

Case study: managerial finance chapter 14

[Finance](#)



Closing Case: Managerial Finance Chapter 14

1. If Stephenson wishes to maximize its total market value, would you recommend that it issue debt or equity to finance the land purchase? Explain.

If Stephenson wishes to maximize the overall value of the firm, it should use debt to finance the \$95 million purchase. Since interest payments are tax-deductible, debt in the firm's capital structure will decrease the firm's taxable income, creating a tax shield that will increase the overall value of the firm.

2. Construct Stephenson's market value balance sheet before it announces the purchase. Since Stephenson is an all-equity firm with 15 million shares of common stock outstanding, worth \$34.50 per share, the market value of the firm is: Market value of equity = $\$34.50(15,000,000)$ Market value of equity = \$517,500,000 So, the market value balance sheet before the land purchase is: Assets \$517,500,000 Debt -Equity \$517,500,000 Total assets \$517,500,000 Debt & Equity \$517,500,000.

3. Suppose Stephenson decides to issue equity to finance the purchase. a. What is the net present value of the project? As a result of the purchase, the firm's pre-tax earnings will increase by \$23 million per year in perpetuity.

These earnings are taxed at a rate of 40 percent. Therefore, after taxes, the purchase increases the annual expected earnings of the firm by: Earnings increase = $\$23,000,000(1 - .40)$ Earnings increase = \$13,800,000 Since Stephenson is an all-equity firm, the appropriate discount rate is the firm's unlevered cost of equity, so the NPV of the purchase is: $NPV = -\$95,000,000 + (\$13,800,000 / .125)$ NPV = \$15,400,000 b. Construct Stephenson's market value balance sheet after it announces that the firm will finance the purchase using equity.

What would be the new price per share of the firm's stock? How many shares will Stephenson need to issue in order to finance the purchase? After the announcement, the value of Stephenson will increase by \$15.4 million, the net present value of the purchase. Under the efficient-market hypothesis, the market value of the firm's equity will immediately rise to reflect the NPV of the project. Therefore, the market value of Stephenson's equity after the announcement will be: $\text{Equity Value} = \$517,500,000 + \$15,400,000$
 $\text{Equity Value} = \$532,900,000$ Market value balance sheet.

Old assets \$517,500,000 Debt NVP of project \$15,400,000 Equity \$532,900,000
 Total equity \$532,900,000 Debt & Equity \$532,900,000 Since the market value of the firm's equity is \$532,900,000 and the firm has 15 million shares of common stock outstanding. Stephenson's stock price after the announcement will be: $\text{New share price} = \$532,900,000 / 15,000,000$
 New share price: \$35.53 Since Stephenson must raise \$95 million to finance the purchase and the firm's stock worth \$35.53 per share, Stephanie must issue: $\text{Shares to issue} = \$95,000,000 / \$35.53$ Shares to issue = 2,673,797 c.

Construct Stephenson's market value balance sheet after the equity issue, but before the purchase has been made. How many shares of common stock does Stephenson have outstanding? What is the price per share of the firm's stock? Stephenson will receive \$95 million in cash as a result of the equity issue. This will increase the firm's assets and equity by \$95 million. So, the new market value balance sheet after the stock issue will be: Market value balance sheet Cash \$95,000,000 Debt Old assets \$517,500,000 Equity \$627,

900, 000 NPV of project \$15, 400, 000 Total Assets \$627, 900, 000 Debt & Equity \$627, 900, 000.

The stock change will remain unchanged. To show this Stephenson will have to: Total shares outstanding = $\frac{\$15,000,000}{\$35.53} = 422,488$ Total shares outstanding = 17, 673, 797 So the share price is: Share price = $\frac{\$627,900,000}{17,673,797} = \35.53 d. Construct Stephenson's market value balance sheet after the purchase has been made. The market value balance sheet of the company: Old assets \$517, 500, 000 Debt Building \$95, 000, 000 Equity \$627, 900, 000 NPV of project \$15, 400, 000 Total assets \$627, 900, 000 Debt & Equity \$627, 900, 000.

4. Suppose Stephenson decides to issue debt in order to finance the purchase. What will the market value of the Stephenson company be if the purchase is financed with debt? Modigliani-Miller states that in a world with corporate taxes: $V_L = V_U + cB$ As was shown in question 3, Stephenson will be worth \$627. 9 million if it finances the purchase with equity. It is to finance the initial outlay of the project with debt; the firm would have \$95 million. So the value of the company if it financed with debt is: $V_L = \$627,900,000 + .40(\$95,000,000) = \$665,900,000$ b. Construct Stephenson's market value balance sheet after both the debt issue and the land purchase.

What is the price per share of the firm's stock? After the announcement, the value of Stephenson will immediately rise by the percent value of the project. Since the market value of the firm's debt is \$95 million and the value of the firm is \$627. 9 million we can calculate the market value of Stephenson's equity. Stephenson's market value balance sheet after the

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debt issue will be: Value unlevered \$627,900,000 Debt \$95,000,000 Tax sheet \$38,000,000 Equity \$570,900,000 Total assets \$665,900,000 Debt & Equity \$665,900,000 Since the market value of Stephenson's equity is \$570. million and the firm has 15 million shares of common stock outstanding. Stephenson's stock price after the debt issue will be: Stock Price = $\$570,900,000 / 15,000,000$ Stock Price = \$38.06.

5. Which method of financing maximizes the per-share stock price of Stephenson's equity? If Stephenson uses the equity in order to finance the project, the firm's stock price will remain at 35.53 per share. If the firm uses debt in order to finance the project, the firm's stock price will rise to \$38.06 per share. Therefore, debt financing maximizes the per-share stock price of a firm's equity.