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MARKET EFFICIENCY – DEFINITION, TESTS AND EVIDENCE

**Problem 1**

- (a) Resources are allocated among firms efficiently (i.e. put to best use)
- (f) No group of investors will do better than the market consistently after adjusting for risk and transactions costs.

**Problem 2**

No. The stock price should reflect this seasonal pattern in sales. If seasonal sales were better or worse than expected, you would expect to see an effect on stock prices.

**Problem 3**

To test any market inefficiency, a model needs to be specified for expected returns. One cannot therefore test market efficiency alone without jointly testing an asset pricing model

**Problem 4**

No. Demand and Supply are determined by real variables (including the intrinsic value).

**Problem 5**

You should have looked at the merger announcement date (in the WSJ) and not at the effective date. Furthermore you should have started looking at days before the announcement date. Finally, by focusing on only the twenty largest mergers, you may be inducing sampling bias into your conclusions.

**Problem 6**

- (d) market prices contain errors, but the errors are random and therefore cannot be exploited by investors.

**Problem 7**

- a. Decrease Efficiency

Reasoning: Increases transactions cost and allows inefficiencies to continue.

- b. Decrease Efficiency

Reasoning: Removes an avenue that those with bad news could have used.

- c. Increase Efficiency

Reasoning: Allows investors to trade on news more easily

- d. Increase Efficiency

Reasoning: Allows more investors to come in and exploit inefficiencies.

**Problem 8**

- (a) There is some insider trading going on,, or at least information leaking out.
- (b) Suggests that the announcement contains good news, and that some of the news at least is a positive surprise to markets.
- (c) Suggests that markets over reacted to the initial news and there is a price correction.

**Problem 9**

Small firms make a substantial premium over expected returns after adjusting for risk. Most of this premium is earned in the first fifteen days of the year. This may be because (a) we are measuring risk incorrectly (b) Transactions costs are higher (c) Information is much more scanty. If your transactions costs are low enough, you could construct a portfolio of smaller stocks.

**Problem 10**

This suggests that markets do not react instantaneously to information events and that price adjustments to new information do not happen immediately. I would expect to find this to be much more of a problem with smaller, information-poor firms. I would exploit this anomaly by buying these stocks right after a positive surprise and selling after a negative surprise and holding for a very short time period. (The transactions costs and uncertainty might be much higher)

**Problem 11**

- (a) Investors sell stocks on which they have made losses towards the end of the year (driving the price down) and buy them back after the turn of the year (causing prices go up)
- (b) More information may come out in January than any other month of the year. Investors may be more optimistic and have more cash in January.

**Problem 12**

$$9\% (1-.4) + 5\% (1-x) = 12\% (1-.4) + 1\% (1-x)$$

Solve for x, x = 55%

**Problem 13**

- a. False. Low PE stocks are not riskier.
- b. False. The small stock effect is not created by outliers.
- c. False. Stock prices are affected but the average investor cannot take advantage of the price effect.

**Problem 14**

Expected Return on AD Value Fund =  $6\% + 0.8 (16\% - 6\%) = 14\%$

Expected Return on AD Growth Fund =  $6\% + 1.2 (16\% - 6\%) = 18\%$

AD Value outperformed the market by 2%

AD Growth underperformed by the market by 2%

b.  $(0.95) (1.02)^n = 1.00$

Solve for n,

$n = 2.59$  years