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SURVEY - MASTERING RISK 1: Diminishing the threats to shareholder wealth

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Summary

In a truly frictionless economy, risk management is a pointless activity. Shareholders can adjust the risk profile of their portfolios by diversifying or shifting their assets. Healthy companies that suffer unwelcome financial shocks can always approach the capital markets for funding. Yet, as René Stulz argues, the world is a much more complex place than friction-free theoretical models admit. Adverse shocks to a company's cash flow typically create indirect costs. These costs might stem from the threat of costly bankruptcy and financial distress, the difficulties of raising funds to finance corporate strategies or the consequences of these shocks to stakeholders. Risk management - particularly through the use of derivatives strategies - can help managers lessen these threats and thereby boost and sustain the value of the company.

The only reason a company ought to manage financial risks is that by doing so it makes its owners, the shareholders, better off. The author argues below that a well-designed financial risk management policy achieves this. In particular, risk management increases the wealth of diversified shareholders.

It is not obvious that managing a company's risks should make shareholders better off. When we look at the range of risks a company faces, they can be divided into two categories: systematic risks and idiosyncratic risks. Systematic risks are common to many companies; they might include the risks of fluctuating business cycles. Idiosyncratic risks are specific to a company and might include the risk that its products malfunction or that its manufacturing plant burns down.

Investors choose to bear systematic risks because they expect to receive a higher return than if they were to invest in risk-free securities. This compensation - the risk premium - corresponds to the excess of a security's expected return over the short-maturity treasury-bill rate. In contrast, idiosyncratic risks disappear in diversified portfolios (over any period, some companies will have good news and others bad news). Therefore, investors earn no compensation for bearing unsystematic risk

because they can get rid of it by diversifying across securities.

A company might reduce the volatility in its share price by reducing its idiosyncratic risks, but that does not mean that its share price will rise. Well-diversified shareholders did not notice these idiosyncratic risks before the company reduced them and will not reward the company for actions that they do not notice. In the long run, the argument goes, risk management cannot create wealth because it does not increase the company's expected cash flow - it just smooths out the ups and downs in cash flow.

If a company incurs costs to reduce its systematic risk, for example by diversifying into new activities to avoid damaging business cycles, shareholders equally have no reason to cheer because they can always alter the amount of systematic risk they bear by changing their asset allocation. Investors can increase their exposure to the market, and hence their systematic risk, at the cost of typing a few instructions on their computer.

Since investors do not value shares more when they have less idiosyncratic risk and do not value changes in a company's systematic risks, how then can risk management create shareholder wealth?

The answer is that unexpectedly low cash flows have important indirect costs for companies. Remember that the value of a company's shares is based on the market's expectation of the company's future cash flows. An unexpectedly low cash flow could, for instance, bankrupt the company or place it in financial distress; this would cause its share price to fall by more than just the cash flow shortfall.

To clarify the role of these indirect costs, consider the following experiment. Companies A and B are identical, except that company A has an idiosyncratic risk that company B does not have. For instance, both companies might have the same projects, except that for company A the project has more extreme potential outcomes than for company B. Let us say that company A has a 50 per cent chance of losing Dollars 100m and a 50 per cent chance of gaining Dollars 100m in the near future. If one had to forecast the difference in cash flow between the companies in the near future, one would expect the difference to be zero, since a positive difference of Dollars 100m is as likely as a negative difference of Dollars 100m.

Assuming that shareholders can diversify this risk, it does not affect their expected return on the company's shares. If the only impact of the risk for company A is that it either loses Dollars 100m or gains Dollars 100m, capital markets would still value the

two companies identically even though company A carries additional risk.

One might think that a world in which company A is valued like company B does not exist, but such a world is precisely the one of the famed Modigliani-Miller Leverage Irrelevance Proposition, which is taught in introductory finance courses around the world (see box on Page 10). A company's leverage is its ratio of debt to equity. The Proposition states that the size of a company's leverage does not affect its value. In the context of our example, the impact of losing Dollars 100m for company A would remain the same whether the company is highly levered or has no leverage. If the company loses Dollars 100m, proponents of the Proposition would argue, it could simply go to the capital markets and raise another Dollars 100m.

The real world, however, does not work this way. Risks do have important indirect costs that managers must take into account when maximising shareholder wealth. Once we identify these costs, we will know why risk management creates value and how companies should go about using risk management to capture that value for its shareholders.

The costs of risk

There are several reasons why the extra risk carried by company A creates indirect costs that reduce its value relative to company B. The author focuses here on the most important ones:

Bankruptcy and distress costs

For a very large global company - with an equity capitalisation exceeding Dollars 100bn - a loss of Dollars 100m has little impact. However, if Dollars 100m is large compared to a company's equity capitalisation, it is more likely to threaten the company with bankruptcy or financial distress.

Let us say that company A loses Dollars 20m in bankruptcy costs if the loss of Dollars 100m occurs. The markets value a company's shares on their expectation of its future cash flows. If there is some possibility that a costly bankruptcy will occur in future, the share price falls to reflect the increase in expected bankruptcy costs (regardless of whether the company ultimately bears bankruptcy costs or not). In our example, the risk of bankruptcy would decrease the value of company A relative to company B by roughly Dollars 10m (which is the probability of bankruptcy multiplied by the bankruptcy cost, or $0.5 \times \text{Dollars } 20\text{m}$). In this situation, any attempts by company A's managers to reduce risk will be applauded by its shareholders because they would decrease the likelihood of bankruptcy costs and hence increase the share price.

More generally, companies can use risk management to avoid the costs of financial weakness. As companies become shakier, customers become reluctant to buy their products. Examples from the early 1990s are Eastern Airlines, once the eighth largest US carrier, and US carmaker Chrysler, in the late 1970s, which both faced an exodus of consumers when their survival was in doubt. Suppliers may also withhold their products because they might not get paid and workers may begin to look elsewhere for work. In industries where financial soundness is essential to conducting business, such as the financial services industry, companies can vanish almost overnight when credit risks become significant. This was illustrated relatively recently by bank runs in Indonesia and Russia.

Raising funds: costs and difficulties

Proponents of the Leverage Irrelevance Proposition might argue that companies can avoid bankruptcy and distress costs by raising funds in the stock or debt markets. They would claim that companies with convincing growth opportunities can always find new capital cheaply.

Sometimes a company's growth opportunities are so compelling that it can raise funds easily and at low cost. At other times, however, this is not possible. For instance, US savings and loan institutions were essentially locked out of the capital markets in the early 1990s because of regulatory uncertainty. During the Asian crisis, there were countless stories of companies that could not obtain capital for financing valuable exports. More recently, business-to-consumer internet companies have had difficulties raising funds as market sentiment has turned against them.

One reason for this is that it is often difficult for managers to explain growth opportunities credibly to potential investors. In some cases, the nature of the growth opportunity is too complex. In others, they may fail because the markets worry that their desire to see the company grow clouds their judgment of those very opportunities. In any case, failure to find funding prevents a company from taking advantage of growth opportunities - and thereby benefiting shareholders - when it falls on hard times.

Stakeholders

Many managers, academics and policymakers argue that companies should not simply focus on maximising the wealth of their shareholders, but should also be concerned with the welfare of stakeholders. If this entails taking money away from the owners of the company - the shareholders - and giving it to other individuals, it amounts to robbing the company's owners, which does not seem justifiable. However, it is important to remember that corporations maximise shareholder wealth by building

valuable relationships with customers and employees. Without such relationships, companies pay more for services and receive less for their products.

Workers and customers often have claims against the company. A worker might be owed compensation in the future; a customer might hold a warranty. As a result, companies with more risk attached to them may have to pay more to hire workers. They may have to sell their products for less to compete, since their warranties will be worth less than those from less risky companies.

But companies can reduce the risk attached to them through risk management. Since markets do not charge a premium for bearing risk that can be diversified, companies can reduce company-specific risk at no cost. If workers and customers charge the company for bearing its risk by requiring respectively higher wages and lower prices, the company is clearly better served by having capital markets bear its risk more cheaply.

Debt financing

Debt financing has both costs and benefits. Its costs are that it makes bankruptcy and distress more likely. Its benefits are threefold: debt confers tax benefits on companies; a greater concentration of shareholdings becomes possible because less equity is outstanding; and it forces management to disgorge cash flow that might otherwise be invested in low-return projects.

Risk management decreases the cost of debt since it makes it less likely that the company will experience distress or bankruptcy. As a result, reducing risk enables companies to benefit more from their existing debt financing and to increase levels of such financing.

Managerial incentives

It is now an accepted principle that a company's managers should benefit when they succeed in increasing shareholder wealth. Managers who receive a fixed wage, it is thought, have little incentive to worry about shareholders; they have to gain financially from increasing shareholder wealth. Their compensation is risky when it is tied to stock price performance. Some of that risk can be controlled, but often it cannot. For instance, if a company's income depends on exchange rates, its managers' pay also depends on them. Managers cannot control exchange rates and are rarely skilled enough to forecast them. So, having their pay depend on exchange rates forces them to bear risks they can do nothing about. To get managers to bear such risks, their compensation has to be higher otherwise they tend to try and guarantee it by rejecting valuable risky projects. Rather than pay them more or see them reject worthwhile projects, it makes sense to let managers eliminate risks that do not have to be taken to

make the business succeed.

Undiversified shareholders

Companies often have large undiversified shareholders that play a critical leadership and monitoring role. Such shareholders increase the value of a company's equity through their efforts. Large undiversified shareholders have both the incentives (they make money) and the means (they control votes) to work to make the corporation better. Attracting such shareholders is valuable for corporations, but risk management can be critical in keeping them because their lack of diversification means that they are affected adversely by the company's idiosyncratic risk.

A risk management strategy

The author argued above that cash flow problems have indirect costs for companies. Risk management can reduce the occurrence of such problems, but how should executives devise the best risk management strategy?

One approach is to calculate the debt rating that is consistent with maximising value. Some types of companies lose lots of business opportunities because they have a low rating (for instance, a company that sells long-maturity financial products). For other types, a high rating is not as beneficial - such companies are better served with a lower rating because the costs of obtaining a higher rating do not make economic sense. Think of a new company with a highly risky but valuable R&D project. To obtain a higher rating, the company might have to give up its project, thereby abandoning what makes it valuable.

For a company that needs the higher rating, the threshold at which it must manage risk can easily be calculated. Suppose that a company knows that it will lose its desired rating if the probability of default over the year exceeds 1 per cent, its default occurring when cash flow falls short by Dollars 100m. To keep its desired rating, the company therefore has to ensure that 99 per cent of the time its cash flow shortfall will be less than Dollars 100m. If this condition were not met, cash flow risk would be excessive and managers would reduce risk to preserve their rating.

One might be tempted to argue that the company would be better off eliminating the possibility of default completely. The difficulty with this view is that doing so is usually too expensive - the surest way of making default impossible is for the corporation to liquidate its assets and invest the proceeds in treasury bills. Rather, a company's risk management strategy should be designed to resolve as far as possible the trade-off between the benefits and costs of reducing the possibility of default and

financial distress.

Companies might try to reduce their probability of default by raising more equity and keeping the proceeds as liquid assets that they can use to make up for cash flow shortfalls. However, such a strategy is costly for a number of reasons. In particular, it reduces the company's ability to take advantage of the benefits of debt. Further, when a company stockpiles cash as an insurance policy, capital markets are often concerned that it could be used unproductively. For instance, there is evidence from academic research that cash-rich companies are more likely to make poor acquisitions.

Alternatively, companies can try to limit risk by changing the nature and scope of their operations. For instance, companies might diversify in order to stabilise their cash flow. Unfortunately, using operations to reduce risk is often extremely costly. Academic research has shown that diversified companies are typically worth less than specialised companies - there is a "diversification discount".

Using financial instruments can be a much cheaper way of managing risk. For instance, companies often use forward contracts to manage foreign exchange risk. A currency forward contract allows the company to sell a quantity of a specified foreign currency at a future date and at an agreed price. The transaction costs are often trivial and financial instruments can be tailored to eliminate more complex risks.

Yet there has been much concern that the use of financial instruments in risk management strategies can lead to losses such as those experienced by Metallgesellschaft, the German industrial company, Procter & Gamble, the consumer goods company or Ashanti Goldfields, the Ghanaian mining corporation. Indeed, some companies have had poor risk management strategies, or have speculated and lost. However, it is important to understand that companies with competent managers and sound risk management strategies will, at times, lose on their derivatives positions.

Let us consider a simple example of a derivative - a forward contract. A British company expects to receive Dollars 10m from its customer in a year's time. It decides to hedge against changes in the dollar/sterling exchange rate by agreeing to sell the Dollars 10m in advance, for a fixed amount of sterling.

From the company's point of view it carries no risk because the value of the hedged position after a year does not depend on the dollar/sterling exchange rate. However, if one makes the mistake of simply judging the performance of the forward contract

after a year, roughly half the time the company will lose out and half the time it will win. If it happens to lose, headlines in the press might justifiably say that the company lost a large amount of money on derivatives. Yet these headlines would misrepresent the impact of the derivatives position on the company - in this case it used derivatives to eliminate the foreign exchange risk and succeeded in doing so.

Some derivatives losses, however, do deserve critical attention. Managers who lose on forward contracts half the time are doing their jobs properly, because they hedge systematically. Problems arise when managers make their own forecasts and use them as part of a hedging strategy. Corporate managers should not be in the business of speculating on foreign exchange, or more generally on financial prices and rates, when they do not have a comparative advantage in doing so. Financial markets are reasonably efficient - their inefficiencies certainly cannot justify the diversion of corporate attention from its primary focus.

Widget companies

Companies that implement a well-designed risk management strategy increase their shareholders' wealth. The criticism is often made that managers should forget about derivatives and financial instruments because they should focus on the company's operations. Managers of widget companies, it is said, should focus on producing better widgets, not on devising derivatives strategies. This criticism misses the point of risk management. Derivatives strategies and risk management are valuable precisely because they enable these managers to do a better job in producing widgets. Without risk management they will occasionally see their strategies collapse because of risks that have nothing to do with the company's core abilities. By managing risks, they stand a much better chance of being able to implement their chosen strategy successfully.

A critical proposition

The Leverage Irrelevance Proposition plays a critical role in modern corporate finance. Proposed in the 1950s by Merton Miller and Franco Modigliani, it describes the relationship between a company's debt/equity ratio and its market value defined as the sum of the market value of its debt and of its equity. A good way to understand the Proposition is to think of the company's cash flows as a pizza. Shareholders get some slices and debt-holders get the others. As long as the pizza stays the same, giving more slices to the shareholders because the company has more equity financing simply amounts to giving fewer slices to debt-holders. The size of the pizza - the underlying value of the company - remains unchanged.