

A Work Project, presented as part of the requirements for the Award of a Master Degree in Economics / Finance / Management from the NOVA – School of Business and Economics.

The Comeback of the Largest Player in the Cruise
Industry

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A Project carried out on the Master in Finance Program, under the supervision of:

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Abstract:

This report will provide valuable insights of not only Carnival's Corporation but also of the Cruise industry in which the company operates regarding top players, industry trends and dynamics that are important to fully understand its valuation. The last chapter reflects our methodology to value Carnival Corporation, by presenting the main inputs that will lead to our target share price.

Keywords (up to four): Covid-19; Carnival; Undervalued; Increasing Efficiency

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This report is part of the “Valuation of Carnival Corporation” report and should be read as an integral part of it.

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Executive Summary

Carnival has been the leading Cruise company in the world with a total market share of 43% in 2019, in terms of passengers. Together with Royal Caribbean and Norwegian Cruises they control around 74% of the market, making the cruise industry very consolidated. This characteristic makes the entrance of new players challenging, due to high capital requirements and customer loyalty.

In the years prior to the Covid pandemic, Carnival was growing at a CAGR of 8% (between 2016 and 2019), however in the year of 2020 the Company's revenues plummeted by over 70%, below the industry average of 87%. This sharp decrease in revenues across the industry was due to the complete shutdown in operations for up to a year.

Nonetheless, the company's revenues are expected to return to pre-covid values in 2024 and grow at a CAGR of 9% for the period of our analysis, due to strong growth in the first few years, associated with the recovery period, stabilizing around 2% from 2037 onwards. This positive outlook was reflected on the high pre-booking values in the industry and relative unwillingness from customers recover their deposits, opting instead for postponing the trips that were cancelled.

Company Overview

Company Description

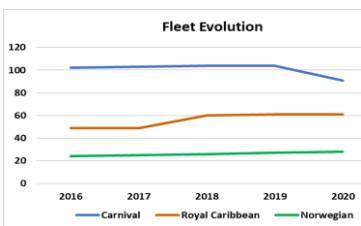


Figure 1: Industry fleet evolution
Source: Analyst estimates

Founded in 1972 by Ted Arison, Carnival Corporation & plc is now the biggest cruise company with 43% of the market share in 2019, in terms of passengers carried. Headquartered in Miami, Carnival operates a fleet of 91 ships throughout the North America and Australia (NAA) and Europe and Asia (EA) segments (Figure 1). The company is known for offering more affordable prices than its competitors, with its reputation being built around affordable cruises for many families. Being the biggest company in the industry is also reflected in the number of cruise ships the company operates as its two main competitors, Royal Caribbean and Norwegian Cruise Lines, have only 61 and 28 cruises in their fleet, respectively. Previous to Covid 19, the company was operating in up to 700 ports around the world and carrying up to 13 million guests per year, amounting to the most passengers across their competitors (discussed further ahead).

Segment Weights	2016	2017	2018	2019	2020
NAA	66%	67%	67%	68%	68%
EA	34%	33%	33%	32%	32%

Table 1: Carnival segments dimension
Source: Analyst estimates

Revenue Growth	2017	2018	2019	2020
NAA Segment	8%	7%	12%	-73%
EA Segment	4%	9%	7%	-73%
Total Carnival	7%	8%	10%	-73%
Cruise sector average	6%	10%	3%	-88%

Table 2 Carnival's segment growth
Source: Analyst estimates

Carnival's biggest and most profitable segment is the NAA, accounting for 68% of the revenues in 2019 and 75% of the operating income of the same year, values that have remained constant over the last 5 years as shown in Table 1. With 67 ships in 2019, this segment had almost 63% of the total guests carried by the company in comparison with the 37 ships allocated to the EA segment. Not only is NAA the biggest segment but is also the one with the highest revenue growth, having an CAGR of 10% from 2017 to 2019 with EA segment only having a CAGR of 8% (Table 2).

Carnival revenues comes from two different main sources, either from Passenger Tickets or from Onboard and Other. The passenger tickets account as their main source of revenue, generating

68% of the total revenues in 2019.

Carnival's competitors rely more on the ticket sales rather than in Onboard and Other, accounting for 70% of revenues in the Norwegian Cruise and 72% in the Royal Caribbean. Nonetheless, these two competitors are able to have higher CAGR's in Ticket Revenues than Carnival between 2017 and 2019, with respectively, 9,8% and 11,6%, when compared to Carnival's 4% (Table 4, 6 and 7)

The account Onboard and Other includes the gains from all sales during the cruises such as beverage sales, casino gaming and shore excursions. Although the Onboard and Other revenues accounted for only 36% of the total revenues in 2019 this source of revenue is becoming increasingly important as shown by a CAGR of 8%, from 2017 to 2019 (excluding the increase of \$1,4 billion in 2019 due to the new accounting policies) while the ticket revenues only obtained a CAGR of 4% in the same years (Table 4). Part of the superior growth in the Onboard Revenues is coming from the introduction of Bundles sold to customers, a fixed prepaid price that includes both the ticket and a certain amount of credit to spend in the Cruise. This strategy has had great success across the industry, mainly in increasing the total spending of customers.

Regarding its peers, the Onboard Revenues of Norwegian and Royal Caribbean had, respectively, CAGR's of 8,7% and 12%, much higher values than Carnival (Table 5, 6 and 7). Royals edge regarding Onboard revenues comes from their strategic investment in onboard projects, mainly from bundling tickets, beverage package sales, gaming initiatives and new strategies and promotions on the shore excursions.

As such although Carnival has been able to have a good growth YoY, its peers, especially Royal Caribbean, are outperforming the company, which could lead Carnival to lose part of its market share in the future. Nonetheless, as we can see from Table 8, the Market Share of the three main companies, regarding total passengers carried, has been relatively steady.

Carnival's reputation has been impacted by the industry's constant incidents onboard like fires and diseases outbursts. Although most disasters did not have big consequences, in 2012 Carnivals' ship Costa Concordia struck a reef on the shores of Italy sinking the ship and killing 32 people. The costs associated with the removal of the cruise ship alone were around 1.2 billion dollars and in the time frame of a month the share price decreased by 12%. Although no event of this dimension happened on a Carnival cruise again, several people have died during these trips, either due to fires or lack of security, and each time these incidents occur it reflects poorly on the share price.

The first corona outburst in a cruise happened in Carnivals' cruise Diamond Princess in late January 2020. Four weeks after discovering the first positive onboard there were 355 positive cases and in total the cruise had more than 700 cases and 14 deaths, some while onboard. Shortly after, in February, the company decided to carry on its voyages and in Carnival's cruise Grand Princess 100 passengers and members became ill and two passengers died. This outburst aligned with global fear of covid led Carnival share to drop by 27%, almost 14 dollars, in the time frame of the accident, approximately over 1 month. During this time its peers share price also dropped with Norwegian Cruise decreasing 29% and Royal Caribbean by 28%.

Ticket Revenues	2017	2018	2019
Carnival	12 944	13 930	14 104
Growth %	-	8%	1%
Norwegian	3750	4260	4517
Growth %	-	14%	6%
Royal Caribbean	6313	6793	7857
Growth %	-	8%	16%

Table 3: Growth evolution in Ticket Revenues, in million \$
Source: Analyst estimates

Carnival	2017-2019
CAGR(Ticket)	4,4%
CAGR (Onboard)	8,0%
CAGR (Total Revenues)	5,3%

Table 4: decomposition of revenues CAGR from Carnival
Source: Analyst estimates

Onboard Revenues	2017	2018	2019
Carnival	4 566	4 950	6 721
Growth %	-	8%	36%
Norwegian	1646	1795	1945
Growth %	-	9%	8%
Royal Caribbean	2465	2701	3094
Growth %	-	10%	15%

Table 5: Growth evolution in Onboard Revenues, in million \$
Source: Analyst estimates

Royal Caribbean	2017-2019
CAGR (Onboard)	12,0%
CAGR (Ticket)	11,6%
CAGR (Total Revenues)	11,7%

Table 6: decomposition of revenues CAGR of Royal Caribbean
Source: Analyst estimates

Norwegian Cruises	2017-2019
CAGR (Onboard)	8,7%
CAGR (Ticket)	9,8%
CAGR (Total Revenues)	9,4%

Table 7: decomposition of revenues CAGR of Norwegian
Source: Analyst estimates

Market Share	2016	2017	2018	2019
Carnival	43%	45%	44%	43%
Norwegian	9%	9%	10%	9%
Royal	22%	22%	21%	22%

Table 8: Historical evolution of the Market Share
Source: Analyst estimates

Strategy

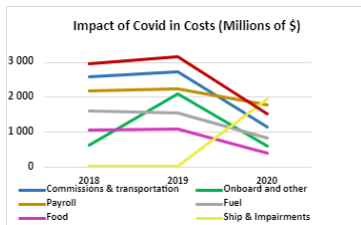


Figure 2: Impact of Covid in Carnival's costs, in million \$
Source: Analyst estimates

During Covid the company's main strategy was to minimize costs to dampen the lack of revenues, since it suffered a reduction of 73% from 2019 to 2020. As such, the main measures consisted of transitioning ships into pause status, reducing marketing and selling expenses and implementing a combination of layoffs, furloughs, reduced work weeks and salary and benefit reductions across the company (Figure 2). Although these initiatives were smart, many of the company's costs were hard to decrease and many times the company itself was unwilling to reduce them (reduced layoffs), resulting in a reduction of COGS of 36% and overall costs of 18% from 2019 to 2020, not being enough to counteract the decrease in revenues.

On the short run, to recover from the covid impact, Carnival's capacity will be reduced but they expect to fully fill this reduced capacity, relying on its high customer retention. The selloff of cruise ships and the decrease in overall capacity, will allow to have a structurally lower cost base since many of the cruise ships that were sold were somewhat inefficient. On the longer run Carnival expects to continue this trend by disposing of several smaller and less efficient ships and replace them with larger and more cost-effective ones¹. In this way, the sale of these ships is expected to lead to future operating expense reductions and decreases in fuel consumption of 1% per ship at the arrival of the new cruise ships, added to the already reduced 4% in 2019 in unit fuel consumption. Therefore, these new ships will not only allow Carnival to increase its capacity, consequently increasing its revenues, but also to reduce costs due to its increase efficiency.

Part of Carnival's long run strategy is to improve its environmental footprint and sustainability concerns, pushing forward by having 2030 goals and 2050 aspirations. These goals include: achieving 50% single use plastic item reduction by 2021, achieve 50% unit food waste reduction by 2030, implement global well-being standards by 2023 and achieve 40% carbon intensity reduction relative to 2008 baseline.

In order to check whether Carnival was making progress in some environmental Metrics, we downloaded information about the Greenhouse emissions per unit of sales, from 2014 to 2019. As displayed in Figure 3, Carnival was able to reduce the value of this metric by 20% for the period, trend that is expected to continue for the future as the company improves the efficiency of the fleet with the new ships coming in. Royal Caribbean has also been decreasing the value for Greenhouse Emission per unit of sales, however with a slightly slower decrease of 19% for the same period. Additionally, as previously mentioned, the reduction in fuel consumption per cruise ship will not only decrease Carnival's costs but also work as an environmental measure.

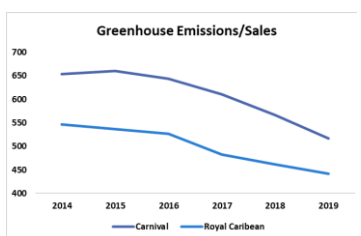


Figure 3: Comparison between Greenhouse emission per sales
Source: Bloomberg

Given the increasingly concern over the environment, with a worsening of the climate conditions in recent years consumers are weighting in more importance to this subject, and it will be vital for

¹ Carnival's 2020 Strategic Report and IFRS Financial Statements

the future that Carnival continues to undergo in such ESG practices if it's to maintain the current leadership position in the industry.

A big element on Carnivals Strategy is currently reserved to its liquidity. Since covid, the company decided to increase its liquidity ratios. With the company's main source of revenue being eliminated, the company understood it had to increase its liquidity in 2020 to support the losses it would have from 2021 forwards. As such, as of March 2020 the company raised \$19 billion through a series of transactions, ending with a cash and cash equivalents in 2020 of \$9,5 billion, representing an abnormal increase of 1736%.

Shareholder Structure



The ownership structure of Carnival is scattered across multiple institutions and individual investors, with the largest individual holdings being from Micky Arison, the company's Chairman, of 8.73%, and Investment Advisors holding 48.92%, as shown in the adjacent Figure 4.

Both Royal Caribbean and the Norwegian Cruise Lines present a similar shareholders structure where the individual shareholders present a small percentage and the majority is allocated to Investment Advisors, namely Vanguard and BlackRock.

As of March,30 2020 Carnival decided to suspend dividend payments on Carnival Corp common stock and ordinary shares of Carnival pls, therefore paying only \$689 million in cash dividends in 2020 related with the first 3 months of the year, compared to the \$1.4 billion paid in 2019. In midst 2020 Royal also opted for the decision to suspend dividend payments indefinitely (Figure 5).

Segments

Carnival Corporation has a portfolio of 9 cruise line brands, comprising 91 ships, operating across two main segments:

North America and Australia

This segment is the largest one of the company, as previously mentioned, accounting for 68% of the revenues in 2019 and owning 64% of the total fleet. This segment was also the one with the hardest hit with covid as the U.S. forbidden the industry to operate since the beginning of the pandemic until the summer of 2021. As such in 2020 it only generated \$3 779 million in revenues, a decrease of 73% regarding the previous year.

As it is observed in Figure 6, the attraction of this segment is also shared with the other cruise companies, accounting for 59% and 61% of the revenues of the Norwegian Cruise Line and Royal Caribbean in 2019, respectively. The relevance of this segment for the companies comes from its dimension since it is where most of the passengers embark, as the North America industry alone accounts for more than 50% of all the passenger embarking locations, with an annual growth of 7,5% from 2016 to 2019.

Carnival has 5 out of the 9 cruise lines operating in this segment and they are: Carnival Cruise Lines, Princess, Holland American Line, P&O Cruise Australia and Seabourn.

Carnival Cruise Line was the first of the company and is the most popular brand in the US regarding the cruising industry. With its 24 cruise ships it is known for its entertainment events,

Figure 4: Distribution of Carnival's shares Source: Bloomberg

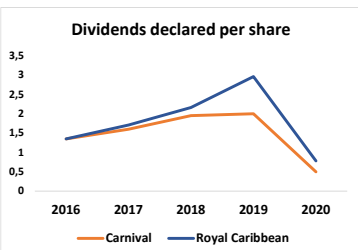


Figure 5: Comparison of dividends distribution, in \$ Source: Analyst estimates

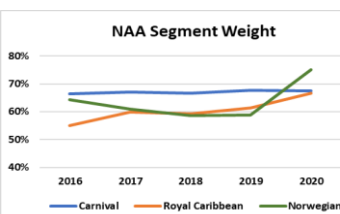


Figure 6: Historical NAA segment weights Source: Analyst estimates

such as stage shows, musical performances, deck parties, casinos and waterslides.

The Princess cruise line was designed to be a line of distinguished cruises, each with its signature feature, such as world class cuisine, with award winning chefs, live shows created by Broadway legends and its luxurious spas. Holland American Line, a small fleet of ten cruises, was designed to be a luxurious cruise line, well known for its superior service and exquisite cuisine that has led them to earn multiple awards. P&O Cruise Australia was designed as a small fleet specialized in Short Break cruises although also offering long cruise holidays. Lastly, Seabourn was designed to be an ultra-luxurious experience in their 5 all-suite cruise ships.

Europe, Asia and Australia

Although this segment is smaller than the North America and Australia, Carnival's revenues were of \$6 712 million in 2019 and of \$1 816 million in 2020. As observed in the adjacent Figure 7, the weight of the EA segment in both Carnival and Royal has been decreasing while Norwegian has been increasing. However, with covid, the Norwegian EA segment took a hard hit as its US sourced guests accounted for 83% of the revenues in 2020.

Comprising 4 out of the 9 cruise lines of the company, the segment had the other 37 cruises in 2019.

The Costa Crociere Group has two of the company's cruise lines, Costa Cruise Lines (Italy) and AIDA Cruises (Germany). It currently is the largest Italy's biggest tour operator and owns the largest fleet in Europe, with 26 ships with an overall capacity of 88 000 guests.

Cunard Cruises is a British cruise line, dating from 1840, operating a fleet of 5 ships that offer a high-quality British experience. P&O Cruises UK is currently one of the top players in the industry, inspired in the British lifestyle, including activities such as the afternoon tea.

Valuation

WACC, Cost of Equity and Cost of Debt

Starting with the cost of debt for Carnival, we commenced by finding the yield of long-term outstanding bond, that in our case matured in 15 of January of 2028, with a coupon of 6,65%, trading at a price of 103,089, that implies a Yield to Maturity of 6,06%. Using this value as a starting point we then proceeded to calculate the key variables: Probability of Default and Loss Given Default. For this purpose, we resorted to Moody's LGD Tables and resorted to Bloomberg to find the Annualized Probability of Default, given a Credit Rating of B1 of Carnival Corporation that are estimated to be 70% and 4,06%, respectively. Since the company bears no Corporate Taxes, we arrived at a Cost of Debt of 3,2%.

In order to determine the Cost of Equity of the company, as observed in table 15, we used the Capital Asset Pricing Model (CAPM). First, we retrieved historical stock prices for the company and of the S&P500 for the past 5 years, using monthly data. We used as a proxy for the risk-free rate the yield on a 10Y US Generic Government Bond (Bloomberg) that is equal to 1,31%. Regressing the Excess returns of Carnival against the ones of the S&P 500 we arrived at a levered Beta of 2,24, with a standard error of 0,36 and a 95% confidence interval of [1,78;3,23].

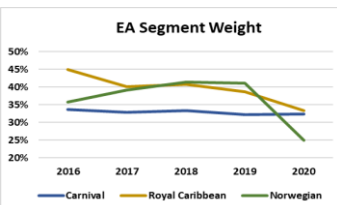


Figure 7: Historical EA Segment weights
Source: Analyst estimates

Market Risk Premium	5,0%
Risk Free Rate	1,31%
Beta Levered	2,24
Beta Unlevered	1,36
Target D/E Ratio	0,25
Beta_Relevered	1,61
50/50 Beta Weighting	1,56
Cost of Equity	9,13%
WACC	7,96%

Table 15: Inputs to estimate WACC
Source: Bloomberg, Analyst estimates

The Beta was then unlevered using the current Capital structure of the company that presents a D/E ratio of 89% in 2020, that resulted in an unlevered beta of 1,36. In order to consider our target Debt to Equity Ratio in our analysis, we re-levered this value using a target Debt to Equity Ratio of 25%, which is equal to the average ratios from the years prior to the Covid 19 Pandemic (which seriously affected this number). Altogether we arrived at a Re-Levered beta of 1,61.

Given the high standard error of our regression we decided to do a 50/50 weighting on the Beta from the regression against an industry average unlevered beta that was re-levered according to our target D/E ratio. We used data from Bloomberg to reach the Unlevered Betas for our top competitors, using the Raw Beta available to reach the Unlevered Beta according to each capital structure. This procedure yielded an average industry Unlevered Beta of 1,3. Relevering this number according to our target Debt to Equity Ratio of 25%, the industry average re-levered beta is equal to 1,52. Applying the 50/50 Weighting we get to Carnival Equity Beta of 1,56.

Additionally, to Compute the Cost of Equity, we used the risk-free rate mentioned above and considered a Market Risk Premium of 5% according to KPMG's Equity Market Risk Premium Research Summary (September 2021). Altogether we arrived at a Cost of Equity equal to 9,13%.

Given that we are assuming the company to converge to a Capital Structure similar to the years prior to the pandemic, with a D/E ratio of 25%, combined with a cost of equity of 9,13% and a cost of debt of 3,2% we reached an after-tax Weighted Average Cost of Capital of 7,96%.

DCF Model

The main model used to value Carnival's Corporation was the DCF model, for the period between 2020 and 2037, from that year onwards it's estimated a stabilization of the core result for the company. During this period the sum of the discounted cashflows from the core business totalled \$62,8 billion. At the same time, the RONIC equals 23% in 2037, figure that has been decreasing during the estimation period although still larger than the ROIC which totalled 12,7% in the same year.

Regarding the Terminal Value of the company in 2037, a perpetuity was calculated, that assumes a steady state growth rate of the cash flows of the company of approximately 1,28%. Following that calculation, we arrived at a value of \$33,26 billion from the perpetuity formula, equivalent to approximately 53% of the value of the estimated core value of the company.

Looking at the Non-Core side of the business, we are assuming the corresponding book value of \$-1,4 billion which leads to a total Enterprise value of \$61,7 Billion. The Net Debt for Carnival is assumed to be equal to the estimated book value at December 2022 of \$27,6 billion. All together the estimated equity value at that date is approximately equal to \$34,1 billion. Given the 1,134 billion of outstanding shares, the target share price is equal to \$30,10, way above the current \$17,41 implying a capital gain of \$12,69 per share held. Since Carnival suspended dividend payments during the year of 2020 and 2021, we believe that it will also be the case for 2022, which will then be further compensated in the future, in such a way that the average payout ratio for the period between 2029 and 2037 to average 75% (Close to the historical average). Therefore, the total per share capital gain expected from holding the stock will be \$12,19, corresponding to a return of 73% for the period.

Sensitivity Analysis

In order to assess some of the key risks underlying our valuation assumptions we performed a sensitivity analysis on some key variables to isolate their impact on the Target Share Price. The first set of scenarios we analysed were for different values for the Cost of Equity and Cost of Debt since these variables are somewhat challenging to predict correctly.

		Cost of Equity						
		30,10	8,1%	8,4%	8,8%	9,1%	9,5%	9,8%
Cost of Debt	1,5%	43	39	36	33	31	28	26
	1,8%	42	38	35	33	30	28	26
	2,2%	41	38	35	32	29	27	25
	2,5%	40	37	34	31	29	27	25
	2,9%	39	36	33	31	28	26	24
	3,2%	38	35	33	30,1	28	26	24
	3,6%	38	35	32	30	27	25	23
	3,9%	37	34	31	29	27	25	23
	4,3%	36	33	31	28	26	24	23

Table 16: Sensitivity Analysis with inputs of Cost of Equity and Cost of Debt
Source: Bloomberg, Analyst estimates

From the table 16 is possible to infer that the Cost of Equity is the one with the most impact in the final Share Price, which intuitively makes sense given our target Debt-to-Equity Ratio of 25%, which attributes more weight to the Cost of Equity in the WACC calculations. For example, given an approximate 1 percentage point decrease in this variable increases the share price by 26% to \$38 from \$30. From the same decrease in the cost of Debt, the share price only increases by around 6% to \$32, from \$30. The conclusion from this analysis is that our valuation can be subject some degree of uncertainty given that the Cost of Equity is very dependent on the Market Risk Premium being used, which is a variable very much subject to debate across economists and therefore subject to variation.

		Market Risk Premium						
		30,10	4,0%	4,5%	5,0%	5,5%	6,0%	6,5%
Long Term Growth Rate	0,8%	40	33	28	24	20	17	15
	1,0%	42	35	29	25	21	18	15
	1,3%	44	36	30,1	25	21	18	16
	1,5%	46	38	31	26	22	19	16
	1,8%	48	39	32	27	23	19	17
	2,0%	50	41	34	28	24	20	17
	2,3%	53	43	35	29	25	21	18
	2,5%	56	45	37	30	25	21	18

Table 17: Sensitivity Analysis with inputs of Market Risk Premium and Long-term Growth Rate
Source: Bloomberg, Analyst estimates

This leads us to the second set of variables used to perform a sensitivity analysis: The Market Risk Premium and the long-term growth rate of the company. From the table displaying different scenarios we identify that both variables display a significant impact in the target share price. The choice of analysing the impact of the long-term growth rate comes from the fact that this variable is subject to some margin of error given the large time span being considered, which opens room for unpredictable events in such period. It's possible to conclude from the analysis that a small change in the growth rate can have large impacts on the share price, for example, an approximate

1 percentage point increase in this variable leads to an increase in the share price by more than 16%, that highlights the importance of correctly estimating the long-term growth rate. Regarding the MRP, we chose to include it in our analysis since this a metric subject to debate and that has varied considerably over time. For example, according to KPMG's Equity Market Risk Premium – Research Summary (2021), the value for the MRP in the Q3 of 2020 (approximately 1 year ago) was equal to 6,75%, against the current estimate of 5%. From the information in the table, we see that an increase of 1,5 percentage point of the MRP to 6,5% (close to the 2020 estimate), decreases the share price by more than 40%, which is a huge difference that can actually materialize given the unexpected change in market conditions like the ones we saw with Covid in 2020.

CARNIVAL CORPORATION & PLC

SERVICE SECTOR: CRUISE INDUSTRY

JOÃO CASTRO & MARGARIDA PONTE

COMPANY REPORT

17 DECEMBER 2021

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Valuation of Carnival Corporation

The post-Covid of the biggest company in the cruise industry

- Carnival is the largest player operating in the cruise industry, with a 43% market share in 2019.
- The company suffered huge losses with the economic slowdown caused by the appearance of the Covid 19, namely with revenues decreasing by 73% and EBITDA by 220%, which are only expected to return to previous levels by 2024.
- Carnival is expected to grow revenues at a CAGR of 9% from 2022-2037, associated with strong revenue growth in 2023 and 2024 as the company recovers from the pandemic. Revenue growth will stabilize around 2% for the year of 2034 onwards.
- In order to increase its capacity and reduce the average age of its fleet, Carnival has been disposing of older and smaller cruise ships and replacing them with more cost efficient ones, namely in terms of fuel consumption.
- Although Carnival has the highest market share in the industry in terms of passengers carried, its competitors are becoming more and more dominant with superior growth rates and profit margins, that can affect the company's market share in the future.

Company description

Carnival Corp, an American company created in 1972, together with two other companies hold 74% of the cruising industry market share, making it hard for new cruise companies to thrive. Through many M&A's Carnival was able to develop a fleet of 9 cruise lines that operates worldwide, assuring its presence in every major port.

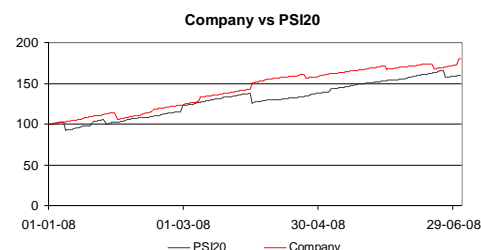
Recommendation: BUY

Price Target FY21: 30.10\$

Price (as of 15-Dec-21) 17.41 \$

52-week range (€)	16.32-31.52
Market Cap (€m)	19.844
Outstanding Shares (m)	1134

Source: Bloomberg



Source: Bloomberg

(Values in € millions)	2019	2020E	2021F
Revenues	20825	5595	1644
EBITDA	5437	-6624	-4613
Net Margin	15%	-158%	-419%
Net Profit	2873	-9606	-7695
Market Cap	34347	23066	-
EPS	4.46	-9.79	-6.78
P/E	10.1	-	-
ROIC	9%	-23%	-17%

Source: CCL Financial Statements and Bloomberg

THIS REPORT WAS PREPARED EXCLUSIVELY FOR ACADEMIC PURPOSES BY JOÃO CASTRO AND MARGARIDA PONTE, A MASTER IN FINANCE STUDENT OF THE NOVA SCHOOL OF BUSINESS AND ECONOMICS. THE REPORT WAS SUPERVISED BY A NOVA SBE FACULTY MEMBER, ACTING IN A MERE ACADEMIC CAPACITY, WHO REVIEWED THE VALUATION METHODOLOGY AND THE FINANCIAL MODEL. (PLEASE REFER TO THE DISCLOSURES AND DISCLAIMERS AT END OF THE DOCUMENT)

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1.Executive Summary

Carnival has been the leading Cruise company in the world with a total market share of 43% in 2019, in terms of passengers. Together with Royal Caribbean and Norwegian Cruises they control around 74% of the market, making the cruise industry very consolidated. This characteristic makes the entrance of new players challenging, due to high capital requirements and customer loyalty.

In the years prior to the Covid pandemic, Carnival was growing at a CAGR of 8% (between 2016 and 2019), however in the year of 2020 the Company’s revenues plummeted by over 70%, below the industry average of 87%. This sharp decrease in revenues across the industry was due to the complete shutdown in operations for up to a year.

Nonetheless, the company’s revenues are expected to return to pre-covid values in 2024 and grow at a CAGR of 9% for the period of our analysis, due to strong growth in the first few years, associated with the recovery period, stabilizing around 2% from 2037 onwards. This positive outlook was reflected on the high pre-booking values in the industry and relative unwillingness from customers recover their deposits, opting instead for postponing the trips that were cancelled.

Prior to the Covid outburst, the company had a share price equal to \$51,9 (December 2019), corresponding to a market capitalization of \$34,92 billion, which sunk to \$6 billion in under three months with a 85% drop in the share price to \$7,97. The market capitalization is expected to return to \$34,1 billion in 2022 with a share price of \$30,10.

2.Company Overview

Company Description

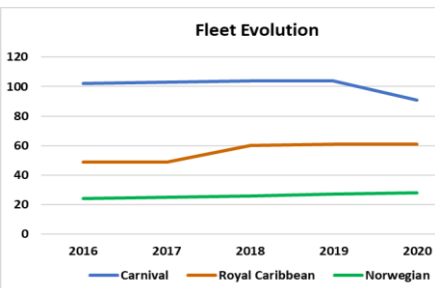


Figure 1: Industry fleet evolution
Source: Analyst estimates

Founded in 1972 by Ted Arison, Carnival Corporation & plc is now the biggest cruise company with 43% of the market share in 2019, in terms of passengers carried. Headquartered in Miami, Carnival operates a fleet of 91 ships throughout the North America and Australia (NAA) and Europe and Asia (EA) segments (Figure 1). The company is known for offering more affordable prices than its competitors, with its reputation being built around affordable cruises for many families. Being the biggest company in the industry is also reflected in the number of cruise ships the company operates as its two main competitors, Royal Caribbean and Norwegian Cruise Lines, have only 61 and 28 cruises in their fleet, respectively. Previous to Covid 19, the company was operating in up to 700 ports

around the world and carrying up to 13 million guests per year, amounting to the most passengers across their competitors (discussed further ahead).

Carnival's biggest and most profitable segment is the NAA, accounting for 68% of the revenues in 2019 and 75% of the operating income of the same year, values that have remained constant over the last 5 years as shown in Table 1. With 67 ships in 2019, this segment had almost 63% of the total guests carried by the company in comparison with the 37 ships allocated to the EA segment. Not only is NAA the biggest segment but is also the one with the highest revenue growth, having an CAGR of 10% from 2017 to 2019 with EA segment only having a CAGR of 8% (Table 2).

Carnival revenues comes from two different main sources, either from Passenger Tickets or from Onboard and Other. The passenger tickets account as their main source of revenue, generating 68% of the total revenues in 2019.

Carnival's competitors rely more on the ticket sales rather than in Onboard and Other, accounting for 70% of revenues in the Norwegian Cruise and 72% in the Royal Caribbean. Nonetheless, these two competitors are able to have higher CAGR's in these Revenues than Carnival between 2017 and 2019, with respectively, 9,8% and 11,6% Ticket Revenue growth, when compared to Carnival's 4,4% (Table 4, 6 and 7).

The account Onboard and Other includes the gains from all sales during the cruises such as beverage sales, casino gaming and shore excursions. Although the Onboard and Other revenues accounted for only 36% of the total revenues in 2019 this source of revenue is becoming increasingly important as shown by a CAGR of 8%, from 2017 to 2019 (excluding the increase in 2019 due to the new accounting policies) while the ticket revenues only obtained a CAGR of 4% in the same years (Table 4). Part of the superior growth in the Onboard Revenues is coming from the introduction of Bundles sold to customers, a fixed prepaid price that includes both the ticket and a certain amount of credit to spend in the Cruise. This strategy has had great success across the industry, mainly in increasing the total spending of customers.

Regarding its peers, the Onboard Revenues of Norwegian and Royal Caribbean had, respectively, CAGR's of 8,7% and 12%, much higher values than Carnival (Table 5,6 and 7). Royals edge regarding Onboard revenues comes from their strategic investment in onboard projects, mainly from bundling tickets, beverage package sales, gaming initiatives and new strategies and promotions on the shore excursions.

Segment Weights	2016	2017	2018	2019	2020
NAA	66%	67%	67%	68%	68%
EA	34%	33%	33%	32%	32%

Table 1: Carnival segments dimension
Source: Analyst estimates

Revenue Growth	2017	2018	2019	2020
NAA Segment	8%	7%	12%	-73%
EA Segment	4%	9%	7%	-73%
Total Carnival	7%	8%	10%	-73%
Cruise sector average	6%	10%	3%	-88%

Table 2: Carnival's segment growth
Source: Analyst estimates

Ticket Revenues	2017	2018	2019
Carnival	12 944	13 930	14 104
Growth %	-	8%	1%
Norwegian	3750	4260	4517
Growth %	-	14%	6%
Royal Caribbean	6313	6793	7857
Growth %	-	8%	16%

Table 3: Growth evolution in Ticket Revenues, in million \$
Source: Analyst estimates

Carnival	2017-2019
CAGR(Ticket)	4,4%
CAGR (Onboard)	8,0%
CAGR (Total Revenues)	5,3%

Table 4: decomposition of revenues CAGR from Carnival
Source: Analyst estimates

Onboard Revenues	2017	2018	2019
Carnival	4 566	4 950	6 721
Growth %	-	8%	36%
Norwegian	1646	1795	1945
Growth %	-	9%	8%
Royal Caribbean	2465	2701	3094
Growth %	-	10%	15%

Table 5: Growth evolution in Onboard Revenues, in million \$
Source: Analyst estimates

Royal Caribbean	2017-2019
CAGR (Onboard)	12,0%
CAGR (Ticket)	11,6%
CAGR (Total Revenues)	11,7%

Table 6: decomposition of revenues CAGR of Royal
Source: Analyst estimates

Norwegian Cruises	2017-2019
CAGR (Onboard)	8,7%
CAGR (Ticket)	9,8%
CAGR (Total Revenues)	9,4%

Table 7: decomposition of revenues CAGR of Norwegian
Source: Analyst estimates

Market Share	2016	2017	2018	2019
Carnival	43%	45%	44%	43%
Norwegian	9%	9%	10%	9%
Royal	22%	22%	21%	22%

Table 8: Historical evolution of the Market Share
Source: Analyst estimates

As such although Carnival has been able to have a good growth YoY, its peers, especially Royal Caribbean, are outperforming the company, which could lead Carnival to lose part of its market share in the future. Nonetheless, as we can see from Table 8, the Market Share of the three main companies, regarding total passengers carried, has been relatively steady.

Carnival’s reputation has been impacted by the industry’s constant incidents onboard like fires and diseases outbursts. Although most disasters did not have big consequences, in 2012 Carnivals’ ship Costa Concordia struck a reef on the shores of Italy sinking the ship and killing 32 people. The costs associated with the removal of the cruise ship alone were around 1.2 billion dollars and in the time frame of a month the share price decreased by 12%. Although no event of this dimension happened on a Carnival cruise again, several people have died during these trips, either due to fires or lack of security, and each time these incidents occur it reflects poorly on the share price.

The first corona outburst in a cruise happened in Carnivals’ cruise Diamond Princess in late January 2020. Four weeks after discovering the first positive onboard there were 355 positive cases and in total the cruise had more than 700 cases and 14 deaths, some while onboard. Shortly after, in February, the company decided to carry on its voyages and in Carnival’s cruise Grand Princess 100 passengers and members became ill and two passengers died. This outburst aligned with global fear of covid led Carnival share to drop by 27%, almost 14 dollars, in the time frame of the accident, approximately over 1 month. During this time its peers share price also dropped with Norwegian Cruise decreasing 29% and Royal Caribbean by 28%.

Strategy

During Covid the company’s main strategy was to minimize costs to dampen the lack of revenues, since it suffered a reduction of 73% from 2019 to 2020. As such, the main measures consisted of transitioning ships into pause status, reducing marketing and selling expenses and implementing a combination of layoffs, furloughs, reduced work weeks and salary and benefit reductions across the company (Figure 2). Although these initiatives were smart, many of the company’s costs were hard to decrease and many times the company itself was unwilling to reduce them (reduced layoffs), resulting in a reduction of COGS of 36% and overall costs of 18% from 2019 to 2020, not being enough to counteract the decrease in revenues.

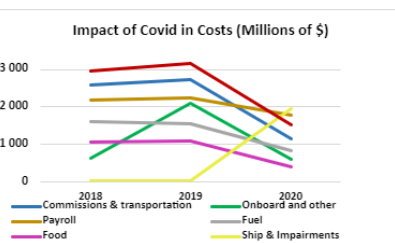


Figure 2: Impact of Covid in Carnival's costs, in million \$
Source: Analyst estimates

On the short run, to recover from the covid impact, Carnival's capacity will be reduced but they expect to fully fill this reduced capacity, relying on its high customer retention. The selloff of cruise ships and the decrease in overall capacity, will allow to have a structurally lower cost base since many of the cruise ships that were sold were somewhat inefficient. On the longer run Carnival expects to continue this trend by disposing of several smaller and less efficient ships and replace them with larger and more cost-effective ones¹. In this way, the sale of these ships is expected to lead to future operating expense reductions and decreases in fuel consumption of 1% per ship at the arrival of the new cruise ships, added to the already reduced 4% in 2019 in unit fuel consumption. Therefore, these new ships will not only allow Carnival to increase its capacity, consequently increasing its revenues, but also to reduce costs due to its increase efficiency.

Part of Carnivals long run strategy is to improve its environmental footprint and sustainability concerns, pushing forward by having 2030 goals and 2050 aspirations. These goals include: achieving 50% single use plastic item reduction by 2021, achieve 50% unit food waste reduction by 2030, implement global well-being standards by 2023 and achieve 40% carbon intensity reduction relative to 2008 baseline.

In order to check weather Carnival was making progress in some environmental Metrics, we downloaded information about the Greenhouse emissions per unit of sales, from 2014 to 2019. As displayed in Figure 3, Carnival was able to reduce the value of this metric by 20% for the period, trend that is expected to continue for the future as the company improves the efficiency of the fleet with the new ships coming in. Royal Caribbean has also been decreasing the value for Greenhouse Emission per unit of sales, however with a slightly slower decrease of 19% for the same period. Additionally, as previously mentioned, the reduction in fuel consumption per cruise ship will not only decrease Carnival's costs but also work as an environmental measure.

Given the increasingly concern over the environment, with a worsening of the climate conditions in recent years consumers are weighting in more importance to this subject, and it will be vital for the future that Carnival continues to undergo in such ESG practices if it's to maintain the current leadership position in the industry.

A big element on Carnivals Strategy is currently reserved to its liquidity. Since covid, the company decided to increase its liquidity ratios. With the company's main source of revenue being eliminated, the company understood it had to increase its liquidity in 2020 to support the losses it would have from 2021

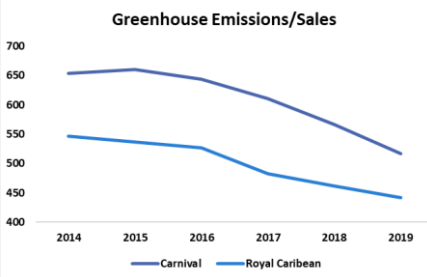


Figure 3: Comparison between Greenhouse emission per sales
Source: Bloomberg

¹ Carnival's 2020 Strategic Report and IFRS Financial Statements

forwards. As such, as of March 2020 the company raised \$19 billion through a series of transactions, ending with a cash and cash equivalents in 2020 of \$9,5 billion, representing an abnormal increase of 1736%.

Shareholder’s Structure

The ownership structure of Carnival is scattered across multiple institutions and individual investors, with the largest individual holdings being from Micky Arison, the company’s Chairman, of 8.73%, and Investment Advisors holding 48.92%, as shown in the adjacent Figure 4.

Both Royal Caribbean and the Norwegian Cruise Lines present a similar shareholders structure where the individual shareholders present a small percentage and the majority is allocated to Investment Advisors, namely Vanguard and BlackRock.

As of March,30 2020 Carnival decided to suspend dividend payments on Carnival Corp common stock and ordinary shares of Carnival pls, therefore paying only \$689 million in cash dividends in 2020 related with the first 3 months of the year, compared to the \$1.4 billion paid in 2019. In midst 2020 Royal also opted for the decision to suspend dividend payments indefinitely (Figure 5).

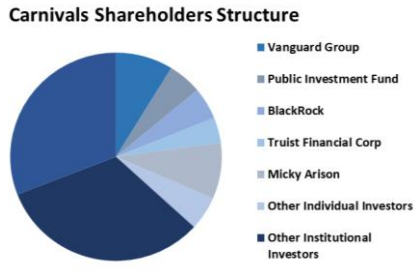


Figure 4: Distribution of Carnival’s shares
Source: Bloomberg

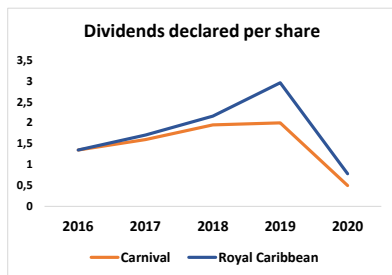


Figure 5: Comparison of dividends distribution, in \$
Source: Analyst estimates

Segments

Carnival Corporation has a portfolio of 9 cruise line brands, comprising 91 ships, operating across two main segments:

North America and Australia

This segment is the largest one of the company, as previously mentioned, accounting for 68% of the revenues in 2019 and owning 64% of the total fleet. This segment was also the one with the hardest hit with covid as the U.S. forbidden the industry to operate since the beginning of the pandemic until the summer of 2021. As such in 2020 it only generated \$3 779 million in revenues, a decrease of 73% regarding the previous year.

As it is observed in Figure 6, the attraction of this segment is also shared with the other cruise companies, accounting for 59% and 61% of the revenues of the Norwegian Cruise Line and Royal Caribbean in 2019, respectively. The relevance of this segment for the companies comes from its dimension since it is where most of the passengers embark, as the North America industry alone accounts for more

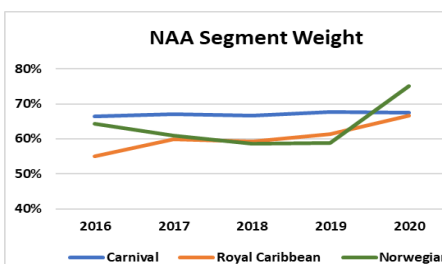


Figure 6: Historical NAA segment weights
Source: Analyst estimates

than 50% of all the passenger embarking locations, with an annual growth of 7,5% from 2016 to 2019.

Carnival has 5 out of the 9 cruise lines operating in this segment and they are: Carnival Cruise Lines, Princess, Holland American Line, P&O Cruise Australia and Seabourn.

Carnival Cruise Line was the first of the company and is the most popular brand in the US regarding the cruising industry. With its 24 cruise ships it is known for its entertainment events, such as stage shows, musical performances, deck parties, casinos and waterslides.

The Princess cruise line was designed to be a line of distinguished cruises, each with its signature feature, such as world class cuisine, with award winning chefs, live shows created by Broadway legends and its luxurious spas. Holland American Line, a small fleet of ten cruises, was designed to be a luxurious cruise line, well known for its superior service and exquisite cuisine that has led them to earn multiple awards. P&O Cruise Australia was designed as a small fleet specialized in Short Break cruises although also offering long cruise holidays. Lastly, Seabourn was designed to be an ultra-luxurious experience in their 5 all-suite cruise ships.

Europe and Asia

Although this segment is smaller than the North America and Australia, Carnival’s revenues were of \$6 712 million in 2019 and of \$1 816 million in 2020. As observed in the adjacent Figure 7, the weight of the EA segment in both Carnival and Royal has been decreasing while Norwegian has been increasing. However, with covid, the Norwegian EA segment took a hard hit as its US sourced guests accounted for 83% of the revenues in 2020.

Comprising 4 out of the 9 cruise lines of the company, the segment had the other 37 cruises in 2019.

The Costa Crociere Group has two of the company’s cruise lines, Costa Cruise Lines (Italy) and AIDA Cruises (Germany). It currently is the largest Italy’s biggest tour operator and owns the largest fleet in Europe, with 26 ships with an overall capacity of 88 000 guests.

Cunard Cruises is a British cruise line, dating from 1840, operating a fleet of 5 ships that offer a high-quality British experience. P&O Cruises UK is currently one of the top players in the industry, inspired in the British lifestyle, including activities such as the afternoon tea.

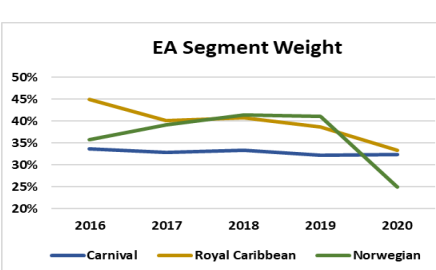


Figure 7: Historical EA Segment weights
Source: Analyst estimates

3.The Cruise Industry and Economic Overview

Industry Overview

Covid 19 and the state of the Industry :

The cruise industry was reaching all time high levels in 2019 (Figure 8), with Carnival and its peers obtaining a revenue total of 38 238 million dollars, a growth of 11% in relation to 2018. The expected continuing growth of the industry was abruptly interrupted with Covid 19 when all cruise trips were forced to be cancelled. With only a few operational months in 2020, the three main competitors of the industry lost a total of revenues of 29 billion dollars, equalling a decrease of 76% in the revenues from 2019 to 2020. Due to this, the industry is only expected to fully recover from this downturn by 2024, period in which the industry revenues are expected to return to pre-Covid levels.

The substantial impact of Covid 19 was reflected on the severe price penalties in financial markets. The top players in the industry lost on average 58% of their stock prices, including Carnival which was penalized by 60%. As observed in the Figure 9, the price drop occurred right after the worldwide expansion of covid and most of the down-falls afterwards were related with it.

Despite the impact that the virus had on Cruise Guest operations, many of the customers who had their trips cancelled, foregone their right to receive refunds for their money. For example, in 2020 approximately half of Carnival's and Royal Caribbean customers with cancelled trips opted for postponing them instead, which helped Cruise lines to keep their business afloat. This also came as good news for the cruising companies as it meant that travellers felt safe to travel during covid times and demand would not decrease.

Due to the high impact the covid 19 was having on the companies the US decided to issue a 2 trillion dollars stimulus package design to help these companies, however the major cruise lines were not included in this package. The explanations for this exclusion were that, although the company's headquarters where in the US, they were tax exempt as they were incorporated in other countries. As such, they didn't comply with the requirements to be covered by the package of not being "created or organized in the United States and under the laws of the United States". Although the governmental help would be beneficial for these major cruise companies, the amount they save in tax redemptions is higher than the help they would get, making it worthy to stay incorporated in Panama, Liberia and Bermudas

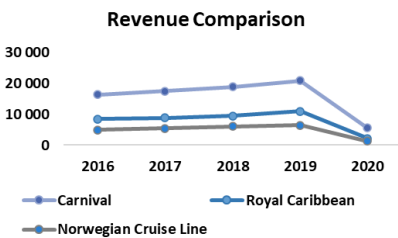


Figure 8: Historical Revenue comparison
Source: Analyst estimates

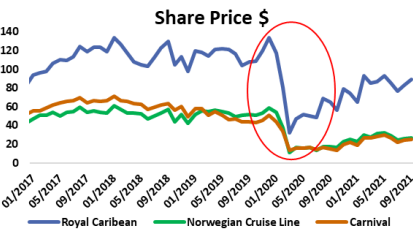


Figure 9: Share price evolution of industry competitors
Source: Bloomberg

instead of getting the governmental help². From 2017 onwards the U.S. federal corporate income tax rate became a flat 21%, however adding the top state tax the average net effective rate becomes 27%³. As such, if Carnival was incorporated it would have lost 826,2 million dollars in 2019 and an average of \$804 million per year, since 2017. Although there are no numbers to how much the stimulus from the government would have been, it is very unlikely that it would be profitable to Carnival as changing into an utterly US company would mean a very high annual loss in taxes that would be incurred for several years.

The biggest geography in the three main cruise companies, the US, was the last to open its doors to the cruise industry. With the European cruises set to resume its activities in April 2021 the cruising industry was able to resume their activities in most of the world but the US. Being that about 68% of Carnival revenues, 59% of Norwegian and 61% of Royal Caribbean came from the US, in 2019, the cruise companies were still lacking its main source of revenues. Following this line of events, Florida's Governor filed a lawsuit against the Biden administration, the CDC and the US Department of Health and Human Services⁴. Due to this uprising the US allowed to resume the industry's activity, for the first time since covid, latter that summer however with many additional safety measures such as a fully vaccination of an DFA approved covid vaccine of passengers and crew members.

Industry trends:

Before the recent pandemic the Cruise Industry growth was coming to a halt, with both passenger volume and revenues growing less than 5% per year. In order to tackle these challenges, many players in the industry started to implement some new technological features onboard the ships they operate, as a way to diversify their aging customer base (the average cruise passenger is almost 50 years old). Royal Caribbean, one of the pioneers in adding these features, has introduced some technological elements to their onboard experience, such as bionic bars with robotic bartenders, floor to ceiling glass windows that are transformed into a digital canvas and skydiving simulators.

Following the same rational, with younger consumers also comes more environmental awareness, as the new generation are more responsible in this matter, which is forcing the cruise industry to evolve in this direction. According to the Cruise Lines International Association (CLIA), a 40% rate of reduction in carbon emissions by 2030 compared to 2008 was implemented throughout the industry,

² Aspan, Maria. 2020. "After missing US bailout Carnival cruises CEO remains loyal to Panama". Fortune, October 2021.

³ KPMG- Corporate Tax Rates Table

⁴ Fedor, Lauren and Hancock, Alice. 2021. "Florida governor says he will sue to restart US cruise ships". Financial Times, October 2021.

49% of the new capacity in order will rely on Liquefied Natural Gas for primary propulsion and a total of \$23,5 billion were already invested in ships with new technologies and cleaner fuels to reduce carbon emissions⁵.

Adding to all the previously mentioned strategies, the cruise industry is expecting a natural increase of demand in the future as three factors are leading up to this. First, the world population is increasing, meaning an increase in possible achievable demand. Secondly, the shift of the new generations towards experience-related services rather than physical goods. Lastly, the increase in overall expending compared to the previous generations.

As Baby Boomers and Millennials start to age, these generations are starting to enter the target age of the cruise industry and already account for about 60% of the world cruise passengers. Being that these generations have a much higher population density than its previous generations, the achievable demand increases as there are more people reaching the average passenger age of 47. In the U.S. alone the number of baby boomers surpassed by almost 62% the number of the silent generation, by around 29 million people, and the millennials surpassed the same generation by 54%, having around 72,6 million people.

Additionally, these generations are leading the trend of expending more on experiences and service-related costs than in goods. In the US, from 2014 to 2019 the average annual growth of personal-consumption-expenditure increased by 7,3% in the foreign travel services (which includes spending on cruise activities) while the total goods expenditure only increased by 3% (Graph 10). As such, this shift into experience related services allows the cruise industry to reach new and younger customers.

The last effect is the increase in overall spending. According to Mckinsey, at a global level, the middle-class expending will triple until 2030⁶. With this increase in overall spending, the cruise industry will have a higher range of population that can afford their services, meaning a higher possible demand.

Furthermore, according to MSC Cruises’ General Director in Portugal⁷, the cruise industry only represents around 2% of the total Vacations industry, with its main substitute being Resorts, leaving much room for growth in the cruise industry.

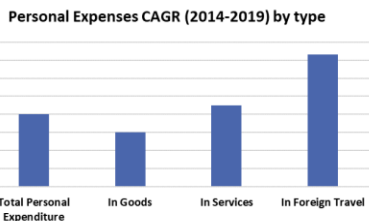


Figure 10: Personal Consumption expenditure growth detailed
Source: US Bea, Analyst estimates

⁵ Cruise Line International Association- “State of the cruise industry outlook 2021”
⁶ McKinsey. 2015. “The consumer sector in 2030: Trends and questions to consider”.
⁷ Pereira Santos, Sónia. 2021. “MSC Cruzeiros investe 6800 milhões em mais navios até 2025”. Dinheiro Vivo.

Competitive/Comparables Analysis

In 2019 the main industry players were Carnival, with a 43% market share, Royal Caribbean Cruises, with 22% of the market share and Norwegian Cruise Line, with 9% market share, leaving the last 26% to smaller companies.

Regarding cumulative returns, Royal Caribbean presents a superior value of 2.54 in 09/2021 relative to its peers. As observed in the Figure 11, Royal Caribbean has had a constant advantage regarding its competition with Carnival displaying a lower cumulative return than its main competitors.

As the cruise industry had no means of getting revenues it had to resort to debt to survive. However, with this industry getting in trouble its credit ratings also took a hit, making it more expensive to obtain the required fundings. For example, since Covid, Carnival’s rating declined from an A- in 3/2020 to a B in 11/2020, passing from a good investment to a risky company, according to the S&P ratings. At the same time, from 3/2020 to 2/2021, Royal Caribbean decreased its ratings from BBB- to B⁸.

This increase in debt was shown in the high increase in cash and cash equivalent the main cruise companies had, with an industry average increase on this account of 1451%. Although this liquidity was necessary by the companies to keep operating it forced them to accept much higher interest rates than normal. This increase led Carnival to spend more than 985 million dollars in 2020 in net interests during that year while Royal spent over 418 million and Norwegian spent 482 million. Nonetheless, even if this debt helps the companies on the short term, the unusual high interest will most likely force the company to undergo on some refinancing activities in the near future.

Revenues and Cost Structure:

By analysing the main financial components of the largest groups in the industry, we see that they present a very similar structure on various levels. In terms of Revenues, as previously mentioned, Carnival is the one with the largest values within the three, however it presents the lowest annual growth of 9%, even with the new accounting policy, whereas Royal present the highest value of 12%.

Even though Carnival has been able to remain the largest cruise operator in terms of passengers carried (Table 9) and being able to increase its growth rate YoY prior to the Pandemic, it was the one with the lowest CAGR between 2017 and

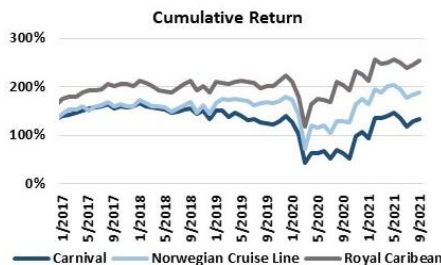


Figure 11: Historical cumulative returns
Source: Bloomberg, Analyst estimates

Passengers (millions)	2016	2017	2018	2019
Carnival	11,52	12,1	12,4	12,9
% growth		5%	2%	4%
Norwegian	2,34	2,52	2,80	2,70
% growth		8%	11%	-4%
Royal	5,78	5,77	6,08	6,54
% growth		0%	5%	8%

Table 9: Historical Evolution of number of passengers, in millions
Source: Analyst estimates

⁸ Rennison, Joe and Hancock, Alice. 2021. “The \$24 billion dash for cash that kept Carnival afloat”. Financial Times.

2019 of 3,3%. Once again, Royal surpassed its peers in terms of growth and had a value of 6,5%.

Regarding the Cost Structure, Carnival is the one that presents the highest percentage of COGS in terms of Revenues, around 62% in 2019, which translates into the lowest margin of the top three players in the industry. Nonetheless, the margins in the industry don't present a great dispersion, as we will explain latter on.

Taking a closer look at why Carnival presents the lowest margin in the industry, we disaggregated the company's cost structure to identify where this discrepancy is coming from. Looking at Figure 12, the main costs accounts that are leading to weaker margins in 2019 are costs related with Other operating, commissions e payroll. The higher costs in terms of revenue of these accounts mean that the company could have a more efficient use of its resources to decrease its costs. However, the accounts we believe are more interesting to analyse and compare are the following.

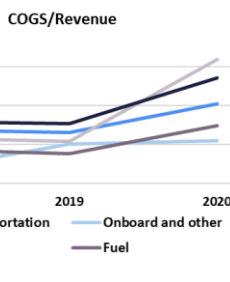


Figure12: Carnival's COGS per Revenue evolution
Source: Analyst estimates

The high percentage of Fuel costs in relation to revenues are associated with a relatively smaller efficiency of Carnival's fleet which at the time was still composed of many smaller and older ships that led to higher fuel consumptions when compared to the rest of the industry. To tackle this situation, and as was previously mentioned the company's strategy attributes a high importance to replacing these smaller and older ships by newer and more efficient ones with lower fuel consumptions, in such a way that the company is expecting to reduce the average age of its fleet to 12 years in 2022 from 13 years in 2019. In our model, we expect that these initiatives will reduce the percentage of fuel costs per revenues to 6,6% by 2037, value in line with its peers.

Other operating costs represent around 15% of Revenues in 2019, significantly higher than its peers (Norwegian as 9% of Revenues for this Account) that are associated with Port, Hotel, Repair and Maintenance costs. Although Carnival doesn't elaborate much on these types of costs, it seems to us that there is significant room for improvement. From our analysis one possible explanation for this discrepancy might be coming from the ownership of hotels, that our competitors do not have, and poor margins in this segment. In 2019, the Tour and Other segment (that include the Hotel Operations), presented a margin of 24%, which is below Carnival's overall EBITDA margin.

Regarding the Onboard and Other, the account had a substantial increase in its value from 2018 to 2019 due to accounting policy adjustments (ASC 206) in the same year which added over \$1billion dollars to both Onboard Revenues and

Onboard Expenses. Nonetheless, this change is expected to be long lasting and the 10% value of Revenues for this cost is expected to continue in the future.

These factors lead Carnival to have the lowest EBITDA margin, that stands around 26% of revenues in 2019, with the highest margin being of Royal Caribbean, with a value of 32%, which means that Carnival is not converting sales into actual profit as efficiently as the rest of the industry. Nonetheless, Carnival still presented the highest EBITDA, around \$5,4 billion, (Figure 13) value in absolute terms prior to the Covid 19 situation, as a result of significantly higher revenues. The low EBITDA value of Carnival comes, as previously mentioned, from the high COGS that lead to an overall decrease in the EBITDA. However, Carnival was the one with the highest EBITDA margin in 2020, with a decrease of 115% while Royal had a decrease of 146% and Norwegian of 213%.

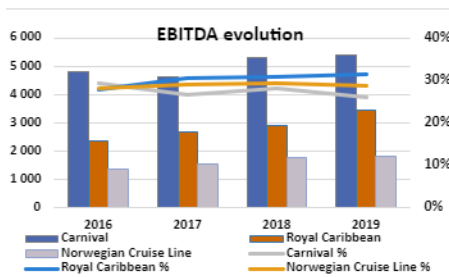


Figure 13: Historical EBITDA evolution, in million \$
Source: Analyst estimates

Investment Profitability Ratios:

In terms of Investment Profitability Ratios, the Cruise Industry average Return on Assets (ROA) stands close to 7% (Pre Covid), which is in line with the values of Carnival. The fact that the Cruising Industry is characterized by high capital needs in each year as a way to support revenue growth, is behind the relatively low values for this ratio, when compared to other industries that are less capital intensive. This ratio demonstrates how efficient the company is in using its assets

to generate results (either by increasing revenues or decreasing costs), this is, the result each unit of asset invested will create. As such, with an industry average of only 7% it is clear that this industry needs a high capital investment to generate results, meaning it need a lot of assets to generate results.

Carnival has a pre pandemic Asset Turnover of 46%, which is above the industry average of 42%, meaning that our company is demonstrating a higher efficiency than its peers in using its assets to generate revenues.

In terms of Return on Equity, Carnival presents a value of 12% in 2019, below the industry average of 15%.

Liquidity Ratios:

Throughout the industry the liquidity ratios are low except in 2020, as a response to covid 19. The current assets, on the industry average, only accounted as 0.19 of the current liabilities and cash only accounted for 0.06 of those. However, in 2020 the industry’s average current ratio was of 1.34 and the cash ratio reached 1.21 which translates into an overall strategy of the industry to increase liquidity

Profitability Ratios	Asset		
	Turnover	ROA	ROE
Carnival	46%	7%	12,0%
Royal Caribbean	38%	7%	16%
Norwegian Cruise Line	41%	6%	15%
Average	42%	7%	15%

Table 10: Profitability Ratios, average from 2017 to 2019
Source: Analyst estimates

Profitability Ratios	Asset		
	Turnover	ROA	ROE
Carnival	11%	-21%	-45%
Royal Caribbean	7%	-18%	-55%
Norwegian Cruise Line	7%	-23%	-74%

Table 11: Profitability Ratios from 2020
Source: Analyst estimates

Liquidity	Liquidity Ratios		
	Current Ratio	Quick Ratio	Cash Ratio
Carnival	0,22	0,11	0,07
Royal Caribbean	0,17	0,08	0,03
Norwegian Cruise Line	0,20	0,08	0,06

Table 12: Liquidity Ratios, average from 2017 to 2019
Source: Analyst estimates

mainly through cash. This strategy aims to keep the companies afloat while covid prevents the industry to generate revenues, as costs are still being incurred.

Regarding the Cash Conversion Cycle, the industry average is of -4 days in 2019, which means the companies are able to finance their daily operations without recurring to external sources for funds (ie financial debt). These values are explained by high average payable periods to suppliers of 22 days and relatively low collection periods of 10 days from customers. In 2020, the CCC increased by a considerable amount, with the average moving to positive values of 5 days, as a result of a huge increase in the average collection period from customers to 22 days. This meant that in 2020 the companies were not able to finance their day-to-day operations alone and had to recur to debt, which is consistent with the strategy of having higher liquidity to assure the ability to meet short term payment requirements.

Altogether, the low Cash Conversion Cycle is reflected on the relatively small liquidity ratios in 2019, which increased substantially in 2020, not from a fundamental change in the industry but from an external shock to the industry regular operations.

4.Value Drivers and Forecasting

To Forecast the Core results of the company we opted to forecast each account as a whole instead of forecasting the costs and revenues associated with each segment. This decision was based in the lack of information provided for each segment what could lead to a less accurate prediction of the company’s valuation. Adding to the lack of historical information relative to each segment came also the lack of information regarding the company’s predisposal of the evolution of each segment.

Revenues

Regarding the value drivers of the revenues our main ones are Average price paid per passenger and the Total number of passengers.

For the total number of passengers, we began to look at the key elements that explained the historical number of guests. We arrived at 4 variables: number of boats in operation, the occupancy rate of each boat, total capacity of the fleet and assumed a constant number of trips per boat of 49 per year. Given this information we arrived at a critical variable that is the average Capacity/boat/Trip, which we will use to forecast future passengers.

Liquidity	Current Ratio	Quick Ratio	Cash Ratio
Carnival	1,22	1,13	1,10
Royal Caribbean	0,95	0,87	0,81
Norwegian Cruise Line	1,86	1,74	1,72

Table 13: Liquidity Ratios from 2020
Source: Analyst estimates

Cash Conversion Cycle	2018	2019	2020
Carnival	-2	-2	5
Royal Caribbean	-11	-15	11
Norwegian Cruise Line	11	5	6

Table 14: CCC Historical evolution
Source: Analyst estimates

According to the information provided in the 2020 annual report and the third quarter 2021 earnings release we were able to estimate the number of passengers until 2025, as they expect capacity to grow at a 2,5% CAGR until 2025, which we believe it's too optimistic, and assumed a CAGR close to 1,9%. From then on, we gradually stabilized capacity growth until it reached a 1% CAGR from 2030 onwards. This increase in capacity comes from the acquisition (until 2025) of new and bigger boats that allow for an increase in capacity per boat.

Regarding the number of boats in operation, the company is expecting to have 50 boats operating in 2021, and that by June 2022 the company will have 71 ships (corresponding to 75% of the capacity). In 2023, we believe the company will be operating at full capacity, which yields a total of 95 ships in operation. From then on, we assumed a yearly growth rate for this variable that would eventually stabilize around 1% from 2030 onwards.

Looking at the occupancy rate of the ships in operation, from the information provided by the company that it would be of 29% in 2021 and 90% in 2022. From then onwards we assumed that capacity will equal the average of the years prior to the Covid 19 pandemic yielding a value of 106%. Regarding the number of trips, from 2022 onwards we assumed that the yearly number of trips would equal 49 forever as they kept this value constant for the last 4 years,

With the information derived above we now have the necessary information to estimate the expected the number of passengers for the period under analysis. Multiplying the total passenger capacity by the occupancy rate will give us such values.

Costs

Deepening in the COGS, the value drivers for Commissions, Transportation and Other are the number of passengers and the average commission price per passenger. To forecast this cost, we assumed an annual growth in the cost of commission per passenger of 2% until 2031 and assumed a steady value of 1% onwards and forecasted the number of passengers for the future years. In 2020 and 2021 the company decided to support its partners by protecting the commissions on sailings cancelled due to covid, meaning in those years the costs didn't decrease with the changes in its value drivers.

Following the same line of thought the value of the Onboard and Other costs will be the average onboard and other costs per passenger multiplied by the number

of passengers. In 2019 the value of this account increased a lot due to the adoption of the ASC 606 and is expected to maintain this high values onwards.

The costs related with payroll will depend on three variables: the number of boats in operation, the average number of employees per boat and the average payroll per employee. Given that the number of trips in each year is not a value provided by the company, we estimated it by dividing the total passengers carried in a given year by the total capacity of the company for 1 single trip, which yielded a consistent value of 49 trips per year, over the last 4 years. To forecast this account, we assumed the average payroll per employee would increase according to the weighted inflation in the US and Europe (where the company operates) and then assumed a steady growth of 2%. In the average employee per boat, we assumed a constant growth of 0,5% since the new boats have a higher capacity, meaning a higher need for employees per boat. Lastly the number of boats operating were calculated using the company's estimations of new boats bought/operating until 2025 and then reached a constant growth of boats of 1% a year in 2031.

The cost drivers that lead to the fuel costs can be broken down into the average fuel cost per boat and the number of boats. This way, by knowing the average fuel cost each boat takes it is only needed to multiply that value by the total number of boats in the fleet and the total fuel costs are obtained. To forecast the average cost of fuel per boat we assumed a growth in cost equal to the weighted expected inflation in the US and Europe, 2% which will be partially reduced by increasing efficiencies in fuel consumption equal to 1% per year, associated with the new ships coming in to the fleet.

The best way to forecast Selling and Administrative is through its percentage of revenues. As a starting point, we used the percentage of 2020 (33,6%), since 2021 will be a similar year in terms of Covid Restrictions. From that point onwards we converged this figure to values slightly lower than the average percentage of the last three years before the pandemic, since it's part of the company strategy to decrease marketing and selling costs in the long term.

Since Carnival is incorporated in Panama it has no statutory taxes, only some adjustments. Since these adjustments fluctuate it is best to forecast as an average of the previous years instead of assuming an annual growth.

Balance Sheet

The majority of the Assets accounts will be forecasted considering the historical average percentage of sales or assuming a percentual yearly growth on the

account. Since inventories are directly linked to expenses such as food, fuel and other accounts that are inside the COGS the forecast of the inventories will be based on the historical average percentage of those related COGS. Following the same line of thought, as Prepaid expenses are directly linked to the Commission, Transportation and Other costs they will be forecasted as a percentage of this account.

The PPE is one of the most important captions to forecast accurately since not only is the one with the most weight in the Assets (around 85%) of the company but also will incorporate the Yearly Capex needs. The company provides information on the yearly Capex needs from the current year until 2025. From that point onwards we will estimate it using two key variables. Given the fact that majority of new investments performed by the company are related to the purchase of new cruise ships, either to replace old ones or to expand their total capacity we will use the total number of ships already estimated in the Cost Section as a key variable to estimate this caption. The second one will be the historical average of Total PPE to the total number of Ships between 2020 and 2025.

Consequently, we are predicting each new ship to cost the company around \$700 million which is in line with our research for the cost of purchasing a new ship. For example, Carnival's new cruise ship "Mardi Gras" built in 2020, which has a total capacity of 5000 passengers costed the company around \$950 million. On average a cruise ship costs between \$400 million (with capacities ranging from 2000 to 3000 passengers) to \$1,1 billion (for capacities above the 5000 passengers) to build. However, the size of the ship was massive when compared to the average 3000 total passenger capacity of a regular Cruise, which justifies the higher price paid by the company. Therefore, our estimated cost of \$700 million per new ship added to the fleet is a reasonable one, since we are not expecting Carnival to consistently purchase ships of that magnitude but expect the new ships to be larger than the average, which coincides with our estimated increase in capacity for the future.

Furthermore, we then estimated Depreciation, with the same intuition, meaning that we assumed a yearly depreciation rate around the historical average and then added it to the accumulate depreciation of the previous year. This caption will then be subtracted from the total PPE to arrive at the Net Values that are presented in the company's annual report.

Regarding the estimation of Net Debt, in every year we set that the Net Debt should equal the difference between the total invested capital and the corresponding Equity for that year, in the case that the latter is lower than the Invested Capital. If

this is not the case, (ie Equity is larger than the Invested Capital) the difference will be allocated to the excess of cash.

5.Valuation

WACC, Cost of Equity and Cost of Debt

Starting with the cost of debt for Carnival, we commenced by finding the yield of long-term outstanding bond, that in our case matured in 15 of January of 2028, with a coupon of 6,65%, trading at a price of 103,089, that implies a Yield to Maturity of 6,06%. Using this value as a starting point we then proceeded to calculate the key variables: Probability of Default and Loss Given Default. For this purpose, we resorted to Moody’s LGD Tables and resorted to Bloomberg to find the Annualized Probability of Default, given a Credit Rating of B1 of Carnival Corporation that are estimated to be 70% and 4,06%, respectively. Since the company bears no Corporate Taxes, we arrived at a Cost of Debt of 3,2%.

In order to determine the Cost of Equity of the company, as observed in table 15, we used the Capital Asset Pricing Model (CAPM). First, we retrieved historical stock prices for the company and of the S&P500 for the past 5 years, using monthly data. We used as a proxy for the risk-free rate the yield on a 10Y US Generic Government Bond (Bloomberg) that is equal to 1,31%. Regressing the Excess returns of Carnival against the ones of the S&P 500 we arrived at a levered Beta of 2,24, with a standard error of 0,36 and a 95% confidence interval of [1,78;3,23]. The Beta was then unlevered using the current Capital structure of the company that presents a D/E ratio of 89% in 2020, that resulted in an unlevered beta of 1,36. In order to consider our target Debt to Equity Ratio in our analysis, we re-levered this value using a target Debt to Equity Ratio of 25%, which is equal to the average ratios from the years prior to the Covid 19 Pandemic (which seriously affected this number). Altogether we arrived at a Re-Levered beta of 1,61.

Given the high standard error of our regression we decided to do a 50/50 weighting on the Beta from the regression against an industry average unlevered beta that was re-levered according to our target D/E ratio. We used data from Bloomberg to reach the Unlevered Betas for our top competitors, using the Raw Beta available to reach the Unlevered Beta according to each capital structure. This procedure yielded an average industry Unlevered Beta of 1,3. Relevering this number according to our target Debt to Equity Ratio of 25%, the industry average re-levered beta is equal to 1,52. Applying the 50/50 Weighting we get to Carnival Equity Beta of 1,56.

Market Risk Premium	5,0%
Risk Free Rate	1,31%
Beta Levered	2,24
Beta Unlevered	1,36
Target D/E Ratio	0,25
Beta_Relevered	1,61
50/50 Beta Weighting	1,56
Cost of Equity	9,13%
WACC	7,96%

Table 15: Inputs to estimate WACC
Source: Bloomberg, Analyst estimates

Additionally, to Compute the Cost of Equity, we used the risk-free rate mentioned above and considered a Market Risk Premium of 5% according to KPMG's Equity Market Risk Premium Research Summary (September 2021). Altogether we arrived at a Cost of Equity equal to 9,13%.

Given that we are assuming the company to converge to a Capital Structure similar to the years prior to the pandemic, with a D/E ratio of 25%, combined with a cost of equity of 9,13% and a cost of debt of 3,2% we reached an after tax Weighted Average Cost of Capital of 7,96%.

DCF Model

The main model used to value Carnival's Corporation was the DCF model, for the period between 2020 and 2037, from that year onwards it's estimated a stabilization of the core result for the company. During this period the sum of the discounted cashflows from the core business totalled \$62,8 billion. At the same time, the RONIC equals 23% in 2037, figure that has been decreasing during the estimation period although still larger than the ROIC which totalled 12,7% in the same year.

Regarding the Terminal Value of the company in 2037, a perpetuity was calculated, that assumes a steady state growth rate of the cash flows of the company of approximately 1,28%. Following that calculation, we arrived at a value of \$33,26 billion from the perpetuity formula, equivalent to approximately 53% of the value of the estimated core value of the company.

Looking at the Non-Core side of the business, we are assuming the corresponding book value of \$-1,4 billion which leads to a total Enterprise value of \$61,7 Billion. The Net Debt for Carnival is assumed to be equal to the estimated book value at December 2022 of \$27,6 billion. All together the estimated equity value at that date is approximately equal to \$34,1 billion. Given the 1,134 billion of outstanding shares, the target share price is equal to \$30,10, way above the current \$17,41 implying a capital gain of \$12,69 per share held. Since Carnival suspended dividend payments during the year of 2020 and 2021, we believe that it will also be the case for 2022, which will then be further compensated in the future, in such a way that the average payout ratio for the period between 2029 and 2037 to average 75% (Close to the historical average). Therefore, the total per share capital gain expected from holding the stock will be \$12,19, corresponding to a return of 73% for the period.

Sensitivity Analysis

In order to assess some of the key risks underlying our valuation assumptions we performed a sensitivity analysis on some key variables to isolate their impact on the Target Share Price. The first set of scenarios we analysed were for different values for the Cost of Equity and Cost of Debt since these variables are somewhat challenging to predict correctly.

		Cost of Equity							
		30,10	8,1%	8,4%	8,8%	9,1%	9,5%	9,8%	10,2%
Cost of Debt	1,5%	43	39	36	33	31	28	26	
	1,8%	42	38	35	33	30	28	26	
	2,2%	41	38	35	32	29	27	25	
	2,5%	40	37	34	31	29	27	25	
	2,9%	39	36	33	31	28	26	24	
	3,2%	38	35	33	30,1	28	26	24	
	3,6%	38	35	32	30	27	25	23	
	3,9%	37	34	31	29	27	25	23	
	4,3%	36	33	31	28	26	24	23	

Table 16: Sensitivity Analysis with inputs of Cost of Equity and Cost of Debt
Source: Bloomberg, Analyst estimates

From the table 16 is possible to infer that the Cost of Equity is the one with the most impact in the final Share Price, which intuitively makes sense given our target Debt-to-Equity Ratio of 25%, which attributes more weight to the Cost of Equity in the WACC calculations. For example, given an approximate 1 percentage point decrease in this variable increases the share price by 26% to \$38 from \$30. From the same decrease in the cost of Debt, the share price only increases by around 6% to \$32, from \$30. The conclusion from this analysis is that our valuation can be subject some degree of uncertainty given that the Cost of Equity is very dependent on the Market Risk Premium being used, which is a variable very much subject to debate across economists and therefore subject to variation.

		Market Risk Premium							
		30,10	4,0%	4,5%	5,0%	5,5%	6,0%	6,5%	7,0%
Long Term Growth Rate	0,8%	40	33	28	24	20	17	15	
	1,0%	42	35	29	25	21	18	15	
	1,3%	44	36	30,1	25	21	18	16	
	1,5%	46	38	31	26	22	19	16	
	1,8%	48	39	32	27	23	19	17	
	2,0%	50	41	34	28	24	20	17	
	2,3%	53	43	35	29	25	21	18	
	2,5%	56	45	37	30	25	21	18	

Table 17: Sensitivity Analysis with inputs of Market Risk Premium and Long-term Growth Rate
Source: Bloomberg, Analyst estimates

This leads us to the second set of variables used to perform a sensitivity analysis: The Market Risk Premium and the long-term growth rate of the company. From the table displaying different scenarios we identify that both variables display a significant impact in the target share price. The choice of analysing the impact of the long-term growth rate comes from the fact that this variable is subject to some margin of error given the large time span being considered, which opens room for unpredictable events in such period. It's possible to conclude from the analysis that a small change in the growth rate can have large impacts on the share price, for example, an approximate 1 percentage point increase in this variable leads to an increase in the share price by more than 16%, that highlights the importance of correctly estimating the long-term growth rate. Regarding the MRP, we chose to include it in our analysis since this a metric subject to debate and that has varied considerably over time. For example, according to KPMG's Equity Market Risk Premium – Research Summary (2021), the value for the MRP in the Q3 of 2020 (approximately 1 year ago) was equal to 6,75%, against the current estimate of 5%. From the information in the table, we see that an increase of 1,5 percentage point of the MRP to 6,5% (close to the 2020 estimate), decreases the share price by more than 40%, which is a huge difference that can actually materialize given the unexpected change in market conditions like the ones we saw with Covid in 2020.

6.Risks

There are several risks associated with this valuation, either due to the uncertainty of the company's future or due to the risk associated with the valuation itself. As such, the risks can undervalue our forecast, meaning the company's value is higher than anticipated, or overvalue our forecast, meaning the company's value is lower than anticipated.

The risks that can lead to a higher expected value are the more than expected increase in demand, increase in ticket price, fastening of the vaccination process or lower than expected future impact of covid in the industry.

Since the pre-booking values for both Carnival and Royal Caribbean are unexpectedly high for the next several years, the demand forecast might be higher than anticipated. With an increase in the new bundling tickets (ticket and onboard consumption credits are all in one package) its ticket prices aren't as accurate since the value of the bundles tend to not match the value of its products individually. As such, the allocation of the tickets purchased in the bundles makes

it harder to compare its values against Tickets that were purchased individually, and so makes it harder to correctly estimate future prices. Given that we are estimating average ticket prices that are pressured downwards due to the allocation of bundle prices between Ticket and Onboard Consumption, it's possible that such ticket prices are being underestimated.

The vaccination process and the measures imposed in the cruises can also have a high impact in the valuation as a faster vaccination and a lowering of the restrictions can lead to an increase in demand and cruise capacity. Lastly, the impact of covid in the industry, and the company itself, might be lower than anticipated, leading to a quicker recovery of Carnival.

However, the risks associated with the valuation can also bring the company's future share price down. First, another lockdown or an increasingly fear of future covid restrictions might lead to a decrease in demand for tickets, which could lead the company to fail in meeting our revenue expectations.

The inflationary pressure on some commodities, such as fuel, and the current uncertainty environment lived around the world can also increase the company's costs more than expected, that would impact its fundamental value. An increase in fuel price might be observed as it depends on fuel demand, regulatory requirements, supply disruptions and related infrastructure needs. Additionally, the change in fuel used by the cruises to low sulphur fuel and the usage of LNG as the new cruises primary fuel sources can lead to an increase in the company's costs regarding fuel.

The foreign exchange costs are always a risk as they refer to revenues, expenses, assets and purchases that the company has on other currencies. As such, their value depends on the value of the currency, meaning the fluctuation of those currencies will affect the company's financial results.

Another downside risk to our valuation is related to legal costs. As previously mentioned, Carnival was involved in the initial covid scandals as its cruises continued to operate and lead to many passengers getting covid and some even died. These scandals can lead to high legal and indemnity costs, related to litigation.

The significant amount of debt incurred by the company in the last two years, associated with Covid 19 pandemic could pose serious risks in terms of future operational flexibility. First of all, Carnival is the company with the highest amount of Debt in the industry, which could put the company at a competitive disadvantage, in terms of the funding of expected Capital Expenditures and Working Capital. Another problem stemming from this increase in debt poses if the

company needs to incur in additional debt to repay the current debt, with this new debt probably having higher interest rates.

7. Conclusion

The cruise industry took a hard hit with covid, which nonetheless is expected to recover rather quickly, as most passengers are eager to return to cruises, as shown by the high pre-bookings of the future years. As such, Carnival's revenues and profits are expected to obtain pre-covid levels by 2024.

Carnival has had a history of success in leveraging the current 9 brands under management, supported by multiple M&A transactions over the years to increase synergies within each brand. The strategy has allowed the company to reach multiple geographies around the world successfully. However, after a careful analysis of the industry, we believe that Royal Caribbean outperforms Carnival in substantially important indexes, such as revenues growth, cumulative returns, or EBITDA margin. As such, the main competitive advantage of Carnival is its size, also associated with the lower pricing strategy, which makes it hard for the other two companies to compete against it.

The combination of these elements with the current structure of the industry, in which 4 players dominate the entire industry, that makes it difficult for new entrants to thrive in the market, makes us believe that there won't be any fundamental change to the industry dynamics, specifically in terms of Carnival market share.

Regarding the valuation, from the DCF approach, our recommendation is for investors to buy Carnival Corporation stock and hold it during 2022. The expected per share capital gains are of \$12,69, which correspond to a return of 73% over the capital invested. However, the realization of such gains is dependent on a market correction, associated with investors perceiving such undervaluation during the year of 2022. It's also important to mention that Carnival has lost approximately 30% over the period of 15/11/2021 and 15/12/2021, due to increased covid restrictions for the industry, that increased our expected returns significantly.

It's also important to mention that Carnival is subject to considerable risk, highlighted in the value of the Relevered beta of 1.61, meaning that in the case of another market crash like the one of 2020, investors might be subject to lose more than the overall market. However, our expectation is that such event has a very small probability of happening in a recent future due to the progress in the development of vaccines, and therefore we are recommending a strategy of Buy and Hold until the stock price reaches our target.

Finally, our target share price of \$30,1 by the end of 2022, is far from the values displayed by the company in the end of 2019, with a share price equal to \$50. We are assigning most of the expected gains in share price coming from the resuming of operations for the entire industry, which is still very much constrained in its core activity. In our view the all-time high \$70 share price by the end of 2017, is a target that will prove to be difficult to achieve once again since the company had already been losing value up to the end of 2019 and because we are anticipating that Royal Caribbean will become an increasingly dominant player in the industry, due to the consistent superior growth and profitability margins displayed over the last few years.

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9.Appendix

Invested Capital

Table with columns for years (2016-2037) and rows for various financial metrics including Core Invested Capital, Total Core Invested Capital, Assets, % Growth, % of Invested Capital, % of Equity, Operating Cash, % Growth, % Sales, Accounts Receivable, Inventories, % of related COGS, Prepaid Expenses and Other, % Growth, % of commission, transportation Property and Equipment, Net, Number of boats, P/E/boat, Accumulated Depreciation, Yearly Depreciation, PPE Total, Capex, Capex as a % Revenues, Goodwill, % Growth, Other Intangibles, % Growth, Other Assets, Liabilities, Accounts payable, % of COGS, Customer Deposits, Number of Passengers, CD/Passenger, Other Long-Term Liabilities, Number of Passengers, OIU/L/Passenger, Non core invested Capital, Total Non core invested Capital, Accrued liabilities and other, Total Invested Capital.

Net Financial Assets

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Net Financial Assets															
Total Net Financial Assets	-8 960	-8 975	-9 530	-11 192	-18 923	-23 575	-27 570	-31 914	-30 765	-29 388	-26 809	-24 360	-22 059	-20 212	-18 426
% Growth		0,17%	6,18%	17,44%	69,07%										
Excess of Cash	439	220	793	310	9 457	0	0	0	0	0	0	0	0	0	0
% Revenues	3%	1%	4%	1%	169%	169%	169%	169%	169%	169%	169%	169%	169%	169%	169%
Short-term borrowings	457	485	848	231	3 084										
% of Total IC	1,4%	1,5%	2,5%	0,6%	7,8%	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%
Current portion of long-term debt	640	1 717	1 578	1 596	1 742										
% long term debt	7,7%	24,6%	20,0%	16,5%	7,9%	17,2%	17,2%	17,2%	17,2%	17,2%	17,2%	17,2%	17,2%	17,2%	17,2%
Long-Term Debt	8 302	6 993	7 897	9 675	22 130										
% total IC	26,3%	21,1%	23,2%	26,5%	56,1%	24,3%	24,3%	24,3%	24,3%	24,3%	24,3%	24,3%	24,3%	24,3%	24,3%
Current portion of operating lease liab	0	0	0	0	151										
% of long term operating lease					11,86%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Long-Term Operating Lease Liabilities	0	0	0	0	1 273										
% of PPE					3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Financial Debt	9 399	9 195	10 323	11 502	28 380	23 575	27 570	31 914	30 765	29 388	26 809	24 360	22 059	20 212	18 426
Equity	22 597	24 217	24 443	25 368	20 557	16 703	15 826	16 173	18 388	20 920	23 694	26 630	29 442	31 705	33 605

	2016	2017	2018	2019	2020	2031	2032	2033	2034	2035	2036	2037
Net Financial Assets												
Total Net Financial Assets	-8 960	-8 975	-9 530	-11 192	-18 923	-17 376	-16 595	-15 775	-14 968	-14 163	-13 369	-12 594
% Growth		0,17%	6,18%	17,44%	69,07%							
Excess of Cash	439	220	793	310	9 457	0	0	0	0	0	0	0
% Revenues	3%	1%	4%	1%	169%	169%	169%	169%	169%	169%	169%	169%
Short-term borrowings	457	485	848	231	3 084							
% of Total IC	1,4%	1,5%	2,5%	0,6%	7,8%	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%	1,5%
Current portion of long-term debt	640	1 717	1 578	1 596	1 742							
% long term debt	7,7%	24,6%	20,0%	16,5%	7,9%	17,2%	17,2%	17,2%	17,2%	17,2%	17,2%	17,2%
Long-Term Debt	8 302	6 993	7 897	9 675	22 130							
% total IC	26,3%	21,1%	23,2%	26,5%	56,1%	24,3%	24,3%	24,3%	24,3%	24,3%	24,3%	24,3%
Current portion of operating lease liab	0	0	0	0	151							
% of long term operating lease					11,86%	0%	0%	0%	0%	0%	0%	0%
Long-Term Operating Lease Liabilities	0	0	0	0	1 273							
% of PPE					3%	0%	0%	0%	0%	0%	0%	0%
Financial Debt	9 399	9 195	10 323	11 502	28 380	17 376	16 595	15 775	14 968	14 163	13 369	12 594
Equity	22 597	24 217	24 443	25 368	20 557	35 038	36 240	37 501	38 799	40 130	41 488	42 876

Income Statement

in millions \$														
Core Business	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Revenues	16 389	17 510	18 880	20 825	5 595	1 644	10 614	16 668	21 296	24 919	26 723	28 384	29 936	31 329
% Growth		7%	8%	10%	-73%	-71%	546%	57%	28%	17%	7%	6%	5%	5%
COGS	9 383	10 501	11 090	12 908	8 245	4 379	7 587	10 683	12 982	15 196	16 259	17 274	18 200	19 111
Selling, General and Administrative	2 197	2 265	2 450	2 480	1 878	1 878	1 910	2 500	2 768	3 142	3 287	3 406	3 503	3 603
Goodwill impairments	0	89	0	0	2 096	0	0	0	0	0	0	0	0	0
EBITDA	4 809	4 655	5 340	5 437	-6 624	-4 613	1 117	3 485	5 546	6 582	7 177	7 704	8 233	8 615
Operating Margin %	29%	27%	28%	26%	-118%	-281%	11%	21%	26%	26%	27%	27%	28%	27%
Depreciation and amortization	1 738	1 846	2 017	2 160	2 241	2 213	2 448	2 630	2 737	2 854	2 938	3 021	3 104	3 187
Statutory Tax	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Core Adjustment to taxes	49	60	54	71	-17	59	59	59	59	59	59	59	59	59
Core Result	3 022	2 749	3 269	3 206	-8 848	-6 885	-1 390	796	2 750	3 669	4 180	4 624	5 071	5 369
Net Margin %	18%	16%	17%	15%	-158%	-419%	-13%	5%	13%	15%	16%	16%	17%	17%
%growth		-9,0%	18,9%	-1,9%	-376,0%	-22,2%	-79,8%	-157,3%	245,7%	33,4%	13,9%	10,6%	9,7%	5,9%

in millions \$													
Core Business	2016	2017	2018	2019	2020	2030	2031	2032	2033	2034	2035	2036	2037
Revenues	16 389	17 510	18 880	20 825	5 595	32 627	33 814	34 872	35 939	36 806	37 695	38 580	39 487
% Growth		7%	8%	10%	-73%	4%	4%	3,13%	3,06%	2,41%	2,41%	2,35%	2,35%
COGS	9 383	10 501	11 090	12 908	8 245	19 941	20 738	21 436	22 126	22 709	23 305	23 917	24 543
Selling, General and Administrative	2 197	2 265	2 450	2 480	1 878	3 654	3 720	3 766	3 809	3 865	3 958	4 051	4 146
Goodwill impairments	0	89	0	0	2 096	0	0	0	0	0	0	0	0
EBITDA	4 809	4 655	5 340	5 437	-6 624	9 032	9 356	9 669	10 003	10 233	10 431	10 613	10 798
Operating Margin %	29%	27%	28%	26%	-118%	28%	28%	28%	28%	28%	28%	28%	27%
Depreciation and amortization	1 738	1 846	2 017	2 160	2 241	3 242	3 298	3 353	3 409	3 464	3 520	3 575	3 630
Statutory Tax	0	0	0	0	0	0	0	0	0	0	0	0	0
Core Adjustment to taxes	49	60	54	71	-17	59	59	59	59	59	59	59	59
Core Result	3 022	2 749	3 269	3 206	-8 848	5 731	6 000	6 257	6 536	6 710	6 853	6 979	7 109
Net Margin %	18%	16%	17%	15%	-158%	18%	18%	18%	18%	18%	18%	18%	18%
%growth		-9,0%	18,9%	-1,9%	-376,0%	6,7%	4,7%	4,30%	4,45%	2,67%	2,13%	1,84%	1,86%

FCF's

in millions \$	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Core Result	3 022	2 749	3 269	3 206	-8 848	-6 885	-1 390	796	2 750	3 669	4 180	4 624	5 071	5 369
Core Investment	-	1 772	558	2 742	2 255	799	3 118	4 691	1 065	1 156	195	487	510	417
Core FCF	-	977	2 711	464	-11 103	-7 683	-4 508	-3 895	1 685	2 513	3 986	4 137	4 561	4 952
Non Core Result	-739	718	-105	-149	118	71	82	72	70	80	75	76	74	75
Non Core Investment	-	-137	223	-155	665	0	0	0	0	0	0	0	0	0
Non Core FCF	-	855	-328	6	-547	71	82	72	70	80	75	76	74	75
Financial Result	-217	-189	-180	-183	-877	-881	-444	-521	-606	-583	-556	-506	-459	-414
Change in Net Financial Assets	-	15	555	1 662	7 731	4 652	3 995	4 344	-1 150	-1 376	-2 579	-2 449	-2 302	-1 846
Net Transactions with shareholders	-	-1 658	-2 758	-1 949	4 796	3 841	874	0	0	-633	-925	-1 258	-1 875	-2 767
Financing Cash Flow	-	-1 832	-2 383	-470	11 650	7 612	4 425	3 823	-1 755	-2 593	-4 061	-4 213	-4 635	-5 027

in millions \$	2016	2017	2018	2019	2020	2030	2031	2032	2033	2034	2035	2036	2037
Core Result	3 022	2 749	3 269	3 206	-8 848	5 731	6 000	6 257	6 536	6 710	6 853	6 979	7 109
Core Investment	-	1 772	558	2 742	2 255	114	383	421	441	491	525	565	613
Core FCF	-	977	2 711	464	-11 103	5 617	5 617	5 837	6 095	6 219	6 328	6 414	6 496
Non Core Result	-739	718	-105	-149	118	76	75	75	75	75	75	75	75
Non Core Investment	-	-137	223	-155	665	0	0	0	0	0	0	0	0
Non Core FCF	-	855	-328	6	-547	76	75	75	75	75	75	75	75
Financial Result	-217	-189	-180	-183	-877	-378	-344	-323	-308	-292	-277	-261	-246
Change in Net Financial Assets	-	15	555	1 662	7 731	-1 786	-1 050	-781	-820	-808	-805	-794	-775
Net Transactions with shareholders	-	-1 658	-2 758	-1 949	4 796	-3 529	-4 298	-4 808	-5 042	-5 195	-5 322	-5 435	-5 551
Financing Cash Flow	-	-1 832	-2 383	-470	11 650	-5 693	-5 692	-5 912	-6 170	-6 294	-6 403	-6 489	-6 571

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
g (Core FCF)	177,6%	-82,9%	-2495,1%	-30,8%	-41,3%	-13,6%	-143,3%	49,1%	58,6%	3,8%	10,2%	8,6%	13,4%
ROIC	9,3%	9,0%	-23,1%	-16,9%	-3,4%	1,8%	5,6%	7,3%	8,1%	9,0%	9,7%	10,2%	10,8%

	2018	2019	2020	2031	2032	2033	2034	2035	2036	2037
g (Core FCF)	177,6%	-82,9%	-2495,1%	0,0%	3,9%	4,4%	2,0%	1,8%	1,4%	1,28%
ROIC	9,3%	9,0%	-23,1%	11,3%	11,7%	12,1%	12,3%	12,5%	12,6%	12,7%

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Buy	Expected total return (including expected capital gains and expected dividend yield) of more than 10% over a 12-month period.
Hold	Expected total return (including expected capital gains and expected dividend yield) between 0% and 10% over a 12-month period.
Sell	Expected negative total return (including expected capital gains and expected dividend yield) over a 12-month period.

This report was prepared by João Cavalheiro Dias Mascarenhas de Castro e Maria Margarida Saraiva Lamas de Oliveira da Ponte, a Master in Finance student of Nova School of Business and Economics ("Nova SBE"), within the context of the Field Lab – Equity Research.

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