

What Is Risk and How Can We Manage It?

By William C. Wood

Risk is defined as the possibility that an injury or loss will occur, and there is risk in everything. To see this, consider whether there is any risk in each of the following events:

- You drive to work in the morning.
- You get coffee at a convenience store.
- You send a text to your friend during a dull meeting.
- You go for a run in your neighborhood.

In each case, the answer is “yes,” there is risk. When you drive, there is the chance of an auto accident. The coffee at your favorite convenience store might spill and burn you. If you send a text to a friend during a dull meeting, you may get called down or—in the extreme—lose your job. And even if you run in a familiar part of your neighborhood, there’s a chance that you could be struck by a car or fall and be injured.

It is impossible to totally eliminate risk. Even if you stayed in bed to avoid the risks of driving, coffee, texting, and running, you would increase your health risk from the inactivity! We cannot eliminate risk, but we can manage it in a variety of ways.

Insurance is one of the most common means of dealing with risk. Insurance has many variations, but each variation involves making regular payments in order to receive compensation if an injury or loss occurs. Thus there are two parts in every insurance transaction: First, there are the regular amounts you pay in, called premiums. And second, there are the payments you receive if a covered loss occurs. The premiums you pay are for protection. Some people feel that if they do not “use” their insurance, it is a waste of money. For example, someone pays car insurance premiums for a year, does not have an accident, and considers the

money wasted. Is that correct? No, that driver had the protection for a year, and the protection was valuable.

To fully understand insurance, it is important to understand the source of the money that pays your claims. Where does the money come from? Originally, it comes from premiums paid by customers. Insurance is best understood as a way that a group of people can share and manage their risk. This basic relationship may be hidden by the middleman work that an insurance company does. The company writes the checks. That may make you think the money to pay claims comes “from the company.” But the money, passing through the insurance company, originally came from the company’s insurance customers. (We say “originally” because the insurance company has the ability to invest part of the premiums paid in—the part not currently needed to pay claims or meet other costs. The company’s investment income adds to its ability to pay claims. However, that investment income was possible only because of the premiums paid by the company’s customers.)

Sometimes customers and politicians believe insurance companies are a source of free money. Some believe it is costless to add requirements for insurance companies to cover more risks. In fact, it is not costless. This point is easily understood when you see insurance as a way for a group of people to share and manage risk, rather than a source of free money from beyond the sky.

Attitudes toward Risk

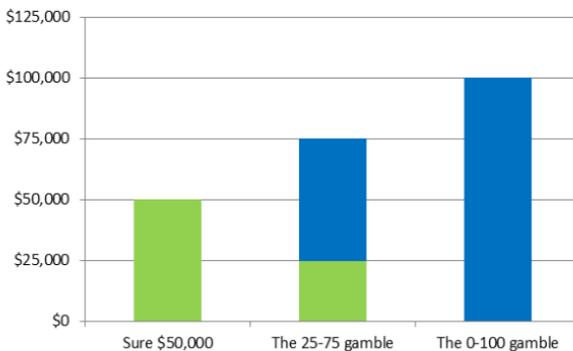
In order to learn more about attitudes toward risk, consider a pleasant choice. A stranger approaches you and tells you to choose between three briefcases. The first briefcase contains \$50,000 cash, and he gives believable assurances that the money is legal. If you choose the first briefcase, an anonymous donor will give you the money. Will you accept the gift? Most people would say “yes.” Even a saint who did not want to keep the money might accept it to give to a favorite charity.

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Before you choose the first briefcase, however, the stranger tells you about the second briefcase. If you choose the second briefcase, the stranger will flip a coin. If it comes up “heads,” you get the \$100,000 in the second briefcase. But if it comes up “tails,” you get nothing. Will you take that gamble? Will you accept a 50-50 chance of getting \$100,000 or walking away empty-handed?

While you are thinking it over, the stranger informs you about a third briefcase and still another option. The third briefcase contains \$75,000. If you choose the third briefcase, the stranger will flip a coin. If it comes up “heads,” you get \$75,000. But if it comes up “tails,” you get \$25,000. This is a somewhat smaller gamble than you would incur if you chose the option of the second briefcase. Should you take it? Exhibit 1 illustrates the possibilities associated with each of the three options.

Exhibit 1: A Sure \$50,000 vs. Two Gambles



Most people would rate those three possibilities in this order:

1. Keep the sure \$50,000.
2. Take the gamble of \$25,000 or \$75,000.
3. Take the gamble of \$0 or \$100,000.

Why? Because they do not like risk. If you have \$50,000 in hand, the additional (marginal) benefit of another \$50,000 is low—

especially compared with the pain of losing the \$50,000 altogether. Taking the second gamble involves risking \$25,000 with the possibility of getting another \$25,000.

The term for not liking risk is risk aversion. When it comes to large sums of money, most people are risk averse—although there are some natural born gamblers among us. People who are risk averse are not totally scared of risk, but they are willing to pay to avoid it. Buying insurance is one way of reducing exposure to risk.

Here is how our briefcase experiment lines up with real life. As much as we would like certainty, life does not often give us \$50,000 for certain. But faced with the \$0-or-\$100,000 gamble or the \$25,000-or-\$75,000 gamble, most of us prefer less risk. Insurance is a way to satisfy a preference for less risk.

Here is another way to think about it. There are two possible futures, or states of the world, that might occur. In one future, you have a car accident that imposes a cost on you—let's say \$20,000 (for car repairs, medical bills, etc.). In the other possible future, you do not have a car accident. The harm to you of not having a car accident is obviously zero. Even if the car accident is not very likely to happen, that's still a lot of risk—the difference between those two possible states of the world is large. For people who do not like risk, that big difference between these two futures is unattractive.

Insurance brings those two possible states of the world closer together. Suppose you pay \$1000 per year for car insurance. The bad state of the world is not quite as bad, because you receive some money when an accident occurs. The good state of the world is not as good, either, because you have to pay for the insurance even if you do not use it. What you are really paying for, though, is the reduction in risk—you are paying for a future in which those two states of the world are not so far apart. This makes risk averse people happier.

An Example: The Barns of Leiper's Fork

To clearly see how insurance can work, let's take the example of a historic small town in Tennessee, Leiper's Fork. The residents of Leiper's Fork own 100 barns. Sadly, one may burn down—but the residents do not know which one. They have a town meeting to decide what to do. All of the options come down to three:

- Assume the risk
- Reduce the risk
- Share the risk

Look at what happens if the residents assume the risk. This sends the message: "If your barn burns down, tough. Rebuild it if you can." When someone assumes a risk, and simply accepts it when it happens, that person is said to self-insure.

Next consider what it would mean to reduce the risk. Under this option, the residents of Leiper's Fork would take extra care around their barns, carefully controlling ignition hazards. If they are successful, there will be no fire. However, there is always a chance of disaster, since lightning and electrical malfunctions can happen to the most careful barn owner.

What would it mean to share the risk? If all 100 barn owners stand ready to contribute 1/100 of the cost of rebuilding a barn, Leiper's Fork now has the ability to rebuild one barn. If someone's barn burns down, Leiper's Fork has a "barn raising." Everyone contributes and no one has to bear the loss alone.

This protection is not free. Each resident "pays" in the form of an implicit obligation to contribute materials and labor to the barn raising. This social custom to share the risk is valued by the risk-averse residents of Leiper's Fork. Economically, they have engaged in diversification, or replacing a single risk with a number of smaller risks. In this case the big single risk is losing a barn without compensation. The big risk is replaced with smaller risks, everybody's possibility of having to participate in a barn raising.

People love the image of a barn raising. It recalls a time when neighbors helped neighbors. On the other hand, people do not have such a positive view of paying for insurance. But is there really such a big difference? Let's follow the trail from a barn raising to insurance.

Starting from a barn raising, we might ask whether it is OK if the barn raisers collect money to buy some big wooden beams not locally available. That sounds fine. Is it also OK if the barn raisers hire a supervisor who is good at organizing volunteers? Most people would go along. But then, why not collect money and hire pros who know what they are doing to build the new barn? A barn raising of this sort is very much like insurance.

From this point, consider what happens if the residents of Leiper's Fork decide to forget about barn raisings and instead agree to pay an amount equal to $1/100$ of the cost of rebuilding a barn each year. Each now has the right to have a barn rebuilt, by an agricultural contractor, if it burns. In addition, everyone pays a service fee to the neighbor who runs the barn owners' pool. At this point the residents of Leiper's Fork have fully made the transition from barn raising to insurance. They pay their share of the expected loss plus a service fee.

Some people do not like the idea of big insurance companies. They think it would be better with a lot of small enterprises like Leiper's Fork Mutual. This sentiment is understandable, but big companies have an advantage because they can spread risk over thousands of barns, not just a hundred. Under the simple local pooling arrangement in Leiper's Fork, if more than one barn burns in a given year, the pool is in trouble.

Insurance today works through markets—buyers and sellers. When those markets function well, customers are well served and rates are reasonable. Risk is efficiently spread and transferred, with the money to pay claims collected and paid through the medium of insurance companies. The companies earn a profit for operating the risk sharing pool.

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(On a historical note, the people of Leiper's Fork actually relied on commercial insurance but formed their own volunteer fire department to reduce risk. You can see the fire truck they bought to reduce and share the risk of loss at

http://www.leipersfork.net/html/leipers_fork_historic_photos_5.html)

Leipers Fork's 1st Fire Engine

- Government
- Local Businesses
- Congregations
- Recreation&Activit
- Schools
- Local Gov't Services
- Local Utilities
- Photo Galleries Ind**
- Tales O' the Fork
- Events!
- Directions&Maps
- FAQ
- Contact Us!



Leipers Fork's 1st Fire Engine

VISIT OUR
LINK
PARTNERS!

[WILLIAMSON
COUNTY \(OFFICIAL
SITE\)](#)

(photo taken @1980) - This was Leipers Fork's first fire engine. At the time, it was about 30 years old. Local residents worked very hard to establish a local rescue squad station, and obtaining this engine was a critical first step. In front of the engine you see Lutz Braun, his daughter Ann. The dobermans are Samantha and Axel. The poodle is Archie, and the schnauzer is Chrissie. This photo was taken behind the Braun family home.

William C. Wood is Professor of Economics and Director of the Center for Economic Education at James Madison University. He is widely recognized for his achievements in both teaching and economic education. In 2002, he was an inaugural winner of the Southern Economic Association's Kenneth G. Elzinga Distinguished Teaching Award. He has authored five books, more than 40 scholarly articles, and national economic education materials for school and adult audiences. His doctoral degree is from the University of Virginia.