend due to the fact that the stock price is above the moving average, exponential moving average and the weighted moving average. The different moving averages of Microsoft have been increasing steadily and this shows a positive future for the stock. Furthermore, the stock has broken through their resistance line at around 241 and has reached a new high of 260.45 dollars per share. It remains to be seen if the stock will maintain this level or returns back to their old resistance and support. The volume of Microsoft has been trading under the moving average for some days, this could indicate that the current high price could be stabilizing and remain on that level until another breakout occurs. Breakouts have occurred quite a few times over the period as shown in the graph and while the volume has been under the moving average for the last couple of days, the high stock price might encourage more buying/selling thus resulting in the daily volume being higher than the moving average.

Apple

Apple seems to be in a downtrend at the moment when looking at the moving averages even though they are performing better compared to previous periods. While the trend is not steep it is still notable compared to the other three stocks because they are all experiencing a moving average uptrend. However, the stock is performing above all the different moving averages, which is a sign of

strength. Apple also has not broken their resistance or support yet but this can change because the average volume seems to be decreasing. This decrease in average volume indicates that overall trading of the stock is decreasing which is a negative signal. This can be due to the overall downtrend Apple is experiencing.

3M Company

3M Company is in an uptrend at the moment when looking at the three moving averages. However, 3M reached a peak in the year 2019 and has decreased up until the first quarter of 2020, like the other three companies this is most likely due to Corona. It is however noticeable that the decline of 3M already started happening in the beginning of 2019 while the other three only significantly declined at the start of the lockdown. However, 3M has been recovering since that period regularly breaking resistance levels and is now close to its highest level in 2019. Looking at the volume of 3M it has recently gone over its average again in the form of up volume which could mean that the price will rise more.

ASML

ASML Holding is in a clear uptrend with the moving averages reflecting the increasing share price and the excellent performance of the stock. The share price is above the moving averages which is an indication of strength. Furthermore, the stock has broken their resistance level in the beginning of 2021 which can be seen in the graph. However, a break of the support could happen soon when looking at the latest developments, the share price is decreasing and volume seems to be moving over the average line which could indicate a break out. The volume of ASML regularly surpasses the average volume line and this can be seen in the price graph as well because regular breakouts happen. In the recent days the volume has surpassed the average and this has resulted in the latest decrease. The most recent day ends on a bearish pattern (red, inverted hammer) that might signal an even worse decrease.

Relative Strength Index

ASML	Apple	3M company	Microsoft
89.57	70.83	63.39	82.36

The RSI of the four companies have been examined, this index is based on a 14-day timeframe and is shown over the entire lifespan of the company in appendix 3 (Investing, 2021). ASML, Apple and, Microsoft are above the 70 strength, this shows that they are all overbought. Being overbought can suggest that they are being sold for a higher price than they are actually worth. ASML is the highest in this regard, followed by Microsoft, while Apple just above the 70 RSI level. 3M on the other hand is below the 70 strength and above 40 which indicates that they are being traded for a fair price.

Conclusion

Looking at the industrial analysis we can conclude that ASML has the lowest growth rate out of the four companies, this is notable in an industry that is described as booming. Furthermore, while the technical analysis of all the four companies was rather positive the RSI showed that three out of the four companies in question were overbought, with ASML being the highest and Apple being the lowest. As mentioned above this shows that the stock is overbought, which can indicate that the share price is too high. Finally, the fundamental analysis included the fair value of the companies versus their share price and ASML is the most overpriced of the four, followed by Apple. We therefore conclude that De Zilveren Rijder should liquidate at least a part of ASML. They have a large position in the company with a ROI of 195% however it seems to be the least promising of the four companies according to this analysis.

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Appendix

APPENDIX 1

All these values were taken from Simplywallstreet.com. (Simply Wallstreet, 2021d)

ASML



Apple



Microsoft



3M



APPENDIX 2

All graphs are taken from Investing.com. (Investing, 2021)

Microsoft



Apple



3M company



ASML

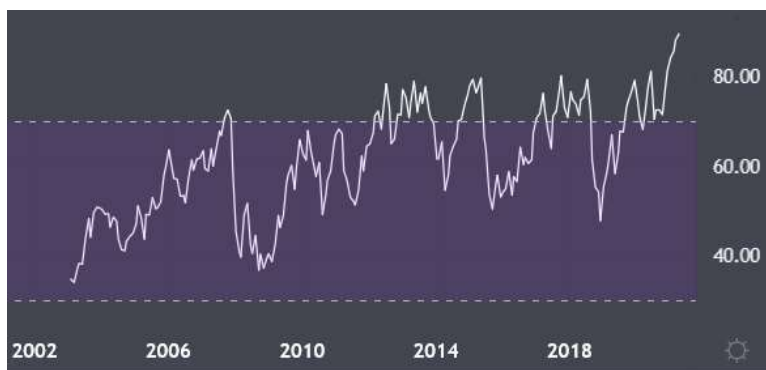


APPENDIX 3

Apple



ASML



Microsoft



3M Company

