FINANCIAL MANAGEMENT II

Risk Management Tools: Derivatives
Whether you’re driving down the highway or acquiring a corporate rival, risk is inherent in every move you make. Avoiding risk altogether is not only fruitless, but it also severely restricts the opportunity for gains.

Sophisticated organizations embrace risk, seeking to harness it in ways that are both productive and profitable. Over the years, corporations have formalized this effort, creating systems and processes that capitalize on risk. In so doing, they have created a fast-growing and often misunderstood field known as risk management.

This lecture discusses the basics of risk management and provides a brief introduction to one of its most popular applications: derivatives.

Can You Manage Risk?

In the wake of the economic downturn that started in 2007, the financial world’s faith in sophisticated risk-mitigation tools and techniques has been shaken to the core. Many people thought the wizards of Wall Street had cracked the nut of uncertainty—until they realized quite painfully that they still didn’t know a lot about the subject.

Plenty of mistakes have been made. That said, the lesson to remember is that plenty of valid principles about risk management remain for businesspeople to follow.

At its most basic, risk management means looking at all the risks your company faces and then deciding which risks to hedge against—and which ones can give you a competitive advantage. Hedging is the process of offsetting the risk inherent in one activity by taking a contrary position that works against it.

In real life, you do it all the time. If you decide to cook a new recipe for a dinner party, for example, you’ll make sure to have a trusted backup ready if the recipe fails. Individuals are constantly evaluating risks and identifying creative ways to counter them.

The corporate practice of risk management is much the same. A restaurant could manage its risk of not having enough fresh tomatoes by signing duplicate contracts with farmers. Multinational firms might make trades to counteract dozens of individual fiscal and monetary shifts across the globe. Every business has risks they must manage if they want to succeed.

The first step in risk management is to understand the possible risks a company faces. Because fast-food giant McDonald’s reports its financial results in American dollars but generates significantly more money abroad, for example, the company suffers from a stronger American dollar and benefits from a weakening one. This is somewhat counterintuitive, but if the company is selling its €5 Royale with Cheese in France at the exact same time that the value of the euro is declining against the dollar, McDonald’s loses out when it turns the profits of those sales back into American dollars. (More on this in Lecture 3 of this module.)

Such macroeconomic considerations are consistent across companies, while other risks are firm specific. Rising and falling computer memory prices are critical for semiconductor makers like Micron, but they are just another part of the puzzle—and therefore a fairly small financial risk—to such Micron customers as Hewlett-Packard.

The second important step in risk management is to look at which risks can be hedged against, and which ones should be hedged. You can’t protect yourself against everything, nor should you. Mathematically speaking, if you use conventional tools to protect yourself fully against any kind of loss, you stand to gain nothing. In fact, you’d have less than nothing, because you have to account for the costs associated with setting up hedging strategies. Decisions about which risks to mitigate and which risks to leave alone must be made strategically.

A retail chain, for example, can hedge its exposure to falling real-estate markets through a range of investments. In many cases, it makes sense for them to do so. But companies like Walgreens or
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Active risk management can take many forms. Google is often accused of wasting time, money, and talent on projects that add nothing to the company’s bottom line. Engineers are famously encouraged to spend 20% of their time on pet projects. Many of those projects fail, of course, and that’s an expected part of the process. And clearly, there are costs associated with such a try-anything strategy, both direct and indirect.

But what Google is really doing is hedging against a failure to innovate and a possible loss of creative talent. Some of those part-time projects end up commercialized and successful. Perhaps more important, many engineers who might otherwise leave and start their own startups to compete with Google are satisfied to stay and let their ideas blossom within the company. Google’s strategy is well thought out. It is a highly effective way to mitigate risk.

When it comes to financial risk management, leaders should figure out what their company is good at, and then leverage those advantages to the hilt. They should then reduce risks that aren’t central to their core mission, and focus their efforts instead on where they will do the most good.

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We’ll explore the financial tools that facilitate modern risk-management processes in the next two lectures. But first, let’s take a look at a particularly important recent issue in risk management.

The Rise of Financial Derivatives

“Derivatives are financial weapons of mass destruction, carrying dangers that, while now latent, are potentially lethal,” warned Warren Buffett in 2002. Few people listened.

Instead, risky and opaque forms derivatives known as “swaps” nearly brought down the global economy in 2008. Despite having a $450 trillion notional value (the total value once a contract has been fulfilled), these entities were almost completely unregulated until the recently passed U.S. financial-reform legislation of 2010. They were largely unexamined and misunderstood.

The derivatives industry has swelled to enormous global proportions. To put things in perspective, $450 trillion dwarfs the total value of the world’s financial exchanges. Initially, these tools were designed to control and minimize risk for fairly straightforward transactions like the ones we’ve already discussed. But they have evolved into a massive risk unto themselves.

A derivative is a security whose price is based on, or derived from, one or more assets. The derivative itself is merely a contract between two or more parties who promise to fulfill specific elements of the contract on a certain date. Futures on commodity prices and stock-market indices are just two types of derivatives. But these contracts can really cover anything.

Generally speaking, a derivative’s value is determined by changes in the value of a principle asset. Pretend you’re the head of a large chemical company that uses crude oil as a raw input for the plastics you produce. In order to better forecast your budget over the next few years, let’s say you want to lock in certain rates for that crude. In the U.S., you can purchase the right to buy 10,000 barrels of crude in February 2011 at $50 per barrel, as of October 2010, at the Chicago Board of Trade (known as the CBOT), at the Chicago Mercantile Exchange (the MERC), or at the New York Mercantile Exchange (the NYMEX), which are all now officially part of the CME Group. You don’t have to exercise this right to purchase the oil if you don’t want to, but you must pay for the privilege of having that right to buy.

This is what a standard commodity-based derivative might look like. The value of that contract, which is nothing more than the opportunity to buy that oil on a certain date at a certain price, fluctuates constantly according to the market price for oil. On one day, it might only cost $5,000 to buy that contract. The next day, if the market says oil will be worth a lot more than $50 per barrel next February, the value of that contract might skyrocket. And so it goes for all derivatives.

The most striking property of a derivative is the magnifying effect of leverage. Examine the hypothetical trade described above. For only $5,000 or so, a person has the ability to
control $500,000 worth of notional value in oil. Derivatives offer investors the opportunity to control massive resources without expending much in terms of up-front capital.

You can see how this might be tremendously valuable to a company needing to create cheap risk-management solutions. But this power is a double-edged sword, as we’ll discuss in just a minute. The inherent leverage built into derivatives is what tempts people to use them as moneymaking devices on their own.

Derivatives are most commonly used to track the value of stocks, bonds, commodities, currencies, interest rates, and market indexes. All of these risk-management tools were essentially created in a disorganized effort to help guarantee company earnings. For example, a corn farmer might buy futures to lock in a certain price for his upcoming crop. The futures contract would prevent losses if the price of corn plummeted or a glut in supply developed. While these simple commodity-based transactions are still popular today, derivative contracts now exist for just about anything imaginable.

The beauty of derivatives is that they offer the purchaser almost boundless flexibility—as much as the counterparty is willing to offer. And they offer business people the tools necessary to create advanced risk-management systems. Historically, that’s precisely how these tools were used. But over the past few decades, derivatives have also given investors great power to gamble. They are widely used to speculate for material gain, rather than mitigate against material risk.

Speculation involves buying or selling securities based on hunches and unproven theories in order to expose you to greater gains (as well as greater risk, of course). Want to bet on a rise in the price of gold or silver? Futures contracts let you control thousands of dollars’ worth of precious metals while only having to put up a small fraction of that value in cash. Think a hot tech stock is going to post outlandish earnings next week? Buy a call option for just a couple bucks, and if things go right, you could multiply your money 10 times before you know it.

What began as a way to limit risk using fairly simple derivatives has largely evolved into a means to take on as much risk as possible using as little capital as possible.

Consider the epic collapse of AIG insurance company in the U.S. Simply speaking, the company sold derivatives-based insurance policies against the likelihood that certain types of mortgage owners would fail to pay their bills. The company was selling extremely cheap insurance policies for investors who wanted to protect themselves against what they thought was the small likelihood of something going wrong. In doing so, AIG assumed the other side of that contract and put itself on the hook if things did go wrong. But it failed to realize two critical things:

1. The likelihood of a sharp drop in U.S. home values was substantially higher than anyone at AIG thought; and
2. Huge leverage guaranteed that the company was responsible for much more financially than it had initially considered.

The rest is history. The nation’s largest insurance company folded, causing severe distress across the world’s capital markets. The company’s spectacular derivatives-related failure is precisely why Warren Buffett classified derivatives as financial weapons of mass destruction well before AIG had even gotten into the business.

Derivatives have the power to compound gains and losses powerfully. In his 2010 book The Big Short, Michael Lewis portrayed the financial—products unit at AIG as pursuing immense short-term profits using derivatives with little understanding of the long-term risks they were taking. They failed to consider the likelihood that once-in-a-century catastrophic events would in fact happen, and happen regularly.

Something went horribly wrong with the risk-management processes at many organizations, not just AIG. Today’s financial world is riddled with companies that have failed to appreciate the mortal dangers associated with derivatives.
**Risk and Reward**

Risk is part of business. Smart companies are able to appropriately mitigate the eventualities they might face. One way to do that is with derivatives.

Derivatives are neither inherently good nor evil. When used appropriately, they are a cheap and effective method of mitigating risk. Businesspeople who can use them effectively can reap extraordinary benefits.

But when speculators deploy them in a way that magnifies their exposure, individuals, and businesses can find themselves in situations that quickly escalate beyond their control.

The bottom line is that derivatives will remain a vital financial tool for the foreseeable future. The world will also have to live with their downside for years to come.