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NORTHERN ILLINOIS UNIVERSITY

Analysis of the Virtual Stock Exchange

A Thesis Submitted to the

University Honors Program

In Partial Fulfillment of the

Requirements of the Baccalaureate Degree

With University Honors

Department of Finance

by

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THESIS ABSTRACT

This project analyzed the feasibility of using the Virtual Stock Exchange stock market simulation as a classroom tool in the Finance Department. The simulation was used for a period of approximately eight weeks, and it was then evaluated based upon its features, its positive and negative points, and its expected benefit to students. The analysis showed that the Virtual Stock Exchange would be a worthwhile endeavor for the Finance Department because it would help reinforce the messages conveyed in investments-related classes and promote financial interest among the student users. This report concludes by suggesting a variety of possible assignments that an educator could use in conjunction with the simulation. The results of this study show that the Virtual Stock Exchange could be an effective educational tool for the Department of Finance.

Analysis of the Virtual Stock Exchange

The Virtual Stock Exchange (VSE) is an on-line stock market simulation program. It allows users to buy and sell stocks and funds using the actual current market prices. This report will explain the features and limitations of the simulation, detailing the specific functions of each important feature. The positive benefits and negative points will then be evaluated in an effort to determine the feasibility of using the simulation as a classroom tool. The purpose of the study is to determine the productiveness of using the simulation as a hands-on exercise in finance. This report includes suggestions on how VSE could be used as an effective mechanism to help students understand the stock market and to foster interest in the field of finance.

Features

The Virtual Stock Exchange has many useful features that make it appealing as an educational tool. VSE has tailored its program specifically for classes and groups. As such, it has helpful tools for group leaders and for communication within groups. Additionally, VSE has features that can help students make decisions regarding the appropriate stocks to buy. Other functions allow students to buy and sell stocks and funds, and give them full access to their simulation histories, as well as current account balances.

The parts of VSE that make the program a good group educational tool are the special communication elements within the simulation. VSE offers a bulletin board for group leaders (educators) to post notices and let students know current information in a timely, efficient manner. Similarly, the simulation has a calendar function that allows

group leaders to post due dates and reminders, so students can always be aware of the schedule. This gives educators an opportunity to let students take more initiative in finding out when assignments are due; if due dates and assignments are posted to VSE, the responsibility falls upon the student to be aware of any time constraints or posted changes. A final group tool is the ranking function. This is a listing of members within one's group ranked according to "net worth" and "% return." This function is useful in that it allows one to analyze the whole group; however, it is likely that one's portfolio return would not be the only measure of a student's success, so its utility is limited.

The next group of functions could be called reference or guidance tools. VSE offers several tools to help users identify stocks with potential. For students, the most beneficial of these functions may be the "Market Strategy" screen. Here, VSE explains ten different investment strategies. Included strategies are "Technical Analysis," "Price to Earnings," and "Diversity." These are all basic strategies that tell users how to use certain information to gauge investment potential. Additionally, after choosing a particular strategy, students will be able to find abundant information regarding particular stocks / companies. Through VSE's partnership with *Zack's Investment Service*, users can access the balance sheets and earnings reports of hundreds of companies. On-line links are also provided for access to company SEC filings, company profiles, and daily stock close / volume charts. At another screen, VSE displays links to several on-line financial information sites, so students can fully research virtually any financial topic. Another useful tool is the "VSE Stock Screener," which allows users to narrow their stock search by screening stocks on the basis of earnings per share, price-to-earnings ratio, dividend, market capitalization, price, and/or exchange. This is a very effective

tool; it does the research for the investor! Users do not have to calculate their own P/E ratios or EPS numbers; VSE's screener handles all of that.

The most obvious category of functions that one sees at VSE is the actual ordering of stocks and portfolio maintenance. This, of course, is the most fundamental use of VSE. Before purchasing stocks, students can get a quote on any stock from any VSE screen. After students have researched stocks or funds, they can make orders at the "Stock Order" or "Fund Order" screen. At the Stock Order screen, users have a few choices to make. There are four basic options: buy, sell, sell short, or buy to cover (repayment / offsetting of a short sale). Users choose how many shares to buy and they also decide if they want to place a market (open) order or a limit or stop order. With stop and limit orders, one can choose between a day order and a "good-till-cancelled" order for the term. Orders can be checked on at the "Open Orders" screen, which lets users know about any valid orders that have yet to be transacted. At other screens, one can get a full history of all orders or all transactions at his / her account. Finally, VSE offers two screens that show users where they stand in the simulation. At the "Account Balances" screen, one's cash balance, long and short positions, stock value, total worth, and return are shown. For a look at one's individual stock gains / losses, one could go to the "Portfolio Summary" screen. Both of these screens illustrate the user's current values, and the balances are "automatically refresh[ed] every five minutes during market hours."

Positive Points

In fact, timeliness is one of the most positive aspects of VSE. The simulation's stock market data is delayed only about twenty minutes, and all account balances are updated every five minutes. This seems extremely prompt, and it definitely adds the

sense of “real world” investing to the simulation. By allowing trading in “real-time,” students can see that the quoted price before a market order is made can change by the time that order is transacted. VSE has a number of other realistic elements. For instance, with every transaction, a commission of \$29.95 must be paid. This feature is especially helpful for students, who often “assume away” transaction costs when dealing with financial theories. This is a way to illustrate that there is a fee associated with every market transaction, a fact sometimes overlooked by students. Also, students begin with \$500,000 to invest! This allows students to have a very diverse portfolio with many stocks. It is a very “hands-on” process, because students will be able to make stock orders and monitor their cash and stock holdings.

Another positive note regarding the simulation is that it is truly easy to use. Everything within VSE is menu-oriented, and all users need to do is point the computer’s mouse on what they would like to do. It is really very simple. Students who already have any computer experience should not find this program difficult to operate. Also, as aforementioned, it is easy to communicate project goals and deadlines to one’s entire group through VSE’s bulletin board system. Clearly, ease of use and ease of communication make this simulation appealing. Another point worth mentioning is the fact that over 75 universities in the country are using (or have used in the past year) this simulation. Knowing that other schools (including Southern Illinois University and University of Illinois – Chicago) have had success with the program is an indication that this program is worthwhile.

Negative Points

There are, however, some unappealing aspects of VSE. The first of these negative points is simply the cost of the simulation. Although it is a relatively low price (\$15.95 / user), no student enjoys paying fees in addition to tuition. The only problem I encountered with the simulation was the speed at which it operated. I most often used the simulation from my home computer, which is much faster than the computers in the computer labs on campus, and I still found myself waiting for the program to advance to the next screen. This probably is not a major concern, but the computer labs on campus are generally quite slow when operating on the Internet. This could be a problem for students, but they may just have to wait for the program. Another concern involves the limitations of the simulation; this is only a *stock market* simulation. There is no mention of bonds, derivative instruments, or other investment vehicles on VSE; students can only transact in stocks and funds. This really is not a problem, but it is a limitation. Students who are interested in these other financial instruments will not have the opportunity to explore those markets. A final concern for educators evaluating this system for classroom use is the difficulty level of the simulation. I did not find this program to be very challenging. As previously mentioned, it is quite easy to use, and it seemed to be a fun activity rather than a university-level assignment. However, whether or not this is a “problem” depends upon how the simulation is to be used in class.

Simulation Purpose

To evaluate the worth of this simulation, one needs to be certain of the program’s goals and purpose. As just mentioned, if an educator is seeking an assignment that will greatly challenge his / her class, this may not be an appropriate program. However, if the

intended use of the simulation is to promote interest in and knowledge of the investment process, this may be an ideal resource. In the current scenario, the project is being evaluated as a possible addendum to the standard classroom curriculum that would be offered to students involved in the university honors program or similar programs. In this situation, I would certainly recommend the use of VSE.

This simulation has the potential to build upon topics covered in investment-related finance classes (primarily FINA 340 – Investment Principles and FINA 440 – Security Valuation and Portfolio Management). VSE would serve to solidify students' investments knowledge and promote financial interest among students; rarely do students come into contact with a truly “hands-on” project that directly relates to their studies. Additionally, this program would make students more aware of current issues regarding the financial investments arena. I recommend the use of VSE as a supplement to classroom investment teachings, as a means of giving students the ability to more fully understand the field of financial investments.

Implementation

This simulation would be relatively easy to implement and assimilate into a preexisting lesson plan. The responsibilities of the educator / group leader in beginning the simulation are few. This program facilitates group leaders; given the time constraints placed upon educators, this simulation places little burden upon the group leader. Initially, the educator would need to notify VSE of his / her intention to use the simulation for a group of students. VSE would then allow students to register in that established group. After the students are registered, the group leader would need to decide upon a means of regularly evaluating students (suggestions follow), and then post

current information regarding group expectations to the VSE bulletin board and calendar. The final responsibility, of course, would be the evaluation of student reports. That would be the extent of the educator's duties, unless they, too, wished to explore VSE and manage a portfolio.

Establishing the student's responsibilities throughout the simulation requires some creative thinking. Whenever possible, it would certainly be best to have students perform functions on VSE that correspond with the material being covered in class at that time; however, the class will not always mesh with the capabilities of the simulation. Two things must be decided upon with regards to student simulation process: the activities to be performed and the means of evaluation. I have prepared suggestions regarding both, in hopes that they will provide direction in future planning.

I believe that students should have the opportunity to start the simulation in a fairly relaxed manner. I suggest that in the first week of the simulation, all that should be required of students is to register and start thinking about stocks that they would like to invest in. In this first week, students should be encouraged to explore the program and assess its capabilities. This will allow them time to familiarize themselves with the program without any *formal* criterion that they would be graded on. However, the students should be required to submit a brief (1 page) report detailing what they found and their first impressions of the site. In the next week, students should be expected to place stock orders. To start off, students should be asked to order stock in at least 3 to 5 individual companies. They should be required to make market orders and at least one limit order. This will expose them to both methods, and the limit order will make them think about expected price movements in the future. After ordering the stocks, the

students should submit another short paper explaining their motivation for purchasing their specific stocks. The students should also be expected to customize their login screen so that quotes for each of their stocks will appear immediately upon logging into the simulation.

In the weeks to come students should be expected to maintain their portfolios; they should order more stocks and sell poorly performing ones. When the topic of selling stock short is covered in class, the students should be required to sell short in the simulation. In the weeks following the short sale, the students should experiment with the “buy to cover” function for repaying the short sale. During one week, students should be required to retrieve the balance sheet of one (or more) of their companies. From this information, they should be expected to calculate basic financial ratios and make deductions about the company from their results. Another week’s assignment could involve the exploration of VSE’s on-line financial links. The students could be asked to visit five finance-oriented websites and submit a paper including a report of what was learned and printouts of the various sites. Whether or not a specific assignment is given every week, the students in the group should be required to make at least two transactions per week. With this small expectation, students will be able to maintain the composition of their portfolios, and they will be required to use the simulation every week. This will keep them aware of their portfolio values and also broad market movements.

I propose that each week or every other week students should submit a two-page report detailing the changes in their portfolio in the term since their previous report. Printouts of the student’s “Account Balances” and “Portfolio Summary” reports from VSE should be required to accompany the student’s paper. In this report, students should

detail what transactions they have made and why they made them. Especially in weeks with only the general assignment of two transactions, students will need to explain their motivation. Additionally, the report should explain changes in their portfolio value. This will make students stay aware of current issues regarding finance. If most stocks are performing poorly (or well), students should try to explain the market forces that caused the slump (or growth). Similarly, if one of the student's stocks is performing especially poorly or especially well, students should try to identify the factors within the particular company or industry that caused that stock's price movement.

Conclusion

The class suggestions that I have made were designed to correspond with the objectives of using VSE. The assignments that are enumerated above only serve to help students acquaint themselves with the processes of the stock market. The requirement of a two page paper every week (or two) is not an excessive burden upon students, but it will compel the students to use the simulation and reap the benefits of the program. If used properly, in the situation described here, VSE can be an excellent learning tool. It can be used to reinforce the messages put forth by an educator in the classroom, and it will undoubtedly be interesting and educational for the students.