

# The Costs And Benefits Of A Finance Lab

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## ABSTRACT

*Technology has revolutionized the practice of finance. In order to provide business students a current and relevant education, schools in the U.S. and abroad are increasingly adopting the latest technology in the instruction of finance. A finance lab typically provides real-time or delayed market data, simulation and risk analysis software, and Bloomberg terminals to illustrate various financial concepts and to train students in the use of technology. This paper discusses numerous important constituents of a finance lab, their costs and benefits, and some potential funding sources.*

## INTRODUCTION

Computers are extremely useful in the instruction of finance. Until recently, instructors employed Excel or some similar software to perform computations in finance courses (see Clinebell and Clinebell (1995), Arnold and Buchanan (2005), Barry (2004), and Mukherji (2003)). However, recent technological innovations are significantly affecting the instruction of finance.

Our experience suggests that students generally struggle to grasp many financial concepts related to trading, asset valuation, derivative securities, and portfolio management. Traditional teaching methods involving lectures followed by problem-solving, while generally effective, often elicit mechanical responses from students who do not completely understand the underlying concepts. To enhance learning through the use of technology, many business schools in the U.S. and abroad have established a finance lab. A finance lab is generally equipped with hardware and software to promote active learning: students learn concepts by actively participating in various technology-based activities and projects. This paper discusses the basic constituents of a finance lab, as well as their costs and benefits.

## COMPONENTS, COSTS, AND BENEFITS OF A FINANCE LAB

### Market Data, Ticker Tape, And Display Boards

The first component of a finance lab is real-time or delayed market data and the hardware and software to display the information. Typically, a lab has ticker tapes and data boards to display market values of numerous financial instruments, including indices, stocks, bonds, foreign currencies, and derivative contracts. The displays can be customized to meet an individual faculty's instructional needs. For example, a faculty explaining the term structure of interest rates can use the displayed current interest rate information to draw a yield curve or use the quoted discount rate to find the purchase price of a t-bill. Further, a faculty may use the displayed information to explain the impact of important news on asset values. The use of real and current data sparks student interest in the learning activity and student feedback indicates that they are more involved in the learning process.

A typical lab has one or more ticker tapes and data boards. In addition, software and a data subscription are needed to populate the displays. An 11 3/8" h x 173" w, 96-character, LED, graphical ticker tape costs around \$12,000. A 38" h x 76" w (16 rows and 56 columns) LED data board costs about \$17,000. The software can be rented or purchased and the data subscription can cost a couple of thousand dollars depending on the type of data. The market for these products is quite competitive, so it is quite likely that a buyer will pay less than the stated amounts.

**Trading Floor**

A trading floor can be set up in the lab with the required number of personal computers and appropriate software. Financial Trading Software is a Web-based software that, in addition to providing various analytical tools, offers students an opportunity to perform case-based trading among themselves in bonds, equities, and foreign currencies. For example, after the students have learned bond valuation techniques, the class will log in and connect to an electronic market operated by the instructor. In a typical bond valuation case, half the students are given  $x$  number of zero coupon bonds and the other half are given  $y$  number of coupon bonds. In addition every participant receives some cash. Short selling and borrowing are allowed. Students are provided information on the prevailing interest rates and maturities and asked to trade the securities. The objective is to make the most amount of money. After a few runs, students realize that the only way to make money or avoid losing money is to trade after valuing bonds. So they practice what they have been taught. First they value bonds and then they trade based on market inefficiencies. By trading, students learn about market makers, market efficiency, market depth, and various other concepts. Students are more involved in the learning process and they develop a better understanding of the concepts.

The annual licensing fee for the Financial Trading Software is \$7,500. In addition, depending on the class size the lab will need the required number of PCs.

**Data Analytics**

There are many vendors, including Bloomberg and Reuters Plus, who provide data through the Internet and prepackaged tools for security and portfolio analyses. In general these vendors provide similar services including quotes, current and historical information on stocks, bonds, foreign currencies, derivatives, an exhaustive security screening tool, charting features for technical analyses, portfolio construction and monitoring, and numerous prepackaged analytics. Bloomberg data can also be downloaded in Excel for customized analyses.

At our institution, students use Bloomberg for their class projects. For example, in one class students were required to analyze small Louisiana company stocks with the market value of less than \$1 billion. Using Bloomberg, the students identified small Louisiana companies, performed fundamental and technical analyses, found peer companies from the same industry for benchmarks, and used the Bloomberg data in Excel for additional analyses. Bloomberg is also used for a student managed portfolio of real money currently valued at about \$800,000. Bloomberg offers product certification in equities, fixed income, and foreign currencies and since Bloomberg is extensively used in industry, such certification can help students in the job market.

Bloomberg's academic version costs about \$8,000 annually per terminal; however, it does not provide the Excel interface. The professional version costs twice as much but offers the Excel interface. A school can purchase its own PCs and monitors to receive Bloomberg data over the Internet. Bloomberg charges a one-time installation fee.

**Other Software**

Several other software packages are available to meet specific instructional needs. Crystal Ball, a simulation package, assists managers in making better business decisions. For example, an entrepreneur may be unsure of a new product's potential to generate sufficient return. It would be quite helpful to know the probability of earning the required rate of return from the new product before making a decision. After all revenue and cost estimates have been entered and proper distribution assumptions made, Crystal Ball simulates outcomes numerous (e.g. 1,000) times and creates a probability distribution of outcomes. Crystal Ball costs about \$50 per PC per year. Other financial software packages include Barra and BondEdge.

**CONCLUSION**

Technology has revolutionized the practice of finance. Vast advances in data storage, retrieval, and computing and the availability of sophisticated software have enabled the practitioners to make quicker and more efficient decisions. As technology becomes more affordable, many schools are employing technology in the

instruction of finance. There are numerous benefits to the student and the university. Students are more involved in the learning process and develop a better understanding of the concepts. Further, since finance labs employ many of the same technologies and software that practitioners use, students are better prepared for the job market. Finally, schools investing in finance labs acquire some reputational capital. As schools emphasize recruitment of better quality students, student retention, and timely graduation, a finance lab becomes an invaluable tool to achieve these goals.

Undoubtedly, a finance lab is expensive to set up and operate. It can easily cost \$200,000 or more to set up such a lab. In addition, depending upon the technologies and software employed, there are annual licensing fees. Schools interested in establishing a finance lab may explore both internal and external sources of funding. Many universities have internal grant programs funded by student technology fees. In addition, many state governments offer grants to universities on a competitive basis. Another possible source of funding is the school's alumni. A lab fee per course can be proposed for classes meeting in the lab to pay the annual licensing fees.

In sum, based on our experience, a finance lab is an invaluable tool in the instruction of finance.

## REFERENCES

1. Arnold, Tom and Bonnie Buchanan (2005). Interest rate parity in Excel. *Journal of Financial Education*. Fall, 28-41.
2. Barry, Michael (2004). Using Excel to solve the unequal lives, unequal cost of capital problem. *Journal of Financial Education*. Winter, 32-45.
3. Clinebell, J.M., and S.K. Clinebell (1995). Computer utilization in finance courses. *Financial Practice and Education*, 5(1), 132-42.
4. Mukherji, Sandip (2003). A spreadsheet project for an analyst's report on a common stock. *Journal of Financial Education*. Summer, 80-97.

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