

Corporate Finance, Module 7, "Risk and Return"

Diversification

(The attached PDF file has better formatting.)

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Diversification is from the perspective of the shareholders, not the firm. The risk of hurricanes and earthquakes is of great concern to an insurer's *management*. A personal lines insurer can avoid over-concentration of property exposures along the Gulf Coast of the U.S., where hurricanes frequently occur, and it can buy excess-of-loss reinsurance to manage its exposure to catastrophe losses, but it can not eliminate this risk entirely. For the personal lines insurer, the risk of natural catastrophes is a severe business risk. But natural catastrophes are not correlated with market movements, so the shareholders of the insurer's stock can eliminate the risk by buying shares of 50 different stocks, only one of which is a property insurer.

Other risks are of less concern to the firm's managers but of more concern to its shareholders. Suppose this insurer has 25% of its assets invested in a well-diversified portfolio of common stocks. If the stock market drops by 20%, the insurer loses 5% of its assets. A property insurer generally has equity equal to about half its assets, so it would lose about 10% of its equity. This is not as severe as a major hurricane, which might wipe out its entire equity. A life insurer might have assets equal to 10 times its equity. Life insurers are less likely to hold much common stock, partly for the rationale outlined above.

But shareholders cannot eliminate this risk by diversification. If the insurer's common stock portfolio declines in value 20%, all the stocks owned by the shareholders may decline in value 20%. Shareholders who want to avoid risk may be more concerned with excessive holdings of common stock than with high concentrations of property exposures.

Jacob: You say that a 20% decline in the stock market may cause a reduction in the insurer's equity of 10%. This seems like a good deal; the stock market decline causes a 20% reduction in other firms' value but only a 10% reduction in the insurer's value.

Rachel: Equity here means book equity. A 20% stock market decline causes no reduction in the book equity of other firms, but a 10% reduction in the book equity of this insurer. A stock market collapse may presage defaults on corporate bonds and higher costs of insurance obligations. The 20% stock market decline may cause an even larger decline in the market value of the insurer; we discuss this in later modules.

Modern portfolio theory says that only systematic risk, or non-diversifiable risk, warrants a higher return. To determine the expected return for the property insurer, we examine its market

risks, such as its stock holdings. We can ignore its unique risks (diversifiable risks), such as its exposure to hurricanes and other natural catastrophes.

Stuart Myers, the co-author of this textbook, is the most widely cited financial analyst on insurance risk and the appropriate returns for insurance companies. Myers's point of view, which we do not defend here, is disputed by many actuaries. But it is the generally accepted point of view in the financial community, which you will encounter in public hearings about the appropriate rate of return for insurance companies. Whether or not you support this view, you should understand it, and this textbook gives you an excellent summary.

Jacob: Aren't the managers the agents of the shareholders? If the shareholders are concerned with stock risks, shouldn't the managers be concerned with those risks as well?

Rachel: Brealey and Myers call this the principal-agent problem, which they discuss in the module on capital structure. In theory, shareholders hire managers to support the interests of shareholders; if the CEO does not do this, they can fire the CEO. But managers are concerned foremost with their own interests: a high salary, perks, and job safety. Incentive pay systems are a method of aligning managers' interests with shareholders' interests, though these don't always work too well.

Jacob: You say that shareholders are more concerned about the risk of common stock holdings than the risk of hurricanes. At the Board of Directors meetings of property insurers, the board talks about the risk of hurricanes, not the risk of common stock.

Rachel: Several items explain this:

- The chairman of the board is often the CEO of the insurer, and other officers of the insurer are members of the board. The major risk to management is the risk of hurricanes, since it may cause them to lose their jobs if the insurer becomes insolvent. The greatest problem for shareholders is to provide incentives for management to assume projects that have high unique risk but low systematic risk.
- Bankruptcy has costs. Brealey and Myers discuss these costs in a later chapter, and we defer discussion of these costs until then. If these costs are large enough, they justify measures to avoid the risk of bankruptcy. For insurance companies, the cost of bankruptcy are minimal, but the costs of statutory insolvency can be great.
- Boards prefer to address issues that they can affect, not issues over which they have no control. They can't do much to affect stock market risk, but they can suggest measures to reduce the risk of hurricane losses. Sometimes a better quantification of hurricane frequency can raise the net present value of the insurer's business.

Jacob: With all these explanations, how do we know that hurricane risk does not justify higher returns? Management talks about this risk, the Board of Directors talks about this risk, and all sorts of reinsurance programs help reduce this risk.

Rachel: If hurricane risk justified higher returns, then Homeowners, commercial property, and property excess-of-loss reinsurance should have higher returns. They don't appear to bring

higher returns than other lines of business, so we presume that hurricane risk does not bring additional returns. (Note: we can't generalize too glibly. Hurricane Andrew in 1992 and the World Trade Center incident in 2001 caused enormous losses for property insurers; other years have been better. Actual returns don't follow the systematic risks that closely.)