

**DEPARTMENT OF FINANCE, INSURANCE, & LAW
COLLEGE OF BUSINESS
ILLINOIS STATE UNIVERSITY**

**FIL 242 – Investments
Group HW #3**

*Work with your Market Watch groups and turn in a hardcopy (no e-mail submissions)
before class starts on **Monday, October 5th.***

1. Assume that the following five companies are used in computing a stock index:

Company	Shares outstanding	January 1 price	December 31 price
Aardvark	1,000	\$40	\$45
Bengal	5,000	25	16
Cougar	10,000	17	21
Dinosaur	4,000	32	32
Elephant	2,000	12	13

- a. If the divisor is 5, calculate the value of a price weighted index: (i) on January 1 and (ii) on December 31.
 - b. Based on your answer from part a, what is the rate of return on a price weighted index over the year?
 - c. Now suppose the index is value weighted and on January 1, the value of the index is 100. What is the value of the index on December 31? What is the rate of return over the year?
 - d. Repeat part c assuming the value of the index is 237.92 on January 1.
2. You are given the following information about three stocks. Note that stock C splits two-for-one in the last period. P is the price of the stock (per share) and Q is the number of shares outstanding.

Stock	P (Time 0)	Q (Time 0)	P(1)	Q(1)	P(2)	Q(2)
A	90	100	95	100	96	100
B	50	200	45	200	41	200
C	100	200	110	200	57	400

- a. Calculate the rate of return on a price-weighted index of the three stocks for the first period (time 0 to time 1).
- b. If the initial divisor is 3.0, what is the divisor after the second period (at time 2)? (HINT: Assume that stock C splits immediately after the market closes on day 1.)
- c. Calculate the return of a market value weighted index in the second period (time 1 to time 2).

3. You short sell 200 shares of stock with a current price of \$65/share. The initial margin is 60%.
 - a. Set up the T-account for this situation. How much did you invest?
 - b. If the stock price increases to \$72/share, what is your ending equity position?
 - c. Use your answer in part b to determine the return on your investment (HINT: it is the percentage change in equity).
 - d. If the maintenance margin is 25%, at what price do you receive a margin call?

4. This question gets you to think about the term “price weighted” index. Suppose you have four companies in a price weighted index where the divisor is 4.

<i>Company</i>	<i>Price per share</i>
James	\$10
Lars	20
Kirk	100
Robert	1,000

- a. Based on the prices given, what is the value of the index?
- b. Now suppose that the price of James goes up 10%. What is the new value of the price weighted index?
- c. Repeat the calculation from part b, for the other three companies in the index. Which one has the greatest effect on the value of the index?
- d. Based on your answer in part c, where does the term “price weighted” index come from?