

Advanced topics in management accounting and control essay sample

[Finance](#), [Market](#)



The purpose of this paper is to analyze the economic situation of the company Macedonian Shipping and give a recommendation whether the company should use the motor vessel Tashtego as a freight tender between Dar-es-Salaam and Zanzibar in East Africa or as a tapioca ship between Balik Papan and Singapore in the East Indies. Fundamental to all these considerations are measurement issues. Financial measures, in particular, cost measures, are needed to evaluate alternate strategies on whether to introduce a new product or service line, to determine the appropriate sale price and the consequent market position for the firm's product.

Question 1)

“Contribution” represents the portion of sales revenue that is not consumed by variable costs and so contributes to the coverage of fixed costs. To compute profit contribution that can be earned by carrying 1 ton of tapioca from Balik Papan to Singapore, dock to dock, and 1 ton of general merchandise goods from Singapore to Balik Papan only cargo costs were considered as relevant. Cargo costs of both ports have to be considered as each freight has to be reloaded at one port and unloaded at the other.

Therefore, profit contribution of carrying 1 ton of tapioca from Balik and Singapore is Expected revenue \$5.10 less freight cost 1,43 = \$ 3,67 and from Singapore to Balik:

Expected Revenue \$2.70 less freight cost 1,43 = 1,27.

1. Contribution/t dock to dock

BP-SP Tapioca SP-BP M. goods

Revenue/t 5, 10 2, 70

Lighterage BP 0, 25

Stevedoring BP 0, 56

Cranage BP 0, 00

Lighterage SP 0, 16

Stevedoring SP 0, 32

Cranage SP 0, 14

Cargo costs/t 1, 43 1, 43

Contribution/t 3, 67 1, 27

There is no cranage charge in Balik Papan because the freight in this port is manhandled.

Question 2)

The total contribution that can be earned on one round trip between Singapore and Balik Papan is the difference between the total revenue and the total cargo costs. For the total revenues for each vessel the freight rates for Tapioca and for manufactured goods are multiplied with the amount of tons that are moved from one harbour to the other.

2. Total contribution for a round trip

TASHTEGO LARGE VESSEL

BP-SP Tapioca SP-BP goods BP-SP Tapioca SP-BP goods

Capacity (t) 3. 950, 00 3. 150, 00 6. 850, 00 3. 150, 00

freight rate/t 5, 10 2, 70 5, 10 2, 70

Revenue 20. 145, 00 8. 505, 00 34. 935, 00 8. 505, 00

Total Revenue 28. 650, 00 43. 440, 00

Total Cargo costs 10. 153, 00 14. 300, 00

Total contribution 18. 497, 00 29. 140, 00

As cargo costs vary with the freight moved they are calculated as a product of Cargo costs per ton, as stated above, and the capacity for each of the vessels, i. e. for Tashtego $1, 43 \times 3950 + 1, 43 \times 3150 = 10. 153, 00$ and for the

large vessel $1, 43 \times 6850 + 1, 43 \times 3150 = 14. 300, 00$.

Question 3)

Incremental cost is the cost associated with increasing production by one unit, in this case sending Tashtego on a round trip. It represents the added costs that would not exist if the round trip was not made. The turnaround at Balik Papan takes 3 days for one of the large vessels and 2, 5 days for Tashtego. The turnaround time in Singapore is 1 day for both vessels. Days in port

Tashtego Large Vessel

BP 2, 5 3

Singapore 1 1

Trip costs:

To get the portage dues we calculate the portage dues per day in port per ton burden (0, 14 in BP and 0, 20 in SP) times 4500 (for the Tashtego)

respectively 12500 (for large vessels) and times the according days in port.

Tashtego: Portage $(4500 * 0.14 * 2.5 = 1575) + (4500 * 0.2 * 1 = 900) = \$$

2475 Large vessel: Portage $(12500 * 0.14 * 3 = 5250) + (12500 * 0.2 * 1 * 2 = 5000) = \$ 10250$.

Costs for Lighthouse at both ports has to be summarized:

Tashtego: Lighthouse $73 + 126 = 199$

Large vessel: Lighthouse $73 + 2 * 126 = 325$

In Singapore the portage and lighthouse costs for large vessels has to be considered double (x2) as big ships called at Balik Papan have to stop twice at Singapore. As only ships exceeding 8000 tons burden were to be assessed \$ 2.000 no costs for Special Assessment for Tashtego have to be considered.

Summarizing these figures we get the total trip costs for a roundtrip for each vessel. Adding the bunkering costs (fuel costs) which are $(\$ 0,73 * 960 \text{ miles}) = 700,80$ and $(\$ 1,27 * 960 \text{ miles}) = 1219,20$ we get the Incremental trip costs for one roundtrip for the Tashtego and for a large vessel.

3. Incremental trip costs of a roundtrip

TASHTEGO

BP-SP Tapioca SP-BP goods Roundtrip

Trip costs

Portage dues/ton/day in port 0,14 0,20

Portage dues 1.575,00 900,00 2.475,00

Lighthouse 73,00 126,00 199,00

Special Assessment 0, 00 0, 00 0, 00

1. 648, 00 1. 026, 00 2. 674, 00

fuel costs/mile 0, 73

Seamiles for round trip 960, 00

fuel costs 700, 80

Incremental trip costs Tashtego 3. 374, 80

LARGE VESSEL

BP-SP Tapioca SP-BP goods Roundtrip

Trip costs

Portage dues/ton/day in port 0, 14 0, 20

Portage dues 5. 250, 00 5. 000, 00 10. 250, 00

Lighthouse 73, 00 252, 00 325, 00

Special Assessment 2. 000, 00 0, 00 2. 000, 00

7. 323, 00 5. 252, 00 12. 575, 00

fuel costs/mile 1, 27

round trip 960

fuel costs 1. 219, 20

Incremental trip costs Large Vessel 13. 794, 20

Question 4)

With the above calculated revenue, trip costs, cargo costs and fuel costs we can compute the total contribution per round trip for each vessel type. By multiplying this figure with 50 (as there are 50 roundtrips a year on this route) we get the total contribution per year.

4. Total contribution

TASHTEGO LARGE VESSEL

Revenue 28. 650, 00 43. 440, 00

Trip costs 2. 674, 00 12. 575, 00

Cargo costs 10. 153, 00 14. 300, 00

fuel costs 700, 80 1. 219, 20

Total contribution per round trip 15. 122, 20 15. 345, 80

50 Trips per Year 756. 110, 00 767. 290, 00

Total annual cost 488. 212, 00 793. 500, 00*)

Gross margin 267. 898, 00 -26. 210, 00

Gross margin/day (345 days) 776, 52 -75. 97

The calculation for contribution margin is Sales minus Variable Costs only.

Gross margin includes both fixed and variable costs . *) The overhead costs are calculated for 7, 5 days, as a large ship would need 7, 5 days (3 in BP + 2*1 in SP + 2, 5 steaming days) for the tapioca run. (2. 116*7, 5*50)

Question 5)

5. Profit impact

TASHTEGO

Costs in East Africa/year 315. 948, 00

Costs saving in Dar-es Salaam 632. 240, 00

Contribution of using T in Africa 316. 292, 00

Contribution per day 916, 79

64, 30 times 345 22. 184, 00

The overall impact per day if Tashtego is moved to East Africa and large vessels are used in the tapioca run is -\$ 776, 52 for the drop out of Tashtego in East India and -\$ 75, 97 for the contribution of the large vessel. Adding the contribution that comes from using Tashtego in Africa + 916, 79 we get an overall profit contribution of \$ 64, 30 per day, that is +\$ 22. 184, 00 per year.

Question 6)

In the light of this, Mr. Georgopoulos should use the vessel Tashtego as a freight tender between Dar-es-Salaam and Zanzibar in East Africa as he could improve his overall profit impact for +\$ 22. 184 per year. As the gross margin for using a large vessel in East India, he has to deliberate whether he should stop this route. If he could increase the amount of tapioca from currently 6850 tons to 7000 tons, the gross margin would be positive and increase the overall profit. It's up to him, if he would estimate future demand for tapioca as stable or increasing. If he wouldn't see an increasing demand it would be better to eliminate the tapioca route on the long run. Revenue 44. 205, 00

Trip costs 12. 575, 00

Cargo costs 14. 514, 50

fuel costs 1. 219, 20

Total contribution per round trip 15. 896, 30

50 Trips per Year 794. 815, 00

Total annual cost 793. 500, 00

Gross margin 1. 315, 00

per day 3, 81