CGMA TOOL

Financial risk management: Market risk tools and techniques

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INTRODUCTION

Recent economic and political forces around the world, including challenges in Greece, China and other economies, falling oil and other commodity prices, along with fluctuations in foreign exchange rates, have had a significant impact on many businesses. The increase in these financial risks has mandated that companies revisit their strategies related to these risks and their financial statement disclosures.

DIFFERENT TYPES OF FINANCIAL RISK

Financial risks create the possibility of losses arising from credit risks related to customers, suppliers and partners, financing and liquidity risks, and market risks related to fluctuations in equity prices, interest rates, exchange rates and commodity prices. This tool will focus on management tools and techniques for mitigating market-oriented financial risks.

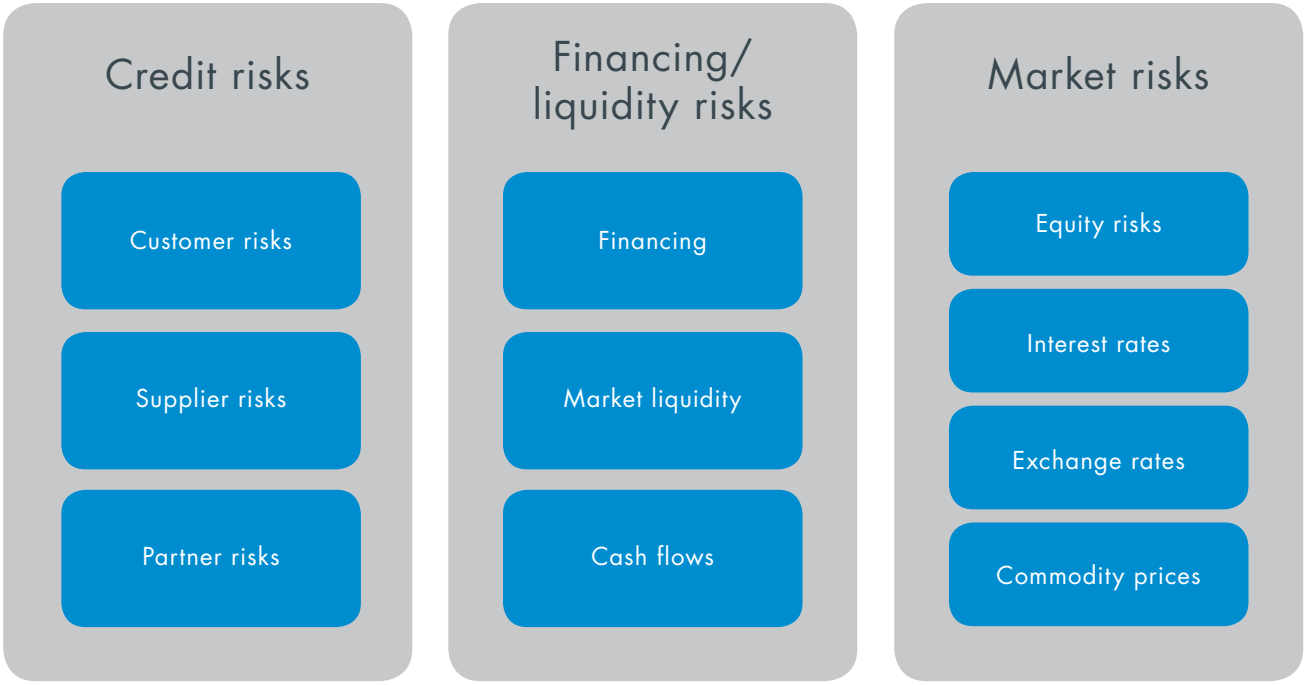
These financial risks are not necessarily independent of each other. For instance, exchange rates and interest rates often are strongly linked, and this interdependence should be recognized when managers are designing risk management systems.

The benefits of managing financial risks include the protection of cash flows and a reduction in earnings volatility. This can contribute to a lower cost of capital, and an increase in a company's ability to access financing and exploit other opportunities.

Financial risks can be subdivided into distinct categories; a convenient classification is indicated in Figure 1 below.

This tool will focus on management tools and techniques for mitigating market-oriented financial risks.

Figure 1: Categories of financial risk



Source: *Fraud risk management: A guide to good practice*, CIMA, 2002

RISK MANAGEMENT SYSTEM

The core elements of a financial risk management system are:

- **Risk identification** – The first stage is to identify the risks to which the organization is exposed.
- **Assessment** – The scale of each identified risk is then estimated, using a mix of qualitative and quantitative techniques (See Appendix 1).
- **Prioritization** – After this, risks are prioritized. A commonly used approach is to map the estimated risks against a likelihood/impact matrix. (See CGMA risk management tool *How to communicate risks using a heat map*).
- **Risk response** – The organization then needs to develop responses to the risks it has identified.
- **Implementation** – Having selected a risk response, the next stage is to implement it and monitor its effectiveness in relation to specified objectives.

RISK STRATEGIES

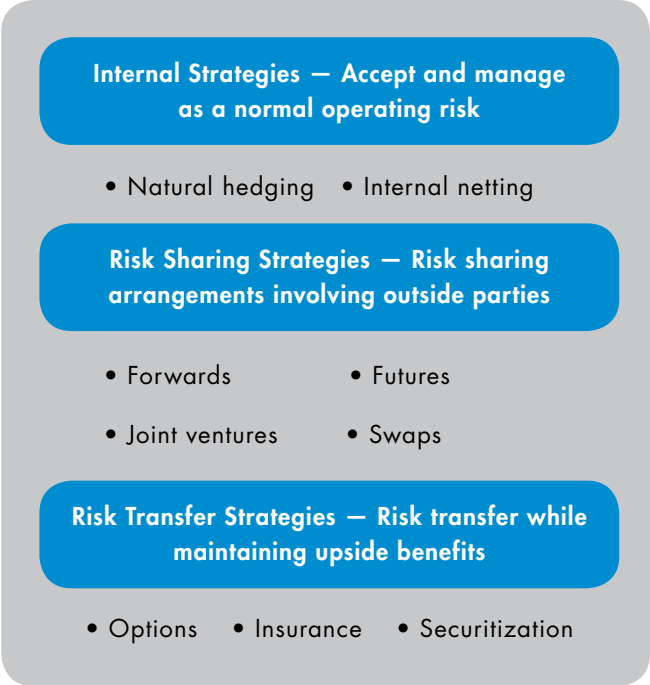
Knowing the potential scale and likelihood of any given financial risk, management needs to decide how to deal with it. This means deciding whether it wishes to accept, partially mitigate, or fully avoid the risk. Different strategies and tools exist for each of these choices and for each risk type.

- Internal strategies imply a willingness to accept the risk and manage it internally within the framework of normal business operations. An example would be a decision to use the customer's currency for pricing of all exports, and using internal netting processes to manage currency exposures.
- Risk-sharing strategies relate to strategies that mitigate or share risks with an outside party. An example would be a forward contract, which "locks in" a particular future price or rate. This prevents losses from unfavourable currency movements, but locks the buyer into a fixed future exchange rate. Another example is a joint venture.
- Risk transfer strategies involve paying a third party to take over the downside risk, while retaining the possibility of taking advantage of the upside risk. An option, for example, creates the opportunity to exchange currency at a pre-agreed rate, known as the strike price. If the subsequent exchange rate turns out to be favorable, the holder will exercise the option, but if the subsequent exchange rate is unfavourable, the holder will let it lapse. Thus, the option protects the holder from downside risk while retaining the possible benefits of upside risk.

Choosing the most appropriate strategy and specific tool depends upon the risk appetite, level of expertise in the business, and the cost effectiveness of the particular tool. The board of directors sets the organization's risk appetite, so it is important for board members to understand the methods being used to manage risk in their company.

The key to successful risk management in any organization is creating a risk-aware culture in which risk management becomes embedded within the organizational language and methods of working.

Figure 2: Risk Strategies and Tools



MARKET RISK TOOLS

INTERNAL STRATEGIES

Natural hedging is internal to a business and takes advantage of the fact that different risk exposures may offset each other.

Uses – Primarily used in managing foreign exchange and interest rate risks.

Internal netting is a form of natural hedging where offsetting exposures are identified to come up with a net balance that a company can make a decision about.

Uses – To manage multiple internal exposures across a range of currencies.

EXAMPLE 1: USING NATURAL HEDGING TO MITIGATE EXCHANGE RATE RISK

A Canadian company is sourcing supplies of household textiles in India, and is therefore exposed to the risk of movements in the exchange rate between the Canadian dollar and the Indian rupee. At the same time, the business is developing a new retail business in India.

Natural hedging means that it could use the rupee-denominated retail income to fund the payments to its local textile suppliers. In this way, the currency risk on an asset is matched by an opposite (and potentially exactly equal) currency risk on a liability. Consequently, the overall exposure is eliminated or, at the very least, reduced.

In such cases, there may be little need to hedge the individual asset or liability exposures because the firm's aggregate exposure is fairly limited.

RISK-SHARING STRATEGIES

Forwards are contracts made today for delivery of an asset at some specified future date, at a pre-agreed price.

Uses – To protect against possible rises in asset prices – most commonly either commodities (gas, oil, sugar, cocoa, etc.) or currencies.

A forward contract allows the buyer to lock into the price to be paid, thus protecting the buyer against the risk that the future spot price of the asset will rise. It also protects the seller against the risk that the future spot price will fall. On the agreed delivery date, the buyer takes delivery of the underlying asset and pays for it. At that date, the buyer has a position whose value is equal to the difference between the agreed forward price and the current spot price. Other things being equal, the value of this position will be positive if the spot price has risen, or negative if the spot price has fallen. In some cases, forward contracts call for the buyer to pay or receive, in cash, the difference between the forward and terminal spot prices.

Forward contracts are tailor-made and traded over-the-counter (OTC) between any two willing counter-parties, each of whom is exposed to the risk of default by the other on the contract. The forward contracts therefore create credit risks that the firms concerned need to manage.

Futures contracts are a form of standardized forward contract that are traded exclusively on organized exchanges.

Uses – In principle, futures may be used to protect against changes in any asset or commodity price, interest rate, exchange rate, or any measurable random variable such as temperature, rainfall, etc.

Contract sizes for futures are standardized, meaning that they lack the flexibility of forward contracts. Additionally, it is not possible to use straightforward futures contracts to protect against price changes for all commodities. Nonetheless, the protection that futures (and also forwards) provide can be vital for all commodities that are significant components of production.

The counterparty to any futures contract is the exchange itself. This means that firms taking futures positions face negligible default risk. The exchange protects itself against default risk by obliging firms involved to maintain margin accounts. Every day, the value of the position is marked to market, and gains or losses are settled immediately. So, for example, if a firm has a purchased a futures position (i.e., one that increases in value if the futures price should rise), and if the futures price does in fact rise, then the firm can take its profit. But if the futures price should fall, the firm will realize a loss and may face margin calls. Futures contracts are more liquid than forward contracts, but the firm also has to take account of the possibility of margin calls that may strain liquidity.

Swaps are a contracts to exchange the difference between two cash flows at one or more agreed future dates.

Uses – Management of interest rate and exchange rate risks. More recently, markets in commodity and credit risk swaps have developed. Swaps can be used to (a) reduce funding costs, arbitrage tax or funding differentials, (b) gain access to new financial markets, and (c) circumvent regulatory restrictions.

Many swaps also involve exchanges of cash flows across currencies. An example of such a cross-currency interest rate swap is where a firm might convert

EXAMPLE 2: PLAIN VANILLA INTEREST RATE SWAP

A "plain vanilla" fixed-for-floating interest rate swap enables a firm to convert a position in a floating rate loan into a position in a fixed rate one, or vice-versa.

In this swap, one party agrees to pay a second party a predetermined, fixed rate of interest on a notional principal on specific dates for a specified period of time. Concurrently, the second party agrees to make payments based on a floating interest rate to the first party on that same notional principal on the same specified dates for the same specified time period.

In a plain vanilla swap, the two cash flows are paid in the same currency. Contracts usually allow for payments to be netted, and at no point does the principal change hands (principal is "notional").

As an example: on Dec. 31, Company ABC and Company XYZ enter into a five-year swap with payments to be exchanged annually Dec. 31 under the following terms:

- Company ABC pays Company XYZ an amount equal to 4% per annum on a notional principal of $25 million.
- Company XYZ pays Company ABC an amount equal to one-year LIBOR + 1% per annum on a notional principal of $25 million.
- On Dec. 31 of year one LIBOR was 2.75%. Therefore payments for the first year would be determined as follows:
- Company ABC will owe Company XYZ $1,000,000 ($25,000,000 * 4%)
- Company XYZ will owe Company ABC $937,500 ($25,000,000 * (2.75% + 1%)
- Therefore, Company ABC will pay Company XYZ the net of $62,500.

floating-rate payments in the Canadian dollars into fixed-rate payments in the U.S. dollars. Another example is a diff swap, in which the counterparties swap, say, Canadian dollar payments at the Canadian interest rate into Canadian dollar payments at the U.S. interest rate. Other common swaps are commodity swaps, where one or more swap legs are tied to a commodity price such as the price of oil or an agricultural price.

Swaps are highly flexible instruments that are traded OTC, and can be arranged at low cost compared to most other alternatives, but they also have disadvantages.

Most importantly, as with forwards, the parties to swap arrangements expose themselves to mutual default risks, although many "credit enhancement" techniques have evolved to deal with these exposures.

Joint ventures imply that an organization is willing to accept a given level of risk, but it may wish to share that risk with another party.

Uses – Expansion into new markets where shared knowledge, as well as shared costs, helps to reduce risks.

RISK-TRANSFER STRATEGIES

Options are contracts that give the holder the right (but, unlike forward or futures contracts, not the obligation) to buy or sell an underlying asset at an agreed price at one or more specified future dates. The agreed price is known as the strike or exercise price. An option that involves the right to buy is known as a call option and one that involves the right to sell is a put option. Options come in a great variety of forms, and can be exchange-traded as well as traded OTC.

The vast majority of options can be classed as European or American, depending upon when the option may be exercised. A European option gives the holder the right to exercise the option at a fixed future date; an American option gives the holder the right to exercise at any time until the date the option expires. Other more exotic options, such as the Bermudan option, offer variations on the holder's right to exercise over the period of time until the option expires.

Some of the other more common variants on exercise rights include: caps and floors, in which a price or rate is capped or floored; Asian options, in which the underlying is an average rather than a spot price; and barrier options, of which the most important are knock-out options that automatically become worthless if the underlying hits or exceeds a stipulated barrier.

Uses – There are many potential uses of options, including the following examples:

- Firms might use caps on interest rates to hedge their interest rate exposure, or caps and floors on exchange rates to hedge their foreign exchange rate risk.
- Options on fuel prices may be used to hedge fuel bills (e.g., by airlines), where the main concern is the average price of fuel over an extended period.
- A firm might purchase an option with a knock-out barrier on an exchange or interest rate (a) because it is cheaper than a "regular" option, (b) because it does not expect the underlying to hit the barrier anyway, or (c) if the firm is otherwise "covered" should the barrier be breached.

Options give the holder downside protection so that the maximum possible loss is limited to the premium (or price) of the option. But they can still get the upside profits if the underlying goes the right way. This attractive feature makes options expensive relative to most other derivatives.

Options are similar in nature to insurance, but although their functions are similar, an option does not satisfy the legal definition of insurance. For example, to legally purchase insurance, the purchaser must have an insurable interest in the property being insured, but there is no such requirement when purchasing an option.

Insurance – Many risks, such as risk of loss of or damage to buildings or contents by fire, are best managed by traditional insurance. The payment of a premium secures the purchaser against losses on the insured asset.

The purchase of insurance often is obligatory, either for legal reasons or as precondition for credit – as is the case with mortgages.

Self-insurance – The firm may decide to bear certain types of risk itself, and possibly set up its own insurance company (known as a captive insurance company) to provide the cover.

Self-insurance also often is used to cover employee benefits such as health benefits, in addition to covering certain types of litigation risks, and may be combined with purchased insurance. Captive insurance companies may retain all of the insured risk or choose to reinsure a portion of it in the open market.

Securitization – The conversion of financial assets (such as credit cards, bank loans, and mortgages) or physical assets into financial instruments that can be traded, often through the use of special-purpose vehicles. Securitization creates the potential to increase the scale of business operations through converting relatively illiquid assets into liquid ones.

Examples of businesses that have been securitized include airports, motorway service stations, office accommodation, and utilities. More recently, firms have begun to securitize the risks associated with their pension funds.

EXAMPLE 3: FOREIGN EXCHANGE OPTIONS TO HEDGE EXCHANGE RATE RISK

A firm could buy put options to protect the value of overseas receivables. Similarly, it could protect against the increase in cost of imports (overseas payables) by buying call options.

Suppose that a U.S. company has a net cash outflow of €300,000 in payment for clothing to be imported from Germany. The payment date is not known exactly, but should occur in late March. On Jan. 15, a ceiling purchase price for euros is locked in by buying 10 calls on the euro, with a strike price of $1.18/€ and an expiration date in April. The option premium on that date plus brokerage commissions is $.0250, or a unit cost of $1.2050/€. The company will not pay more than $1.2050/€. If euros are cheaper than dollars on the March payment date, the company will not exercise the call option but simply pay the lower market rate of, say, $1.12/€. Additionally, the firm will sell the 10 call options for whatever market value they have remaining.

THE NEED FOR CLEAR STRATEGIES, POLICIES AND DISCLOSURES

Many of the tools discussed in the previous section are derivatives, or financial instruments whose payoffs depend on the realized values of one or more underlying random variables. It is therefore appropriate to offer some further advice on how derivatives should (and should not) be used.

DESIGN OF HEDGING STRATEGIES

A firm needs to design hedging strategies carefully. Three important issues that arise especially with derivatives hedging strategies are basis risk, leverage and the financing risk implied by any hedging strategy:

- ***Basis risk*** is the "residual" risk that remains once a position has supposedly been hedged. Basis risk is almost always a problem, but it is especially pronounced in cases such as credit and catastrophe ("cat") derivatives, where hedging is hampered by the difficulties of specifying trigger events that closely match the actual events that firms are trying to hedge against. For instance, if the catastrophic event in a cat derivative is not chosen carefully, a firm might experience a real catastrophe, but not the one specified as calling for a derivative payout. The hedge instrument must therefore be carefully chosen to avoid excessive basis risk. A hedge with a lot of basis risk is of little practical use, and can leave the firm very exposed without the firm's management being aware of it. As the saying goes, the only perfect hedge is in a Japanese garden.
- ***Leverage*** is the gain or loss on a position relative to the movement of an underlying risk factor. Many derivatives such as futures and options offer the prospect of high leverage. This can be useful because it enables a "large" position to be hedged by a "small" one. However, a highly leveraged position magnifies losses as well as gains: what goes up can also go down.
- ***Financing risk*** relates primarily to the liquidity implications of risk management strategies. For example, a firm that hedges a forward position with a futures hedge can experience significant liquidity repercussions if the firm faces margin calls on its futures position. In addition, a firm's credit risk strategies can also have significant liquidity implications. An example would be where a firm gets hit with the need to make new collateral payments or otherwise renegotiate a credit enhancement arrangement after it suffers a credit downgrade. Credit enhancement can be good for managing credit risks, but can leave the firm exposed to liquidity problems at exactly those moments when financing becomes more expensive and harder to obtain.

THE NEED FOR A CLEAR DERIVATIVES POLICY

Underlying the above issues, the complexity and potential dangers involved in the use of derivatives instruments make it important for every firm to have a clear derivatives policy. The need for such a policy is reinforced by the standards on accounting for financial instruments, which require the firm to document the rationale for the use of any derivative and to disclose the costs associated with derivatives hedging. A detailed description of the financial accounting standards is beyond the scope of this tool but in important note is that the rules distinguish between derivatives held for speculative or trading purposes and those held for hedging. The distinction requires a clear declaration of the management intent behind holding a financial instrument as a hedge.

FINANCIAL STATEMENT DISCLOSURES

As noted above, a detailed description of the financial accounting standards for financial instruments is beyond the scope of this tool. However, broadly speaking, in addition to providing information about its accounting policies, an entity must provide substantive additional disclosures related to the various types and categories of financial instruments, along with the strategies it is deploying, and the significance of financial instruments for their financial position and performance.

The essence of the requirements is that gains and losses are offset and that strategies and risks are adequately disclosed. Disclosures should encompass the broad economic context that the company faces and the potential effects of fluctuations on business operations and plans.

CONCLUSIONS

It is therefore critical to establish a framework that facilitates the identification and quantification of the main types of risk to which a firm is exposed, and sets out the main tools and techniques that the firm will use to manage those exposures.

The importance of financial risk management is reinforced by the increasing globalization and related extension of the boundaries of companies for value creation, including sourcing, business partnerships and new markets.

Appendix 1: Quantifying financial risks

Three commonly used approaches to quantifying financial risks are regression analysis, Value-at-Risk analysis, and scenario analysis. It is helpful to look at each method in more depth to understand their respective strengths and weaknesses.

REGRESSION ANALYSIS

Regression analysis involves trying to understand how one variable – such as cash flow – is affected by changes in a number of other factors (or variables) that are believed to influence it.

For example, the cash flow for a UK-based engineering business may be affected by changes in interest rates (INT), the euro/sterling exchange rate (EXCH), and the price of gas (GAS). The relationship between the variables can be expressed as follows:

$$\text{Change in cash flow} = \alpha + \beta 1\ \text{INT} + \beta 2\ \text{EXCH} + \beta 3\ \text{GAS} + \varepsilon$$

Where INT represents the change in interest rates, EXCH represents changes in the euro/sterling exchange rate, GAS represents changes in the commodity price, and ε represents the random error in the equation. The random error reflects the extent to which cash flows may change as a result of factors not included in the equation.

The coefficients ß1, ß2 and ß3 reflect the sensitivity of the firm's cash flows to each of the three factors. The equation is easily estimated using standard packages (including Excel), and the estimated coefficients can be used to help determine the firm's hedging strategy.

To continue the example, suppose ß2 is negative, implying that the firm's cash flow would fall if the exchange rate went up. If the firm wished to hedge its cash flow against such an event, then it might do so by taking out a forward contract. If the exchange rate rose, the resulting drop in cash flow would be countered by an equivalent rise in the value of the forward contract. Thus, assuming the hedge position was properly designed and implemented, the result is to insulate the firm against a change in the exchange rate.

Of course, in practice, no hedge is ever perfect, and this approach to selecting a hedge also assumes a stable regression equation. Even mildly volatile economic conditions make this assumption rather dubious, but the example does illustrate how regression-based hedge positions can help reduce a firm's exposure to a risk factor.

Regression analysis can also be used for financial reporting purposes, as a means of determining the effectiveness of a hedging transaction.

VALUE-AT-RISK

Another popular approach to risk measurement is Value-at-Risk (VaR) analysis. The VaR can be defined as the maximum likely loss on a position or portfolio at a specified probability level (known as the confidence level) over a specified horizon or holding period. So, for example, a company may own an investment portfolio on which the risk manager estimates the VaR to be $14 million, at a 95% confidence level over a ten-day holding period. This means that if no investments are bought or sold over a ten-day period, then there is a 95% chance of the portfolio falling by no more than $14 million. VaR is therefore an estimate of the likely maximum loss, but actual losses may be either above or below VaR.

The VaR is an attractive approach because it is expressed in the simplest and most easily understood unit of measure, namely dollars lost, and because it gives us a sense of the likelihood of high losses. However, VaR also has a serious drawback: it tells us nothing about what to expect when we experience a loss that exceeds the VaR. If the VaR at a particular confidence level is $10m, we have no idea whether to expect a loss of $11m or $111m when losses occur that are greater than the VaR.

Although VaR originally was developed to estimate market risks, its basic principles easily extend to liquidity risks, financing risks and different types of credit risk exposure. To give an example, a board of directors might set an earnings target of, say, 80 pence per share, but also be conscious that if the earnings per share (EPS) fell below 70 pence then there would be strong adverse reaction from the market, causing the share price to fall. The board may therefore wish to ensure that there is only, say, a 5% likelihood of earnings falling to 70 pence per share. It is possible for organizations to construct a model that measures the sensitivity of earnings to changes in the market prices of financial assets or liabilities, and use this model to estimate a VaR to assess their potential exposure if such risks are left partially or wholly unhedged.

Another example is the application of VaR methods to estimate the riskiness of pension funds. Changes in the accounting standards for post-employment benefits have led to increased management awareness of the value of company pension funds, because of the rules on disclosure of surpluses/deficits. VaR can then be a useful tool for helping manage the risk of huge variations in the potential surplus or shortfall in company contributions. Such volatility is a particular characteristic of defined benefit schemes, where managers face uncertainty over the employment, retirement, and salary profiles of scheme members.

Besides this application of VaR methods to estimate Earnings-at-Risk and Pension-Fund-at-Risk, other applications include:

- **Liquidity-at-Risk** – VaR taking account of changes in market liquidity.
- **Cash-flow-at-Risk** – VaR analysis applied to a firm's cash flows rather than P&L.
- **Credit-at-Risk** –VaR analysis applied to a firm's credit exposure.
- **Default-Value-at-Risk** – VaR analysis applied to estimate a firm's losses in the event of default.

Thus, VaR-type analysis is very flexible and can be applied to any type of quantifiable risk.

EXAMPLE 4: MICROSOFT'S USE OF VaR TO MANAGE ITS FINANCIAL RISKS

Where companies have global operations that trade across a range of currencies and interest rate regimes, it is quite likely that such currency and interest rate risks interact. Historically, companies have tended to hedge risks independently as transactions occur, but VaR can treat the various risks as a portfolio of related components that can be managed together. Microsoft is one example of a company that uses VaR to manage aggregate risks in this way. Currency, interest rate, and equity/investment risks are hedged in combination to take advantage of the effects of diversification within the portfolio. The company then uses simulation analysis to estimate and report a VaR figure that shows the potential loss on the combined risk exposures, assuming a 97.5% confidence limit and a 20-day holding period. Microsoft draws attention to the fact that the VaR amount does not necessarily reflect the potential accounting losses. Nonetheless, the fact that VaR is used at all indicates active risk management, giving a positive signal to the market. The VaR can then be compared to overall reported earnings as a sensitivity measure.

See **Microsoft Investor Report** for details.

SCENARIO ANALYSES

Another useful approach to quantifying risk involves scenario analyses (sometimes also referred to stress tests, sensitivity tests, or "what if?" analyses). These involve a financial model of the firm and a set of specified scenarios. We ask "what if" one or more scenarios should occur, and we use the model to determine the impact of these scenarios on the firm's financial position. The scenarios chosen include any we believe might be relevant to our organization. For example, we might ask:

- **"What if the stock market crashed by 20%?"**
- **"What if interest rates were to rise by 300 basis points?"**
- **"What if the exchange rate were to fall 10%?"**
- **"What if a firm were to lose a key client or key market?"**

If we wish to, we can then convert the results of the scenario analyses into a risk measure by assuming the risk exposure to be equal to the largest of the forecast scenario analysis losses.

Firms have used scenario analyses in some form or other for many years. Early scenario analyses were often little more than "back-of-the-envelope" exercises, but the methodology has improved considerably over the years, thanks in large part to improvements in spreadsheet technology and computing power. Modern scenario analyses can be highly sophisticated exercises.

Scenario analyses are particularly helpful for quantifying what we might lose in crisis situations where "normal" market relationships break down.

Scenario analyses can identify our vulnerability to a number of different crisis-phenomena:

- **Changes in the cost/availability of credit** – Scenario analyses are ideal for evaluating our exposure to an increase in the cost and/or a decrease in the availability of credit.
- **Sudden decreases in liquidity** – Markets can suddenly lose liquidity in crisis situation, and risk management strategies can easily become unhinged, leading to much bigger losses than anticipated.
- **Concentration risks** – Scenario analyses can sometimes reveal that we might have a much larger exposure to a single counterparty or risk factor than we had realized, taking into account the unusual conditions of a crisis. Probability-based measures such as VaR can overlook such concentration, because they tend not to pay much attention to crisis conditions.
- **Macroeconomic risks** – Scenario analyses are well suited for gauging a firm's exposure to macroeconomic factors such as the state of the business cycle, sudden exchange rate changes, and the economic condition of a particular country.

Scenario analyses can be very useful for highlighting weaknesses in a firm's risk management process and also highlight flaws in contingency planning. However, although the principles behind scenario analyses are straightforward, it can be complex in practice.

Table 1: Comparrison of approaches to the quanification of risk

Method	Ease of Use	Uses	Advantages	Disadvantages
Regression Analysis	Simple	Reducing exposure to specific risk factors (e.g., exchange rate movements)	Excel-based Easy to understand	Regression equation may not be stable over time, making the results unreliable.
VaR	Potentially complex, requiring good statistical understanding.	Enhances understanding of a wide range of risks covering liquidity, cash flows, portfolio values, credit, etc. Can be used as a risk control tool	Easy to understand Gives a sense of the likelihood of a given scale of losses.	No idea of the potential scale of losses in excess of VaR. May give a false sense of security because it does not capture extreme scenarios.
Scenario Analysis	Simple	'"What if" analyses Crisis planning	Highly flexible Easy to understand	Likelihood of alternative scenarios may not be easily assessed

Resources and further reading

Extended Enterprise Risk (cgma.org)

Risk Culture: Resources for Practitioners (cgma.org)

Essential Tools for Management Accountants – Section: Cash Flow Modeling (cgma.org)

Essential Tools for Management Accountants – Section: Scenario and Contingency Planning (cgma.org)

Scenario Planning: Providing insight for impact (cgma.org)

Financial Risk Management (Kaplan)

Foreign Currency Risk Management and Translation (Kaplan)

Interest Rate Risk Management (Kaplan)

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Note: Society of Management Accountants of Canada is now Chartered Professional Accountants of Canada

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