

TRADING GAME: FUTURES AND OPTIONS

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IMP: There are movies on how to use the trading software; see Blackboard

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**** NOTE:** Key information is repeated in several sections of these instructions. All relevant information is given within the section where you need to “complete a task” (e.g. write the Report). This repetition is given to make sure you know important information.

I: STARTING THE GAME: READ THIS SECTION IMMEDIATELY!

* **There are movies on Blackboard that will show you how to open a “Simulated Trading Account” on Think or Swim and then how to use the trading software. Make sure to read below about sending us your username so we can update your usage of Think or Swim.**

** **Using Internet Explorer** go to www.thinkorswim.com and click on “Open an Account” at the top and then “Start Opening an Account.” Do not worry, you will NOT send them real money. You are starting the real account process but not finishing it: the objective is to obtain a papermoney trading account. Fill out THE FIRST PAGE ONLY (the registration), do **NOT** go on to fill out account forms. Once you fill out the first page they will send you an email with your name and username only! **SEND your username to MY G.A. via Blackboard to extend your access to the trading software platform and to activate real time quotes!** (The papermoney account typically lasts only two weeks but Think or Swim will provide it for a longer time.) NOTE: IF you already have access to Think or Swim then you can ignore these steps.

* You then go to Think or Swim (TOS) and download the software (at “Software/Desktop” or “Software/Papermoney”). You may download it to multiple computers. When you click on the icon the program loads and the signin box comes up. **MAKE SURE to use the pull down menu to choose “papermoney” otherwise you can not trade as you will be in the “real money” account! REMEMBER, WATCH the movies on Blackboard about TOS!**

* You may also use the TOS website to make trades (not as nice, but functional).

* TOS is a very sophisticated software trading program. You will not learn even 20% of the program for this class. Concentrate for now on how to make trades in futures and (later) options. There are **movies on Blackboard** on how to use TOS for what you need to do for the course!

** **HINT:** Watching the movies on how to use the software will save you time and frustration. Then trying some trades (perhaps just with stocks) will provide confidence you can use the software effectively. Few people have experience with trading, hence they are not “comfortable” with making a trade. One objective of the trading game is to provide experience in trading.

* After you start trading then at a later time you can concentrate on the details provided later in these instructions

* You CAN trade at night (after work). You can put in market or limit orders at that time. Perhaps you will not maximize your profits, but you will increase your grade! These orders will be executed at the open on the next trading day unless an electronic version of the futures market is open at night.

A. FACTORS AFFECTING THE GRADE

In general, grades for the trading game vary widely. **A superior Trading Game project (trading based on the instructions plus a very good Report) will earn bonus points. Limited trading, not following directions, AND/OR a haphazard Report could/will receive an F. The trading game is worth as much as an exam! Thus, a “couple of hours” trading during the term does NOT “cut it” for a good grade.**

Factors affecting the grade are:

- **Promptness** in starting trading: start “IMMEDIATELY” after the first class AND options

immediately after the first chapter on options is covered in class.¹ You may start options early IF you know what you are doing. You may continue trading futures in the second half of the term.

- **Account activity:** reasonable trading activity; note: the game is as important as an exam!
- **Trading the relevant instruments:** during the first half of the term trade stock index futures, T-bond and/or T-note futures, Eurodollar futures, currency futures, and at least one non-financial future (i.e. a commodity future); you may continue to trade futures after the midterm if you wish. As soon as we start with options (or before if you wish) trade stock options (individual stock options and stock index options) ... both calls and puts. **Do NOT trade (cash) stocks or bonds or currency unless** it is part of a derivatives (hedging) strategy.
- **Diversity among trading the different instruments and across time:** a lot of trades in one or two instruments and none or few in most others reduces the grade; the idea is to learn about all the different derivative instruments. Trading mostly in one short time period rather than over the term will reduce your grade (you need not trade every week, but you need to spread out your trading over the term). In particular, concentrating trading only at the end of the term is significantly negative.
- **Provide a good Report** on your activities at the end of the term (see instructions later). Make sure your writing is consistent with the degree you are pursuing.
- **Follow directions, follow directions, follow directions** is the key to both the Report and trading.
- **DEPENDING** on the grade level you choose for the semester (see the syllabi) you will include in the report 0, 1, 2, or 3 appendices (3 for an A or A- term grade).
 - The appendix using WSJ articles requires you to substantiate **a sample** of your *opening trades during the term* (buying long or selling short) by cutting out or xeroxing articles you obtain from the ***The Wall Street Journal*** or the on-line WSJ, and/or other sources. You do NOT need to worry about articles when you first start to trade.² **High-light** the most important information within the article. At the top of each article write the associated trade and the date of the article.
 - One of the Appendices of the Report **requires WEEKLY values (twice a week for MSF and 7 week summer terms) values of your portfolio** so you can generate a time series graph. Save this information.
 - There also is an appendix about option sensitivities.³
- **Trading PERFORMANCE does NOT affect your grade.**

¹ If you "do not understand what to do or how to do it" then ASK (a lack of understanding is not a justification to delay trading for weeks; the longer the delay the greater the penalty).

² You do NOT need articles for both buying and selling the same instrument. Besides, you only need some articles (see the Blackboard slides). You do NOT need articles that specifically talk about a particular futures contract; thus, an article about interest rates is sufficient for a T-bond futures trade and an article about the economy is sufficient for a stock index futures trade; also, an article about a company is sufficient for an option on that company's stock. Also, the article does not have to provide advice on whether you should buy or sell the instrument. Articles may precede a trade or have a date that corresponds to when you are holding an instrument. (Imp: you may use on-line WSJ articles IF you have your own subscription to the WSJ.) You may include other types of articles as additional (optional) articles, such as articles from web sources and/or from other printed sources (see section VI).

³ The sensitivities appendix will include printouts from an option valuation program on the web for one of your trades. See Section VI for information.

MORE ON GRADES:

- If you do all the appendices then approximately 50% of the grade is based on the trading that you do and 50% is based on the Report (a larger percentage is associated with trading when you choose fewer appendices). Those who do not put much time into trading (make few trades) or do not trade the different instruments and/or start too late will miss out/lose points. To obtain extra trading points you should be very active and follow all the trading instructions on what to trade and when to trade.
- In the report answer the questions asked, do the number of Appendices associated with your chosen term grade and do them well, follow directions on the format - especially the cover page.

Overall, regarding grading and what you do:

1) **“How is the game graded?”** There are over 40 separate items used to grade the project. Therefore, do NOT concentrate on just one or two things such as the “number of trades.” Points for most items are on a “marginally decreasing” scale such that any item (e.g. more trades) earns more points, but the increase in the number of points keeps getting smaller with more trades, up to a maximum amount. If you follow the instructions you will do very well.

2) **“How many trades should I make?”** Listen to the voice discussions with the slides. Play the game with one eye on learning how to trade and about how the markets work, and one eye on the instructions. If you take the game as a learning experience then you will do sufficient trades so that you will not have to “worry about the number of trades.” The points for the “number of trades” has a declining marginal utility curve, so more trades gives you more points (up to a point) but the marginal benefit of a large number of trades is very small. Typically individuals make 30 to 50 total trades, **but what** you trade is more important than the number of trades (see instructions)! Also, “opening positions” are more important than the total number of trades. And there are many other items that are graded!

3) **“How many articles from the WSJ should I have (if you do this appendix)?”** Concentrate on learning about the markets from your readings from the WSJ. The points for the “number of articles” have a declining marginal utility curve, so more articles gives you more points but the marginal benefit of a large number of articles adds little to your grade. If you trade a lot then only a sample of articles to match trades is needed. Some people turn in 15+ articles, which is more than is needed.

4) **“How much time should I put into the game?”** It depends on your life and course objectives. You can spend a minimal amount of time if you are very efficient and do not do the appendices, although this may result in less real-world benefits from the exercise. On the other hand, do not go overboard!

B: OBJECTIVES OF THE GAME

- To learn about the instruments covered in class and the **factors** that affect them! Most people say this helps on the exams!
- To learn how to trade and all the aspects involved with trading and how “markets work.”
- To keep abreast of the current market situation.
- To learn from The Wall Street Journal...and therefore to look at financial news often.
- To gain experience in developing graphs (for the report) using a spreadsheet.
- To organize and write about your trading: the report.
- To see how you react to “the pressure of trading” (not graded): Thus, as you trade notice whether you do the following:
 - a. Panic when prices go down? Get greedy when prices are going up?
 - b. Avoid selling losers?
 - c. Determine your tradeoff between risk and return.
- Have fun trading and speculating (it's not your money and performance does not affect your grade).

The trading game is an example of “problem-based learning” (PBL). Thus, the trading game uses “real world” problems as the basis for you to acquire information and to develop critical thinking and problem-solving skills. Characteristics of PBL are:

- ▶ The goals of the project are your own (learning about a topic and the association with real world activities)
- ▶ You must accept responsibility for much of the learning
- ▶ You participate in the planning and structure of the output
- ▶ You engage in active learning
- ▶ You bring your own prior knowledge and experiences into the learning environment and integrate them
- ▶ You are responsible for generating and evaluating learning resources
- ▶ The situations are anchored in real contexts, making the connection between the classroom and application
- ▶ You acquire fundamental knowledge in a context of problem solving

Notice that these activities:

- ▶ are “ill-structured”
- ▶ present a “messy” situation
- ▶ may change with new information
- ▶ do not have an easy or predictable solution
- ▶ do not necessarily result in the “right” answer

(In particular note that you will not be told to make exactly “x trades” or find “y articles” since the objective of the game is not to “fill in the boxes” as you do in textbook problems. Moreover each part of the “game” is not listed as being “z points” since many factors affect the point value of each category.)

C: PROCEDURES

- ▶ Trades are made on the Think or Swim trading platform or their web site.
- ▶ **NOTE: Only recorded trades count: make sure your trades are executed!**
- ▶ **Some people may think it is a great idea to “create a large number of trades” by buying and selling within minutes during the day. Besides causing commissions your will be creating A LOT OF WORK FOR YOURSELF WHEN YOU DO THE REPORT! Moreover, multiple trades of the same instrument on the same day only count once when you put together the report.**

D: TERMINOLOGY AND TRADING CONSIDERATIONS

- ▶ Buy (long): “buy to open” means take a long position in futures/options. You “own” the instrument. You profit if the price increases.
- ▶ Sell (short): “sell to open” is a short position. You gain from a decline in price.
- ▶ Cover: to close a position you originally opened.
- ▶ Limit order: you can place an order to buy at say 900 or better ... this limit order is only executed if the price is at 900 or less. Similarly, a limit order to sell at 950 will only execute if the price is at 950 or higher.
- ▶ Watch the size of your futures trades. Your leverage may be so large that you lose ALL of your MONEY.
- ▶ Futures: you only “deposit” the futures margin; but you can lose much more!
- ▶ Options: you only pay the cost of the option if you buy an option; the most you can lose is the cost of the option.

E: WHAT TO WATCH OUR FOR IN THE TRADING GAME

Trading Issues

- * "FOREX" is NOT a futures contract. Forex is trading cash securities. You should NOT trade this unless you are hedging it with futures or options.
- * Trades made after the final exam or before the first class do not count.
- * There IS a limit to the amount of trading in futures that you can do: this is based on the size of the margins for current positions (thus the number of contracts)
- * Eurodollar futures can be mispriced sometimes by Think or Swim; if your account increases one day by hundreds of thousands of dollars then check this; YOU are responsible to make sure it is being done correctly (it is your money, and a large gain or loss without merit implies you do not know what you are doing!!)
- * Combination option trades are counted as ONE trade (i.e. trading more than one option at the same time such as a spread trade)
- * Closing a position in several legs (several trades) or opening a position in several legs on the same day counts as ONE trade

F: TRADING IN FUTURES

"Futures underlying value" is the price times the number of units.

What is important for a trader: "change in price X the number of units" = profit/loss

Example: S&P500 changes by 10 points: $10 \times \$250 = \2500 gain or loss per contract

Making a trade: You first need the "code" to put in the symbol window. The format for a futures code is: /CCMY where CC is the two letter code, M is the code for the month, and Y is the year. However, if you put "/CC" in the symbol box the choice for the futures will appear; then you click inside the box next to "Futures" and pick "all"; all the months will appear.

Codes can be found at the exchanges such as The Board of Trade www.cbot.com and the Merc www.cme.com or more generally at the combined www.cmegroup.com

Examples of codes for electronic futures markets:

Emini S&P 500 futures: /ES

Emini Dow Jones futures: /YM

Nasdaq emini: /NQ

British pound: /6B

Euro currency: /6E

Japanese yen: /6J

oil: /CL or /QM

gold: /ZG

Eurodollar: /GE

NOTE: In the trade tab you click on the "bid" price if you want to sell, and click on the "ask" price if you want to buy. You can then change the price if you want to place a limit order.

G: TRADING IN OPTIONS

For stock options: one stock option is for 100 shares, hence a price of 1.50 = \$150

S&P stock index options (and other index options) cost 100 times the index value

Buying a CALL option: gives you the right to BUY the stock at the "strike" price

Buy a call if you think the price will go up

Buying a PUT option: gives you the right to SELL the stock at the "strike" price

Buy a put if you think the price will go down

Example of an options trade: put in the stock or index or ETF code into the "symbol" box (or put the name in and choices will be shown). Click on the options tab. Click the month you want then you can click the bid or ask for the strike you want.

H: HELP!

- ▶ **See the movies on Think or Swim again.**
- ▶ Ask questions in class.
- ▶ **See the FAQ on the Trading Game in Blackboard!** If your answer is not there then bring it up in class or put it on the Bulletin Board in Blackboard.

II. MORE INFORMATION ABOUT THE GAME: READ THIS AFTER YOU MAKE SOME TRADES

A. SOME IMPORTANT IDEAS ABOUT THE GAME

- ▶ **Keep track of your weekly portfolio value (bi-weekly for the MSF and undergrad summer A or B terms)** so it is easy to graph them at the end (IF you do this appendix).
- ▶ After you trade for awhile determine "how you are making trades," thus what "strategy" are you using? A strategy is not the kind of trade you make (such as buying futures or speculating or spreading in futures), rather it is a "procedure" you use. If you examine historical price behavior then that is technical analysis. If you use economic/fundamental data then you are doing fundamental analysis. The strategy need not be time consuming, not complicated. Thus, how might you decide on trades with real money? You will describe your strategy in the Report.
- ▶ Do NOT go overboard by using your strategy for "analysis" of your trades ... **watch your time constraints!**
- ▶ Things you can do in the game:
 - ▶ You can use limit and stop orders. However, they may not execute if prices move away from your price (but that is part of trading).
 - ▶ You are given instantaneous profit/loss calculations
 - ▶ Real time bids and asks are available for all electronic markets

B: SPECIAL CONSIDERATIONS FOR GRADUATE STUDENTS

- ▶ You need to trade a few of the "combination" strategies for futures and/or options, e.g. a spread or a straddle. Executing these strategies will help you to understand them and thus understand the material for the course. Examples of combination strategies:
Futures: calendar spreads, cross spreads, hedging.
Options: calendar spreads, bull spreads; bear spreads, straddles, covered calls, protective puts.
- ▶ You do not have to try a large number of combination trades. These combination trades are relatively easy to do in Think or Swim ... once you understand the potential

profits/losses for the strategy!

- ▶ **Be careful in completing combination trades correctly.**

C: SPECIAL CONSIDERATIONS FOR UNDERGRADUATE STUDENTS

- ▶ If or when you understand what you are doing with typical speculative derivatives trades, and you want to try for additional bonus points - then look at and implement a few of the trading extensions listed above under “Special Considerations for Graduate Students.” These are bonus points and are not required. NOTE: do NOT attempt these harder combination trades unless you are comfortable that you know what you are doing in the game in general.

III: A PERSPECTIVE ON TRADING ... BY STUDENTS

The following provides a few well-written comments on the trading game. A large percentage of those doing the trading game have positive comments on its benefit.

1. In the past semesters I've heard rumors that this course was difficult and that the trading game would take a lot of time. However, the truth is that the material is new to most of the students, and that the trading game was a great learning experience. Trading benefitted me because it reinforced what the course taught me.
2. I believe the trading game has been very beneficial in creating a better understanding of the concepts. Because you have to be involved in the markets, you develop an interest and before you know it you are checking the current market prices every couple of hours or subscribing to services that offer regular market updates throughout the day. The main advantage is that the game helped to develop experience in trading and understanding of the pricing, quotes, expirations and overall availability of different derivatives.
3. This game helped me a lot with my job. Options are confusing and take practice to understand fully. Having a better understanding of options enables me to explain them more easily to customers. I am also very happy that I learned more about futures because, although I do not use them in my current job, I may use them in my next and it cannot hurt to have an understanding of how they work. I really enjoyed the game and feel it was very much worth the time I spent on it.
4. With the trading game I was actually applying what I was learning. I could see the market at work and the effects of information, strategies, people, and emotions on a myriad of instruments and positions. It helped me to understand the concepts and strategies.
5. At first, I was ambivalent about the trading game. This game seemed very tedious and time consuming. But, after actually trading a few instruments, I began to feel more comfortable with the game. This game, overall, is very beneficial for those who plan to actually trade in the real world. Actually, I benefitted tremendously from using this game. I had the opportunity of trading hypothetical instruments, with the benefit of being able to experiment and make mistakes without any cost.
6. Before taking this class, I was not very sure of my decision about going into Finance. I had taken the required finance classes and I felt like I had learned a lot, but did not know if I understood everything. The trading game made me realize that I did understand what I had learned in my other classes about markets, and now I was just reinforcing that knowledge by practicing in the real market and by using the strategies and new concepts that I was learning in Financial Risk Management. It was worth the time and the reading of the Wall Street Journal became like the bible for my trading decisions.
7. The game created a real-life scenario that showed me the psychological aspects of trading. It benefitted my learning experience because I was able to put into practice otherwise abstract concepts. By following the markets, I was able to understand the many variables that go into determining the value of an instrument. At the same time, I experienced the intensity and the

challenges real traders must face in their daily routine.

8. The trading game made me believe in the futures market and how much fun it is. It also helped me to pass the Series 3 exam. Now I am a commodities broker and I found a job.

IV. ORGANIZING THE REPORT

Part IV (this part) discusses problems to avoid (warnings regarding the report), and **how to put together the very important cover page.**

Part V examines how to put together the report, including the questions to answer and an outline of the various parts of the report. It also discusses the format of the report.

Part VI explains what to do for the appendices.

NOTE: At the end of the term **you do NOT need to close your positions.** You can just use the value the market assigns them based on their current price, which is needed only if you are completing the appendix that determines profits and shows performance graphs.

Recall that all needed information is self-contained in its section (you do not need to refer back to sections I and II to do the Report).

A. WARNINGS CONCERNING THE REPORT

THE PURPOSE of this section is to provide in one place important warnings concerning the trading game report. In the past some individuals have not read the instructions carefully enough or have missed important items (or warnings) and hence have lost points.

1. The **cover sheet is very important.** Make sure you provide the correct information, in the correct format; and list the names of each trading category. Use the information on your trades found in Think or Swim (printout your activity). See the examples given in these instructions.

2. **After the cover sheet put a printout of your trades from Think or Swim.** Go to the “account” tab, and then click on the “trade history” tab. At the top change the “today for X days back” to include the term of the course. **IF YOU CLICK ON THE “PRINT” ICON AT THE TOP RIGHT THEN YOU CAN PRINT IN REGULAR BLACK AND WHITE,** which will save you LOTS of ink and is much easier to read! **If the printout has more information than trades then take a red pen and number the individual trades!**

3. Articles: make sure you put the associated trade information and the date at the top of all articles, and to underline key parts of the article. (IF you do this appendix.)

4. Make sure to follow the margin and font size requirements when writing the Report. In order to compare the answers of different people we need the same margins and fonts.

5. **WRITE THE ANSWERS TO THE QUESTIONS ASKED** in the report. Some individuals quickly read the questions and then write something in the “general ballpark” of the questions. The idea is to answer the specific questions asked. Do not be too lengthy or too brief (see the guidelines). Many people go into too much detail in the first few questions and too little detail later. Read the question several times to make sure you know what is being asked.

6. A specific question on the report that is frequently answered incorrectly is “discuss your strategy.” Read carefully what a strategy is and what it is not in the instructions. In particular, a strategy is not a bunch of examples! It is a procedure. You should state the procedure first, then you can enhance this by one or two examples.

7. Also, when people answer the question regarding “gains and losses” they often do not give specific examples and/or do not say why these instruments changed so much in price.

An answer to “why” is based on economic factors, not “the price went down.”

8. Do a spell check and read over your answers at the end. If it is confusing to you then it will be confusing to me. If your answers are not clear I do not have time to decipher them. If your English and/or writing skills are sub-standard (whether English is a second language or whether writing is a tool you have not emphasized) then go to the writing lab for help. At a minimum have someone read your answers and provide constructive criticism (your mother loves you and believes you are perfect ... she probably is not the best critic!). I rewrite papers 20 or 30 times ... writing is an art to be improved.

9. Know the definition of a WSJ “article.”

10. Read what NOT to include in the report ... don’t “stuff” the report unnecessarily.

11. The sensitivity appendix (if you do it): make sure to do it right, don’t “throw it together.”

Consider whether you should do the sensitivity appendix! If you are going for a B+ or below for the semester then my suggestion to most people is NOT to do this appendix ... many people do a mediocre job and thus this appendix actually hurts their grade!

B: WHAT TO WATCH OUR FOR

Doing the paper at the end: the table on trading activity

* Combination option trades are counted as ONE trade (i.e. trading more than one option at the same time such as a spread trade)

* Closing a position in several legs (several trades) or opening a position in several legs on the same day counts as ONE trade.

* The “long to open” and “short to open” parts of the table should only include futures and options trades, NOT any stock or Forex trades.

* Also see the next section

For the paper at the end: the printout of the trade history

* Put the trades in chronological order

* Make sure your printout of the trade history is readable! (easily)

* For the trade history: put to the right of the trade or next to the symbol the name of the contract/company in ink

* Note which trades are a “sell to open” with an “*” next to the “sell” wording in ink; recall that a “sell to open” is a short sale (it is NOT the closing of a long position)

* Number the trades that count; put at the left of the trade information in ink; IF you make more than one trade in the same instrument on the same day then it is not a new trade therefore do NOT number it.

* Do NOT include the printout that lists each days account cash, i.e. “account cash”; also do NOT include “order history”; later in that printout is the part labeled “trade history”, which is what you want.

* Include in your printout the “current position in the account”; label it

* Trades made after the final exam or before the first day of class do not count

Appendices for the paper at the end

* If you do the graphs, then make sure to show the spreadsheet output calculations you make of the profits/losses of each position.

* If you do the sensitivities appendix: be careful, the Hoadley calculator has a limited number of “calculations” before it shuts off.

* For WSJ articles: you can Xerox them, you can print them. Just make them look like articles, including the source. Do NOT make them look like they came from a Wordprocessor.

C: THE COVER SHEET

THE COVER SHEET FOR THE REPORT IS VERY IMPORTANT: If you put the correct information and all the information asked for then you save me time and you get a much higher grade. See the “Notes” at the end of this section for answers to specific questions and **how to count trades**.

ON THE PAGE RIGHT AFTER THE COVER PAGE PUT A PRINTOUT FROM THINK OR SWIM SHOWING THE TRANSACTION HISTORY THAT LISTS ALL OF YOUR TRADES; NUMBER THE RELEVANT TRADES FOR THIS COURSE WITH A RED PEN, AND UNDERLINE WHETHER THEY ARE BUYS OR SELLS. (Do NOT retype it.)

The format for the **cover page** is as follows:

Single space the cover page (or 1 1/2 spaces); the cover page may go to two pages if it looks too crowded.

* State your Name and class at the top

* **State the number of appendices and which appendices you included.**

(THE FOLLOWING INFORMATION IS DESCRIBED THEN EXAMPLES ARE GIVEN)

* List the following information in columns based on your Think or Swim trading and include the labels listed below (not just the numbers).

Only information that appears on the Think or Swim trade list counts for the information shown below. Also, only count derivatives trades (not stocks or bonds) for this section.

Section I

For the first section: the information to put on the sheet is:

The first date you traded any type of “financial futures” (financial futures are stock index, interest rate, or currency futures)

The first date you traded “non-financial futures” (e.g. commodity or energy futures)

The first date you traded any type of “option”

The number of “long to open” trades made (includes futures and options)

The number of “short to open” trades made (includes futures and options; a short for options is often called a “write to open”)

The number of “total trades” made (**all opening and closing**, i.e. all derivatives trades made, not just those closed); for example, if you had 23 trades to open positions and 12 trades to close positions then you have 35 total trades.

The number of “different days” you made any type of trades

(*Note: an “**opening trade**” is a trade that initiates a position; Closing trades are not opening trades! **Combination trades such as spreads only count for one trade!**)

Then (as in the Example below) list the % of the **total** number of your trades (both opening and closing trades) that occurred in each 1/4 of the term, broken into futures and options trades; e.g. if you make 10 out of 50 total trades in the first 1/4 of the term in futures then you have a value of 20% for that entry. Round to the nearest 1% (not 5% or 10%). The percentages for all eight numbers need to add to 100%! A 1/4 of a term is based on when

you could trade, not when you actually traded (thus if you only traded during 4 weeks of the term you can NOT use 1 week as 1/4 or a term).

(See below for an example)

EXAMPLE:

First date traded financial futures	1/1/3001
First date traded non-financial futures	1/10/3001
First date traded stock options	1/30/3001

		<u>% of Trades</u>		
		<u>Futures</u>	<u>Options</u>	
The total number of "long to open" trades made	34	First Q term	20%	0%
The total number of "short to open" trades made	5	Second Q term	15%	5%
The number of total trades made (opening+closing)	45	Third Q term	20%	10%
The number of different days made trades	15	Fourth Q term	0%	30%
		Total of 100%		

Section II

For the following put the information in a three column format using the information from the Think or Swim printout on your trades (**remember to put the Think or Swim printout of trades immediately after the cover sheet**):

Column 1: the name of the item for each row as listed below, even if the answer is zero (e.g. Stock index futures)

Column 2: the number of times you did the activity listed in Column 1

Column 3: the first date when this instrument was traded

The following is **VERY IMPORTANT**: make sure you count correctly: Put the total number of "opening" derivatives trades (long **opening** plus short **opening** trades ONLY) for each different TYPE of futures/ options (list **all** of the following types of instruments in this order on the cover sheet in column format, even if you have zero trades). For the "date" (column 3) put the date you first traded that type of futures/options contract. (See Notes #1, #2, and #3 below.). A combination trade ONLY counts as ONE trade.

EXAMPLE:

<u>Instrument</u>	<u>#Trades (to Open)</u>	<u>Date</u>
Stock index futures	5	1/1/3001
Long-term interest rates futures*	2	1/6/3001
Short-term interest rate futures**	0	
Currency futures	3	1/1/3001
Commodity futures (all but above)	6	1/1/3001 (agricultural, metal, energy)
Stock options: calls	3	1/30/3001
Stock options: puts	4	1/30/3001
Cash Stock index options: calls	3	1/30/3001
Cash Stock index options: puts	0	
Other options: calls (e.g. futures options)	1	1/30/3001
Other options: puts (e.g. futures options)	2	1/30/3001
Stocks/cash bonds (for hedging)	0	

* LT interest rate contracts are T-bonds, 10 year T-notes, 5 year T-notes, 2 year T-notes

** ST interest rate contracts are Eurodollar futures, Fed Funds, LIBOR, etc.

Section III

Combination trades: for the next item on the cover sheet list EACH instance that you executed any the following types of combination strategies (give the number of instances your made a combo trade - not the number of contracts - then specify the date you executed each strategy and the specific instruments for the trade); thus, provide as much information as possible to identify the combination trades: (See Note #3 below)

Put these combination trades in this order

- ▶ For futures: spreading between months (calendar spread); spreading between contracts (cross spread); hedging by buying cash/selling futures.
- ▶ For options: spreading across expirations (calendar spread); bull and bear spreads; straddles and other such strategies; covered calls; protective puts, anything else.
- ▶ If you do not list your combination strategies on the cover sheet they will not be counted.
- ▶ Note: “speculation” is **NOT** a combination trade; neither is a cross trade where the two futures are not directly related to one another, such as gold and stock index futures.
- ▶ Be careful that you actually execute and record the trade properly on the cover sheet.
- ▶ **Typically these combination trades will be shown on Think or Swim as combination trades ... that is you traded all of the parts at the same time.**

EXAMPLE:

Combination trades

Straddle 3

1/1/3001 Long S&P100 Mar 1000 call and long S&P100 Mar 1000 put (5 contracts)

2/4/3001 Long Intel Apr 20 call and long Intel Apr 20 put (2 contracts)

2/15/3001 Long MSFT May 30 call and long MSFT May 30 put (10 contracts)

NOTE #1: the “no. of trades” for the list with stock index futures, etc., is **NOT the number of contracts traded**, it is the number of times you made an OPENING trade; also, only show the numbers for trades actually shown in the TOS printout. For example, if you made opening trades of Dow Jones futures of 2, 7, and 10 contracts and 4 S&P 500 futures on different days then you record 4 trades. Also, the number of opening trades in Section I (long to open plus short to open) should equal the number of opening trades in Section II, IF you counted correctly. Only derivatives trades should be counted, not stock or bond trades.

NOTE #2: **Multiple trades on the same day for the same exact instrument only count once.**

NOTE #3: Trades made under the “Special Considerations” section for combination trades should be double counted: you put them there AND count them under the relevant category/categories such as “stock index futures” in section II. BUT under the relevant categories ONE combination trade counts as ONE trade.

Section IV (IF you did the articles for an Appendix)

Give the number of different WSJ articles included in the Appendix

Give the number of different Web articles included in the Appendix (not required)

Give the number of “Other” articles (Barron’s, Business Week, Bloomberg, etc; not required).

EXAMPLE:

No. WSJ 6

No. Web 3 (not required)

No. Other 0 (magazine, etc., not required)

V: WRITING THE REPORT ... THE QUESTIONS TO ANSWER AND WHAT TO INCLUDE

Recall that the number of appendices you do determines your maximum semester grade.

You may complete more appendices than the “minimum required for your grade goal” but when you do so then the quality of the extra appendices should be “good to very good.”

All needed information is self contained in this section.

See the syllabi (or Part VI below) for information on your choice of number of appendices for a given grade.

Follow the instructions! Be especially careful about the length of your answers to the questions and to the margins - do NOT try to “hide” the true length by changing margins, font size, or by using unusual spacing!

- ▶ Write down ideas then go back and put them into sentences! It is evident which reports are written hastily - as the ideas are random and the writing is not concise.
- ▶ Carefully read the questions asked, then answer those questions. Reports with lower grades do not answer the questions asked or do not answer them fully.

A: FORMATTING AND WHAT TO OMIT

FORMATTING AND ORGANIZATION HINTS FOR THE REPORT:

* In order to guarantee a minimum and maximum length: the written part of the report where you answer the trading questions **must be > 2 ½ pages in length and NO LONGER than 3 ½ pages DOUBLE spaced. Use 1" margins and TIMES NEW ROMAN 13 point font!** (The margins refer to where the typing starts; therefore, do not indent from the left edge of the paper by more than 1".) Check carefully your margins and spacing after you print out your answers! Do not use other margins/characters per inch! In Word you need to type in “13” in the pull down menu for the font size. If you use WORD then double check your margins (for NO gutters, and no widow/orphan lines, etc.). Do **NOT** put blank lines in the report between paragraphs and do NOT have section titles for each question. Do NOT repeat the question.⁴ Do NOT count the cover page or the appendices as part of the 2 ½ to 3 ½ pages (the appendices include the WSJ articles, graphs, and sensitivities).

* Do a spell check and PROOFREAD the report - for basic English and to see if you understand it (if you do not understand it then I will not!) - if you need help with English then ask someone, such as the writing lab! **Do NOT use “loosing” for “losing” money!**

B. QUESTIONS TO ANSWER

Answer the following questions concerning the trading game. **Answer each question by typing the number, i.e. 2a, 2b, etc.** Answer the question asked (do NOT repeat the question in your report). **This report should show your abilities in summarizing what you did.** Read each question carefully - so that you can write the appropriate information in

⁴ Margins refer to 1” from the edge of the paper for the text - in other words do not indent beyond the 1” margins. If set up correctly you should have 22 lines per page. (For widow/orphan setup see Format/parag in Word.) The idea is to avoid the abuses of answers that are too long due to single spacing, or too short due to large margins or large type, etc.

the appropriate place (because that's where I look for it!). **Carefully look at what is being asked** ... this is typically the most common mistake: not looking at the meaning of the question!! **Questions 3 and 4 should provide the most detail** of the report - try to discuss succinctly any strategy, the information used, and what happened and why.

- 1) a) Cover page: **see Section IV for the FORMAT of the cover page - very important!!**
- b) The next page **MUST** be the **printout** of your trades from Think or Swim. As noted elsewhere the trades need to be numbered in red. It is important that I have all transactions.

For the writeup itself, discuss the following:

- 2) (**maximum of 3/4 of a page for #2**)
 - a) Trades: briefly state what TYPE of information you used to decide what and when to buy. Also state where you obtained the information (Economic information? Fundamental? Technical? From the TV, web sites, the WSJ - any particular column?) (Do not discuss any specific trades, specifics on why you made INDIVIDUAL trades go in #3 and #4).
 - b) Briefly: How many different instruments did you buy/sell? Why did you trade either a lot or very little? Briefly: what type of positions did you take in futures/options? (Long, short, speculative, spreading, in/out-of-the-money?)
- 3) For **futures**: a) What strategy did you use for futures trading? (Do NOT just say "I bought .." or "I speculated.") A strategy is a method or approach to decide how to trade most of your instruments (it may have taken a few weeks to develop a strategy or you may now think back to determine how you decided on trades). For example, a strategy may be based on using certain types of fundamental information or technical (pricing) information, or a timing method, etc. Describe your strategy. Start the paragraph with "**My strategy is**". After defining your strategy then give one or two examples from your trades to illustrate your strategy, including what information you used to decide on that trade. Don't make this section so long that it gets boring. (IF your answer is very general or does not have examples then it is not a good explanation. You need to make your answer specific so that I can link it to your actual trades.)
 - b) Examine your gains and losses for futures: try to determine why you made/lost money for your MAJOR individual instrument gains/losses. THEN discuss one or two of your actual gains/losses and why these did so well or poorly. You may also note the following: were your gains and losses due to a few trades or many different trades? Include specific reasons for your big gains/losses to the best of your ability, not just generalities. (Do not just say I made money because "prices went up." Do NOT list the size of each trade's profits or losses - it gets boring.) (IF your answer is very general or does not have examples then it is not a good explanation. You need to make your answer specific so that I can link it to your actual trades.)
- 4) For options: a) What strategy did you use? (See #3a: provide the same information here for options as you did for futures in 3a.) Start the paragraph with "My strategy is ..."
- b) Examine your gains and losses: try to determine why you made/lost money! What were your major gainers/losers and why. See #3b for more information.
- 5) In **no more than 1/2 a page**: make comments on the benefits and disadvantages of the trading game.
 - a) In your opinion how did the game benefit your learning experience of derivatives and trading? Were the benefits worth the time?

b) What were the disadvantages of the game? Were these due to the nature of the game or to problems with the trading platform. If the latter than be specific on the type of problems you experienced.

Once you answer the questions then read over your answers to see if they make sense to you! Then have someone else read them for basic English and grammar!

HOW MANY APPENDICES YOU MUST COMPLETE DEPENDS ON THE GRADE YOU WANT! (See Section IV below and/or the syllabi)

A) Appendix I: (See Section VI A) Provide copies of articles from the WSJ and other (optional) sources that relate to your trading decisions (you only need a sample of articles, you do not need an article for each trade!!.) At the top write the decision relating to that page (e.g. "Bought 10 S&P 500 futures on 1/10/3000; date of WSJ article 1/8/3000"). For each article, high-light the important information in the article.

B) Appendix II: Graphs (See Section VI B) (Take care in the format, i.e. how it looks); **include the supporting numbers/calculations: Make it look like you would for a job (i.e. "decent" and semi-professional).**

C) Appendix III (see Section VI C): option sensitivities.

VI. THE APPENDICES FOR THE REPORT

The number of appendices that you do determines the maximum grade you may receive for the **course!** Completing fewer appendices will make it easier and take less time, but restricts your term grade: so make an appropriate choice for you. Some people will do more appendices than their goal for their course grade, trying to obtain more points to improve their grade. This **ONLY** works if the quality of the appendix you do is superior. In particular, a number of people who do the **sensitivity appendix actually hurt their grade by completing this appendix!**

<u>Number of Appendices</u>	<u>Maximum Grade for the Course</u>
3	A
2	B+
1	B
0	B-

The appendices typically are worth 15 points plus a possible extra five points for extraordinary work (thus, only some people will obtain more than 15 points, thus it should not be an expectation you will receive extra credit for an appendix). More importantly, IF you put very little time into an appendix (e.g. few articles, non-professional graphs without good numerical support, hastily done sensitivity analysis without a very good understanding of option sensitivities) then such an appendix will HURT your overall grade.

A: ARTICLES

Include the WSJ articles collected to support selected trades. ONE PARAGRAPH is NOT an article!! NEITHER are charts by themselves or simply prices. Printouts from web financial sites count separately (optional), as do articles from financial magazines/Bloomberg at the office. Articles MUST relate to TRADES you made (see Part IA); the articles can either precede a trade you made or have a date during the time you hold the instrument. High-

lighting: **you need to high-light** more than a few lines. In the appendix put all the WSJ articles as a group, then all the Web articles, then “other.” At the top write the decision relating to that page (e.g. “Bought 10 S&P 500 futures on 1/10/3000; date of WSJ article 1/8/3000”).

DO NOT INCLUDE EITHER OF THE FOLLOWING IN THE ARTICLE APPENDIX!

* NO printouts of quotes of instruments or historical graphs of instruments/stocks: these do NOT count as articles!

* NO daily summaries of what happened in the stock market. The idea is to find information on the instruments you trade - NOT to get your articles simply from printing daily summaries!

B: GRAPHS

Do the graphs using a spreadsheet. Provide a **printout of the graphs and the supporting numerical values from the spreadsheet** used to develop the graphs. The idea is to have graphs you would be proud to show your boss, subject to your time constraints..

- ▶ (1) Show the time series graph of the total value of the portfolio **using the CLOSING value for twice a week for the MSF** (or summer A or B term; or each Friday for a regular semester). Also show the DATE associated with each total portfolio value on the X-axis.⁵ The values and dates you are graphing need to be a line graph that you develop using Excel. Provide a separate listing of the actual numerical values and associated dates.
- ▶ (2) Provide two pie graphs, one showing the **profits and another the losses of the major derivative categories** using Excel. One pie graph will show the total profits broken into categories (they add to 100% of the total profits, of course); the other pie graph will show the total losses. Use the types of instruments listed on the cover page as categories, for example stock index futures, LT interest rate futures, commodity futures, stock options; do **NOT** use individual instruments such as S&P500 SIF, Nasdaq futures, etc.). Use percentages on your graphs NOT dollar amounts, and round to **tenths of a percent on the graph** (e.g. 30.2%). OMIT any categories with a 0% contribution. All transactions with gains go into the “gains graph” and all transactions with losses go into the “losses graph.”⁶
- ▶ (3) Clearly show your calculations to obtain the pie graphs from the spreadsheet. Provide a **printout of the supporting numerical values from the spreadsheet** used to develop the graphs. You need to show the purchase price and sales (or current) price and the number of units of each trade, the dates purchased and sold, and the total profit for that instrument. Just showing the totals for each category is NOT sufficient! (Note that the positions that are not closed still have a profit/loss from when you opened the trade until the day of your printout; use the current value on the day of the printout for the ending value.) You do not need to show a detailed description of the trade or the commissions. The printout from the spreadsheet will then show the profit/loss calculations and how you accumulated them into totals for the categories. The objective of the printout is to show you did the calculations. If you have over 25 round-trip positions

⁵ If you do not have the totals for each period then you can leave that date blank, but hopefully you do not have too many missing dates. Look for the portfolio values within the trading platform.

⁶ If you have “special situation” combination trades, such as a spread, it is probably easier to treat them as two trades (but you can handle it as you like, even ignore them if you have at least 25 other opening trades).

then you may limit your analysis to 25 round-trip trades so you are not overwhelmed with calculations. Use the following information to set up a table (from the spreadsheet) where on transaction is on one line and it clearly shows:

- (1) Instrument & Type of trade (buy/sell) (2) Date Purchased (3) Date Sold
 (4) Number of Contracts (5) Purchase Price (6) Sales Price (7) Profit or Loss

C: OPTION SENSITIVITIES

The objective here is to obtain fair option values, sensitivity values, and sensitivity graphs for one of the options you traded. You need a web calculator. My suggestion is to go to www.hoadley.net/options/calculators.htm You only really need to use the Black-Scholes one, but using the others (for your edification) may help you to understand the material. You can use the calculator online or you can download the free version (downloading it seems to be more work than needed to me).

Warning: often people have trouble with certain parts of this Appendix. You need to think, take time with the appendix, read the instructions, and in particular be careful about the sensitivity graphs and explanations. If your goal is a B+ or below then my suggestion is NOT to complete this appendix.

A note to those who received a B or below in the midterm (and/or final): the sensitivity appendix will adversely affect your grade if not done well. In fact, a large majority of those who receive a B or below on the midterm, and who complete this appendix, actually have lower grades due to this appendix. Many of these people think that doing an extra appendix (if their goal is a B+ or less) will help them by increasing their overall grade, even thinking it will help reach an A- or A for their overall grade. But note that for an A- in the project you must receive 90% of 100 points whereas you only need 85% of 85 points for a B+. Moreover, for the project you help raise your grade you realistically need over 100 points on the project to improve your average.

Make sure you read farther down, as it explains what to do with this software AND it tells you what to AVOID; the material later also talks about the inputs to the calculator. Do not use someone else's idea for what option to use (your's should be unique).

It is important that you think about if your answer to the questions appropriately answer the questions asked, and if they make sense related to option concepts.

Here are the questions to answer and the output to provide (in this order). Explanations and hints follow these questions. ("Q" means a question that you need to write an answer to; "Output" means you need to print results from your computer.) Extensive answers are not needed, i.e. you may answer the question clearly in a couple of sentences. All written answers should be on the SAME page **and** that page should be placed before the other output. **See the "hints" given later before you start your work.**

1) Q. State your input data: identify the company/index, expiration date, strike, number of days to expiration, option price you use, stock price you use, interest rate, and historical volatility. All of these need to be **current values, NOT "made up" values. Give the source** of the option information, interest rate, and historical volatility. Your option should be a near-the-money option to obtain "good" sensitivities (if you do not have any near-the-money

options then use a near-the-money strike for an option you did trade).

2) Output: print the calculator output with the inputs and the outputs: option price and sensitivities. The numbers should be realistic. State which calculator you used.

3) Q. What is the difference between the actual traded price and the calculator price? Why does this difference occur?

4) Q. Explain what your specific sensitivity numbers mean for each sensitivity.

5) Output: **find** the implied volatility by using the option calculator. Show your work (several iterations). You should use the trial and error method (see the definition of implied volatility). Do **NOT** do any calculations by hand, i.e. let the computer do the work! Print the final result with the online option calculator.

6) Q. State the implied volatility you found. Discuss this implied volatility versus the historical volatility you found on the web. Why do you think they differ?

7) Output: Print the graphs of the individual sensitivities we discussed (make sure you understand what a sensitivity is, rather than “just hitting print.” Make sure the graphs are realistic. (Print each sensitivity as well as a sample of sensitivity graphs as another variable changes.)

8) Q. Make any relevant comments/explanations about the simple sensitivity graphs you printed. In particular, discuss whether the graphs you found correspond to the theoretical graphs shown in the text and why you think they differ.

HINTS: put all of your answers on one page(s) separate from your printouts (consecutively on the page), in the same order as given here, and **label each question** as 1, 2, 3 etc.

- ▶ The option needs to be one you traded (although not necessarily the same strike or expiration date).
 - ▶ Make sure to use the actual, realistic and current inputs associated with your option. Substantially out-of-the-money or in-the-money options give poor or uninteresting results ... do NOT use them. Short-maturity options (less than a month) are not good candidates!
 - ▶ **Do NOT just use the defaults of the web model for any of the inputs, you need to use data relevant for one of YOUR options.**
 - ▶ Historical volatility on options can be obtained at: www.cboe.com/MKTDATA/historicalvolatility.asp This is a historical volatility. Or try ivolatility.com (NO www)
 - ▶ You may approximate the interest rate to the nearest 1/10 of a percent; you may use Eurodollar futures rates.
 - ▶ There can be a problem with printing option calculators, because they are Java based. Using **alt-PrtScn** on your keyboard will make a copy of the active screen; you can then paste it into any application (say Word). Make it big enough to see.
 - ▶ Explain clearly what your output on the sensitivities means ... what does each number mean! Thus, **EXPLAIN the output numbers** (what does your number for delta mean, etc. For example, a delta of .5 means the option price changes by \$.50 for each change of \$1 in the stock price).
- ▶ Find the implied volatility to the closest 1 percent. See the notes if you don't know how to do this, but it is by trial and error!!

Note: actually **USING the calculator** several times can help you understand sensitivities, and therefore do better on the exam!!

Be careful (avoid):

- * A way-out or way-in the money option gives “less than useful” numbers, do NOT use these!
- * Do NOT use an option with only a few days to expiration, it gives skewed results ... if need be assume the option has at least 30 days to expiration.