Developments in Business Simulation & Experiential Exercises, Volume 10, 1983

LEARNING THE CONCEPT OF MARKET VALUE THROUGH SIMULATION

Theresa L. Clow, Stephens College

ABSTRACT

This paper describes a simulation exercise that enables students to experience the impact of current economic and world events on the stock market. Students learn the concept of "market value", as well as experiencing some of the excitement of a stock exchange, as a result of participating in this game. This simulation represents a leaning cycle which allows for concrete experience with the concept of market value. Students generalize from this concrete experience and then can apply this concept to other situations.

INTRODUCTION

This simulation is appropriate for freshman level students in introductory business or finance courses. This exercise allows students the chance to experience the significance of current events upon his/her own investment decisions. This activity enhances student appreciation of the Wall Street Journal and other sources of current financial and investment news. It is particularly useful to assign students to a project requiring them to graph selected stocks and analyze current events which nay explain the performance of their stocks. This simulation typically gives students additional insight into the value of such an assignment.

DESIGN

The simulation requires a minimum of fifty minutes to complete. Students are assigned to teams of two or three students each, as long as the total number of teams is limited to ten. The Big Board (Figure 1) is listed on a chalk board which can be updated easily. Stock certificates should be prepared in 100 share denominations and should be arranged at the exchange desk.

The exercise requires two facilitators. One facilitator issues stock certificates and collects cash for the exchange while the other facilitator updates the Big Board. The Big Board needs to reflect the decreasing number of shares of stock available as the exchange sells out to the investors.

Once all shares have been sold from the exchange students must interact with each other. Teams are advised to announce to each other stocks they want to sell or buy. The facilitator should encourage this activity by circulating among the teams and suggesting that they should try to sell for more than they originally paid and/or buy for less than the current price shown on the board. Teams can be reminded that recent news was (or was not) very favorable for their stocks or related stocks. Students may trade shares if they are out of cash. Any time that a team sells stock they must advise the Big Board of the selling price so that it may be recorded on the board. Likewise, if stocks are traded the changed values of the stocks must be noted on the Big Board. Student reactions to the news thus is reflected in the changing prices of the stocks.

Students are allowed to review the stock prospectus sheet (Figure 2) before trading begins. Students also are provided with the rules of the game (Figure 3). Each team is provided with $2000 in paper money in $100 denominations. Each team is given an Investor Log (Figure 4) to record their transactions during the exercise.

FIGURE 1
BIG BOARD

Stock Name	Shares Available	Initial Price (Per 100)
Yzon Oil	700	$300
Genetic Giants	600	$300
JapAmerica Motors	800	$200
Practor & Grimble	400	$200
HealthFast	300	$100
Stears & Rubuck	600	$200
Jackson & Jackson	500	$200
Pasta Parlor	300	$100
Regular Motors	800	$100
Taxico Oil	600	$200
Consumer Computers	600	$300
R$_2$D$_2$Robotics	700	$300

Facilitator Notes:

The exchange opens with a total of $15,000 worth of stock. The prices listed are per 100 shares of stock, i.e., 200 shares of Yzon would cost $600. The investors have a total of $20,000 in cash (10 teams with $2,000 each).

FIGURE 2
STOCK PROSPECTUS SHEET

YZON OIL: Established and diversified oil corporation; a real "Blue Chip".

GENETIC GIANTS: R & D firm, developing genetic cures, hopefully, for cancer, arthritis, etc.

JAPAMERICA MOTORS: International automobile manufacturer, recently formed by a merger between established Japanese and American firms.

PRACTOR & GRIMBLE: Established firm with a wide range of consumer products from drugs to cosmetics.

HEALTHFAST: Fast food chain offering only natural and health foods.

STEARS & RUBUCK: National retail firm providing consumer products--appliances, clothing, etc.

JACKSON & JACKSON: Established firm offering a wide range of consumer health and beauty products.

PASTA PARLOR: Fast food chain of fine Italian foods.

REGULAR MOTORS: Automobile manufacturing fin, recently retooled several plants to improve productivity of small auto manufacturing.

TAXICO: Established oil corporation, recent research into synthetic fuels.

CONSUMER COMPUTERS: Specializes in home and small bus-

mess computer hardware and software.

R$_2$D$_2$ROBOTICS: Growth firm, producing robots for use in manufacturing and hazardous environments.

FIGURE 3
RULES OF THE GAME

1. There are ten teams of investors. Each team has $2000 in cash in $100 denominations. Prices on the Big Board are in terms of 100 share lots. Teams can only purchase in 100 share round-lots. Teams may purchase any stocks they choose and may retain some cash on hand if desired.

2. One facilitator controls the first round of trading, calling on each team in turn to make an initial purchase of one type of stock.

3. No one team may buy up all of any one stock during the first round of trading.

4. Teams are on a first come, first served basis after the first round. There are no limits on the amount of stock a team can purchase after the first round.

5. Teams are given the opportunity to buy stocks from the exchange for approximately 10 to 15 minutes. All trading is stopped while announcements from the Wild Street Journal are read.

6. Trading resumes after announcements are read. Teams may purchase stock from the exchange until the Big Board is sold out. The exchange cannot buy back any stock sold to the teams.

7. Trading for 10 to 15 minutes will be alternated with the reading of announcements from the Wild Street Journal.

8. Teams may negotiate with other teams at any time to purchase, sell or trade stock with each other. Each of these transactions must be recorded on the Big Board if they result in any change in value of the stocks involved in the transaction.

9. Each team must record any sales, buys, or trades on their Investor's Log.

10. Teams tally their total gains/losses at the end of the game. The team with the biggest gain is the Big Winner.

FIGURE 4
INVESTOR'S LOG

STOCK PURCHASED	NO. OF SHARES	TOTAL PAID	STOCK SOLD	NO. OF SHARES	TOTAL RECEIVED
TOTAL			TOTAL		

TRADES:

STOCK TRADED	NO. OF SHARES	STOCK RECEIVED	NO. OF SHARES

FINAL TALLY: TOTAL SHARES_____   TOTAL CASH $_____

FIGURE 5
SAMPLES OF WILD STREET JOURNAL
ANNOUNCEMENTS

1. JapAmerica announces record profits.

2. Jackson & Jackson develop a new toothpaste that provides a protective shield for teeth and breath that lasts for 24 hours.

3. Regular Motors is marketing an electric car that travels 1000 miles on one charge.

4. Practor & Grimble is sued for nail polish suspected of causing cancer.

5. Consumer Computers announces stock market analysis program for investors.

6. UAW and Regular Motors reach an historic agreement--- the union accepts lower wages in return for job security.

7. HealthFast is endorsed by Weight Watchers as the place to eat and lose weight.

8. Stears & Rubuck expand services to include sale of real estate and other types of investments.

9. Yzon Oil expands plant at a cost of $2 million.

10. R$_2$D$_2$Robotics announces first consumer robots---can be programmed to vacuum, take out the garbage.

11. Genetic Giants develops a vaccine to prevent tooth decay.

12. Gasoline prices are rising.

13. Interest rates are falling.

14. JapAmerican announces a new plant that will be 90% operated by robots.

15. Granville tells investors to sell--only good stocks are oil and drug companies.

16. Regular Motors closes four plants to try to balance inventories with sales.

17. Consumer Computer stock splits.

18. R$_2$D$_2$Robotics plant closed by government due to OSHA violations.

19. FTC accuses HealthFast of false advertising-- health foods there are full of preservatives.

20. Regular Motors files for bankruptcy, shareholders lose all.

Facilitator Notes:

It is necessary to have about 60 announcements prepared in advance. Typically trading is stopped about four times during the simulation for reading of announcements. Announcements should be read only once and students must act in accordance with what they are able to assimilate. It is necessary to judge the extent of trading taking place and intervene with announcements as necessary to maintain activity.

The Wild Street Journal announcements should be prepared from current financial and world news sources such as the Wall Street Journal. This portion of the simulation needs to be updated prior to each exercise. The announcements are intended to reflect actual current events even though the announcements are somewhat fictional in nature. These should include news specifically related to the exchange stock listings and to general economic and world news. The early news should be optimistic in order to encourage a bull market. Announcements should become progressively more pessimistic in order to encourage students to try to unload investments that have soured. These announcements may include stock splits and other appropriate market events. Examples of such announcements appear in Figure 5.

DISCUSSION AND SUMMARY

The design of the simulation is structured so that most teams will realize a profit as a result of their investments. The simulation is fun for students and few students can resist becoming actively involved. It provides an opportunity to play the stock market. They realize how quickly events can alter the value of their investments. Students recognize the importance of obtaining and maintaining current information on economic, political and world events. Students learn about their own personal investment behaviors and gain increased confidence in their abilities to assimilate news and act accordingly. It is necessary to postpone processing of this experience since the simulation consumes most of a typical class period. The simulation is an excellent introductory device to the topics of securities and investments. Students recall their own personal experiences and gain more from discussions of these topics.

This simulation allows for investor interaction and investor reaction to current news. This behavior determines the market value of the stock which is representative of the operation of the real stock market. The commercially available game, Stocks and Bonds [1] does not have this feature. The commercial game alters the market value of securities by the roll of a dice and by chance cards which increase or decrease the value of securities by a specified amount. The purpose of the simulation described in this paper is to allow students to recognize the relationship between current events and stock prices. It also allows students to determine the extent of increase or decrease in stock values. The commercial game does not provide for the level of activity, concrete experience and realism necessary for the desired learning objective of this simulation.

The design of this simulation is inspired by Jean Piaget's notion of "active learning". Specifically, this simulation represents this author's application of the Piagetian Learning Cycle as modified by faculty of the Accent on Developing Abstract Processes of Thought, (ADAPT) Program at the University of Nebraska, Lincoln, NE. [2]

The ADAPT Learning Cycle follows three major stages referred to as Exploration, Invention, and Application. Students are encouraged to learn through their own experience, recall and share past experiences, and spontaneously respond to new ideas during the Exploration phase. This simulation provides for open-ended student activity and concrete experience. Student behavior during this phase reveals the student's ability to deal with the new concept being introduced.[2, p. 23]

The processing phase of the simulation allows students to generalize from their experience. Students are actively involved in describing what took place and why. Students also begin to identify the relationship between current news and stock market prices. This represents the Invention phase of the Learning Cycle. Students, in effect, invent the concept of market value during discussion of their experience. The instructor merely assists by providing the appropriate terminology. The Application phase requires the student to apply the new learning to a different concrete situation. Students select and monitor stocks from the New York Stock Exchange for thirty days. They annotate current events which they determine may explain the changes in the closing prices of their stocks. Students are able to recognize the relationships and make reasonable judgments during this assignment.[2, p. 24]

The Application phase of this learning cycle is similar to the simulation describe by Gene Lebrenz in, "A Stock Market Simulation". [3 pp. 195-199] Lebrenz's simulation requires individual research, analysis and investment in a variety of securities. The simulation described in this paper is limited to stocks and emphasizes the learning of market value through Exploration and Invention as well as Application. The actual classroom stock market activity and the processing of that experience are additional features which are not included in Lebrenz's simulation.

The application of the ADAPT Learning Cycle, as an appropriate pedagogy, is based upon this author's willingness to accept the possibility that stages of cognitive development may exist as described by Piaget. Additionally, this approach is based upon data generated by the University of Nebraska ADAPT program. Their research suggests that many college freshmen are at a concrete level of thought and that It is appropriate to facilitate cognitive development in addition

to providing content to students. This simulation provides students with the concrete experience which may be necessary for learning to take place at their concrete level of cognitive development.

This paper does not include empirical data to support the 'apparent' learning which seems to take place as a result of this simulation. Student projects and behavior during their application assignment reflect understanding of market value. Students recall the game during discussions of related concepts as a way to explain new insights. The appropriate next step would involve selection of control and experimental groups to pursue validation of learning. However, it is difficult to design an instrument to test authentic learning as opposed to what may be memorization or the ability to follow instructions. This does not imply that such a step cannot, or should not, be taken. Such a step seems vital ~o the validation of this, as well as other, simulations which focus on active learning.

REFERENCES

[1] Stocks and Bonds, copyright 1972, 3M Company, St. Paul, MN.

[2] Fuller, R. G. (editor), Piagetian Programs in Higher Education, 1980, pp. 23-25.

[3] Lebrenz, Gene, 'A Stock Market Simulation," in David J. Fritzsche and Lee A. Graf (editors), Developments in Business Simulation and Experiential Exercises, Vol. 9, 1982, pp. 195-199.