

An Interactive Interest Rate Activity for Financial Management

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ABSTRACT: *Students often have little understanding of appropriate interest rates, since textbook problems routinely provide a rate. In this activity, small groups establish interest rates and identify concerns for several realistic loan requests. This prepares the class for a brief lecture on interest rate components, including the risk-free rate and various risk premiums. Follow-up discussion of the loan requests and possible changes enables the instructor to assess the lecture's effectiveness and misunderstandings. Biblical references to debt, interest, and usury can be used as a lead-in to the topic or as a follow-up to integrate Christian faith with this topic.*

INTRODUCTION

Interactive classroom activities are a way to involve everyone, even the quiet and reserved students, in discussion and work which will support the concepts and principles you want to cover. The activity discussed here has been used effectively in financial management to stimulate dialogue on setting interest rates and to set the stage for a short lecture, though the emphasis is on active learning.

INTEREST RATES

Interest rates are critical to financial decision making. Many problems such as those related to the time value of money rely on an assumed rate of interest, often with little regard as to why that rate was chosen or if it's appropriate. These and other problems often pull an interest rate out of nowhere and use it to make a critical decision. Yet choosing an improper rate can lead to erroneous conclusions and poor decisions. Student experience with interest rates is usually limited to credit cards and student loans and they have given little thought to how those rates are determined. The activity, Establishing Interest Rates (Appendix), provides a series of situations which will help students understand the key components of any interest rate and how those components help us to build an appro-

priate rate of interest based on a specific set of circumstances.

Begin by dividing the class into groups of 3-4 students. With no other introduction, they are asked to discuss each situation and intuitively assign what the group feels is an appropriate rate of interest. Each group is also asked to list the reactions and concerns that they have in each situation. Emphasize that there are no correct answers but that they may want to consider and compare the circumstances of the situations as they arrive at a rate of interest. Once the students have had 10-20 minutes to discuss the situations, begin a class discussion. (To save class time you can also have the students do the initial discussion outside of class.)

Each group is asked to report on who is assigned the highest rate and who gets the lowest rate. Then the students are asked to justify the rates assigned, and the class explores the reasons for disagreements between groups. This sets the stage for a short lecture on the components of interest rates based on the following:

$$r^i = RF + RP^i$$

where r^i = nominal interest rate for situation 1

RF = risk-free rate

RP^i = risk premium for situation 1

These elements can be further defined as follows:

$$RF = r^* + IP$$

where r^* = a real rate of return and IP = inflation premium.

In other words, at the very least, investors expect to receive a return which compensates them for the rate of inflation plus some real rate of return.

The risk premium (RP) may represent a variety of additional concerns often referred to as issue characteristics (IC) for which investors may desire to be compensated. One way to frame these is as follows:

$$IC = DP + LP + MP$$

where DP = default premium to reflect the chance the loan will not be repaid;

LP = liquidity premium to reflect the length of the loan;

MP = maturity premium to reflect the uncertainty associated with not knowing the nature of capital markets in the future or the value fluctuations which might occur due to changes in the general level of rates.

You can also discuss the financial risk associated with increased amounts of leverage and how this might play a role in the default premium.

Once these basic components have been explained, refer back to the activity and the decisions made. This provides you with an opportunity to evaluate how well the students have understood the point of your lecture. Ask the students if they would make changes in any of the situations. What rates would they increase or decrease and why? Alternatively you can pick the highest and lowest rate situations and discuss them in light of their unique issue characteristics. Many students will connect with Jim and Melissa and their loan for a honeymoon cruise. They will relate to the somewhat precarious nature of the personal finances of a young couple just getting started. In this case students will quickly note the default risk and the fact that the loan is unsecured. Each situation provides potential for discussion depending on what you would like to emphasize.

Be careful not to get sidetracked into a discussion of who does or does not deserve a loan unless you have more time to spend on the activity. For instance, some students will argue that a college president like Dr. Bigshot should not need a loan to buy his wife a ring. (It's interesting to see how the psychology of a name like Bigshot influences

them.) They may be correct but that's not the primary point of the activity. On the other hand, if students push this, you might suggest that there may be things we don't know about Bigshot. For instance, he might have a good income but he and Mrs. Bigshot have devoted significant portions of their income to support a special needs grandchild or an elderly parent. Or they may have recently returned to academia from service with an international relief agency where he received a small salary. Whatever the case, you can easily move this into a discussion of credit standards and the five C's of credit (Gitman, p.652). If time does not permit at this point in the course, you can use the results from this activity again during the working capital management topics. All of the cases can be used to discuss the establishment of credit policy and standards. In this respect students can be asked what other information they would want from each of these loan applicants.

Finally, you may wish to point out how market imperfections or abnormalities can create situations in which these equations don't quite work as the equation suggests. In 2008 and 2009, with short-term U.S. Treasuries near zero percent return, investors did not receive the risk-free rate implied by the formula. Even FDIC-insured accounts did not return the rate of inflation.¹ While the theory implies that investors would not make these kinds of investment, we all know that many did. The formula also breaks down when applied to credit card rates due to the fact that these rates apply to large classes of borrowers rather than being based on individual circumstances. In spite of these problems, this activity can be used to teach effectively the basic concepts which determine the interest rates paid.

To integrate the activity with faith issues refer to the biblical references to interest in Ezekiel 18, which discuss usury and excessive interest. For somewhat less controversial passages, use Christ's parables in Matthew 25:27 or Luke 19:23. You might also discuss the proper and improper use of debt in personal and business situations. While opinions based on biblical teachings may differ somewhat, everyone will agree that we have an obligation to pay our debts (Romans 13) and that "the borrower is servant to the lender" (Proverbs 22:7). Whether a brief reference or a more extended discussion, students seem to appreciate the opportunity to consider these connections between our faith and daily business practice.²

No matter whether you devote a small amount of time to the activity or expand its use, you will create a teachable moment in your classroom and reinforce learning through a memorable activity.

ENDNOTES

¹ A period of deflation occurred from October thru December 2008 and again during March 2009.

http://data.bls.gov/PDQ/servlet/SurveyOutputServlet?data_tool=latest_numbers&series_id=CUSR0000SA-0&output_view=pct_1mth

² Eric Elder and Brian Porter offer interesting perspectives on the subject of charging interest in the JBIB, Fall 1999.

REFERENCES

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APPENDIX

Financial Management Activity
Establishing Interest Rates

As a lender you have been told that the following loans have been approved. Your job is to determine the appropriate interest rate considering those factors you feel are relevant.

1. Joe wants to buy a house for his family (wife and two children). He is a 27 and makes \$42,000 per year. He is requesting a loan of \$50,000 for 20 years.

Rate - _____ Concerns -

2. Dr. Bigshot is president of a local university. He and his wife are about to celebrate their 25th wedding anniversary. Bigshot wants to buy his wife a diamond

anniversary band and wants a two year loan for \$2,500.

Rate - _____ Concerns -

3. Mary is a college student entering her final year of college. Financial aid has just told her that one of her grants has been eliminated and she will need \$4,000 to register for classes. She needs a \$4,000 loan with 10 years for repayment.

Rate - _____ Concerns -

4. Jim and Melissa just graduated from college and plan to be married in 3 months. They wish to borrow \$3,500 for a honeymoon cruise. They think they can pay the money back over three years.

Rate - _____ Concerns -

5. Omar needs \$7,500 to buy equipment to begin his own painting and home repair business. He has been working for someone else and now wants to be his own boss. He is investing \$15,000 of his own savings in a truck for the business. He plans to pay the loan off with earnings from the business.

Rate - _____ Concerns -