Financial Risk Management: An Introduction

Nishtha Jain
I.C.G. – The IIS University, Jaipur

Abstract:
Current practice largely follows preventive approaches to market risk dimension, such as historical simulation. Here we are presenting an introduction of financial risk management from some academic literature taking as reference.

Keywords: *Risk management, Financial Management, constraints etc.*

I. INTRODUCTION:

From a purely academic perspective, corporate interest in risk management seems curious. Classic portfolio theory tells us that investors can eliminate asset-specific risk by diversifying their holdings to include many different assets. As asset-specific risk can be avoided in this manner, having disclosure to it will not be rewarded in the market. Instead, investors should hold a combination of the risk-free asset and the market portfolio, where the exact combination will depend on the investor's craving for risk. In this basic setup, firms should not waste resources on risk administration, since investors do not care about the firm-specific risk. From the renowned Modigliani-Miller theorem, we similarly know that the value of a firm is independent of its risk arrangement; firms should simply make the most of expected income, regardless of the risk entail; holders of securities can achieve risk transfer via appropriate portfolio allocations, however, the strict conditions required for the Modigliani-Miller theorem are routinely violated in practice. In particular, capital market imperfections, such as taxes and costs of financial distress, cause the theorem to fail and create a role for risk management. Thus, more realistic metaphors of the corporate setting give some justification for why firms should devote cautious attention to the risks facing them. Some Simple Cases of Financial situations:

- Danger is one-sided uncertainty. Danger produces only bad surprises, and its results aren't measured in money or anything else that can be aggregated. Dangers should be minimized, subject to constraints.
- Risk is a two-sided uncertainty – both good and bad surprises are possible. Results of risk can be aggregated. Your goal is to optimize risk by choosing the right level for your circumstances. Don't reflexively choose low risk for predictability or high risk for excitement.
- Opportunity is one-sided again, bringing only good surprises with unquantifiable results. Maximize your opportunities, subject to constraints. As you make financial decisions, consider the types of risk you may encounter that can affect your strategy:
- Market risk: Uncertainty due to changes in market prices.
- Credit risk: Uncertainty due to a failure of an external entity to keep a promise.
- Operational risk: Institutional uncertainties other than market or credit risk.
- Liquidity risk: Uncertainty about terms and the ability to make a transaction when necessary or desired.
- Funding risk: Uncertainty about whether investors will provide sufficient funds.
- Reputational risk: Uncertainty about how your entity will be perceived.
- Political risk: Uncertainty about government actions.

Make sure you consider the range of risks, and if everyone is thinking about the market risk, take a minute to think about reputational risk or funding risk as well.

A. Taxes

Risk management can help cut taxes by reducing the unpredictability of earnings. Many tax systems have built-in progressions and restrictions on the ability to carry forward in time the tax benefit of past wounded. Thus, everything else being equal, lowering the unpredictability of future pretax income will lower the net present value of future tax payments and thus increase the value of the firm.

B. Capital Structure and the Cost of Capital

A major source of corporate default is the inability to service debt. Other things equal, the higher the debt-to-equity ratio, the riskier the firm. Risk management can therefore be seen as allowing the firm to have a higher debt-to-equity ratio, which is beneficial if debt financing is inexpensive net of taxes. Similarly, proper risk management may allow the firm to expand more aggressively through debt financing.

C. Bankruptcy Costs:

The direct and indirect costs of bankruptcy are large and well known. If investors see future bankruptcy as a nontrivial possibility, then the real costs of a company reorganization or shutdown will reduce the current valuation of the firm. Thus, risk management can increase the value of a firm by reducing the probability of default.

D. Compensation Packages

Due to their understood investment in firm-specific human capital, managerial level and other

key employees in a firm often have a large and unhinged exposure to the risk of the firm they work for. Thus, the riskier the firm, the more compensation current and potential employees will require to stay with or join the firm. Proper risk management can therefore help reduce the costs of retaining and recruiting key personnel.

A while ago, researchers at the Wharton School surveyed 2000 companies on their risk management practices, including derivatives uses. Of the 2000 firms surveyed, 400 responded. Not astonishingly, the survey found that companies use a range of methods and have a variety of reasons for using derivatives. It was also clear that not all risks that were managed were necessarily completely removed. About half of the respondents reported that they use derivatives as a risk-management tool. One-third of derivative users actively take positions reflecting their market views, thus they may be using derivatives to increase risk rather than reduce it.

Of course, not only derivatives are used to manage risky cash flows. Companies can also rely on good old-fashioned techniques such as the physical storage of goods (i.e., inventory holdings), cash buffers, and business diversification. Not everyone chooses to manage risk, and risk management approaches differ from one firm to the next. This partly reflects the fact that the risk management goals be different across firms. In particular, some firms use cash-flow volatility, while others use the variation in the value of the firm as the risk management object of interest. It is also generally found that large firms tend to manage risk more actively than do small firms, which is perhaps surprising as small firms are generally viewed to be more risky. However, smaller firms may have limited access to derivatives markets and further- more lack staff with risk management skills.

The overall answer to this question appears to be yes. Analysis of the risk management practices in the gold mining industry found that share prices were less sensitive to gold price movements after risk management. Similarly, in the natural gas industry, better risk management has been found to result in less variable stock prices.

A study also found that risk management in a wide group of firms led to a reduced exposure to interest rate and exchange rate movements. Although it is not surprising that risk management leads to lower variability indeed the opposite finding would be shocking a more important question is whether risk management improves corporate performance. Again, the answer appears to be yes. Researchers have found that less volatile cash flows result in lower costs of assets and more investment. It has also been found that a portfolio of firms using risk management would outperform a portfolio of firms that did not, when other aspects of the portfolio were controlled for. Similarly, a study found that firms using foreign exchange derivatives had higher market value than those who did not.

The evidence so far paints a fairly rosy picture of the benefits of current risk man- agreement practices in the corporate sector. However, evidence on the risk management systems in some of the largest US commercial banks is less cheerful. Several recent studies have found that while the risk forecasts on average tended to be overly conservative, perhaps a virtue at certain times, the realized losses far exceeded the risk forecasts. Importantly, the excessive losses tended to occur on consecutive days. Thus, looking back at the data on the a priori risk forecasts and the ex ante loss realizations; we would have been able to forecast an excessive loss tomorrow based on the observation of an excessive loss today. This serial dependence unveils a potential flaw in current financial sector risk management practices, and it motivates the development and implementation of new tools.

We have already mentioned a number of risks facing a corporation, but so far we have not been precise regarding their definitions. Now is the time to make up for that. Market risk is defined as the risk to a financial portfolio from movements in market prices such as equity prices, foreign exchange rates, interest rates, and commodity prices. While financial firms take on a lot of market risk and thus reap the profits (and losses), they typically try to choose the type of risk to which they want to be exposed. An option trading desk, for example, has a lot of exposure to volatility changing, but not to the direction of the stock market. Option traders try to be delta neutral, as it is called. Their expertise is volatility and not market direction, and they only take on the risk about which they are the most knowledgeable, namely volatility risk. Thus financial firms tend to manage market risk actively. Nonfinancial firms, on the other hand, might decide that their core business risk (say chip manufacturing) is all they want exposure to and they therefore want to mitigate market risk or ideally eliminate it altogether. Liquidity risk is defined as the particular risk from conducting transactions in markets with low liquidity as evidenced in low trading volume and large bid-ask spreads. Under such conditions, the attempt to sell assets may push prices lower, and assets may have to be sold at prices below their fundamental values or within a time frame longer than expected.

Traditionally, liquidity risk was given scant attention in risk management, but the events in the fall of 2008 sharply increased the attention devoted to liquidity risk. The housing crisis translated into a

financial sector crises that rapidly became an equity market crisis.

The flight to low-risk treasury securities dried up liquidity in the markets for risky securities. The 2008–2009 crisis was exacerbated by a withdrawal of funding by banks to each other and to the corporate sector. Funding risk is often thought of as a type of liquidity risk.

Operational risk is defined as the risk of loss due to physical catastrophe, technical failure, and human error in the operation of a firm, including fraud, failure of management, and process errors. Operational risk (or op risk) should be mitigated and ideally eliminated in any firm because the exposure to it offers very little return (the short-term cost savings of being careless, for example). Op risk is typically very difficult to hedge in asset markets, although certain specialized products such as weather derivatives and disaster bonds might offer somewhat of a hedge in certain situations. Op risk is instead typically managed using self-insurance or third-party insurance. Credit risk is defined as the risk that a counterparty may become less likely to fulfill its obligation in part or in full on the agreed upon date. Thus credit risk consists not only of the risk that a counterparty completely defaults on its obligation, but also that it only pays in part or after the agreed upon date.

II. CONCLUSION

The nature of commercial banks traditionally has been to take on large amounts of credit risk through their loan portfolios. Today, banks spend much effort to carefully manage their credit risk exposure. Nonbank financials as well as nonfinancial corpo- rations might instead want to completely eliminate credit risk because it is not part of their core business. However, many kinds of credit risks are not readily hedged in financial markets, and corporations often are forced to take on credit risk exposure that they would rather be without. Business risk is defined as the risk that changes in variables of a business plan will destroy that plan's viability, including quantifiable risks such as business cycle and demand equation risk, and non scientific risks such as changes in competitive behaviour or technology. Business risk is sometimes simply defined as the types of risks that are an integral part of the core business of the firm and therefore simply should be taken on.

REFERENCES

[1] Gourieroux, C., Monfort, A., 2010. Granularity in a qualitative factor model. J. Credit Risk 5, Winter 2009/10, pp. 29–65.

[2] Hull, J., 2008. Risk Management and Financial Institutions, second ed. Prentice Hall, Upper Saddle River, New Jersey.

[3] Hull, J., Nelken, I., White, A., 2004. Merton's model, credit risk and volatility skews. J. Credit Risk 1, 1–27.

[4] Jacobs, K., Li, X., 2008. Modeling the dynamics of credit spreads with stochastic volatility. Manag. Sci. 54, 1176–1188.

[5] Lando, D., 2004. Credit Risk Modeling. Princeton University Press, Princeton, New Jersey. Lopez, J., 2004. The empirical relationship between average asset correlation, firm probability of default and asset size. J. Financ. Intermed. 13, 265–283.

[6] Mason, S., Bhattacharya, S., 1981. Risky debt, jump processes, and safety covenants. J. Financ. Econ. 9, 281–307.

[7] Merton, R., 1974. On the pricing of corporate debt: The risk structure of interest rates. J. Finance 29, 449–470.