

INVESTMENT PORTFOLIO SIMULATION GAME – IS IT VALUABLE TO OUR STUDENTS?

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ABSTRACT

This paper investigates the use of an investment portfolio simulation game, “Investor”, in an Investment Analysis class at the University in Zagreb, Croatia. 392 students participated in the survey at the end of the spring semester. A survey instrument was developed and conducted to find out if participation in investment portfolio simulations would motivate students to further their interest in investments in general; the extent to which they applied their classroom acquired knowledge in the simulation game; whether or not they were motivated to increase their efforts in studying Investments. In other words, whether they find the investment simulation game a valuable tool. We found that all together more than 60% find the investment simulation game very valuable or valuable, but only 14% have been very much or much involved in the simulation game. In addition, the simulation game motivated only 8% of them to increase their efforts in studying Investments. The results are expected to serve to take the project “Investor” forward to include it as part of the students’ graduation credits as well as promoting its educational purpose.

INTRODUCTION

Project “Investor” is an investment portfolio simulation game and it is optional for all senior - undergraduate students taking the Investment Analysis course at the University of Zagreb, Faculty of Economics and Business. Project “Investor” was first introduced in 2007 by the authors and it was required for all students until last year. The main idea was to motivate students to improve their knowledge of investments by closely monitoring the Croatian capital market, Zagreb Stock Exchange. Several years later the project was supported by the Zagreb Stock Exchange [11] that provided a platform on which the investment simulation game “Virtual-Exchange” can be accessed on the Exchange’s web site. Virtual-Exchange simulation game is free and is available to everyone. Through simulation(s) students can acquire trading experience and during the study semester they can apply the knowledge gained in the Investment Analysis course. It is expected that this process would result in forming and managing a portfolio with superior performance compared to a control group. Even though the project “Investor” is an investment simulation, the simulation runs with real data in real time. Therefore, students can experience how it would be to trade in the real-world. Students earn extra points and they can improve their grades at the end of semester by participating in the simulation game.

Computer-based stock trading simulations have been successfully used in teaching the mechanics of investing for decades [6]. Some of the well-known Universities in the USA and Europe have finance labs or trading rooms and use Stock-Trak® virtual trading software and/or global portfolio simulation. Unfortunately this is still not the case at the University of Zagreb, Faculty of Economic and Business – Zagreb. There is no finance lab or a trading room for our Investment course students. In some schools

Stock-Trak® is used for many years as an educational tool to familiarize students with the mechanics of investing and to promote students' interest in learning [5]. According to web data [9] Stock-Trak® is now used in over 80% of North America Business Schools. However, there are other virtual trading software's and platforms that are also used, e.g. Investopedia Stock Simulator, StockLinkU [10], Wall-Street Survival [6] or The Portfolio Construction in Global Financial Markets [3].

A good comparison of online stock trading simulators can be found in Jankowski and Shank (2010). Blažič, Fernandes, Pereira and Arh (2012) gave a brief review, evaluation and analysis of Wall-Street Survival, a web-based stock market game and other business simulations that serve learning purposes. Welch (2013) did an interesting survey in the five year sample period among Investment class students and his students used three different simulation games: Stock-Trak®, Investopedia Stock Simulator and StockLinkU. Lee, Miller, Velasquez and Wann (2013) survey 84 finance and accounting majors to determine the behavioral factors that males and females exhibit when making investment decisions according to their performance in the Stock-Trak Global Portfolio Trading Simulation. Brozik and Zapalska (2007) presented a classroom simulation that can be used to introduce the concepts of portfolio management and asset allocation in the presence of global markets. Ezz, Loureiro-Koehlin and Stergioulas (2012) investigated the use of simulation tools for business education, including Management School education and managerial training and gave an overview of the need for non-traditional tools for learning, and the importance of simulation in learning. Chou and Liu (2013) investigated the effectiveness of Web-Based Foreign Exchange Trading Simulation in an international finance course. Similarly, Seiver (2013) showed how to incorporate a real-time FX trading platform in an international business finance class.

Our survey has been distributed and completed to find out students' opinion of the investment portfolio simulation game, which is a part of the Investment Analysis (course) curriculum. The first survey was completed a year ago. The survey was based on a questionnaire with 7 questions and it was completed at the end of the spring semester. 392 students participated in the survey. The results were intended to serve the following: 1) to take the project "Investor" forward to include it as part of students' credits, and 2) to promote its educational purpose.

PROJECT "INVESTOR" DESCRIPTION

At the beginning of an academic semester students have to register on the Zagreb Stock Exchange web site. After registration they get virtual money in the amount of 40,000 Croatian Kuna (approximately \$5,800) which they have to invest. For each transaction they have to pay 1% commission (0.05% to Stock Exchange, 0.05% to Virtual Clearing House and 0.9% to virtual broker). Changes in market prices of individual stocks in their portfolios are automatically reflected. Each participant chooses the number of individual stocks in his/her portfolio. Clearly, portfolio performance depends on the students' knowledge, time period chosen and luck.

Students can only trade stocks that are listed on the Zagreb Stock Exchange. Furthermore, they can create a Watch List to track and monitor unlimited number of stocks that they find interesting from the investor's viewpoint according to last trading price and percentage price change. The simulation game officially runs six months, twice a year (from 1st January to 30th June and 1st July to 31st December) but our students participate only during the spring semester (from the end of February to the end of May). At the end of semester they have to prepare and present a final report. However, they may continue with simulation to the end of June when the Zagreb Stock Exchange rewards the winners, first three participants with the best results.

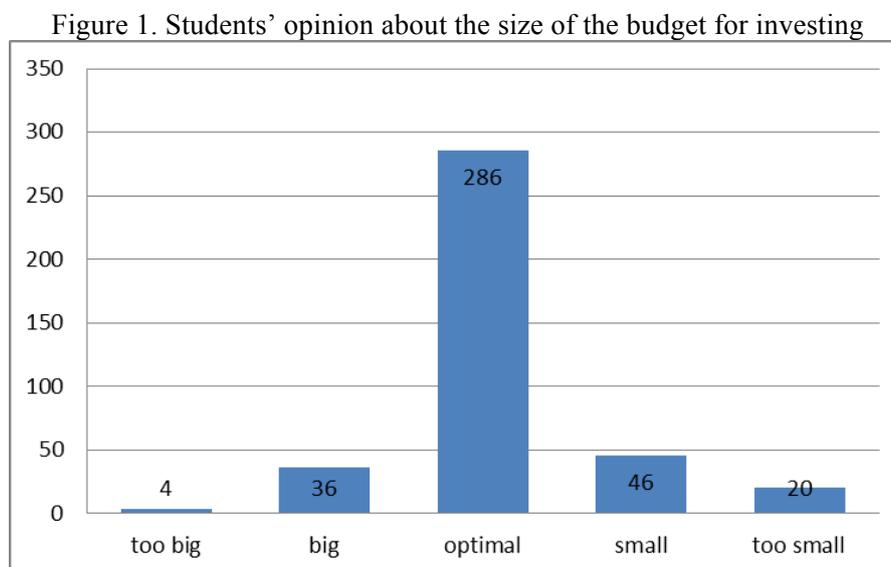
RESULTS OF THE SURVEY

The first question that we asked was “How would you appraise your involvement in investment simulation game project “Investor”? On the Likert scale from 1 (very much) to 5 (very little) they had to mark the answer. The results show that only 14 students (3.57%) were involved very much, 41 of them (10.46%) marked somewhat, 148 students (37.76%) were undecided, 105 students (26.79%) were little involved and 84 of them (21.43%) were involved very little in investment portfolio simulation game.

With the second question we wanted to find out how much they use the classroom acquired knowledge for project “Investor”. 3 students (0.77%) marked very much, 17 of them (4.34%) marked somewhat, 120 of them (30.61%) were undecided, 136 of them (34.69%) marked not really, and 116 students (29.59%) marked not at all.

The results of the survey show that investment portfolio simulation game project “Investor” motivated very much only 6 students (1.53%) to study more and to do additional research of Investment analysis, 26 of them (6.63%) were somewhat motivated, 130 of them (33.16%) were undecided, 133 of them (33.93%) were not very motivated and 97 students (24.74%) were not at all motivated to study and do additional research.

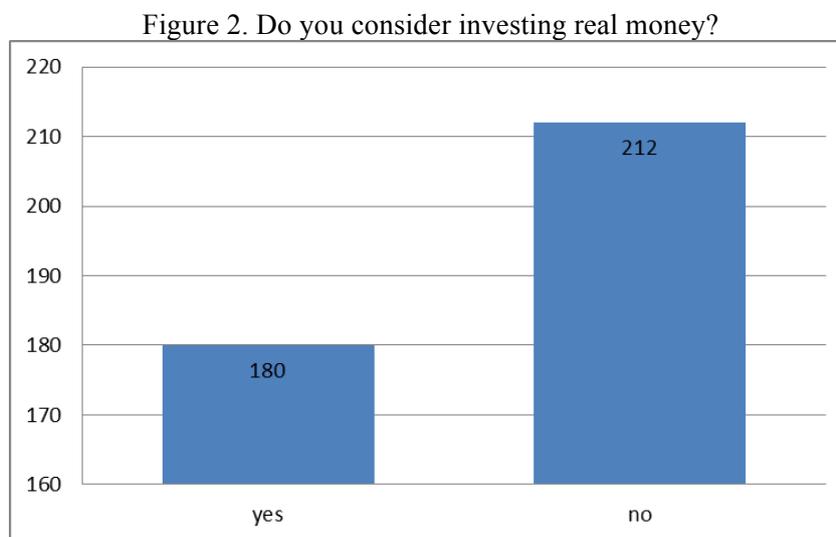
Additionally, we wanted to find out what they thought about the budget of 40,000 Croatian Kuna for investing. The results are shown in Figure 1. Overwhelming majority thought the budget was optimal and/or adequate.



The results of the survey also show that investment simulation was very valuable for 60 students (15.31%), somewhat valuable for 192 of them (48.98%), neutral for 79 of them (20.15%), not very valuable for 39 of them (9.95%) and not valuable at all for 22 students (5.61%) that participated in the survey.

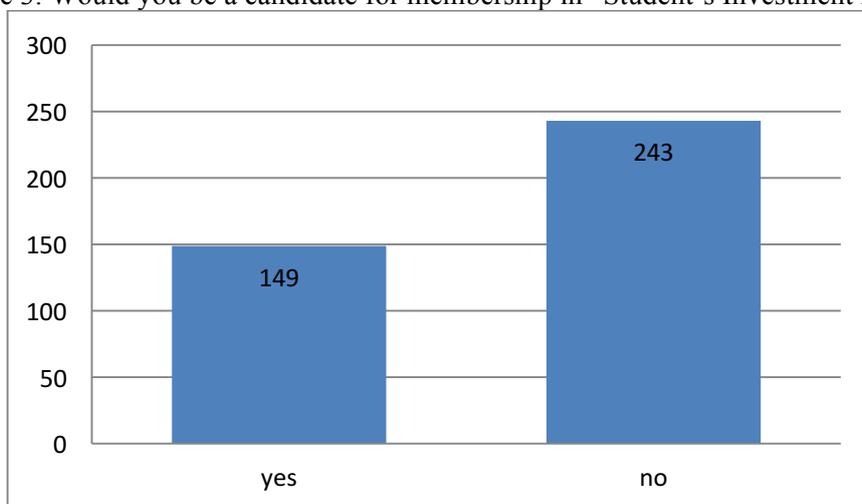
Do you consider investing real money because you participated in investment portfolio simulation game and gained some experience in virtual investing was the next survey question. The results are shown in

Figure 2. Surprisingly, majority of the students indicated they would not consider investing their own money. This may be due to their expectations and their team results in the simulation.



And finally, we wanted to find out how many students would consider themselves as a candidate for membership in “Student’s Investment Fund” which would be under the mentorship and supervision of Professor (instead of one of the elective courses). The results are shown in Figure 3.

Figure 3. Would you be a candidate for membership in “Student’s Investment Fund?”



CONCLUSIONS:

We introduced project “Investor” several years ago to bring stock trading into the classroom, to intrigue students for class materials, to enable them trading experience through simulations. With this survey we wanted to find out what our 4th year (senior) students think about the investment portfolio simulation game, whether do they find it valuable or is it for majority of them something that they “must” do during the semester regardless of outcome. Although we don’t have a finance lab or a trading room, Zagreb Stock Exchange’s Virtual-Exchange platform is a good solution.

The results of the survey show that all together 252 (64.28 percent) students find the project “Investor” - investment portfolio simulation game very valuable or valuable. However it seems that for majority of them it is a Project that they “must” do during semester, because only 55 have been very much or much involved in the investment portfolio simulation game, just 20 of them actually applied classroom acquired knowledge, and investment portfolio simulation game motivated very much only 6 students to increase their efforts in studying Investment Analysis and to make additional research, and 26 of them were somewhat motivated.

These results show that in spite of usefulness of the project “Investor” there is a problem with continuous involvement for the majority of students. The results also show that about 45.92 percent of the students consider investing in real world. Finally, 149 (38.01 percent) of them would be interested in being a candidate for membership in the “Student’s Investment Fund”.

In summary, results show that while there is some interest for the investment portfolio simulation game and the course coverage in investments but the interest is not as widespread as we would like. Even though they can get an extra credit for those activities the results show that majority of the students do not have enough motivation to get higher grade at the end of semester. On one hand this is probably because of the domestic stock market stagnation, and on the other hand probably because of their attitude toward study. The implication is that we have to work harder to get Investment analysis course to cover more practical topics and thus make it interesting to students. We have a group of excellent students. The challenge is to expand this small core group and to motivate rest even more and to clarify and promote educational purpose of project “Investor”.

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