

BAYLOR UNIVERSITY
HANKAMER SCHOOL OF BUSINESS
DEPARTMENT OF ECONOMICS

ECO 5315 Chapter 1 Problem Set Solutions

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Solutions for assigned problems from Chapter 1 (problems 2, 6, 7-9 on pp. 20-22)

2. Some say that any self-respecting top manager joining a company does so with a front-end signing bonus. In many cases this bonus is in the seven figures. At the same time the entering manager may be given a bonus guarantee. No matter what happens to firm profit, he or she gets at least a percentage of that bonus. Do long-term bonus guarantees help to solve the principal-agent problem, or do they exacerbate it? Why?

Solution:

An executive who spends a lifetime working for a single company or in a single industry has a poorly diversified human capital portfolio. Such an executive also often has a significant, undiversified financial investment in the form of stock options and pension plans that are used in partial substitution for current salary to align the long-term wealth of the executive with that of the shareholders. As an executive climbs the corporate ladder, the value of his or her human capital becomes more closely tied to the fortunes of the firm and industry. This lack of diversification requires a compensating risk premium. A large signing bonus may allow a risk-averse executive to make an investment that increases the value of the firm but that the executive would otherwise avoid because of concern for his or her own personal wealth; thus the bonus may reduce the principal-agent conflict. Of course, the benefits of reduced risk to the executive come at the potential cost of indifference to the wealth of the shareholders. Although a large signing bonus may help solve the incentive alignment problem, compensation that is too great and too insensitive to the fortunes of the shareholders makes the principal-agent problem worse.

6. On March 3, 2008, a revival of *Gypsy*, the Stephen Sondheim musical, opened at the St. James Theater in New York. Ticket prices ranged from \$117 to \$42 per seat. The show's weekly gross revenues, operating costs, and profit were estimated as follows, depending on whether the average ticket price was \$75 or \$65:

	Average Price of \$75	Average Price of \$65
Gross revenues	\$765,000	\$680,000
Operating costs	600,000	600,000
Profit	165,000	80,000

- a. With a cast of 71 people, a 30-piece orchestra, and more than 500 costumes, *Gypsy* cost more than \$10 million to stage. This investment was in addition to the operating

costs (such as salaries and theater rent). How many weeks would it take before the investors got their money back, according to these estimates, if the average price was \$65? If it was \$75?

Solution: Given a price of \$75, the weekly operating profit of \$165,000 would pay off the \$10 million investment in $10,000/165 = 60.6$ or 61 weeks. If the price is \$65, it would take $10,000/80 = 125$ weeks to pay off the investment. This does not provide for any return on investment, however.

- b. George Wachtel, director of research for the League of American Theaters and Producers, has said that about one in three shows opening on Broadway in recent years has at least broken even. Were the investors in *Gypsy* taking a substantial risk?

Solution: The investors in *Gypsy* were indeed taking a substantial risk. If only one in three shows breaks even, two out of three make losses.

- c. According to one Broadway producer, “Broadway isn’t where you make the money any more. It’s where you establish the project so you can make the money. When you mount a show now, you really have to think about where it’s going to play later.” If so, should the profit figures here be interpreted with caution?

Solution: The profit figures should be interpreted with caution because they do not take into account the likelihood of profits when, and if, the show goes on the road.

- d. If the investors in this revival of *Gypsy* make a profit, will this profit be, at least in part, a reward for bearing risk?

Solution: Yes.

7. If the demand curve for wheat in the United States is

$$P = 12.4 - Q_D$$

where P is the farm price of wheat (in dollars per bushel) and Q_D is the quantity of wheat demanded (in billions of bushels), and the supply curve for wheat in the United States is

$$P = -2.6 + 2Q_S$$

where Q_S is the quantity of wheat supplied (in billions of bushels), what is the equilibrium price of wheat? What is the equilibrium quantity of wheat sold? Must the actual price equal the equilibrium price? Why or why not?

Solution:

Setting demand equal to supply yields

$$\begin{aligned} 12.4 - Q &= -2.6 + 2Q \Rightarrow 15 = 3Q \Rightarrow Q = 5. \\ P &= 12.4 - 5 = \$7.40. \end{aligned}$$

The actual price need not be equal to equilibrium price, although it will generally tend to move toward it because of the equilibrating effects of shortage and surplus. Factors that might prevent the actual price from equaling the equilibrium price include the cost and availability of information, transportation costs, and a lack of opportunities for price equalizing arbitrage.

8. The lumber industry was hit hard by the subprime mortgage turmoil in 2008. Prices plunged from \$290 per thousand board feet to less than \$200 per thousand board feet. Many observers believed this price decrease was caused by the slowing of new home construction because of the glut of unsold homes on the market. Was this price decrease caused by a shift in the supply or demand curve?

Solution:

Because the demand for lumber is derived in large part from the demand for new housing construction, a decline in construction would be likely to cause the demand for lumber to fall, leading to lower lumber prices. Supply would not be affected by changes in housing construction.

9. From November 2007 to March 2008, the price of gold increased from \$865 per ounce to over \$1,000 per ounce. Newspaper articles during this period said there was little increased demand from the jewelry industry but significantly more demand from investors who were purchasing gold because of the falling dollar.
- a. Was this price increase due to a shift in the demand curve for gold, a shift in the supply curve for gold, or both?

Solution: A change in the value of the dollar causes the dollar price of globally traded commodities to change. If the value of the dollar falls, the dollar price of commodities will rise. In this case, a decline in the value of the dollar can be expected to cause the market for gold (with price measured in dollars) to experience an increase in demand and a decrease in supply, and thus an increase in price. There may also have been an additional increase in demand due to expectations by investors that the dollar price of gold would continue to rise. Finally, there may have been a further supply decrease if producers, speculating that prices would rise further, withheld gold from the market.

- b. Did this price increase affect the supply curve for gold jewelry? If so, how?

Solution: Gold is an input to the production of jewelry. An increase in the price of gold would therefore be expected to reduce the supply of jewelry, resulting in higher jewelry prices.