APC CASE ANALYSIS

A Benchmark Valuation and Project Analysis

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2021/5/20

Case Analysis of Atlantic-Pacific Carriers

Content

Part 1. Abstract

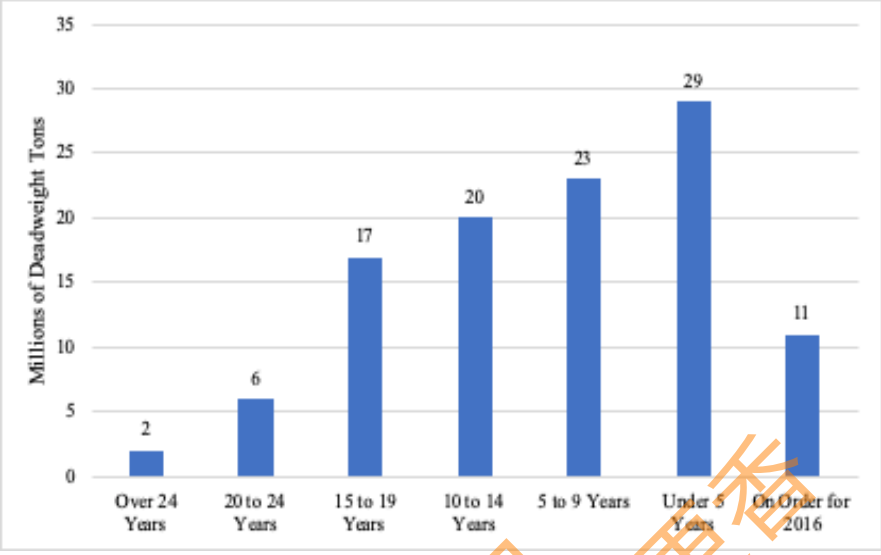
This passage will mainly focus on analyze a potentially feasible project of Atlantic-Pacific Carriers. Atlantic-Pacific Carriers should immediately commission a new capesize carrier to if take the project. In part 2.1, by estimating the incremental net present value of the project from previous data and reasonable assumptions, we will show whether the project is financially profitable or not. Since our calculation is based on some assumptions and simplified predictions, we concern about the effect of fluctuation in parameters on the final result, the NPV. So we will perform several sensitivity, scenario, and break-even analyses in part 2.2~2.3. And in Part 3, we will briefly summarize the main results above.

Part 2. Project Analysis

2.1 Benchmark Valuation

The scarping age of vessels depends largely on the supply and demand of the shipping capacity. When the market demand for shipping capacity was high, owners would keep a vessel in operation as long as possible. Conversely, when market demand was low, scrapping rose. With age of vessels goes up year by year, the net income per year generated by running the vessels decreases. The company naturally has an incentive to scrap the aged vessels.

From the data of capesize fleet by age category as of December 2015, we can clearly see only a negligible part of vessels aged more than 24 still servicing in the market. Based on the data, we assume that the vessels would be scarped in no more 25 years.



The APC company has a policy of not operating vessels older than 15 years, because older vessels tend to be chartered at discount and require a higher survey and maintenance cost per year. According to the regulation of the company, we will firstly calculate the NPV value when the scarp the ship at the end of year 15.

Suppose the company scarp the ship at the end of year 15. According to the previous data and reasonable predictions, the net present value of taking the project would be $ -6,238,079. Notice that the free cash flow of the 15th year is still positive, which means keeping the ship will still generate positive free cash flows. We expand the age of the vessel to 25 years. And the net present value of taking the project would be $ -6,238,079. The detailed calculation process can be seen in the excel file, named Calculation result.xlsx.[1]

Since the NPV is negative under current conditions. The firm should not take the project of building the new vessel.

[1] You can click the button to see the file directly.

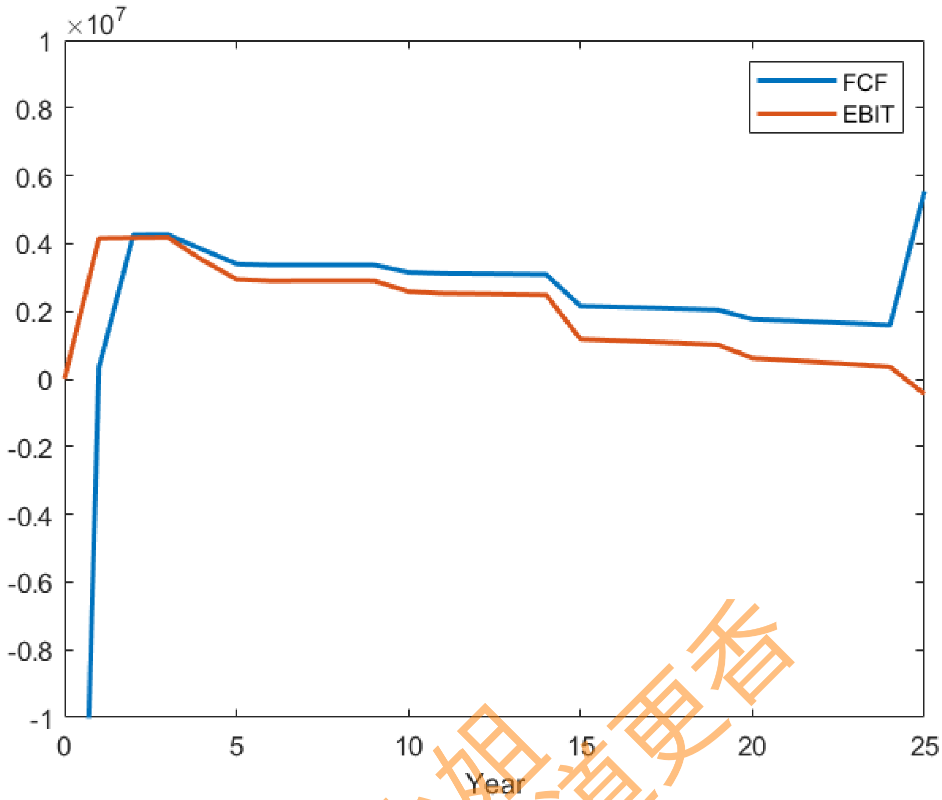


Fig.1 FCFs and EBIT in 25 years

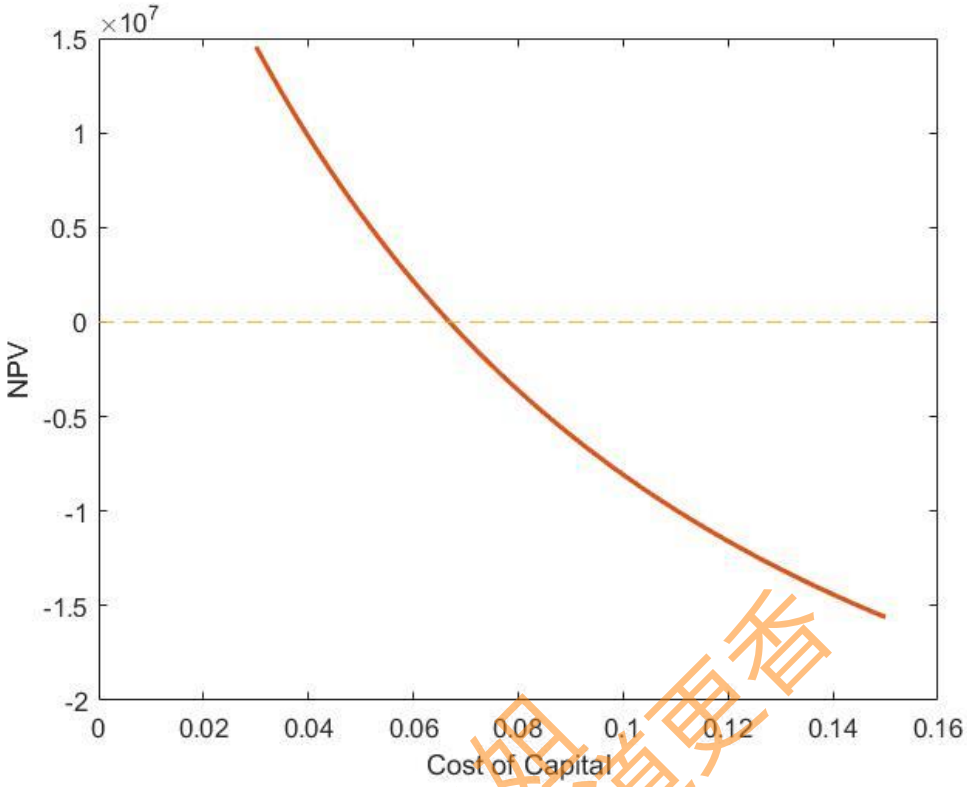
The FCFs and EBIT each year when scarp the vessel at age of 25 are shown in Fig 1 above. As we can see, the FCFs and EBIT both decrease while the age of ship increases. The result of calculation is consistent with our previous prediction.

2.2 Sensitive analysis and break-even point

Generally speaking, the estimates of net present value often subject to significant uncertainty. Sensitive analysis breaks the NPV calculation into its component assumptions and shows how the NPV varies as underlying assumptions change.

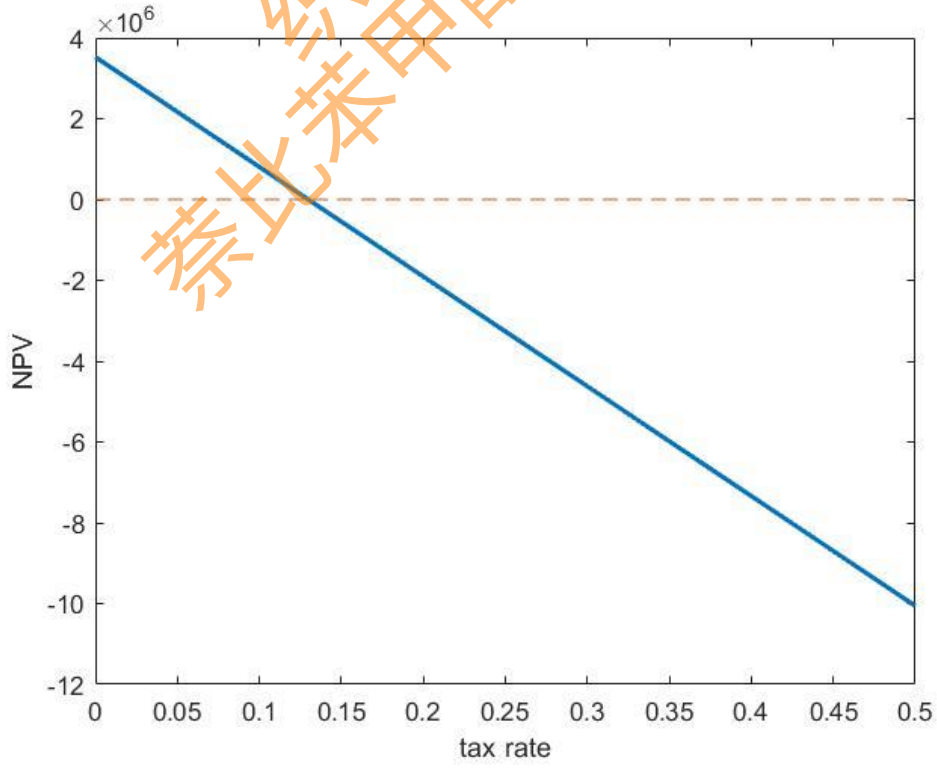
Parameter	Initial Assumption	Worst case	Best Case
Cost of Capital	0.09	0.12	0.06
Tax Rate	0.35	0.4	0.2
Initial NWC/ $	500000	300000	700000
Initial Operating Cost (per day)/ $	4000	5000	1000

Table.1 Best/Worst assumptions in sensitivity analysis



Fig,2 Break-even analysis of Cost of Capital

The cost of capital break-even is 6.7%. And from fig.2 we can see the NPV will be positive only if the cost of capital is under 6.7%.



Fig,3 Break-even analysis of tax rate

The tax rate break-even is 13%. And from fig.3 we can see the NPV will be positive only if the tax rate is under 13% while holding other parameters fixed.

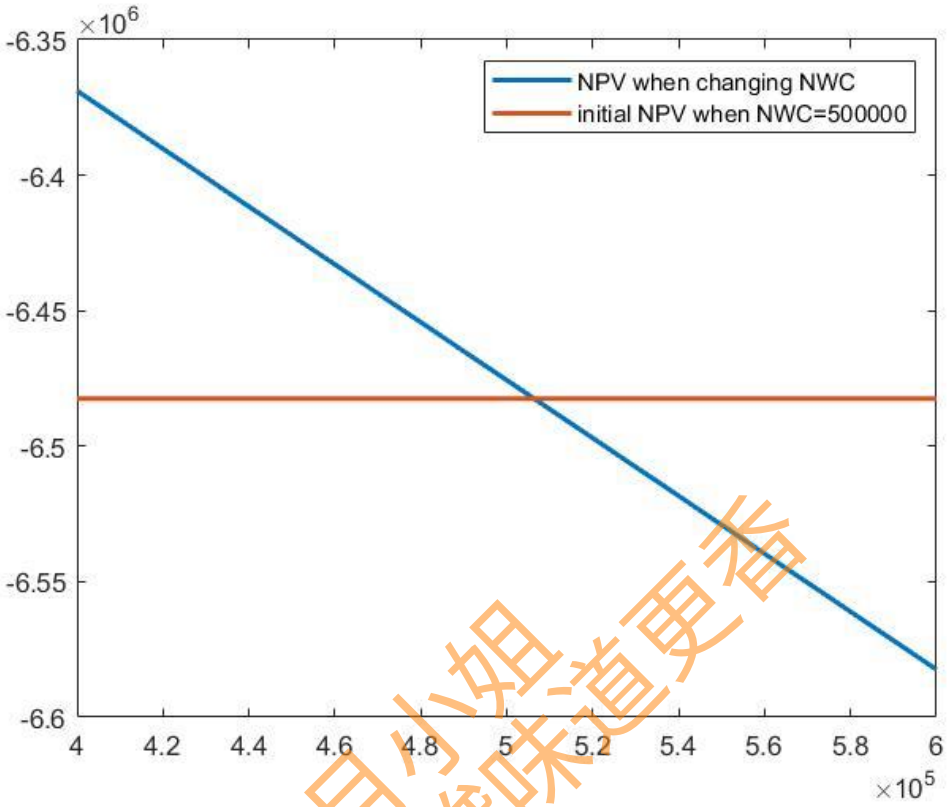
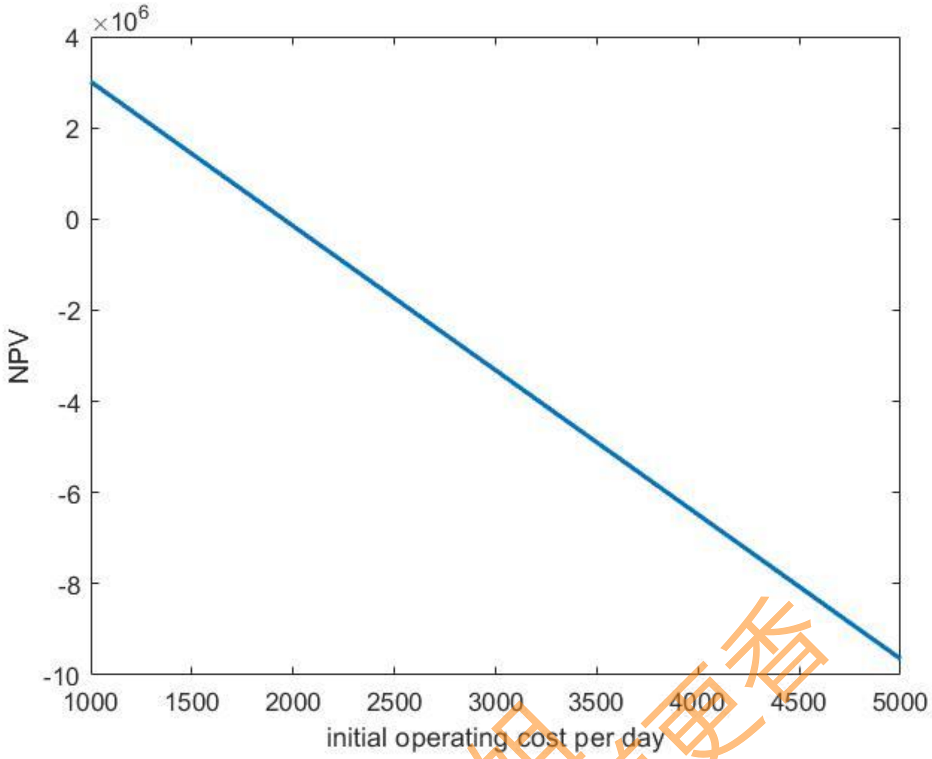


Fig.4 Break-even analysis of NWC

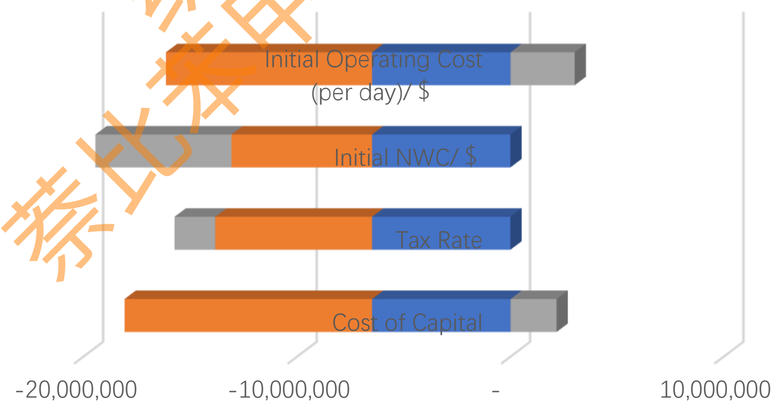
Since the NWC have to be negative and very large in absolute value in order to make NPV =0, it does not make any sense to solve the value of break-even value of NWC. Normally, the NWC of an investment should be positive initially. From the graph above, we can see that fluctuations in NWC have little effect on the NPV.



Fig,5 Break-even analysis of operating cost per day

The initial operating cost per day break-even is . And from fig.4 we can see the NPV will be positive only if the cost of capital is under 6.7%.

From the graph above, we can easily generate the NPV under the worst and best assumptions。 The result is shown in fig.6 below.



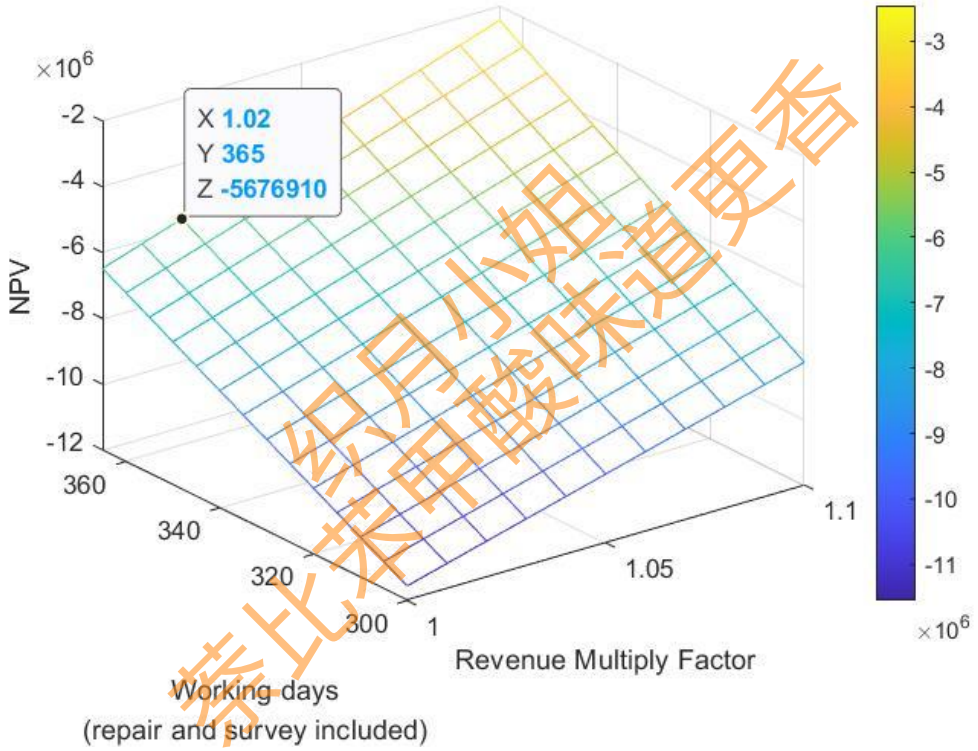
	NPV			
	Cost of Capital	Tax Rate	Initial NWC/ $	Initial Operating Cost (per day)/ $
initial assumption	-6,482,434	-6,482,434	-6,482,434	-6,482,434
Worst case	-11,587,836	-7,340,682	-6,582,434	-9,647,182
Best case	2,162,278	-1,907,693	-6,368,856	3,011,810

Table 2. Sensitivity analysis result

2.2 Scenario analysis

In this part, we will consider the effect on NPV of multiple parameters simultaneously. Normally speaking, when supply goes down, the price of a good tends to increase. Suppose if a vessel works less days per year, the gross charter price per day will increase. We can simply consider the working days of the vessel per year as the "units sold of a certain good" and the gross charter price per day as the price per unit of the good. And this turns the problem into a general price and volume combinations scenario analysis.

Since the days in one year is always no more than 365. We set days of working(including repair and survey time) on [300~365]. And set a revenue factor from [1,1.2]. The result is shown as below.



Part 3. Conclusion

From the benchmark valuation in part 2.1, we separately calculate the NPV of undertaking the project and scarp the ship after 15 years or 25 years and get a negative result. The negative NPV indicates that we should reject the project from the perspective of financial analysis.

From the sensitive analysis we performed in part 2.2, we can draw to the preliminary conclusion that comparatively speaking, the NPV varies violently when the tax rate or cost of capital fluctuates. And the change in NWC have very limited impact on NPV. If future tax rate is expected to decrease according to the upcoming news, the company may take the project. The same apply for expected lower cost of capital in the future.