Calculated risks

How banks make sure they stay off the Barings path

Banks and other financial institutions have significantly upgraded their risk control practices. Globalisation and the prevention of financial disasters make this necessary, and new technology provides the tools. NEIL HEREFORD discusses trends in market risk management.

The finance industry has increased its awareness of risk-management practices as a result of high-profile failures abroad, advances in technology and developments in the regulatory process. There has been an increased emphasis on the quality of internal management systems as a key defence against large trading losses such as those experienced at Barings, Daiwa, Sumitomo and National Westminster (see box).

Advances in technology have enabled institutions to develop more sophisticated systems for monitoring and controlling risk. Regulatory developments have contributed by recognising the more rigorous risk-management methodology contained in banks' internal models for the purpose of setting market risk capital standards.

With the shift in focus to risk management, ever-increasing attention has been devoted to the quantitative "rocket scientist" elements underlying trading products and risk-management methodologies. This paper, however, looks at the qualitative framework surrounding the quantitative analysis. It analyses the issues involved in risk management in an organisation and highlights the increasing emphasis on risk-management systems, methodologies and practices. The paper looks at the significance of the control function in the risk management framework and outlines a number of trends including the growing importance of the risk-control unit. It also discusses market trends including the move away from proprietary trading towards customer-generated business.

SYSTEMS AND TECHNOLOGY

In a typical dealing room a range of different systems apply to the various markets and products (for example, foreign exchange, interest rates, commodities, equities and options). Traders have access to front-end dealing systems with the focus on pricing, position-keeping and risk management. The back-office and risk-management functions have systems to generate confirmations and settlement, produce independent profit-and-loss and risk-exposure reports and monitor limits. The final link in the chain is the accounting function, which is responsible for the general ledger system.

One of the problems with disparate systems is aggregating data across the various desks in a meaningful and timely fashion. Consolidated profit-and-loss and risk-management reports are generally produced on an end-of-day (or early next day) basis. There is a move, however, towards further integrating
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Institutions may run into practical problems when introducing new systems to treasury operations. Implementation of a new system often takes significantly longer than expected because of delays in testing, debugging and training. In some cases, the system may have to be modified or scaled down to suit the trading environment. In an attempt to address system implementation problems, there has been a move towards having dedicated project teams to monitor and coordinate changes and ensure a smooth transition.

It is critical that systems development keeps pace with product development. Problems occur if systems are not capable of processing unusual or more structured transactions. In many instances, manual adjustments are required or the system has to be manipulated to enable the transaction to be processed, increasing the potential for fraud or incorrect processing.

New products introduce not only new systems issues, but also new risks. This is where the new product approval process plays a vital part. The process generally involves detailed documentation of the characteristics and risks associated with a new product and how these risks will be managed. Before the product can be traded, sign-off is generally required by the various divisions in the bank, including the front office, back office, accounting, financial control, risk control, internal audit and senior management.

CONTROL FUNCTIONS
Front-office trading roles have traditionally been regarded as more prestigious and highly remunerated than corresponding back-office functions. Similarly, the capabilities of front-office technology often outstrip those of the back office. There has been an increased focus however, on back-office processes, systems and personnel, especially after the fallout surrounding the recent trading disasters including Barings, Daiwa and Sumitomo. These cases demonstrate that it is often operational risk and a breakdown of basic internal controls, rather than misspecified risk management methodologies and systems, that pose the greatest risk.

Having truly independent back-office staff who can understand and analyse the risks associated with more complex transactions, such as derivatives, is just as important as having competent dealers who can trade these instruments. The quality of back-office staff has steadily improved in terms of educational requirements, experience and remuneration. However, it still remains the fact that the back office lags behind the front office.

There has been a shift towards restructuring of control functions and the development of an independent risk-control unit. The primary function of this unit is to provide an objective review of the trading activities conducted by the front office. Under the market risk capital guidelines, banks that use internal models must have an independent risk-control unit that is responsible for the design and implementation of the bank’s risk-management system.

At a practical level, risk-control units vary in the scope of functions performed and in their level of integrity and independence. The risk-control unit’s responsibilities range from treasury support functions to comprehensive units dedicated to monitoring the risk-management process. An important requirement for a strong risk-control unit is qualified personnel who can understand the risk-management information being produced. Accordingly, there is a move towards employing ex-traders to head the risk-control functions.

A well resourced and effective internal audit unit is an important control function in the risk-management framework. A strong internal audit process provides management with a degree of
comfort, in that activities are monitored by a unit independent of the trading function. In this context, while a negative finding in an internal audit report clearly signals problems, provided there are adequate follow-up procedures (to quickly resolve significant weaknesses), the fact that the internal audit function is able to highlight areas of concern is a positive sign.

The size, focus and quality of the internal audit function varies dramatically. Audit approaches range from mechanistic ticking-off of lists of questions to a more risk-based focus. In the risk-based approach, the timing of audits is linked to the perceived riskiness of the particular business environment. Areas identified as high-risk, such as treasury, are subject to more frequent audits. The strength and effectiveness of an internal audit team is a function of the resources devoted to the area and how internal audit is perceived within the organisation by senior executives, traders and risk-management staff.

SEGREGATION OF DUTIES

The clear segregation of duties is a fundamental principle of internal control that has long been recognised as the first line of protection against the risk of fraudulent or unauthorised activities.

It is important that there are clearly defined, independent reporting lines for both the front office and the back office with its risk-control functions. The lack of a well defined reporting structure creates a potential conflict of interest and the risk that some trading could be concealed or incorrectly reported.

RISK-MANAGEMENT METHODOLOGIES

Risk management methodologies are becoming increasingly sophisticated and some form of value-at-risk (VAR) model is generally used to analyse and monitor market risks. VAR models aim to measure the potential loss on a portfolio that would result if relatively large adverse price movements were to occur. VAR is used predominantly as a high-level management tool with structural limits, such as basis-point values and net open positions, used to influence trader behaviour. VAR is, however, starting to be driven down to the dealer level as traders become more sophisticated and use measures such as risk-adjusted performance (based on VAR) shape behaviour and move capital to its most efficient use.

A comprehensive stress-testing program is an essential supplement to a VAR model. Stress-testing involves subjecting trading portfolios to unexpected but possible shocks in market or political conditions. This enables an institution to evaluate its capacity to absorb potentially large losses and to identify steps that it can take to reduce its risk and conserve capital. The move towards more regular stress-testing is in part being driven by the market risk capital requirements whereby banks using internal models will be required to submit the results of their stress-testing scenarios to the Reserve Bank on a quarterly basis.

ASSET AND LIABILITY MANAGEMENT

For a number of institutions with large balance sheets the interest-rate risk lying within the banking book is substantially greater than the market risk sitting within the trading book. Therefore, a comprehensive risk-management framework that effectively identifies, measures, monitors and controls interest rate risk exposures is essential.

In general, increasing resources and attention are being devoted to balance-sheet risk management. Systems are becoming more sophisticated as institutions move away from traditional gap analysis to simulation of net interest income and market value of equity. State-of-the-art techniques including simulation and option type analysis are being used to analyse the risks underlying the balance sheet in greater detail. The aim is not only to manage these risks but to add value to the entire process.

The integrity and timeliness of data on current positions is a key component of the risk-measurement process. One of the biggest hurdles is obtaining accurate, timely information across the entire operation, from retail banking to treasury. A problem arises because of the large number of disparate systems in use.

This data-aggregation problem implies that detailed analysis of interest rate risk is usually conducted only on a monthly basis. In the interim, however, major movements in the balance sheet are monitored. At smaller institutions, the problem of aggregating data over a number of systems is substantially reduced and this enables the management of interest-rate risk on a more frequent basis, often using simpler techniques.

Trading disasters

Barings made losses totalling $1.89 billion because of the unauthorised trading activities of Nick Leeson. These activities went undetected as a consequence of a failure of management and other internal controls of the most basic kind.

At Sumitomo Corporation, the company's chief copper trader lost an estimated $1.8 billion on futures contracts. Sumitomo did not separate its front-office trading activities from its back-office processing and control unit. The trader also reportedly declined to take a holiday in his 10 years at Sumitomo, thus making it more difficult for auditors to discover his wrongdoing.

At Daiwa bank, Toshihide Iguchi accumulated $1.1 billion of losses over 11 years of bond trading in New York. There were a number of internal control weaknesses at the bank, including the fact that Iguchi was responsible for both securities trading and custody operations and some related back-office functions.

The NatWest Group recently announced a £77 million charge against pre-tax profits as a result of losses incurred in the London interest-rate options business.
The large losses at financial institutions demonstrated that it is often operational risk and a breakdown of basic internal controls that pose the greatest threat. This has driven an increased focus on back-office processes, systems and personnel.

The complexity of modelling interest-rate risk has meant that even the Basle Committee on Banking Supervision has deferred the development of a capital standard. The complexity arises because, as well as making technical assumptions and economic forecasts, it is necessary to take into account customer behaviour, such as break-outs and prepayment behaviour, which is hard to model accurately.

In addition, the difficulties associated with determining objective mark-to-market values for assets and liabilities (for example, loans) introduces another level of subjectivity. Despite these complexities, the magnitude of potential interest-rate risk on the balance sheet implies that banks as well as supervisors will devote more attention to this over the next few years.

ACCRLUAL VERSUS MARKET-VALUE ACCOUNTING

The question of whether transactions should be classified as trading or investment is a widely debated issue. The problem is that there are no clear rules that define the boundary between investment and trading positions. The implementation of the market risk guidelines will partly address this issue, as each bank will be required to agree a trading-book policy statement with the Reserve Bank.

The statement will establish which activities constitute the trading book and the arrangements in place to prevent inappropriate switching of transactions between the trading and banking books. The difficult issue of defining a trading book within the context of the broad structure of a bank will be addressed in terms of looking at the "substance" behind the words of a trading-book policy statement.

MARKET TRENDS

A well acknowledged trend is the maturing of many of the traditional trading markets. As competition has increased and with products becoming more commoditised, margins have declined and this has led to a fall in profitability. There has also been a decline in proprietary trading in many banks as a result of lower margins and generally lower levels of market volatility.

To counter this, there has been a push to increase income by expanding and generating more value from the customer franchise. The rationale is that customer-generated business is more sustainable and significantly less volatile than proprietary trading.

The general move is towards selectively targeting markets where institutions have a comparative advantage and attempting to build niches. An example of this is the search for new, more profitable markets, such as commodities and equity-related trading. Increasingly, institutions are also attempting to capitalise on natural niches in local and international markets and are focusing attention on products and markets where they have a global edge.

Treasuries are moving away from being perceived as simply another profit centre to playing an important role in the overall banking-customer relationship. For example, banks are taking an active role in educating customers about the risks involved with various products, especially in relation to exotic instruments. A number of banks visit corporate clients and make presentations to senior management about the nature of the products and the risks involved. A similar process of education is occurring internally as banks make board members more aware of the risks underlying both the treasury and asset and liability management functions.

CONCLUSION

Four forces are driving increased awareness of risk-management practices: high-profile trading disasters; regulatory developments; advances in technology; and the trend away from proprietary trading towards customer-generated business.

The large losses at financial institutions demonstrated that it is often operational risk and a breakdown of basic internal controls that pose the greatest threat. This has driven an increased focus on back-office processes, systems and personnel.

Regulatory developments, such as market risk capital requirements and guidelines, have also played a part in accelerating the adoption of increasingly sophisticated methodologies to analyse and monitor market risks. Technological advances have greatly aided the adoption of these more sophisticated systems.

The move away from proprietary trading and towards customer-generated business has increased the emphasis on educating clients about the risks involved in various products. This process of education has extended internally within financial institutions. Increased awareness of risk-management practices should reduce the likelihood of future large trading losses.

NOTES

1 This involves linking front-office and back-office systems so that once the deal is entered into the front-office system it feeds straight to the back office, where it is verified. Deal tickets also automatically print out in the back office.

2 Another factor contributing to this increased emphasis on education may have been the fallout associated with the Procter and Gamble incident.