At its core, the mission of the financial manager is to identify the best opportunities for the business and invest in them appropriately. Sure, there are dozens of steps to figure out what that actually means, and we'll cover them all. But it all comes down to some combination of risk, reward, time, and money.

All things in business are relative. A project is only as valuable as its next best alternative. Investing in a new business is only as rewarding as the likelihood that it won't completely fall apart. Effective financial managers understand that all decisions must be made in the context of the larger environment.

The Risk and Reward Equilibrium

Almost everyone is at least intuitively familiar with the concepts of risk and reward. For example, would you rather scoop up nickels in front of a steamroller or pluck dollar bills from the air from the comfort of your sofa? Not much of a decision there.

Human beings are biologically programmed to seek a higher payoff when there's little potential for something to go wrong. Since the earliest days of hunter-gathers, people have understood the trade-offs: Should I climb to the highest branch to get the best piece of fruit? Should I swim a little farther offshore to catch the best fish? Grocery stores have made hunting-and-gathering much less central to modern life, but such questions of survival boil down to: How much certainty should you sacrifice in the quest for higher yields? Understanding the trade-off between risk and reward is central to any investment decision.

Risk

Risk is generally defined as the exposure to loss or harm. The measure of risk includes both the likelihood of loss and the magnitude of the loss. The greater the likelihood or the greater the magnitude of the loss, the greater the risk.

If you're talking about climbing a tree to grab the best piece of fruit, the magnitude of that risk is pretty high — you could fall and break your leg, or worse. How likely is that risk? That depends on your tree-climbing skills, the condition of the tree, perhaps your chosen footwear, and a few other things. This is how you measure risk.

All opportunities have some level of risk, so there's no need to attach a negative connotation to the concept. Anything can go wrong in this uncertain world, and it does, on occasion. The question is, how probable are the chances of that happening? Your job in business is to spot risk and attempt to quantify it properly — not to avoid risk completely. There's an old insurance adage that says, "There are no poor risks, only poor compensation for those risks." This is right on target.

As a financial decision-maker, you must determine whether your company is being adequately compensated for the risks it takes. As a rule, safe investments and opportunities generally offer low rewards, while more risky ones offer a higher potential for gain, but also a higher potential for loss. If you're bent on higher rewards, you have to accept higher degrees of risk with it. Ultimately, you're looking for the right amount of rewards after adjusting for the amount of risk you take.

These decisions must be all made in context. The only way to know how risky something is to analyze what else you could be doing. Decision-making is all about understanding and evaluating one idea against a set of viable alternatives.

Time Value of Money

If we offered you either $100 now or $100 in five years from now, which would you take? You'd put your hand out immediately. But would you take $200 in five years? That quandary is based on the concept of the time value of money, which is the key to understanding just about everything we're
discussing here.

Time is money, but why?

First, if you control the money today, you can be certain that you can put it to work the way you want — earning interest in a bank account, investing in profitable projects, spending it right now. Cash in hand represents either an opportunity to earn more in the future or immediate gratification, both good.

Also, physical possession of money is inherently less risky. If you made the choice to take $200 down the road, we might lose it in the meantime. You might have to come find us to collect. We could change our mind.

The other implicit value of having money in hand today versus a promise of money in the future comes from inflation. Inflation decreases the purchasing value of that money as time goes on. It takes more money in the future to buy the same amount of stuff that you can buy today. Therefore, you place more value on money you have today than on the promise of the same amount of money in the future.

The question underlying this discussion is, how much more money do you require to forgo getting that money today in exchange for a promise to get it in the future? How much would you accept to get your money in five years as opposed to today? To put it in financial terms, what is the present value of a future dollar?

The answer is: It depends. It depends on the realistic alternatives that an individual or a business has available. It depends on the certainty that the entity holding the money will be able to fulfill its promise to pay it back. It depends on how badly the money is needed in the present day. All of these functions move present-day value up or down.

Interest Rates

Any discussion that includes the time value of money naturally leads to the larger interest-rate environment. In principle, interest rates are the prices that lenders demand to be paid for the privilege of borrowing their money. This includes business-to-business lending, home mortgages, credit cards, and everything else you don’t fully pay for on day one. The interest-rate environment really tells you two things:

1. How much reward is needed to justify the risk a business is planning to take; and
2. How much a lender considers to be its time value of money.

Naturally, safer investments offer lower rewards. The more certain a lender is that it will be paid back, the lower the interest rate a lender requires. Conversely, smart lenders demand a greater return for the additional risk they take.

The dynamic presented here is called the risk premium, the amount that investors demand for their money over and above the return from a completely safe bet they could make as an alternative. It's a kind of hazard pay for more dangerous investing work.

The interest rate at which a lender is willing to fund a project depends on many factors, including:

- How risk averse the lender is
- How risky the borrower is
- How the funds are intended to be used
- How soon the lender receives interest payments and principal
- The risk-free rate
- The overall economic environment and inflation

Going into a bit more detail, a loan for owner-occupied housing will carry a lower rate of interest than one for a novel (and long-shot) new pharmaceutical. A 30-year mortgage rate will likely cost more than one for 15 years.

Lenders also adjust their interest rates depending on something called the risk-free rate. As its name implies, the risk-free rate is the interest rate a lender could expect to receive if she were to take on “no risk.” By definition, the interest rate on U.S. Treasury bonds is considered one important measure of the risk-free rate, because the U.S. government is, in theory, the soundest financial entity in the world. In truth, there is no absolutely risk-free rate, but Treasuries are as near as it gets. It is against this benchmark that nearly every financial opportunity in the U.S. and many other countries are measured, and it's generally the minimum accepted return for any available opportunity.
According to Ibbotson Associates, the average return on 10-year Treasuries from 1926 to 2002 was 5.2%. As of June 2010, the 10-year Treasury rate was around 3.2%. Most investors and analysts will just use a 5% benchmark as a quick substitute.

Because lenders' costs are directly correlated with the risk-free rate, so, too, are the interest rates that they charge to lend money. The lower the risk-free rate, the lower the rates that lenders will accept, and vice versa.

Finally, the larger economic environment influences the rates that lenders require. In inflationary periods, lenders need much higher rates than in normal times to compensate them for the costs of inflation. In poor or mediocre economic environments, like recent times, lenders will accept lower returns, as inflation moderates.

A Quick Recap

We've just given you a crash course in banking theory. It's a lot to handle, but the important takeaway is that the banking environment frames a company's internal and external view of its available opportunities. Interest rates reveal to a business manager what it would cost to finance new decisions and what the company could get if it decided to simply stick its money in a bank account. These are both yardsticks by which to make fundamental decisions. Let's explore these ideas further.

The Discount Rate

When we talk about interest rates, we are also simultaneously talking about a concept called the discount rate. The discount rate is a number that puts future value in present-day terms. This is a difficult concept that we'll spend much more time with, but in essence, a discount rate is a number determined by the rate at which money compounds annually for a firm or for a project, and it is one that looks into the future ability of a company to make money. It is then applied backward to get present-day values.

For companies, the discount-rate represents an institution's or an individual's required rate of return that it must match or exceed in order to think a future idea is worthwhile. Within a company or an investment house, discount rates are used to capture the opportunity of future dollars that may or may not materialize and quantify that into values of present-day dollars. Discount rates for a business typically range anywhere from 5% to 20% per year.

They have another important factor built in: risk, or the chances that an idea or a promise may prove to be unsuccessful. Companies attempt to match the rewards of realistic alternatives with their assessment of the relative risk of an investment. Because there's no single way to assess risk, there are lots of ways people go about establishing discount rates. We'll talk much more about this concept in the next few modules, but for the time being, just keep in mind that firms are always curious about the mixture of what they could be making in the present day and how much risk a new idea brings to the table. That's the key behind the discount rate.

Opportunity Cost

Opportunity cost guides the decision between good yet mutually exclusive options when resources are scarce. It measures the difference between the benefits of what you choose and what you lose by not having selected a different option. There is always an opportunity cost to a decision, even if it's not explicitly stated.

For example, the opportunity cost of earning a full-time graduate degree would be the money you didn't earn during the time you were in school. The opportunity cost to a city of building a stadium might be the lack of funds to renovate the community center. All decisions carry direct costs, but they also carry less obvious opportunity costs. (What are you not doing right now, with the time you would have had if you weren't reading this lecture?)
The opportunity cost of your best available alternative provides you with a minimum hurdle rate for any investment decision. In the case of investments, the minimum opportunity cost of any project is always the risk-free rate, since you could always lend money to the U.S. government and receive whatever a T-Bills yields in exchange. As a manager, if you can't make an investment that earns more than the risk-free rate, you'd be better off lending the money to the government.

Imagine, for instance, that you're evaluating three projects that promise returns of 12%, 15%, and 20%. In this case, the opportunity cost of undertaking the 12% project is the 20% return you had to forgo to get it. That wouldn't be smart. Similarly, if you have to borrow money in order to fund your company, you'll need to earn a return at least as high as the interest rate in order to justify the loan. Otherwise, you're better off not funding the project.

It bears repeating: There is always an opportunity cost to decisions.

The Reward

Financial decision-making all boils down to the basic themes presented in this module. Primarily, a business manager's job is to produce maximum reward utilizing minimum risk. She can only do this, however, after properly accounting for the likelihood that this opportunity will come to fruition and against all of the available alternatives, including doing nothing. The business manager absolutely must understand that the best opportunity is only truly appreciated in the context of the next-best alternative.