Chapter 22

Risk Retention/ Reduction Decisions

Chapter Objectives

- Identify firm characteristics that influence firm decisions about risk retention/reduction.
- Summarize evidence indicating which types of firms are more likely to reduce risk.
- Identify the variables on which a firm should focus its risk reduction activities.
- Explain the advantages and disadvantages of following a disaggregated approach to risk reduction.

22.1 Firm Characteristics Affecting Risk Retention (Reduction) Decisions

Tbc previous two chapters outlined conceptual reasons why firms might find it advantageous to reduce risk even when the finn'sowners can reduce risk on their own through ponfo!io diversification. In shon, the reasonsgiven in Chapter 20 are that finn-level risk affects the likelihood that a firm not only will have to raise costly external capital but also will encounter financial distress, which in turn affects the terms at which a finn contracts with lenders, etnployees, suppliers, and customers. In Chapter 21, we explained that firms might reduce risk because risk reduction is required by regulation or reduces expected tax payments. In this section, we use the conceptual arguments from the previous two chapters to derive implications about specific finn characteristics that are likely to influence risk reduction decisions.

Risk retention refers to the decision to accept the unccnainty (variability) associated \vith a particular risk exposure. Conversely, risk reduction refers to the decision to reduce

uncertainty (variabilil)'). Our discussion of the retention decision assumes that the alternative to retention is to reduce risk using an insurance contract. However, the points generalize to other risk reduction methods that arc discussed in subsequent chapters, such as risk reduction using derivative contracts.

Benefits of Increased Retention

Potential savings to a finn from increasing retention include: (I) savings on premium loadings, (2) reducing exposure tO insurance market volatility, (3) reducing moral hazard, (4) avoiding high premiums that may accompany asymmetric information, and (5) avoiding implicit taxes that arise from insurance price regulation.

Savings on Premium Loadings

A key factor motivating additional retention is the ability to save on *some* of the administrative expense and profit loadings in insumnce premiums, thus reducing the expected cash outflows for these loadings. Specific sources of savings include lower commissions to insurance brokers, possible savings in underwriting expenses and administrative costs of claim settlement, and savings in state premium taxes (typically 2 percent of the premium) and implicit taxes for expected guaranty fund assessments. Recall, however, that pan of an **insurer's administrative costs are due to the provision of services to the insured. Thus, the** savings on premium loadings depend on the insurer's cost of providing these services relati\vc to the firm's own costs. The savings on premium loadings also depend on the amount of profit loading that the firm can avoid paying by retaining more risk. which in tum depends on the insurer's capital costs and ability to reduce risk through diversification and reinsurance, relative to the firm's capital costs and ability to diversify risk.

Potential savings in profit loadings also can depend on the degree of competition in insurance markets. While most insurance markets arc competitively structured, the market for very large limits of busin ss insurance often involves negotiation between the corporate buyer and a group of insurers that share the risk. In these instances, it has been suggested that insurers may achieve higher expected profits than is the case where many independent insurers are competing to sell coverage (see Box 22.1 later in this chapter).

Reducing Ex:p.osure ro Insrll'tliiCe Market Vc/atility

Another motivation for some corpomtioos to inc:rease risk re·tenrion bas been the desWe 10 reduce their \o1llne:rnobili·ty toannual swin,gs in illSitlmDce prices due to the effects of sh.ocks tG insurer capital on the supply o:f insurance and/:Or the insurance underwriting cycle. Loss financing decisions often are pan of a long-tenn btJsine:ss strategy or plan. Once a firm decides to insure '" particular exposure. it may be costly to c!Jange its strategy in response to an insurance price increase. This is because an immediate large in<:rease in the amount Gfrisk retained can increase the probability of frnancial distress, increase the likelihood that the finn will not have sufficient internal funds to adopt positive net present value projects, and damage rel.ationsl1lips. with customers. suppliers. or lenders. Armngi'ng alternative loss f<Mncing.such as accumu tating internal funds or establishing n captive (see Chapter 25), also can take time.

As a result *of* these innu.ences, tl1le demand! for insurance !by individual finns ollen is inelastic in the sbon run (i..e., comparatively unresponsive to a change in price: in the short run). As a consequence, the purchas-e of insurance can lead to the perverse result: Even though a major purpo:sc ofpurchasing insurana generally is to reduce uncc:nainty in cash flows, the vo lo:tility in insurance prices exposes the firm to uncertainty. Wlten making long-t.:rm loos

financing decisions, therefore, the volatility in insurance prices often is viewed by risk managers as a negative aspect of insurance, which leads them to increase retention.

Reducing Morol Hazard

You learned in Chapter I0 !hat deduetiblcs and other copayments reduce moral hazard. Without these contracnual provisions, expected claim costs would be higher and lhcrefore so would insurance premiums. Consequently, when moral hazard is more of a potential problem, firms tend to retain more risk.

Avoiding High Premiums Caused by Asymmerric Informalion

The inability of insurers to estimate claim costs precisely for all potential buyers causes some buyers to face prices that are relatively high compared to their true, unobservable expected claim costs. These buyers have an incentive to reL1in more risk (see the discussion of adverse selection in Chapter 10). Higher risk buyers would have the opposite incentive (i.e., they would retain less risk to the extent that they face a lower price for insurance because they are pooled with lower risk firms). Note, however. that the reasoning "We have lower expected claim costs than what the insurer thinks" might be seductive and somewhat dangerous. Recall that insurers have substantial incentives to forecast costs accurately. Firms also can provide insurers with any awilable evidence that their expected claim costs might be lower than predicted by the insurer.

A•'Diding /mplicir Taxes Due ro Insurance Price Regulation

In the ease of WQrkcrs'compensation insurance, some states periodically have had large residual markets characterized by significant cross-subsidies from the voluntary market to the residual market (see Chapter 18). To the extent that this occurs in worken'compensation or other line.s of business insurance that have residual markets (e.g., commercial auto liability and some other typesof liability coverage), any higher premiums needed to subsidize the residual market increase the incentives for firms that would be insured in the voluntary market to self-insure or otherwise increase their retention. Firms that can obtain subsidized coverage In the reslduai market wlii tend to purchase more cove:rage (retain less risk).

Mainraining Use of Funds

It often is argued that another advan.tage of retention is that the firm gets to maintain use of the funds that otherwise would be paid in premiums until claim costs are paid.Given that competitive insurance premiums will reflect the present value of expected claim costs, it is not obvious that this argument is valid. The reason is that discounting expected claim costs to present value implicitly provides insurance buyers with a return on funds paid in premiums until claims arc paid.As explained in Chapter 21, income tax rules for insurance versus self-insurance might even allow insurers to provide greater implicit after-tax returns to insurance buyers !han could be obtained if buyers held the same amount of funds in similar assets to finance retained losses

It sometimes is argued that a firm should view its opportunity cost of paying premiums as equal to ;iS opportunity cost of capital for general investment decisions, which will exceed the risk-free rate of interest due to lhe presence of nondivcrsifiable risk, whereas insurers 'viii discount expected claim costs at the risk-free rate (or something close to the risk-free rate). However, this argument is problematic because theory generally suggests

that the rate used to discount losses should depend on the risk of losses rather !han whether the firm or the insurer pays the losses. As a result, the appropriate discount rate for losses is thesame for the firm and the insurer (apart from any tax considerations). At a minimum, it is important for you to recognize that premiums in competitive insurance markets will provide some implicit return for the expected average time lag between the payment of premiums and claim costs.

Costs of Increased Retention

Increased retention obviously exposes the finn to greater risk. As you learned in Chapter 20, increased risk can be costly for a number of reasons. For example, the greater risk from increased retention increases the probability of costly financial distress with associated adverse effects on lenders, employees, suppliers, and customers, which causes them to contract with the fmn at less favorable terms. Increased retention also may require the firm to raise costly external funds and forgo some profitable investment opportunities. Moreover, increased retention may reduce expected tax shields and sacrifice possible advantages to insurance from bundling responsibility for claims payment with claims settlement. Other things being equal, the costs associated with increased retention will vary across firms depending on the nature of their ownership and operations.

Closely Held versus Publicly Traded Firms with Widely Held Stock

The owners of closely held firms typically have a significant proportion of their wealth invested in the firm and thus are undiversified compared to shareholders of publicly traded firms with widely traded stock. Because the owners of closely held firms arc not diversified, they have an incentive to retain less risk (purchase more insurance) than publicly traded firms with widely held stock. Similarly, firms that have managers who own a large amount of stock and therefore are undiversified are more likely to reduce risk.

Firm Size and Correlation among Losses

If a firm has a large number of independent exposures, then the law of large numbers operates at the fmn level, allowing the fmn to predict its average loss per exposure more accurately. Consequently, one major benefit of insurance-the reduction in the variability of the average loss per exposur an also be achieved by firms with a large number of uncorrelated loss exposures. Positive correlation among losses within a firm reduces the extent to which firms can diversify risk internally. Consequently, other things being equal, positive correlation increases the demand for insurance (provided that insurers are able to achieve superior diversification). Larger firms with their generally larger cash flows also **are better able to readily finance losses of any given size out of cash flow than are smaller** firms, and they often arc able to raise external funds at lower cost. Each of these influences reduces the demand for insurance by large firms.

Investment Opportunities

Firms that arc likely to have good investment opportunities will need funds to fmance those invesunent opportunities. These firms will be more likely to reduce risk because an unexpected drop in cash flow can force the finn to either forgo the investment project or raise costly external capital in order to undertake the investment project. Finns that operate in growth industries and fums that require continual investment in research and development arc likely to benefit from risk reduction, all else equal.

Product Characteristics When consumers expect future services from the pro..,idec of produCtS and services. then the demand for those products and services 'viii depend on consumers' perceptions about the likelihood that the provider will be able to provide the furure services. Of course, the likelihood that a firm will be able to provide futures services is inversely related to the likelihood of bankruptcy. Consumer durables, such as electronic equipment and cars, and fmancial services such as insurance. arc examples of products and services for which consumer demand is likely to be especially vulnerable to consumers' perceptions about the provider s probability of bankruptcy. Thus, fums in industries such as these tend to benefit more from risk reduction than fums in industries that produce products for which future services are not expected.

Correlation of Losses with Other Cash Flows and with b!l'estment Opporl1mities

Firms whose losses are positively correlated with other cash in.nows will have a lower standard deviation of total cash nows, other things being equal, and thus will tend to retain more risk. In these cases, firms have a natural hedge: When losses tend to be high. other cash nows also tend to be high, rhus reducing tbe likelihood of financial distress and the need for external funds. For example, if a firm has more workplace injuries when demand for its products is une.,pectcdly high, the increased profits due to the increase in demand will at least panially offset the increase in worker injury costs.

A related result is that a positive (negative) correlation between losses and the rate of rerum on new investment will reduce (increase) the ability of the firm ro pursue profitable investments without raising external funds, thus increasing (decreasing) the demand for insurance. The re.ason is that che demand for funds for new investment will tend to be high when losses are high and available internal fwtds are low. This case often is more applicable to hedging than insurance. For example, a reduction in oil prices is likely to reduce the rare of return on new investment in the exploration for oil. Firms in the oil industry will desire to invest less money in exploration following an oil price decline, and they will therefore have less incentive to hedge the risk of lower oil prices (see Chapter 24).

Financial Leverage

Firms with higher financial leverage (ratio of debt to equity) will have a higher likelihood of financial distress, holding the probability distribution of future asset values constant. Consequently, firms with higher leverage arc likely to find risk reduction more advantageous (and vice versa:see Chapter 20).