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# ***CHAPTER 13***

## **CORPORATE FINANCING DECISIONS AND EFFICIENT CAPITAL MARKETS**

### **Answers to Concepts Review and Critical Thinking Questions**

1. To create value, firms should accept financing proposals with positive net present values. Firms can create valuable financing opportunities in three ways: 1) Fool investors. A firm can issue a complex security to receive more than the fair market value. Financial managers attempt to package securities to receive the greatest value. 2) Reduce costs or increase subsidies. A firm can package securities to reduce taxes. Such a security will increase the value of the firm. In addition, financing techniques involve many costs, such as accountants, lawyers, and investment bankers. Packaging securities in a way to reduce these costs will also increase the value of the firm. 3) Create a new security. A previously unsatisfied investor may pay extra for a specialized security catering to his or her needs. Corporations gain from developing unique securities by issuing these securities at premium prices.
2. The three forms of the efficient markets hypothesis are: 1) Weak form. Market prices reflect information contained in historical prices. Investors are unable to earn abnormal returns using historical prices to predict future price movements. 2) Semi-strong form. In addition to historical data, market prices reflect all publicly-available information. Investors with insider, or private information, are able to earn abnormal returns. 3) Strong form. Market prices reflect all information, public or private. Investors are unable to earn abnormal returns using insider information or historical prices to predict future price movements.
3.
  - a. False. Market efficiency implies that prices reflect all available information, but it does not imply certain knowledge. Many pieces of information that are available and reflected in prices are fairly uncertain. Efficiency of markets does not eliminate that uncertainty and therefore does not imply perfect forecasting ability.
  - b. True. Market efficiency exists when prices reflect all available information. To be efficient in the weak form, the market must incorporate all historical data into prices. Under the semi-strong form of the hypothesis, the market incorporates all publicly-available information in addition to the historical data. In strong form efficient markets, prices reflect all publicly and privately available information.
  - c. False. Market efficiency implies that market participants are rational. Rational people will immediately act upon new information and will bid prices up or down to reflect that information.
  - d. False. In efficient markets, prices reflect all available information. Thus, prices will fluctuate whenever new information becomes available.

- e.* True. Competition among investors results in the rapid transmission of new market information. In efficient markets, prices immediately reflect new information as investors bid the stock price up or down.
4. On average, the only return that is earned is the required return—investors buy assets with returns in excess of the required return (positive NPV), bidding up the price and thus causing the return to fall to the required return (zero NPV); investors sell assets with returns less than the required return (negative NPV), driving the price lower and thus causing the return to rise to the required return (zero NPV).
  5. The market is not weak form efficient.
  6. Yes, historical information is also public information; weak form efficiency is a subset of semi-strong form efficiency.
  7. Ignoring trading costs, on average, such investors merely earn what the market offers; the trades all have zero NPV. If trading costs exist, then these investors lose by the amount of the costs.
  8. Unlike gambling, the stock market is a positive sum game; everybody can win. Also, speculators provide liquidity to markets and thus help to promote efficiency.
  9. The EMH only says, within the bounds of increasingly strong assumptions about the information processing of investors, that assets are fairly priced. An implication of this is that, on average, the typical market participant cannot earn excessive profits from a particular trading strategy. However, that does not mean that a few particular investors cannot outperform the market over a particular investment horizon. Certain investors who do well for a period of time get a lot of attention from the financial press, but the scores of investors who do not do well over the same period of time generally get considerably less attention from the financial press.
  10.
    - a.* If the market is not weak form efficient, then this information could be acted on and a profit earned from following the price trend. Under (2), (3), and (4), this information is fully impounded in the current price and no abnormal profit opportunity exists.
    - b.* Under (2), if the market is not semi-strong form efficient, then this information could be used to buy the stock “cheap” before the rest of the market discovers the financial statement anomaly. Since (2) is stronger than (1), both imply that a profit opportunity exists; under (3) and (4), this information is fully impounded in the current price and no profit opportunity exists.
    - c.* Under (3), if the market is not strong form efficient, then this information could be used as a profitable trading strategy, by noting the buying activity of the insiders as a signal that the stock is underpriced or that good news is imminent. Since (1) and (2) are weaker than (3), all three imply that a profit opportunity exists. Note that this assumes the individual who sees the insider trading is the only one who sees the trading. If the information about the trades made by company management is public information, it will be discounted in the stock price and no profit opportunity exists. Under (4), this information does not signal any profit opportunity for traders; any pertinent information the manager-insiders may have is fully reflected in the current share price.
  11. A technical analyst would argue that the market is not efficient. Since a technical analyst examines past prices, the market cannot be weak form efficient for technical analysis to work. If the market is not weak form efficient, it cannot be efficient under stronger assumptions about the information available.

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12. Investor sentiment captures the mood of the investing public. If investors are bearish in general, it may be that the market is headed down in the future since investors are less likely to invest. If the sentiment is bullish, it would be taken as a positive signal to the market. To use investor sentiment in technical analysis, you would probably want to construct a ratio such as a bulls/bears ratio. To use the ratio, simply compare the historical ratio to the market to determine if a certain level on the ratio indicates a market upturn or downturn.
13. Taken at face value, this fact suggests that markets have become more efficient. The increasing ease with which information is available over the Internet lends strength to this conclusion. On the other hand, during this particular period, large-capitalization growth stocks were the top performers. Value-weighted indexes such as the S&P 500 are naturally concentrated in such stocks, thus making them especially hard to beat during this period. So, it may be that the dismal record compiled by the pros is just a matter of bad luck or benchmark error.
14. It is likely the market has a better estimate of the stock price, assuming it is semistrong form efficient. However, semistrong form efficiency only states that you cannot easily profit from publicly available information. If financial statements are not available, the market can still price stocks based upon the available public information, limited though it may be. Therefore, it may have been as difficult to examine the limited public information and make an extra return.
15.
  - a. Aerotech's stock price should rise immediately after the announcement of the positive news.
  - b. Only scenario (ii) indicates market efficiency. In that case, the price of the stock rises immediately to the level that reflects the new information, eliminating all possibility of abnormal returns. In the other two scenarios, there are periods of time during which an investor could trade on the information and earn abnormal returns.
16. False. The stock price would have adjusted before the founder's death only if investors had perfect forecasting ability. The 12.5 percent increase in the stock price after the founder's death indicates that either the market did not anticipate the death or that the market had anticipated it imperfectly. However, the market reacted immediately to the new information, implying efficiency. It is interesting that the stock price rose after the announcement of the founder's death. This price behavior indicates that the market felt he was a liability to the firm.
17. The announcement should not deter investors from buying UPC's stock. If the market is semi-strong form efficient, the stock price will have already reflected the present value of the payments that UPC must make. The expected return after the announcement should still be equal to the expected return before the announcement. UPC's current stockholders bear the burden of the loss, since the stock price falls on the announcement. After the announcement, the expected return moves back to its original level.
18. The market is often considered to be relatively efficient up to the semi-strong form. If so, no systematic profit can be made by trading on publicly-available information. Although illegal, the lead engineer of the device can profit from purchasing the firm's stock *before* the news release on the implementation of the new technology. The price should immediately and fully adjust to the new information in the article. Thus, no abnormal return can be expected from purchasing after the publication of the article. .

19. Under the semi-strong form of market efficiency, the stock price should stay the same. The accounting system changes are publicly available information. Investors would identify no changes in either the firm's current or its future cash flows. Thus, the stock price will not change after the announcement of increased earnings.
20. Because the number of subscribers has increased dramatically, the time it takes for information in the newsletter to be reflected in prices has shortened. With shorter adjustment periods, it becomes impossible to earn abnormal returns with the information provided by Durkin. If Durkin is using only publicly-available information in its newsletter, its ability to pick stocks is inconsistent with the efficient markets hypothesis. Under the semi-strong form of market efficiency, all publicly-available information should be reflected in stock prices. The use of private information for trading purposes is illegal.
21. You should not agree with your broker. The performance ratings of the small manufacturing firms were published and became public information. Prices should adjust immediately to the information, thus preventing future abnormal returns.
22. Stock prices should immediately and fully rise to reflect the announcement. Thus, one cannot expect abnormal returns following the announcement.
23.
  - a. No. Earnings information is in the public domain and reflected in the current stock price.
  - b. Possibly. If the rumors were publicly disseminated, the prices would have already adjusted for the possibility of a merger. If the rumor is information that you received from an insider, you could earn excess returns, although trading on that information is illegal.
  - c. No. The information is already public, and thus, already reflected in the stock price.
24. Serial correlation occurs when the current value of a variable is related to the future value of the variable. If the market is efficient, the information about the serial correlation in the macroeconomic variable and its relationship to net earnings should already be reflected in the stock price. In other words, although there is serial correlation in the variable, there will not be serial correlation in stock returns. Therefore, knowledge of the correlation in the macroeconomic variable will not lead to abnormal returns for investors.
25. The statement is false because every investor has a different risk preference. Although the expected return from every well-diversified portfolio is the same after adjusting for risk, investors still need to choose funds that are consistent with their particular risk level.
26. The share price will decrease immediately to reflect the new information. At the time of the announcement, the price of the stock should immediately decrease to reflect the negative information.

27. In an efficient market, the cumulative abnormal return (CAR) for Prospectors would rise substantially at the announcement of a new discovery. The CAR falls slightly on any day when no discovery is announced. There is a small positive probability that there will be a discovery on any given day. If there is no discovery on a particular day, the price should fall slightly because the good event did not occur. The substantial price increases on the rare days of discovery should balance the small declines on the other days, leaving CARs that are horizontal over time.
28. Behavioral finance attempts to explain both the 1987 stock market crash and the Internet bubble by changes in investor sentiment and psychology. These changes can lead to non-random price behavior.

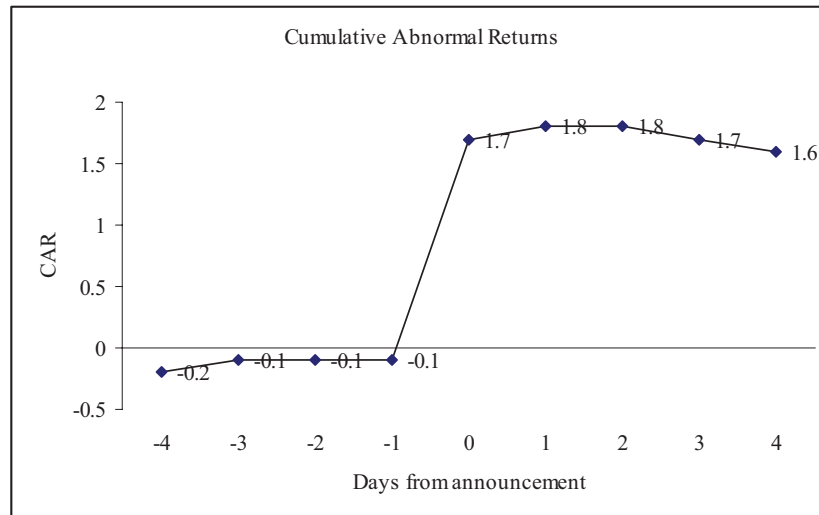
### Solutions to Questions and Problems

*NOTE: All end-of-chapter problems were solved using a spreadsheet. Many problems require multiple steps. Due to space and readability constraints, when these intermediate steps are included in this solutions manual, rounding may appear to have occurred. However, the final answer for each problem is found without rounding during any step in the problem.*

#### Basic

1. To find the cumulative abnormal returns, we chart the abnormal returns for each of the three airlines for the days preceding and following the announcement. The abnormal return is calculated by subtracting the market return from a stock's return on a particular day,  $R_i - R_M$ . Group the returns by the number of days before or after the announcement for each respective airline. Calculate the cumulative average abnormal return by adding each abnormal return to the previous day's abnormal return.

Days from announcement	<u>Abnormal returns (<math>R_i - R_M</math>)</u>				Average abnormal return	Cumulative average residual
	Delta	United	American	Sum		
-4	-0.2	-0.2	-0.2	-0.6	-0.2	-0.2
-3	0.2	-0.1	0.2	0.3	0.1	-0.1
-2	0.2	-0.2	0.0	0.0	0.0	-0.1
-1	0.2	0.2	-0.4	0.0	0.0	-0.1
0	3.3	0.2	1.9	5.4	1.8	1.7
1	0.2	0.1	0.0	0.3	0.1	1.8
2	-0.1	0.0	0.1	0.0	0.0	1.8
3	-0.2	0.1	-0.2	-0.3	-0.1	1.7
4	-0.1	-0.1	-0.1	-0.3	-0.1	1.6



The market reacts favorably to the announcements. Moreover, the market reacts only on the day of the announcement. Before and after the event, the cumulative abnormal returns are relatively flat. This behavior is consistent with market efficiency.

2. The diagram does not support the efficient markets hypothesis. The CAR should remain relatively flat following the announcements. The diagram reveals that the CAR rose in the first month, only to drift down to lower levels during later months. Such movement violates the semi-strong form of the efficient markets hypothesis because an investor could earn abnormal profits while the stock price gradually decreased.
3.
  - a. Supports. The CAR remained constant after the event at time 0. This result is consistent with market efficiency, because prices adjust immediately to reflect the new information. Drops in CAR prior to an event can easily occur in an efficient capital market. For example, consider a sample of forced removals of the CEO. Since any CEO is more likely to be fired following bad rather than good stock performance, CARs are likely to be negative prior to removal. Because the firing of the CEO is announced at time 0, one cannot use this information to trade profitably *before* the announcement. Thus, price drops prior to an event are neither consistent nor inconsistent with the efficient markets hypothesis.
  - b. Rejects. Because the CAR increases after the event date, one can profit by buying after the event. This possibility is inconsistent with the efficient markets hypothesis.
  - c. Supports. The CAR does not fluctuate after the announcement at time 0. While the CAR was rising before the event, insider information would be needed for profitable trading. Thus, the graph is consistent with the semi-strong form of efficient markets.

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- d.* Supports. The diagram indicates that the information announced at time 0 was of no value. There appears to be a slight drop in the CAR prior to the event day. Similar to part *a*, such movement is neither consistent nor inconsistent with the efficient markets hypothesis (EMH). Movements at the event date are neither consistent nor inconsistent with the efficient markets hypothesis.
4. Once the verdict is reached, the diagram shows that the CAR continues to decline after the court decision, allowing investors to earn abnormal returns. The CAR should remain constant on average, even if an appeal is in progress, because no new information about the company is being revealed. Thus, the diagram is not consistent with the efficient markets hypothesis (EMH).