Professor Crocker H. Liu   August 3, 2003
Investment Principles

Economic Indicators and Sources of Information

Objective: The purpose of this assignment is to acquaint you with the major sources of economic and financial information with an emphasis on using the NYU Intranet as well as the Internet in addition to using Bloomberg. A secondary goal of this assignment is to help you to understand the relationships between interest rates, inflation, economic growth, expectations, and stock market movements.

All work should be done using Excel. Please turn in a hard copy of your work with your answers highlighted in yellow. I do not accept files attached to email. This is an ***individual*** assignment.

Please download the file ip_macroecon_Spr2004.xls from my website and then download the following macroeconomic data from the Internet and add the data to this worksheet in separate files:

Data	Time Period	Data Source
Daily Prices of SP500	June 2, 2003 through July 25, 2003	http://biz.yahoo.com (ticker is ^gspc)
S&P Composite Common Stock: Price Earnings Ratio, (%, NSA, Month Average)	January 1990 - June 2003	http://www.economy.com/freelunch
Conference Board: Present Situation Index, and Expectations Index	June 1997 - June 2003	http://www.pollingreport.com/consumer.htm
NAPM Purchasing Managers Index, SA (NAPM); now known as ISM Index	January 1990 - June 2003	http://research.stlouisfed.org/fred/fredfile.html
Nominal GDP	1989Q1 - 2003Q1	http://www.economy.com/freelunch
Money Supply (M2)	January 1990 - June 2003	http://www.economy.com/freelunch
Three Month Constant Maturity Treasury Bill (tcm3m)	January 1990 - June 2003	http://www.federalreserve.gov/releases/#monthly
Ten Year Constant Maturity Treasury Bond (tcm10y)	January 1990 - June 2003	http://www.federalreserve.gov/releases/#monthly
Moody's AAA Yield to Maturity	January 1990 - June 2003	http://www.federalreserve.gov/releases/#monthly
Moody's Baa Yield to Maturity	January 1990 - June 2003	http://www.federalreserve.gov/releases/#monthly
Inventory to Sales Ratio: Total Business	January 1992 - May 2003	http://research.stlouisfed.org/fred2/series

For the website http://www.freelunch.com , you will need to register for a free account.

1. Market reaction to economic news (10 points): Using the news events in the worksheet entitled "Economic News Events" and the data that you downloaded on Daily Prices of the SP500, calculate the price reaction to each news event by taking the one day percentage change in price ((closing price – opening price)/opening price). For each news event, denote whether the price change that corresponds to the news event as you would have expected? For example, is the positive price reaction of .18% associated with the announcement on June 24, 2003 that the Consumer Confidence Index of 83.5 exceeded the consensus estimate of 82.3, as expected (Yes or No) or should there have been a negative price reaction? Please provide a sentence or two as to why it is Yes or No (Yes, the event is as expected or No, the event is not as

anticipated). Provide a reason(s) why the price reaction might differ from that which was expected. For example, were there any other newsworthy events on that day? If so, please specify what that news event(s) was. (Hint: Use Lexis/Nexus, Dow Jones Interactive now known as Factiva, or ABI/Inform on the NYU Intranet at http://www.nyu.edu/library/bobst/vbl/candf_info.html or a comparable news website to see what other economic news events, if any, occurred on that date). Please put the price changes and explanations in the "Economic News Events" worksheet (add columns to the existing worksheet. For your explanations, you can use the Word Wrap option in Excel).

2. Transforming Variables (No points given): Prior to your looking at the anticipated impact of various economic indicators on the relative value of stocks in general, you will need to transform the economic data that you have downloaded as follows.

- Treasury Spread: 10 Year Treasury Bond – 3 Month Treasury Bill
- Yield Spread: Yield to Maturity on AAA – YTM on Baa (BBB)
- Economic Expectations: Future Expectations Index about the Economy ÷ Present Situation Index from Conference Board
- Inventory Turnover: 1/Inventory-to-Sales Ratio
- ISM Rescaled: ISM (NAPM) Index/50
- Velocity of Money: Nominal GDP/M2. Note that since Nominal GDP is reported on a quarterly basis and M2 is reported on a monthly basis, the ratio is similar to that of calculating a PE ratio. For example, suppose that the nominal GDP for the first quarter of 1990 (1990Q1) is 5720.8 and the monthly M2 for January, February, and March of 1990 are 3171.6, 3184.4, and 3195.1 respectively. Then the velocity of money for January, February, and March of 1990 are 1.804 (5720.8 ÷ 3171.6), 1.797 (5720.8 ÷ 3184.4), and 1.79 (5720.8 ÷ 3195.1) respectively.

A Note on the Market PE (price-earnings ratio): Recall from your Foundations of Finance course that the P/E for the market or a particular stock can be written using the constant growth model as follows:

$$\frac{P}{E} = \frac{\text{Expected Dividend Payout } (DPS_{t+1}/EPS_{t+1})}{\text{Cost of Equity } (k_{Equity}) - \text{Expected Growth Rate in EPS } (g_{t+1})}$$

From this equation, we can see that a high P/E can arise from 1) a high projected earnings in the future, 2) a lower cost of equity (remember that the beta of the market is equal to one by definition), and/or 3) a higher dividend payout ratio.

3. Relationship between the Treasury Spread and Market P/E (10 Points): Plot the Treasury Spread against the P/E ratio of the market using a Lines on 2 Axes graph option located in Custom Type graphs. Does this relationship make economic sense? Please explain. In your discussion, please indicate what the treasury spread is a proxy for. Suggestion: You might want to review your notes from your Economics class as well as your Foundations of Finance course.

4. Relationship between the Bond Spread and Market P/E (10 Points): Plot the Yield Spread against the P/E ratio of the market using a Lines on 2 Axes graph option located in Custom Type graphs. Does this relationship make economic sense? Please explain. In your discussion, please indicate what the yield spread is a proxy for.

5. Relationship between Economic Expectations and Market P/E (10 Points): Plot the ratio of Future Economic Expectations relative to the Present Economic Situation from the Conference Board against the P/E ratio of the market using a Lines on 2 Axes graph option located in Custom Type graphs. Does this relationship make economic sense? Please explain. In your discussion, please indicate what the Conference Board ratio that you constructed is a proxy for.

6. Relationship between Inventory Turnover and Market P/E (10 Points): Plot the Inventory Turnover ratio against the P/E ratio of the market using a Lines on 2 Axes graph option located in Custom Type graphs. Does this relationship make economic sense? Please explain. In your discussion, please indicate what the inventory turnover is a proxy for i.e., what is its economic significance.

7. Relationship between NAPM (ISM) and the Market P/E (10 Points): Plot the rescaled ISM Index (NAPM index) against the P/E ratio of the market using a Lines on 2 Axes graph option located in Custom Type graphs. Does this relationship make economic sense? Please explain. In your discussion, please indicate what the ISM is a proxy for.

8. Relationship between the Velocity of Money and the Market P/E (10 Points): Plot the velocity of money against the P/E ratio of the market using a Lines on 2 Axes graph option located in Custom Type graphs. Does this relationship make economic sense? Please explain. In your discussion, please indicate what the velocity of money is.

9. Financial statements (10 Points): Log on to the NYU Intranet and select the Thomson Research link (http://www.nyu.edu/library/bobst/vbl/candf_info.html). Thomson Research is part of the FactSet database that all major Wall Street firms use. We will obtain information on International Flavors and Fragrances, whose ticker is IFF. International Flavors & Fragrances Inc. is a creator and manufacturer of flavor and fragrance products used by other manufacturers such as MacDonald's to impart or improve flavor (of their hamburgers) or fragrance in various consumer products. Once you have accessed the page for IFF, go to the section of the page labeled "Spreadsheet Financials" and download the file "U.S. 10-Q History (10-Year)". Once you have downloaded the file, open up International Fragrances and Flavors 10K spreadsheet

and copy and paste it in the "ip_macroecon_Spr2004.xls"spreadsheet that you are working with.

a. Perform a margin (percentage of sales) analysis using the IFF margin analysis template in the the "ip_macroecon_Spr2004.xls" spreadsheet. What does the margin analysis for IFF reveal about the firm? Please elaborate on the future health and growth prospects for the firm. (Hint: Plot the various percentage of sales ratios over time to get a better sense of the situation).

b. Analysts such as CFSB (Credit Suisse First Boston) are expecting revenues for the year-end 2003 to be 5.5% based on IFF's management forecast. Using the forecasting template in the the "ip_macroecon_Spr2004.xls" spreadsheet, what will the various line items of the income statement and balance sheet be in 2003 based on the average of each percentage of sales ratio over the past 3 years (average each ratio from year end 2000, 2001, and 2002)? Please round your answers to the nearest whole number.

10. Footnotes to Financial Statements: Operating Leases (Off-Balance Sheet Financing). (10 Points) Access the 2003 10K (March 25, 2003) for International Flavors and Fragrances (Ticker:IFF) using either http://www.wsrn.com or Lexis-Nexis (part of NYU's Virtual Business Library) to access the SEC filings (Edgar-Online). Search through the 10K and input the schedule of future minimum annual rentals on non-cancelable operating leases from 2003 onwards in a spreadsheet. As of this writing, IFF had a bond rating of A3 from Moodys Investor Service. The pre-tax cost of debt associated with this bond rating is 5.52% and is calculated as follows:

Yield on 10 Year Treasury Bond:	4.39%	(www.bloomberg.com)
+ Default Premium for A3 Rating over 10 Year Bond:	1.13%	(www.bondsonline.com)
Pre-tax Cost of Debt	5.52%	

The pre-tax cost of debt is the discount rate used for discounting before tax cash flows to debtholders/ bondholders[1]. Using the pre-tax cost of debt, calculate the present value of the operating lease payments assuming that year 1 is equal to year 2003[2]. The present value of operating leases represents the value of off-balance sheet debt. What is the total debt to total capital ratio (total capital is equal to debt + shareholder's equity) excluding and then including the PV of Operating Leases?

[1] Using similar logic, the cost of equity using the CAPM model (rf + b(Rm-rf)) is the discount rate used for discounting equityholder cash flows such as dividend payments, earnings, or free cash flow to equityholders.

[2] At the time that this case was written, in August of 2003, Year 2003 was not yet over. We also assume that operating lease payments are paid at the end of the year for the sake of convenience.

11. Using Tearsheets for a Quick Synopsis of the Firm (2.5 Points): Using Mergent Online from NYU's Intranet (http://www.nyu.edu/library/bobst/vbl/candf_info.html), obtain and print out the tearsheet for International Flavors and Fragrances (Ticker:IFF). This tearsheet is the online version of Moody's hardcopy tearsheets. In addition to the tearsheets, Mergent Online provides financial information on companies that it follows.

12. Accessing Information from Bloomberg Machine (2.5 Points): Using the Bloomberg[3] machine, obtain and printout the following information for International Flavors and Fragrances (Ticker:IFF):

- IFF's bonds which are outstanding and their associated ratings (if any)
- Current beta for IFF
- Weighted average cost of capital and EVA (Economic Profit) for IFF
- Earnings estimate for IFF
- Complete description of IFF

You will submit these printouts with your assignment as evidence that you have visited these Bloomberg modules. A short handout on how to use Bloomberg is available on my website.

13. Executive Compensation (2.5 Points): Access the May 14, 2003 Proxy Statement (DEF 14A) for International Flavors and Fragrances (Ticker:IFF) and print it out. From the most recent proxy statement, what is the number of shares of common stock that all directors and executive officers as a group own in IFF? What percentage of IFF's CEO, Richard A. Goldstein, year 2002 pay does straight salary constitute with respect to total annual compensation? Input these answers into your spreadsheet and highlight them in yellow.

14. Investment Banking Report (2.5 Points): To compete for an institutional investor's business, investment banks provide recommendations on the outlook for a stock or bond. You can access these analysts' reports from Investext, which is a part of NYU's Virtual Business Library (http://www.nyu.edu/library/bobst/vbl/candf_info.html). Using Investext, download 3 recent analysts' reports on International Flavors and Fragrances (IFF). Put the name of the firm in one column, the date of analysis in the 2nd column, the expected earnings per share for 2003 year end in another column, the analyst's recommendation in the 4th column, the expected revenues in the 5th column, and the target price of the stock 12 months from the date of analysis in the last column. Please turn in your 3 analysts reports with the assignment. Put these reports in an appendix.

Note: In grading your projects, you should expect a minimum turnaround time of approximately 2 weeks. Please make a copy for yourself prior to submitting the assignment to me for use in your interviews.

[3] NYU has one Bloomberg terminal available for undergraduates in LC-16. There is another terminal located on the 6th floor in Bobst Library on the 6th floor. You will not be able to use the Bloomberg machines available for Stern graduate students.