

CASE

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Genuine Motor Products

Genuine Motor Products, located in Northern Ohio, manufactures precision measuring devices to monitor exhaust emission systems for new and used automobiles. Its products are sold worldwide.

The firm hired Mike Anton in January of 2009 as vice president in charge of manufacturing operations. Mike had a bachelor's degree in industrial engineering from Case Western Reserve University and an MBA from Ohio State University. He had spent the last 15 years working for General Motors (Arlington, Texas division), Toyota Motor Corp., and Volvo. At age 38, he had established a good reputation for innovation within the auto and auto parts industry.

Upon being hired, he began looking over the financial statements, particularly the balance sheet as of December 31, 2008 and the pro forma income statement for 2009 as shown in Figure 1 and 2, respectively. His immediate reaction was that the firm had not made the move to automation that others in the industry had. The company's manufacturing process was

highly labor intensive as indicated by the fact that fixed assets (net plant and equipment) represented only \$8 million out of total assets of \$24 million (Figure 1) and that variable costs per unit were \$25 in comparison to a sales price of \$30 per unit (Figure 2).

Although he thought the pro forma income statement for 2009 as shown in Figure 2 looked reasonably good, he believed returns could be better if the firm went to greater automation and was less dependent on labor and expensive materials.

When he shared his thoughts with Harry Engle, the chief financial officer, the response he received was lukewarm. Harry had been with the firm in good times as well as bad over the last 20 years and was quick to point out the advantages of not being tied up with a lot of fixed costs and debt during a slowdown in sales in the auto industry. As Harry was fond of saying, "Genuine Motor Products does not have a labor union and when business is bad, we lay people off. By gosh, you can't lay machinery and equipment off."

Figure 1

GENUINE MOTOR PRODUCTS	
Balance Sheet	
As of December 31, 2008	
<i>Assets</i>	
Current assets.....	\$16,000,000
Fixed assets	
Plant and equipment	\$20,000,000
Less: accumulated depreciation.....	<u>12,000,000</u>
Net plant and equipment.....	8,000,000
Total assets	<u>\$24,000,000</u>
<i>Liabilities and Stockholders' Equity</i>	
Current liabilities	10,000,000
Long-term liabilities:	
Bonds payable 10.75%	<u>2,000,000</u>
Total liabilities.....	\$12,000,000
Stockholders' equity:	
Common stock, \$1 par value, 2,000,000 shares	\$ 2,000,000
Capital in excess of par.....	4,000,000
Retained earnings	<u>6,000,000</u>
Total stockholders' equity	<u>\$12,000,000</u>
Total liabilities and stockholders' equity.....	<u>\$24,000,000</u>

Figure 2

GENUINE MOTOR PRODUCTS	
Pro forma Income Statement	
For 2009	
Sales (1,000,000 units @ \$30 per unit)	\$30,000,000
– Fixed costs*	2,000,000
– Total variable costs (1,000,000 units @ \$25 per unit	<u>25,000,000</u>
Operating income (EBIT).....	\$ 3,000,000
– Interest (10.75% x \$2,000,000)	<u>215,000</u>
Earnings before taxes	\$ 2,785,000
– Taxes (35%)	<u>974,750</u>
Earnings after taxes	\$ 1,810,250
Shares	2,000,000
Earnings per share	\$.91

* Fixed costs include \$1,000,000 in depreciation

In spite of Harry's arguments, Mike Anton was determined to show the impact of both operating and financial leverage on Genuine Motor Products operations. He reconstructed the year-end balance sheet for 2008 (previously shown in Figure 1), and the results are shown in Figure 3 based on the following assumptions.

1. That the firm would increase fixed assets by \$14 million dollars.
2. That \$10 million of the \$14 would be funded through long-term debt in the form of additional bonds payable at an interest rate of 10.75%.
3. The remaining \$4 million would come from the sale of additional common stock at a net price to the corporation of \$12.50. This would require the issuance of 320,000 new shares ($\$4 \text{ million} / \$12.50 = 320,000 \text{ shares}$).

The impact of these values on the balance sheet in Figure 3 shows substantially greater leverage both on the asset and liability side.

Figure 3

GENUINE MOTOR PRODUCTS		
Revised Balance Sheet		
For the year ended December 31, 2008		
<i>Assets</i>		
Current assets		\$16,000,000
Fixed Assets		
Plant and equipment	\$34,000,000	
Less: Accumulated depreciation.....	<u>12,000,000</u>	
Net plant and equipment.....		22,000,000
Total assets		<u>\$38,000,000</u>
<i>Liabilities and Stockholders' Equity</i>		
Current liabilities.....		10,000,000
Long-term liabilities:		
Bonds payable 10.75%.....		<u>12,000,000</u>
Total liabilities.....		\$22,000,000
Stockholders' equity:		
Common stock, \$1 par value, 2,320,000 shares		\$ 2,320,000*
Capital in excess of par.....		7,680,000**
Retained earnings		<u>6,000,000</u>
Total stockholders' equity		<u>\$16,000,000</u>
Total liabilities and stockholders' equity		<u>\$38,000,000</u>

*2,000,000 old shares + 320,000 new shares = 2,320,000 shares

** 4,000,000 old capital in excess of par + 320,000 new shares x (\$12.50 price - \$1 par value) =
4,000,000 + 320,000 (\$11.50) = \$7,680,000

The intent of using more leverage was to increase the potential profitability of the firm. You are called in as a financial analyst to rework the 2009 pro forma income statement based on the assumptions stated in Table 1. These primarily relate to the fact there are now more fixed assets, long-term debt, and shares outstanding.

Table 1
Assumptions for Revised Pro Forma Income Statement

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1. Sales will remain constant at 1,000,000 units at \$30 per unit.
 2. Fixed costs will increase from \$2,000,000 to \$5,800,000, a gain of \$3,800,000. (Depreciation expense will be \$2,800,000 and this will be shown as a footnote in the 2009 pro forma income statement).
 3. Variable cost per unit will be reduced from \$25 to \$18.80. A total of 1,000,000 units will still be sold. The reduction in variable costs per unit is a direct result of the increased fixed costs and the associated automation.
 4. Interest expense will reflect that there is now \$12 million in long-term debt in the form of bonds payable at 10.75%. Ten million dollars of new debt is being added to \$2 million of old debt.
 5. Shares outstanding are now at a level of 2,320,000. Three hundred and twenty thousand new shares are being added to the 2,000,000 old shares currently outstanding.
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Required

1. Complete the revised pro forma income statement below. In the process, refer back to Figure 2, the original pro forma income statement for 2009 and the assumptions in Table 1. The new statement you are developing below will be referred to as Figure 4 for purposes of reference.

Figure 4

GENUINE MOTOR PRODUCTS
Revised Pro forma Income Statement
For 2009

Sales (1,000,000 units @ \$30 per unit)	\$30,000,000
– Fixed costs*	5,800,000
– Total variable costs (1,000,000 units @ \$18.80 per unit)	
Operating income (EBIT).....	
– Interest (10.75% x \$12,000,000)	
Earnings before taxes	
– Taxes (35%)	
Earnings after taxes	
Shares	2,320,000
Earnings per share	\$ 1.15

* Fixed costs include \$2,800,000 in depreciation

Required

2. Explain the primary reasons for the change in earnings per share between Figure 2 and Figure 4.
3. To determine the extent the company is more leveraged than it was prior to changes suggested by Mike Anton, compute degree of operating leverage (DOL), degree of financial leverage (DFL), and degree of combined leverage (DCL) both for Figure 2 (before changes) and Figure 4 (after changes). Use equations 5-3, 5-5, and 5-7 from the text.
4. Using the same financial statements (Figure 2 and Figure 4), compute the breakeven point before and after the changes. Use equation 5-1 from the text.
5. Assume you use a different measure of break-even analysis. The answer to question 4 tells you the number of units the firm needs to sell to cover fixed costs. Assume you are interested in covering all cash outflows and, furthermore, will use only cash flow numbers rather than accounting numbers. The cash outflows to be covered are (Fixed costs - depreciation) plus interest payments.

The formula for the revised break-even (BE) point is:

$$\text{Revised BE} = \frac{(\text{Fixed costs} - \text{depreciation}) + \text{Interest}}{\text{Price (P)} - (\text{VC}) \text{ variable cost per unit}}$$

Apply this formula to Figure 2 to get the revised break-even point before the changes and Figure 4 to get the revised break-even point after the changes. (Note the value for depreciation can be found as a footnote at the bottom of the two figures).

6. Harry Engle suggests that the company could be in trouble if Mike Anton's changes are put in place (as reflected in Figure 4) and sales volume is only 300,000 units. Using your revised break-even answers from question 5, do you agree?
7. Finally, assume sales volume reaches 1,500,000 units after Mike Anton's changes are put into place. What will the new figure be for earnings per share? Under the old plan, earnings per share at 1,500,000 units would be \$1.72.

Sales (1,500,000 units @ \$30 per unit).....	\$45,000,000
– Fixed costs	5,800,000
– Total variable costs (1,500,000 units @ \$18.80 per unit)	
Operating income.....	
– Interest (10.75% x \$12,000,000).....	
Earnings before taxes	
– Taxes (35%)	
Earnings after taxes	
Shares	2,320,000
Earnings per share.....	

8. After computing all the numbers in the case, are you inclined to agree with Mike Anton that the changes to automation would be a good idea or Harry Engle, the chief financial officer, that they would not be? What is likely to be the key variable in determining the success or failure of the new plan?