

# Financial analysis task essay sample



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BUSTER**

With CBI now making the CarbonLite and Titanium frame bikes, I was directed to perform a cost study and an activity based costing analysis at the San Diego plant. After extensive research I recommend that CBI use an activity based costing method. An activity based costing (ABC) system recognizes the relationship between costs, activities and products, and through this relationship assigns indirect costs to products less arbitrarily than traditional methods (Investopia, 2013). Activity costing requires the use of multiple points of data to build a cost point. First, ABC will identify each activity and then approximate its direct and indirect costs. Next, the cost driver for each activity must be approximated alongside the total of each driver allocation's base. Thirdly, the cost allocation has to then be calculated. Finally, cost to cost objectives are allocated. Focusing on activities, ABC essentially become the platforms for allocating product costs. ABC can be extensive and often requires more time to correctly calculate the cost of each activity, but it provides the greatest tool to ensure more accurate forecasting of true costs, which in turn can provide CBI with greater profits.

It is important to also understand that ABC is not intended to replace traditional accounting, but takes the financial data and makes sense of the original source forms gathered from standard project costing systems. ABC evaluates the business units' events as cost drivers and assigns the company's accumulated costs and resources against those events along a time-phased sequence. This will benefit CBI because of the fact that ABE will provide revenue tracking to management with a different point of view just how profitable products are. ABC will also provide management with insight into pricing. For example, CBI has traditionally used conventional costing

funds under the assumption that products cause costs, while ABC assumes that cost objectives, for example, the CarbonLite, creates a demand for activities such as manufacturing, which in turn causes materials to be consumed.

With ABC, Competition Bikes would better understand their pricing and if it is too high or too low as well as take advantage of cost savings through the use of in depth knowledge. For example, on the financial data, we can see that the traditional costing method per unit for the Titanium model is \$713, while the ABC analysis shows \$656. Compared to the Carbonlite model that CBI had traditionally showed costs at \$1359 per unit and is actually \$1460 per unit through ABC analysis we can see that CBI could have been far underpricing the CarbonLite model and over pricing the Titanium model. Setting the price to match market demand and make a profit is the key to any business's success. ABC can provide those numbers needed to attain this.

Cost profit volume (CPV), is based on the break-even point of the cost and volume of goods. CPV is used to make short-term economic decisions as well as to forecast future levels of operational activity that is required of a company in order to ensure there won't be a loss. CVP uses breakeven to show where the company's revenues and expenses are equal. The following formula is often used to start the analysis; total revenue (TR)-total costs (TC) = profit. Then, breaking the costs into variable and fixed we can change the formula to TR-Total Variable costs-Total Fixed costs= profit. In using a Contribution Margin approach we can derive the breakeven, or the number of units that CBI must sell in order to cover fixed costs after all variable

expenses have been covered.  $CM = \text{sales price per unit} - \text{variable costs per unit}$

Titanium Frame Bike  $900 - 679 = \$221$  Titanium Contribution Margin 221 per unit  
CarbonLite  $1495 - 1384 = \$111$  CarbonLite Contribution Margin 111 per unit

Titanium Contribution Margin 221 X Sales mix in units 450 = 99,450

CarbonLite Contribution Margin 111 X Sales mix in units 250 = 27,750

Now that we understand how we have derived the contribution margins, we now know how much of each unit is left to contribute to covering the fixed costs of \$400,000. See equations below.

$\text{Profit} = \text{selling price per unit} \times \text{quantity sold} - \text{VC per unit} \times \text{quantity sold} - \text{total fixed costs} = (CM) \times \text{quantity sold} - \text{fixed costs}.$

Revenue for Titanium is  $\$900 \times 450 = 405,000 + \text{CarbonLite } \$1495 \times 250 = 373,750 = 778,750$   
TVC: Titanium  $\$679 \times 450 = 305,550 + \text{CarbonLite } \$1495 \times 250 = 373,750$  Total = \$679,300

TCM:  $\$778,750 - \$679,300 = \$99,450$  for Titanium and using the same formula above TCM for CarbonLite is 27,750. This gives us a combined contribution margin of \$127,200.

Some management prefers to view the break even points via a percentage, in which case we would need to derive the contribution margin as a ratio. This would be the unit contribution margin / unit sales price.

Contribution Margin Ratio:  $\$96,950/\$778,750 = .13$  Titanium

$\$27,750/679300 = .04$  CarbonLite This ratio represents the percent in which

the selling price per unit surpasses the VC per unit. Armed with this

knowledge, CBI can now have the figures per unit for which they need to

break-even; the break-even being that level of operational activity at which

the revenue covers the total cost, but with a zero profit. CVP analyzes the

changes in profits in regards to changes in the volume of sales, change in

profits, and change in costs. This is helpful in planning for future targeted

profit levels as it assesses operational activity costs and sales volume costs.

Since CBI sells different bike models, Titanium and CarbonLite, a weighted

average contribution margin ratio would be used to find the break-even. In

using a weighted average, CBI can use the sales mix data to show a

proportion that will then be used to get the proper units to give us the break-

even point. Weighted Average Contribution Margin= Combined Contribution

Margin/forecasted units sold.

For CBI we will take  $127,200/700 = 181.71$

To calculate the sales dollars at the breakeven point CBI will multiply

breakeven sales units by the sales prices of the unit.

Titanium :  $1415 \times 900 = \$1,273,500$

CarbonLite:  $786 \times 1495 = \$1,175,070$

Total:  $\$2,448,570$

This means that CBI would need to sell enough units to total  $\$2,448,570$  in

order to break even and cover the fixed costs after all variable costs are

covered, or mathematically stated: sales rev-variable costs-fixed costs = profit.

Next, the point of using the WACM ratio is to find the break even numbers for the sales units as well as the sales dollars. As shown above this would, long hand, look like this: TCM (Total contribution margin) – FC (fixed costs) – VC variable costs= 0 (at breakeven) So, Sales units X WACM is equal to the fixed costs.

Accordingly,  $FC/WACM = \text{Sales units at breakeven point}$ .

As calculated above, we know that CBI has a breakeven point of \$2, 448, 570. CBI must have revenue of \$2, 448, 570 in order to just break even. This is the lowest possible amount it can take in order to maintain operational procedures and still pay for all overhead and fixed/variable costs. It is important to note that the sales mix units have to be just. We can only use the sales mix that was used in equating the WACM. Any other mix of sales and the company would not breakeven.

In using these numbers, CBI can use CVP analysis to firmly understand the correlations between the company's cost, sales volume, and its profit. This will also show how CBI is costing in reference to fixed and variable costs.

While this breakeven point is useful, it doesn't show how revenues change as activities change. In order to do this we will need to add in the cost increases and fixed costs and see how it affects the WACM.

A2b.

If CBI needed to increase the cost of direct materials by 10% cost increase and also needed to add \$50, 000 in fixed costs to the facility; they would

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need to see how it would affect the WACM and the cost margin. Because we base the equations to do this on the contribution margin and the WACM, a 10% increase will have a significant impact. Let's first see how this increase in materials by 10% would affect the weighted average contribution margin. In taking the new data from the financial on the spreadsheet that reflect the increase we start with deriving the following: Sales price per Unit: Titanium \$900 CarbonLite \$1495 = 778, 750 (the combined sales mix of Titanium and Carbonlite)

VC per Unit: Titanium \$709 CarbonLite \$1451 = 681800 (combined) CM per unit: Titanium 191 CarbonLite 44 = 96, 815 (combined contribution margin) This is a difference of 30, 385. Meaning that the margin for revenue has decrease by almost 30K suggesting that there is less " room" to cover the fixed and variable costs and still breakeven.

Looking at the contribution margins for each bike model, the 44 for Carbonlite raises a red flag. The CM went from 111 to 44 per unit. This equates to an approximate 40% decrease per unit by simply increasing the direct materials costs by 10%. An equally devastating change happened to Titanium brand in going from a contribution margin of 221 to 191. CBI will have to sell significantly more units of both in order to bring the sales mix WACM back up to what it was before the increase.

The WACM showed a significant decrease. The WACM,  $96815/700$  changes to 138. 31, a strong decrease from its original 181 before the increase. In doing the multiplication of the 10% increase, we can see that it has a much more significant impact than what one would imagine a 10% increase to be. These

small increases, with their large impacts, are why financial analysts always look at variable unit costs and ways to decrease them.

Breakeven was also highly affected and per the data on the spreadsheet CBI will have to produce even more bikes than before the increase in the 10% and 50k to breakeven. Look at the following equation:  $FC/WACM = \text{Sales units at break even}$

$$\$450,000 / 138.31 = 3253.56$$

For Titanium the breakeven units is now 2092 and for CarbonLite 1162. This means that CBI will have to produce just over 1000 more units than it did previously in order to break even with the 10% increase and the 50K FC increase. Looking now at the sales dollars data,

$$\text{Titanium } 2092 \times 900 = \$1,822,800$$

$$\text{CarbonLite } 1162 \times 1495 = \$1,737,190$$

$$\text{Total } \$3,619,990$$

$$\$2,448,570$$

$$= \$3,619,990 \text{ to break even.}$$

This shows CBI that there are significant differences in the costs to the break even with the slightest changes to FC. CBI can see how this affects the CarbonLite sales price at 1495 with a VC at 1451, there is little room for profit. Having this narrow of a profit margin, does not allow for many changes in fixed costs. Evaluating these numbers and seeing the changes does exactly what CVP does in showing the company vital information that may impact profitability. CBI will need to find ways to boost sales and produce larger units to just break even or it will have to find some creative



ways to reduce the direct costs per unit. A company with a high percentage of fixed costs and low variable costs has a higher contribution margin ratio. CBI wants to find ways to lower their variable costs if it wants to have a higher contribution margin, be more profitable and ensure it will always be at least breakeven.