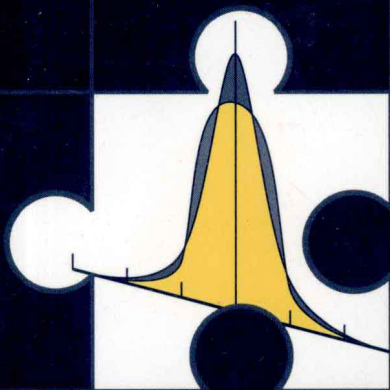


# Managing banking risks



*GRESHAM  
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PUBLISHING  
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IN ASSOCIATION WITH  
THE CHARTERED  
INSTITUTE OF  
BANKERS

*EDDIE CADE*



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# Foreword

Risk management in banking is not a new activity. Since banking began managers of banks have spent at least some of their time worrying that a failure of borrowers to repay their loans or some other disaster would prevent the bank from being able to remain profitable or, in extremis, from repaying the bank's depositors. Cynics might say, however, that such worrying has too often not resulted in satisfactory risk control, since the history of banking in both developed and developing countries contains too many instances of bank losses and failures, usually at a time of economic recession in the country concerned. At a more personal level, today's bank chief executives and risk directors are aware that even if their bank survives their own careers are at risk should unusually high loss levels appear.

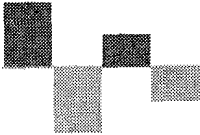
Against this background, risk control was nevertheless regarded as more of an art than a science until the last two decades when, aided by computerised calculation and database techniques, the use of quantitative and calibrated controls has steadily spread, first through the market risk arena and more recently through credit issues.

There are extremely promising developments, which offer the real possibility of a less volatile performance from banks in future, to the benefit of both themselves and the communities within which they operate. However, perhaps inevitably at this stage, these new

FOREWORD

techniques have spawned a patchy proliferation of learning possibilities concerning banking risk management, ranging from university and business school texts to highly tailored courses and seminars and a plethora of risk management periodicals. All of these have their place but there is a paucity of accessible introductory texts which span the full range of risk management issues and emphasise the need for a combined use of business sense and quantitative methods. Eddy Cade's book, which benefits both from his wide UK and international banking experience and his clear style, is therefore a very welcome addition to the risk management library.

Alan Brown  
Director Credit Policy  
Barclays PLC



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## Preface

Why write another book on risk; or, more precisely, why *this* book now? Because I wanted to try and fill something of a gap in the literature by offering a practising banker's overview of the full spectrum of risks that a modern bank needs to manage. Experience tells me that a lot of people could benefit from a wide-ranging primer based on inside knowledge of the subject: certainly there have been many times when I myself could have done with just such a guide.

Following years of setbacks in the late 1980s and early 1990s, in the longest economic recession that most of us can remember, 'risk' is a topic very much in vogue. Yet it is honoured more often by invocation than by classification, being a word that apparently means all things to all people. With few exceptions, banking literature on risk remains highly compartmentalised, and much of the newer thinking resides in specialist magazines, in unpublished theses, or in confidential reports rendered by consultants.

Literary fragmentation is not surprising as, in many aspects, risk management is a science still in its infancy. Risk maps are sometimes offered at financial seminars and symposia, but these visions tend to suffer from their own exclusivities, circumscriptions, gaps, and discontinuities of approach and authorship. Often they are too abstract to shed any light on the specific problems of banking.

This book is for generalist reading and will not qualify any of us to be a specialist risk manager (a little learning can be a dangerous

thing, as Alexander Pope warned). For greater depth of study in particular areas, it is necessary to resort to the compartmentalised literature or to seek guidance from experts in the relevant discipline. But aren't generalists a dying breed anyway? Actually no, far from it. Outside our own specialisms, we are *all* generalists who need to find a common language if the business is not to disintegrate. One of the dangers of modern specialisation is that it can lead to a form of moral hazard: the presumption that 'I no longer have to understand things outside my field, because other people will look after them.'

As Chapter 9 points out, a single financial instrument may embody a number of different types of banking risk, and a good banker should be aware of them all in a general sense even if only one of them is his special responsibility. It is a sobering moment when a lending banker, having purchased a debt security with the canny idea of enhancing the rate of return on a particular corporate credit relationship, discovers that he has simultaneously incurred an interest rate risk requiring daily revaluation.

Board directors and top management in banking need to come to terms with the whole gamut of risks over which they preside, as must those aspiring (or being groomed) to succeed them. Territorial heads of banking operations in foreign jurisdictions are 'top management' locally, and carry analogous responsibilities. Internal auditors or inspectors are still required to deploy a versatile understanding of the various risks being run in the organisation: they, after all, have to sanction and monitor many of the safeguards put in place. An overarching perspective, spanning blinkered specialisms, is of value to anybody with an interest in how his or her piece of the picture fits into the whole.

Outside the banking industry itself, one could go on to list regulatory authorities, bank auditors, rating agencies and management consultancies – all of whom need to know their way around the landscape of risk. Finally, there are all manner of students, investment analysts and commentators on the banking scene, for whom little introductory literature on risk management exists.

On the one hand, risk analysis nowadays can be akin to a discourse on nuclear physics, barely accessible to the most educated reader. On the other, there remains a populist tradition in commercial banking which equates the concept of 'risk' with credit risk alone. Renaming the credit function 'risk management', as this school of thought has been known to do, seems a recipe not so much for risk awareness as for confusion. Some fuzziness is a

natural legacy of branching structures where almost the only financial risk in sight *was* credit risk, the others being largely hidden away in head office; however, it is time to widen the horizons and sharpen the focus.

The 'wooden spoon' performance of credit risk management in recent years may also have given rise to the perception that if credit risk is not the only risk, it is the one that matters and that line management can do something about. Moreover, the hubris of identifying credit risk with risk *per se* sometimes carries with it the unspoken premise that if there *is* anything else out there (apart from credit risk) the same 'risk manager' can pick that up as well; but, as should become clear in the space of a few chapters, such a pious hope is out of touch with reality.

In short, risk management theory in banking has historically been patchy and incoherent, lacking in consensus. That is not to deny that bankers have appreciated the need for rules and regulations, audits and inspections, without recognising them under a caption of 'risk management'; rather like Molière's Monsieur Jourdain, who discovered that he had been 'talking prose for the last forty years and never known it'. This book aims to achieve a balanced synthesis of the obvious and the esoteric, the old and the new, and thus provide a conceptual framework for a rational approach to the subject.

Risk management is not merely about *reducing risks* (although that is in many cases a necessity), but essentially about *taking risks* in an intelligent manner. Banking can no more be riskless than life itself.

As to the definition of 'banking', I am taking it simply to comprise the core activities of licensed banks, more or less anywhere, such as:

- Intermediation (taking deposits and lending money).
- Disintermediation (relinquishing the intermediary debtor/creditor position, whilst retaining a 'broker' role).
- Collection and payment system, money transmission.
- Foreign exchange, foreign trade services.
- Participation in the money and capital markets.

I do not, however, include some of the newer services which have been brought within the fold for marketing synergy, but which are



separate and distinct businesses for regulatory and risk management purposes; notably insurance and investment management.

The prescription 'licensed banks' formally debar near-banks and the like (for example, mutual building societies) but, to the extent that their activities approximate to those of banks, the considerations and disciplines set out in this book are applicable also to them. The principle is: if the cap fits, wear it.

Whilst readers are assumed to be broadly conversant with modern banking practice, a glossary of financial terms is provided.

## Acknowledgements

I am indebted to both Professor Harold Rose and John Hargreaves for much general advice and encouragement, as well as specific guidance on the theoretical foundations of risk and reward (Chapter 1), capital adequacy (Chapter 3), and portfolio management (Chapter 6). Any residual errors are mine alone.

On the subject of credit risk management (Chapters 5 and 6 in particular), earlier comparative research by Bob Brice, of National Australia Bank, provided a wealth of information and ideas.

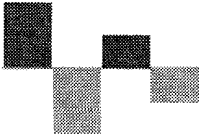
Gary Purtill, of Bank of Western Australia, supplied another Antipodean perspective on a wide range of financial risks.

I received excellent advice on aspects of solvency, liquidity, and systemic risk (Chapters 3 and 4) from central banking sources who prefer to do good by stealth and remain anonymous.

Above all, the task of compilation and analysis throughout would not have been possible without the extensive help of many friends and colleagues in Barclays Bank. They know who they are. To spotlight individuals here would be either invidious or impractical (by reason of sheer numbers); except perhaps to say that Matthew Bullock originally opened all the doors for me.

I am grateful to all these mentors, both for primary source material and for critical comment. It is only fair to add that the views expressed in this book are ultimately my own and not necessarily theirs.

*Eddie Cade*



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## CHAPTER ONE

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# Risk and reward

This chapter provides a grounding for the rest of the book, outlining:

- A banker's definition of risk.
- A statistical framework for assessing risk.
- A discipline for measuring return on economic risk capital.
- Market-based criteria for a minimum required rate of return.

Banks are highly geared financial risk-takers. When things go awry the results can be spectacular. In 1987 Merrill Lynch lost \$377 million through trading mortgage-backed securities in an innovative form. In 1989 the junk bond market collapsed, and with it the fortunes of Drexel Burnham Lambert. In 1989 also, Midland Bank lost a reported £116 million by guessing wrong on interest rate movements.

In 1991 Bank of New England made massive bad debt provisions, suffered a run on deposits and had to be supported by government to the tune of some \$2 billion. In 1992 Barclays Bank provided £2.5 billion for bad and doubtful debts and declared the first loss in its history. In 1993 Crédit Lyonnais succumbed to similar troubles and registered a net loss of FF6.9 billion (say £834 million), precipitating a state rescue package of FF44.9 billion: this proved

to be merely the prelude to a further and much larger bail-out in 1995. In their financial year to March 1996, the major Japanese banks wrote off a total of some ¥6000 billion (say £36.5 billion) of bad debts accumulated from the preceding boom years.

In 1995 Barings, London's oldest merchant bank, was brought down by losses of £830 million on a speculative proprietary position in Nikkei 225 stock index futures. In the same year, Bankers Trust was sued by two dissatisfied customers for sums totalling \$200 million in respect of disastrous swap contracts which the bank had arranged for them: these claims were settled for lesser amounts out of court.

Meanwhile, over a period of years, London banks have been counting the cost of marketing what turned out to be unenforceable interest rate swap contracts to local authorities with defective contractual powers; and police and public prosecutors have continued to unravel the skeins of massive internal fraud at the defunct Bank of Credit and Commerce International.

These are just a few examples from a long list of prominent accidents and failures in risk management, a science replete with hindsight but less endowed with foresight or consensus on preventive measures. Risk management scandals in banking are more reliable than buses: you can be sure that there will be another one along in a little while. But first things first: what exactly is 'risk'?

## 1.1 A definition of risk

This is a happy hunting ground for linguistic philosophers, mathematicians and actuaries, and we have to accept that no single definition of 'risk' will serve all purposes. Dictionaries, and much of common parlance, dwell on jeopardy, potential loss and disaster, whereas a business perspective needs to be more balanced. Business perspectives in turn differ, so that it is unsafe to apply insurance industry terminology, for example, to banking.

A suitable definition of risk in banking is: *exposure to uncertainty of outcome*.

*Exposure*, often omitted from risk definitions, denotes a position or a stake in the outcome, without which our interest is merely academic – we are not *at risk*, any more than is a racegoer who has refrained from placing a bet.

An *outcome* is the consequence of a particular course of action.

How and when we can recognise an 'outcome' will become clearer as we examine the various categories of risk in banking.

*Uncertainty* can be reflected in the *volatility of potential outcomes* plotted on a probability distribution curve, for which the normal measure of dispersion would be either the *variance* or the *standard deviation*. The wider the standard deviation, the greater the volatility; and thus, in theory, the uncertainty and the risk. 'Volatility' is the term in common currency, but it is perhaps too closely associated with a complacent belief that past fluctuations are the full key to future uncertainty: some experts therefore prefer to use the near-synonym 'variability' to revive the *frisson* of unpredictability.

The standard deviation shows the dispersion of values (in this case potential outcomes) around the arithmetic mean outcome (often called the 'expected outcome'). The appendix to this chapter explains and illustrates the methodology, which can be studied in greater depth in suitable textbooks on statistics, and can of course be streamlined by the use of a scientific calculator or a purpose-written computer program.

If deviation from the expected is the determinant of risk, and volatility or variability (encapsulated within standard deviations) is an index of 'how risky?', it follows that an expected outcome, no matter how dire, is not a risk. An adverse expected outcome (representing, say, normal bad debt experience) must be counted as a cost of doing the business, justifiable only within the context of the reward otherwise earned (and therefore the net return). The bank should position itself to accommodate the expected outcome within profits and provisions, leaving equity capital as the final shock-absorber for the unforeseen catastrophe.

## 1.2 A statistical definition of risk?

The attractions of this established mathematical approach are obvious. It offers a quantified picture of our risk, and a basis for decisions on altering the profile, engaging in or disengaging from exposures, hedging the risk, seeking commensurate rewards, setting prudent provisions for inevitable losses and planning capital adequacy geared to riskiness; in short, for managing our risk at a global portfolio level.

Not surprisingly, some commentators adopt volatility, conveyed in the standard deviation, as their *definition* of 'risk'. There are,



however, a number of objections to doing so. In the first place, such confident analysis of potential outcomes is practicable only in trading and portfolio applications where there is a reliable historical database (granted that its use is modified if appropriate by expectations of changing outlook). In other words, it is a counsel of perfection still ahead of its time in many areas of operation.

Secondly, the use of the variance or the standard deviation as a principal measure of portfolio risk is only valid if 'skewness' of potential outcomes is not a problem – which it so often is in real life.

The statistical methodology is also open to outright challenge on the ground that it relies on the future resembling the past. This resurrects the age-old conundrum of *induction* (learning from experience), a principle which the greatest philosophical minds have struggled in vain to validate, but which in practice is the foundation of all rational thought, education and conduct. The objection, taken to its ultimate conclusion, can only win a Pyrrhic victory by disqualifying *all* history (statistical or otherwise) as 'bunk' (to quote Henry Ford). Most of us prefer to give some value to past experience, as a useful though not infallible guide.

A modified challenge, however, might target not induction (the learning principle) itself, but simply the *degree* of reliance on historical statistics of volatility – e.g. contending that such a record cannot capture the modern accelerating pace of change. This line of argument is not without validity, as mentioned earlier: risk implies the capacity to surprise. But pushed too far, the criticism effectively rules out the established body of portfolio management theory and practice, whilst leaving us short of sensible alternatives. However, far from denying the claims of volatility (or variability), it reaffirms them in its own way.

A more direct objection to volatility as the definition of risk is that a concept (such as risk) should not be confused with the means of measuring its dimensions. 'Distance' is not a synonym for 'miles', for example, and in the same vein it is worth preserving the full 'future unknown' flavour of 'uncertainty' as distinct from the statistical terms by which we seek to capture it.

To put this in another way, the problem of risk is not volatility *per se* but rather the uncertainty of the potential outcomes as reflected in that pattern of volatility. In other contexts, it is possible to imagine patterns of volatility that are quite predictable: e.g. climatic fluctuations in some countries. Conversely, a lack of volatility in outcomes might just catch everybody by surprise.