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SCENARIO ANALYSIS

DIFFERENT PATHS SPOTIFY MAY TAKE

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Abstract

The report consists in the implementation of a scenario analysis to understand the different paths the world economy may take which might impact differently. First, a macroeconomic outlook was made in order to grasp recent events and their impact in the world. Then, it was identified US-China trade war as the main source of uncertainty in the world and two possible evolutions for this risk. The conclusion is that, in a negative scenario, Spotify's expected price is $127 and expected return is -15.3%. In the positive scenario, Spotify's expected price is $219 and expected return is 45.7%.

Keywords

Trade war
Recession
Economic cycle
Spotify

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1. Topic relevance

The topic chosen for this report was a scenario analysis. In the main report, it was conducted a forecasting analysis, which is consider probable. However, there are many macroeconomic risks that may impact Spotify's valuation. The importance of this analysis is exactly related to that. Although with a low probability of occurrence, it will be analyzed two different extreme scenarios, which may, positively or negatively, affect our valuation.

2. Literature Review

Valuation requires a forecast, but the future can take many paths. It is not certain how a government will conduct its activity due to its dependence on the economic cycle, which depends on actions of multiple unpredictable agents. Research and development might lead to the discovery of a new product that can make a company in the forefront of competition. Since the future is never truly knowable, consider making financial projections under multiple scenarios (Koller, Goedhart, Wessels, 1990). Scenario analysis considers the effect of changing multiple paramenters simultaneously (Berk, DeMarzo, 2014).

Managers often find scenario analysis helful. It allows them to look a different but consist combinations of variables. Forecasters generally prefer to give an estimate of revenues or costs under a particular scenario than to give some absolute optimistic or pessimistic value (Brealey, 1996).

The scenarios reflect different assumptions regarding future macroeconomic, industry, or business developments, as well as the corresponding strategic responses by industry players, i.e., the scenarios capture the future states of the world that would have the most impact on future value creation and a reasonable chance of occurrence. The analysis involve assessing how likely it is that the key assumptions underlying each scenario will change, and assigning to each scenario a probability of occurrence (Koller, Goedhart, Wessels, 1990).

When analyzing the scenarios, it is important to critically review the assumptions concerning the broad economic conditions, competitive structure of the industry, internal capabilities of the company that are necessary to achieve the business results predicted and financing capabilities of the company (Koller, Goedhart, Wessels, 1990).

3. World economy

The world has experienced strong growth in the years after the great depression originated in United States of America in 2007 and the sovereign debt crisis in Europe in 2012. This prosperous period seems to have been broken this year, 2019, with the major economies across the globe slowing down their growth. In fact, real GDP growth decreased in every region in 2019, as it is possible to observe in table 1.

Nonetheless, projections for world real GDP growth shows that, in 2020 and the following years, it will accelerate. This is true for every region except for North America and Asia, whose acceleration will start in 2021. The growth in world real GDP will be sustained by the growth in emerging markets.

unit: % change	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Real GDP growth (PPP exchange rates)										
World	**3.4**	**3.3**	**3.8**	**3.5**	**2.9**	**3.2**	**3.5**	**3.6**	**3.5**	**3.4**
OECD	2.5	1.8	2.7	2.3	1.6	1.6	1.9	2.1	2	2
Non-OECD	4.1	4.6	4.7	4.5	3.9	4.5	4.8	4.8	4.7	4.4
Real GDP growth (market exchange rates)										
World	**2.8**	**2.5**	**3.2**	**2.9**	**2.3**	**2.5**	**2.8**	**2.9**	**2.9**	**2.8**
OECD	2.4	1.7	2.5	2.3	1.6	1.5	1.8	2	1.9	1.9
Non-OECD	3.5	3.8	4.3	4.2	3.6	4.2	4.6	4.5	4.5	4.2
North america	2.7	1.6	2.4	2.8	2.1	1.6	1.9	2	1.9	2.2
Europe	2	1.9	2.8	2.1	1.3	1.6	1.9	2	1.9	1.8
Euro area	2	1.9	2.7	1.9	1.2	1.3	1.6	1.7	1.7	1.5
Asia & Australasia	4.6	4.5	4.9	4.5	4.1	4.1	4.3	4.3	4.2	3.9
Latin America, excluding Venezuela	0.1	-0.3	1.8	1.6	0.9	1.2	2.7	2.6	2.6	2.5
Middle East & North Africa	2.3	4.8	1.4	1.2	1.1	2.3	2.8	3.2	3.3	2.7
Sub-Saharan Africa	2.7	0.8	2.3	2.3	2.2	2.5	3.6	4.2	4.5	4.5
Inflation (av)										
World, excluding Venezuela	**3**	**3.1**	**3.2**	**3.5**	**3.6**	**3.4**	**3.2**	**3.3**	**3.1**	**3.1**
OECD	0.7	1.1	2.2	2.5	2	1.9	2	2.1	2	2
Non-OECD	5.5	5.1	4.3	4.4	5.2	4.9	4.4	4.5	4.3	4.3
Trade in goods										
World	**2.2**	**2.1**	**5.6**	**3.9**	**1.5**	**2.4**	**3.6**	**3.8**	**3.9**	**3.8**
OECD	3.5	1.9	4.7	3.4	2	2.1	3.1	3.3	3.5	3.4
Non-OECD	0.1	2.5	7.2	4.7	0.6	2.8	4.2	4.4	4.4	4.2

Table 1: World summary. Source: Economist Intelligence Unit

In fact, the world is undergoing a period of high instability with multiple events taking place that contributed to the slowdown above mentioned:

1. US-China Trade War: an economic conflict that started in 2018 when President Donald Trump set tariffs and other barriers on China in order to balance US trade balance with China and protect US intellectual property, which US deemed it has been violated by China.
2. Brexit: the decision to leave the European Union was taken in 2016, after a referendum took place. Since then, negotiations have been occurring, but not yet concluded due to fail of agreement between both parties. The deadline for a deal was delayed three times it was extended last 31st of October to 31 January 2020.
3. Other tensions: Iran sanctions by US; North Korea missile tests; Turkey against Kurds, tensions in Spain as Catalonia wanted is independence; tensions in Hong Kong due to interference of China in Hong Kong's internal affairs; internal tensions in Chile and other regions in Latin American.

3.1. US-china trade war

There is one major macroeconomic risk that may affect Spotify's financial performance due to its impact all over the world: US-China trade war.

Regarding the US-China trade war, United States is currently running out of solutions to pressure China into a trade deal that benefits them. In fact, a significant number of offensives were taken by both sides to intimidate one another and even if Donald Trump does not win the elections to be held in November 2020, it is not clear how the negotiations would go. It is growing a nationalist sentiment in China, which is making even more difficult a breakthrough. Therefore, there is a risk where the escalation of the threats would lead the US to pressure other countries and multinational companies to cease relationships with China. In an extreme case, both China and United States would consider a neutral stance as offensive and, as both countries have relationships with almost every country in the world, it may lead to the disruption of multiple economies and, consequently, a severe generalized depression across the world.

Nonetheless, our view is that they will eventually come to an agreement given their high degree of financial interdependence. China holds about 5 % of US public debt, but also relies on US dollar-based financial system to trade with their partners. Therefore, we consider that the most probable scenario would be threats from the US and some sanctions to continue to exist to pressure China and that China would continue to devalue renminbi to assure their competitiveness in the short-term.

4. Scenario Analysis

Our base case scenario is the one presented in the main report. As the risk of an intense escalation of the tensions between China and United states to an extent that disrupt the entire system and the probability of reaching an agreement in the near-term, we attribute a probability of our base case scenario 80%. In this scenario, we expect the US-China trade tensions to continue in a medium-term horizon with some impact in the companies, even though not enough to disrupt the system and to cause a depression. In the next two chapters we will deep dive into the quantification of the negative and positive scenarios.

4.1. Negative Scenario

In the negative scenario, we assume that the trade war intensifies and, as a result, several regions across the globe enter into recession. The origin of this depression is explain in chapter 3.1.. We attribute a 10% probability to this scenario, as both China and United States are interested in avoiding this sequence of events. So, in this case we will have a direct impact in revenues and, as our model link several costs to revenues, in costs.

We project that the ad-supported revenues increase. The conversion to premium is assumed to decrease from 50% to 20% until 2024 and then, when the crisis alleviate, increase 3 p.p. per year until 2031. The new-ad supported customers growth rates increases since less people will value pay for listening to music and will decide to keep the free plan. We project our customer growth to keep on 20% for 2 years and then to decrease 5 p.p. in the following year. After that period, decrease 1 p.p. per year until it reaches 6% in 2031. Ad-supported ARPU will keep constant as we expect inflation rate to be near zero due to low private consumption.

The premium revenues are expected to decrease. The churn rate is expected to increase from 4.6% to 15% until 2021, and then decrease slowly until it reaches 4.5% in 2031. Emerging markets will have a slightly higher churn rate in the first years. In relation to ARPU, we expect it to decrease 0.1€ per year until 2024, instead of 0.05€ per year, and then decrease at 0.05€ per year. New customer from bi-annual trial campaign instead of growing every year, it is assumed to keep constant over the years in every region, as it was initially assumed for Europe and North America.

The last assumptions we made in this analysis are related to costs. First, there is no reduction of the costs of revenues as percentage of revenues, as our key suppliers have strong bargaining power as discussed in the main report and they would not reduce their margins without increasing their revenues, i.e., without benefiting from economies of scale. Therefore, this percentage keeps constant at 74.58% until 2025, and then reduce 0.5 p.p. per year until 2031. Second and last assumption is that sales and marketing costs as a percentage of revenues will not decrease at the beginning, since Spotify will not be able to take advantage of economies of scale, keeping constant this cost as a percentage of revenues until 2023, and then, from that year on, decrease 0.5 p.p. per year until 2031.

Table 2 presents the evolution of revenues, cost of revenues and marketing and sales costs throughout the explicit forecasting period.

€ millions		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Revenues		5259	6802	4411	3168	4868	5856	7823	10531	13927	17190	20367	23506	26596
	% growth		29,33%	-35,15%	-28,18%	53,65%	20,30%	33,59%	34,62%	32,24%	23,43%	18,48%	15,41%	13,15%
Sales and marketing		-620	-762	-494	-355	-546	-656	-838	-1 075	-1 352	-1 583	-1 774	-1 930	-1 917
	% of revenues	11,79%	11,21%	11,21%	11,21%	11,21%	11,21%	10,71%	10,21%	9,71%	9,21%	8,71%	8,21%	7,21%
Cost of revenue		-3 906	-5 073	-3 290	-2 363	-3 631	-4 368	-5 835	-7 855	-10 318	-12 649	-14 885	-17 061	-19 171
	% of revenues	74,27%	74,58%	74,58%	74,58%	74,58%	74,58%	74,58%	74,58%	74,08%	73,58%	73,08%	72,58%	72,08%

Table 2: Revenues and costs evolution

The following table presents the new DCF valuation which resulted from the changes made in the parameters above mentioned.

Discounted Cash Flows (DCF)													
€ millions	31/12/2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031 - perp.
Operating unlevered FCF		-794	-209	149	42	179	298	468	592	775	1 017	1 419	1 447
@WACC		6,89%	6,89%	6,89%	6,89%	6,89%	6,89%	6,89%	6,89%	6,89%	6,89%	6,89%	6,89%
Operating unlevered FCF @WACC		**18 125**	**19 598**	**20 789**	**22 177**	**23 514**	**24 816**	**26 027**	**27 188**	**28 233**	**29 091**	**29 579**	
Book value non-operating items		**1 567**	**1 567**	**1 567**	**1 567**	**1 567**	**1 567**	**1 567**	**1 567**	**1 567**	**1 567**	**1 567**	
+ Levered enterprise value		19 692	21 165	22 356	23 744	25 081	26 383	27 594	28 755	29 800	30 658	31 146	
+ Net Financial Assets		944	732	883	920	1 111	1 412	1 856	2 383	3 044	3 888	5 041	
= Value of equity		**20 637**	**21 896**	**23 239**	**24 664**	**26 192**	**27 795**	**29 450**	**31 138**	**32 844**	**34 546**	**36 187**	

Table 3: DCF Model negative scenario

As a result, the price per share expected in 2020 is 114.8€, which corresponds to 127.3$ and a shareholder's negative return of 15.3%.

4.2. Positive Scenario

The positive scenario corresponds to the case where the US-China trade war is solved faster than expected with a win-win agreement, which increases consumer confidence index, increasing consumption and investment, resulting in an expansion of the economic cycle.

Again, the expansion would be translated in higher revenues, but also higher costs, although in a smaller scale, since in the base case scenario we expect some costs to diminish its percentage of revenues of the years. The assumptions made are that the new customers from bi-annual trial campaign increase 1 million per year, instead of 0.5 million, in both Latin America and Rest of the World. The growth rate of new ad-supported clients is higher in 2 p.p. per year, every year, until 2031. The conversion to premium rate is 60% instead of 50%, and premium churn rate reaches 4% two years earlier, in 2022. Spotify's cost of goods sales reach a percentage of revenues of 70% in 2022, instead of 2024. Lastly, sales and marketing costs reach 6% of revenues two years earlier, since a higher scale is achieved earlier.

Table 4 presents the evolution of revenues, cost of revenues and marketing and sales costs throughout the explicit forecasting period.

€ millions		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Revenues		5259	6802	8912	11347	13528	15611	17559	19446	21293	23093	24823	26456	27959
	% growth		29,33%	31,03%	27,33%	19,22%	15,39%	12,48%	10,75%	9,50%	8,45%	7,49%	6,58%	5,68%
Sales and marketing		-620	-762	-910	-1 045	-1 029	-937	-1 054	-1 167	-1 278	-1 386	-1 489	-1 587	-1 678
	% of revenues	11,79%	11,21%	10,21%	9,21%	7,61%	6,00%	6,00%	6,00%	6,00%	6,00%	6,00%	6,00%	6,00%
Cost of revenue		-3 906	-5 073	-6 558	-8 236	-9 470	-10 927	-12 291	-13 612	-14 905	-16 165	-17 376	-18 519	-19 571
	% of revenues	74,27%	74,58%	73,58%	72,58%	70,00%	70,00%	70,00%	70,00%	70,00%	70,00%	70,00%	70,00%	70,00%

Table 4: Revenues and costs evolution

The following table presents the new DCF valuation which resulted from the changes made in the parameters above mentioned.

Discounted Cash Flows (DCF)													
€ millions	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032 -perp
Operating unlevered FCF	-48	607	940	1,278	1,568	1,776	1,937	2,075	2,207	2,328	2,435	2,523	2,574
@WACC	6.89%	6.89%	6.89%	6.89%	6.89%	6.89%	6.89%	6.89%	6.89%	6.89%	6.89%	6.89%	6.89%
Operating unlevered FCF @WACC	**38,683**	**40,701**	**42,502**	**44,065**	**45,425**	**46,658**	**47,803**	**48,880**	**49,890**	**50,840**	**51,741**	**52,610**	
Book value non-operating items	**2,318**	**2,318**	**2,318**	**2,318**	**2,318**	**2,318**	**2,318**	**2,318**	**2,318**	**2,318**	**2,318**	**2,318**	
+ Levered enterprise value	41,001	43,019	44,820	46,383	47,743	48,976	50,121	51,198	52,208	53,158	54,059	54,928	
+ Net Financial Assets	904	1,485	2,387	3,423	4,687	6,113	7,662	9,313	11,063	12,904	14,823	16,806	
= Value of equity	**41,905**	**44,503**	**47,207**	**49,805**	**52,430**	**55,089**	**57,783**	**60,511**	**63,271**	**66,061**	**68,882**	**71,734**	

Table 5: DCF Model positive scenario

As a result, the price per share expected in 2020 is 197.5€, which corresponds to 219.1$ and a shareholder's return of 45.7%.

5. Limitations of the analysis and future considerations

The analysis previously done has some limitations that should be documented. First, this analysis just considers two different scenarios. In reality, there are an infinite number of different paths global economy may take and consider just one event, even if it is the most relevant, is not totally realistic. Second, this analysis is ignoring effects of costs that are not a proportion of revenues, such as interest income and costs. In addition, Spotify's stake on TME is not being valued differently from the base case, as it was used a relative valuation method, which is static and ignore future cash flows. This is also a limitation since macroeconomic evolution may affect TME valuation in the same way it affects Spotify. Future works on this topic would be more complete and representing better reality if all these effects are studied and considered.

6. Bibliography

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