

1. {M}a.

	Before Kraft	Consolidated
Pretax interest coverage 1	10.64X	3.76X
Long-term debt/total capital 2	28.11%	61.99%
Cash flow/total debt 3	71.14%	23.14%

1	$(\$4,820 + \$500) / \$500$	$\$4,420 + \$1,600 / \$1,600$
2	$\$3,883 / (\$3,883 + \$9,931)$	$\$15,778 / (\$15,778 + \$9,675)$
3	$(\$2,820 + \$750 + \$100 - \$125) / (\$3,883 + \$1,100)$	$(\$2,564 + \$1,235 + \$390 - \$125) / (\$15,778 + \$1,783)$

b. Pretax interest coverage moves from the AA range to the BBB range. Long-term debt/total capital shifts from A to less than B. Cash flow/total debt declines from between A and AA to BB.

c. Prior to the merger, Philip Morris debt would have a strong A rating based on these criteria. After the Kraft merger, BB would be appropriate based on these same criteria.

2. {M}Note: The answers given below concern the effect of the merger on the probability of bankruptcy as predicted by Altman's models. It is not clear that ratio changes caused by external events (such as an acquisition) have the same predictive ability as those resulting from normal operations.

The variables used in Altman's two models are listed below by category:

	1977 model	1968 model
Activity		Sales to total assets
Liquidity assets	Current ratio	Working capital to total
Leverage and Solvency	Equity (market) to debt	Equity (market) to capital
Profitability	Times interest earned	
	Return on assets	Return on assets
	Retained earnings to total assets	Retained earnings to total assets
Earnings Variability	Standard error of ROA	

Size

Total assets

Activity

(1968 model) Sales to total assets

Sales increased by \$11,610 (approximately 33%) from \$33,080 to \$44,690 as a result of the merger. Although Exhibit 18P-1 does not provide the data directly, we can infer from the data available that the increase in assets would be greater.

Total debt + equity

(post merger) = \$1,783 + \$15,778 + \$9,675 = \$27,236

(pre merger) = \$1,100 + \$3,883 + \$9,931 = 14,914

Increase = \$12,322

Debt plus equity increased by \$12,322. When we consider that current operating liabilities and other (nondebt) liabilities also increased as a result of the merger, we can infer that total assets grew by at least \$12,322.

If, prior to the merger, the asset turnover ratio was greater than 1, then adding a given amount (\$11,610) to the numerator and a larger amount to the denominator would reduce the ratio, increasing the likelihood of bankruptcy.

If, on the other hand, the asset turnover ratio was less than 1 prior to the merger, then more information about actual asset levels is needed to determine the effect on this ratio.

Liquidity

(1977 model) Current ratio

(1968 model) Working capital to total assets

The information in Exhibit 18P-1 is insufficient to assess the impact of the merger on working capital and the current ratio.

Leverage and Solvency

(1977 model) Market value of equity to debt

(1968 model) Market value of equity to capital

Before the merger, Philip Morris' total debt was \$4,983 billion (\$1,100 + \$3,883). As a result of the merger, total debt increased more than threefold to \$17,561 million (\$1,783 + \$15,778). Unless the market value of equity increased by the same proportion [Philip Morris' market value actually decreased following the merger announcement] the equity to debt (capital) ratio would be reduced considerably, increasing the likelihood of bankruptcy.

(1977 model) Times interest earned

From problem 1, we have

	Before Kraft	Consolidated
Pretax interest coverage	10.64X	3.76X

Based on the (1977) model, the reduction in the coverage ratio would increase the likelihood of bankruptcy.

Profitability

(Both models) Return on assets

Philip Morris' EBIT rose from \$5,320 million (\$4,820 + \$500) to \$6,020 million (\$4,420 + \$1,600). EBIT decreased from 16% of sales (\$5,320/\$33,080) to 13.5% (\$6,020/\$44,690). The impact on ROA depends on the asset turnover (discussed earlier). However, unless asset turnover increased by (at least) 18.5%, the net effect would be a reduction in ROA.

(Both models) Retained earnings to total assets

Since the merger is accounted for under the purchase method, Kraft's retained earnings are eliminated. As total assets increase, this ratio would be greatly reduced. The reduced ratio results in prediction by the model of a greater likelihood of bankruptcy.

Earnings Variability

(1977 model) Standard deviation of ROA

Similar to portfolio diversification, the variance of return measures such as ROA should decline following the merger, reducing the likelihood of bankruptcy.

Size

(1977 model) Total assets

As total assets increase as a result of the merger, the model predicts a smaller likelihood of bankruptcy.

3.{\$} The theoretical as well as empirical models (Exhibit 18-3), indicate that beta risk is a function of both the operating (unleveraged beta) and financial (leveraged) risk of the company. As Philip Morris' debt increased by approximately \$12 billion as a result of the merger without a commensurate increase in equity the firm's financial leverage increased. Ceteris paribus, this should result in an increase in financial risk and beta.

The effect on operating risk depends on how Kraft's cost structure compares with that of Philip Morris, that is, on the mix between fixed and variable costs. The impact on beta would depend on the answer to this question.