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THE PRINCIPLES OF BANKING

Moorad Choudhry

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The Principles of Banking

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Praise for
The Principles of Banking

Moorad Choudhry's *The Principles of Banking* opens up a portal into the world of sophisticated, dynamic, capital markets-based commercial banking. He gives us the big picture, the precise details and a framework for analyzing the enormous risks facing these firms. The book is an invaluable resource.

Jean Helwege
J. Henry Fellers Professor of Business Administration,
Department of Finance, University of South Carolina

This book is a "must read" for all senior bankers. There is no writer better than Moorad Choudhry for communicating the vital principles of liquidity, capital and asset-liability management and bank corporate governance.

Professor Carol Alexander
Chair of Financial Risk Management, ICMA Centre, University of Reading
Chair of the Board, Professional Risk Manager's International Association

The Principles of Banking is ideal reading for anyone planning or developing a career in banking. Professor Choudhry's coverage is fully integrated, clear, and authoritative. There is no better practitioner's guide to this subject.

Darrell Duffie
Dean Witter Distinguished Professor of Finance
Graduate School of Business, Stanford University

The failure of the US banking system in 2007–2008 can be effectively described by failing to apply the principles and strategies discussed by Moorad Choudhry. Indeed, banks should understand the dynamic interaction of the economy, credit losses and interest rates, and utilize the strategies within to balance the extremes, and prioritize strategies based upon return of capital and return on capital.

Joe Jennings CFA
Former Managing Director,
Sterne Agee & Leach, Inc.,
Memphis, TN

Asset and liability management (ALM) is at the heart of any bank. Among many of its functions, keeping the bank liquid and fixing the "value" of money (for the bank) are key to a bank's survival and success. Moorad Choudhry has a wealth of experience in this area. *The Principles of Banking* is an invaluable practical guide on how banks can lift their conduct to meet the challenges of the post-crash era.

Abhijit Patharkar
Senior Business Manager,
Asset and Liability Management,
Standard Chartered Bank, Singapore

Moorad continues to make a substantial contribution both to academia and the finance profession. His latest book, *The Principles of Banking*, is a comprehensive coverage of best-practice concepts and his own recommended strategies which are set out in a very lucid manner. Moorad, who is a Visiting Professor at CARISMA, makes us proud; well done Moorad!

Gautam Mitra
Professor of Computational Optimisation and Modelling &
Emeritus Professor, Brunel University
Director of CARISMA: The Centre for the Analysis of Risk and
Optimisation Modelling Applications

Yet again, a work of excellence.

Rafael Hurtado
Vice-President Risk Management,
Banco de Credito, Lima

Professor Choudhry puts financial instruments and their derivatives within the context of banks' asset and liability management, constituting a masterful and unique reference work in the field. This book covers bank liquidity risk analysis and management, as well as stress testing. On these topics Professor Choudhry's book is indispensable reading and is set to become the principal reference.

Nuno Cassola e Barata
Adviser, Market Operations, European Central Bank, Frankfurt

The Principles of Banking is a timely reminder and update, incorporating lessons from the crisis and offering practical insights from that rare person – someone who combines working in the market with the dispassionate analysis of an academic. This book provides theory and practice in an easy-to-follow manner, an ideal reference for seasoned professionals.

Irving Henry
Director, Prudential Capital and Risk,
British Bankers' Association, London

As a banker and bank regulator, asset and liability management has remained a high priority area for me. Professor Choudhry's inclusive and incisive book on the nitty-gritty and nuances of this extremely important subject will help both practitioners and researchers better understand and analyse new tools and models for measuring and managing risk, as well as to keep up with the innovation challenges.

Dr. K C Chakrabarty
Deputy Governor, Reserve Bank of India, Mumbai

Professor Choudhry has been recommending for years what bank regulatory authorities only started writing about after the crash. *The Principles of Banking* is the last word on the subject, the definitive rulebook on bank governance and risk management for senior directors, board members and supervisors.

Martin Barber
Global Head of ITO Delivery,
Hewlett-Packard Corporation, EMEA

A really comprehensive and approachable text – an invaluable companion for any financial market practitioner.

Mark Miller
Global Economist, Lloyds TSB Corporate Markets, London

A very highly rated book in the Group CFO performance management office! The office ALM bible, our main reference point on ALM matters.

Vasilis Kosmas
Head of Structured Finance,
National Bank of Greece, Athens

Asset and liability management is without doubt a priority in banking; it is essential that proper controls are in place to ensure the best returns on, and also efficient use of, capital. This book covers all essential topics in a straightforward manner and builds, from basic to complex, a very useful tool for everyone in this environment.

Tom O'Connor
Head of Treasury, KBC Bank NV, London

The Principles of Banking

Dictum Meum Pactum

—The motto of the London Stock Exchange

Foreword

John Cummins

I have been a colleague of Moorad Choudhry for a short time only but have known his academic work for a longer period. It is unusual for one individual to have such a mixture of practical knowledge in the field of risk and treasury management allied to such a painstaking, rigorous academic approach to the subject.

This is a very timely book. The global banking industry is going through a period of profound change, driven by the after-effects of the global financial crisis and bank failures, which were led in large part by the failure to observe sound, old-fashioned risk management principles. Liquidity management and funding mismatches are integral to the safety and soundness of the global banking system; the recent global financial crisis tested many widely held assumptions to destruction.

This volume is a serious attempt to collate, record, demonstrate and recommend best risk management practices across all the disciplines, as a real primer for students as well as experienced practitioners in the different specialist areas of banking.

Asset and liability practices form a distinct and separate field of Treasury risk management; their metrics and precepts can often be cloaked in a multivariate jargon that obfuscates the real, simple, ever-lasting precepts of banks' risks and associated metrics. Moorad's book distils many of the over-complicated explanations of ALM into plain English and simple concepts.

The global financial crisis has forced many banks to return to the basics of banking and liquidity management. In an environment where treasury risk and bank balance sheet management have never been more critical to the sound functioning of the banking system, this book is a real addition to an understanding of the major steps required to run an efficient and well-controlled bank.

The Principles of Banking provides a comprehensive survey of capital markets, the asset and liability process, bank corporate governance, funding and risk management that will give insights to those who are studying in this field and act as a handbook for business best-practice. In a world where over-specialisation can be a curse, this is one book that brings together many disciplines and sound principles that can assist all experts and students of risk management to add to their expertise and look to improve.

Moorad highlights the importance of the new world post-crash assumptions; for example, the need for high-quality liquidity buffers of cash and highly-rated government bond holdings as part of core liquidity portfolios is discussed in Chapter 12, which emphasises that this is really a return to best practices from an earlier age. These moves are happening with the full support of the global regulatory authorities, with the UK as a leader in the drive for safer and stronger, more liquid banks. His chapters on these topics are well developed and full of incisive and informative research. The return to focus on customer deposits and prudent loan-to-deposit ratios are maxims that the RBS Group is following in its own return to standalone strength and improved balance sheet stability.

Moorad's book is excellent at bringing out the lessons of 2008 and providing a road map and guide to best practice for the future. It is important if banks are to avoid these issues in the future that all students entering the profession learn the lessons from the crisis, and that senior management inculcate the best practices which are outlined in this volume.

I recommend this work to all interested in the banking world and risk management.

John Cummins
Group Treasurer
The Royal Bank of Scotland
29 September 2011

Foreword

Ian Plenderleith

All sorts of causes can be adduced for the financial crisis of 2007–2008, from which the world is still recuperating. The globalisation of finance, as of other areas of business activity; deregulation and heightened competition; the concentration of banking groups following successive waves of mergers; the application of advanced quantitative techniques to risk control, with imperfect recognition of their limitations; innovation in the design of financial instruments and trading strategies; increased reliance on active liability management in wholesale markets; and the conjuncture of cyclical downturn in the global economy with continuing underlying imbalances between major economies – the list is long and will provide fertile soil for doctoral theses for years to come.

But one pervasive faultline is that in the process many banks somehow lost sight of the basic principles of banking. So the primer that Moorad Choudhry provides in this book is both timely and salutary. In clear, concise and uncompromising terms, he has provided a comprehensive compendium of good practice, starting with an overview of the essential elements of banking business, then drilling down into the critical areas of asset–liability management, liquidity and risk management, and then surveying the over-arching issues of strategy and governance. Not all bankers are renowned for an interest in literature, but this book is required reading.

If there is one area where this book will be most valuable in helping the present generation of bankers rebuild their business on the rubble of the financial crisis, it is in its treatment of liquidity – which Moorad Choudhry aptly describes as "the water of life" of banking. As he notes, "the crisis of 2007 and 2008 was as much a crisis of bank liquidity as it was of capital erosion". The huge expansion of wholesale markets over the past half century allowed banks to economise on the quantum and quality of liquidity they hold on the balance sheet as a cushion against unforeseen funding needs. But the result, as we have seen, has been severe exposure to liquidity strains if, as happened, wholesale market funding suddenly evaporates. The result has been much more substantial liquidity requirements set by bank supervisors, which, as Moorad Choudhry rightly remarks, are not new, but rather "a turning of the clock back to earlier times, when conservative principles in liquidity management were actually quite common place". Our forefathers could not have put it better.

It is not easy, in a book on the principles of banking, to bring the narrative to a thrilling climax. But Moorad Choudhry delivers a remarkable denouement with his chapter on corporate governance principles, which concludes with a clinical dissection of the weaknesses that undermined banks, large and small, in the recent crisis. This spine-chilling post mortem of what went wrong brings the principles of banking blazingly alive. If reading it keeps bankers awake at night, this admirable book will have served its purpose.

Ian Plenderleith
Former Executive Director
Bank of England
31 March 2011

Preface

Aficionados of science fiction will be familiar with *Dune*, a seminal work in that genre written by the late Frank Herbert. A complex, interwoven tale of imperial rivalry, medieval mysticism, clan fighting and religious hero worship, as well as an old-fashioned story of good guys versus bad guys, it is set on the desert planet Arrakis. Among a range of peculiar geophysical features, this planet suffers from an almost complete lack of water. The native inhabitants of Arrakis, the *Fremen*, appreciated this lack so much that they took great pains to preserve and recycle every drop of moisture, even to the extent of recycling water from the bodies of their dead. Water was life. Anything that was vital to the maintenance of life itself was known by the Fremen as "the water of life".[1]

And so to banking. Banks have always been a part of recorded history. Latin texts describe a form of borrowing and lending activity in Roman times, and before that the ancient Babylonians practised an elementary form of banking. In his excellent and thought-provoking book *Zero* (London: Souvenir Press, 2000), Charles Seife tells us "before Arabic numerals came around, money [lenders] had to make do with an abacus or counting board. The Germans called the counting board a *Rechenbank*, which is why we call moneylenders *banks*". So now we know. Banks are the lifeblood of society, because without them nothing would get done. By that I mean nothing productive. Nothing would be built, nothing would be traded, and very little would be consumed. This would result in all of us being much worse off than we are now. As Simon Johnson and James Kwak note in their book *13 Bankers* (New York: Pantheon, 2010), because an advancing society in the process of industrialisation requires "investments in new technology, it also [requires] credit . . . long-run prosperity requires

1 Actually, it turns out that my own initial interpretation of this elegant expression was entirely erroneous. The story in fact refers to a powerful narcotic drug that is taken by the *Bene Gesserit*, a female order of exceptionally clever thinkers, as part of a developmental ritual, which ends either in death or in enhanced prescient powers on the part of the user. Reading *Dune* for the first time as a 15-year-old, I understood it as a general expression for the importance of water to life. And first impressions last . . .

large-scale commerce and industry, both of which require banks". Banks are vital to societal development and civilisation. And right from the start, banks have always had to rely on the availability of continuous funding, or *liquidity*. This is a definition of banking. For banks, liquidity is the water of life.

Because they are such an important part of society and human development, it is apparent that banks must be managed properly. This is not as obvious as one might think. During the global financial crisis of 2007–2009, a number of small and large banks around the world failed, some of them quite spectacularly. Many of these banks were shown to have been managed with monumental incompetence by people who had seemingly been at the top of their game. People boasting MBAs, feted around the world with invitations to dine at prime ministerial and presidential levels. People who had in many cases never actually bothered to obtain any professional qualifications in banking, but who would have us believe their self-generated hype that they were the Masters of the Universe. Many of them thought that they could beat the market, that as long as the music was playing they should still be in the game, even as all the indications suggested that a recession was already enveloping them. In the end it was a case of the emperor's new clothes, because it became apparent that many of these star bankers had done what any literate teenager could do: they'd made money in a bull market. Or, as Quentin Letts writes in his brilliant polemic *50 People Who Buggered Up Britain* (London: Constable, 2009), "They were bull-market innocents caught short by change". Come the crash, they were shown to be naked. These people, through a combination of hubris, arrogance, conceit, perverse empire-building obsession, greed, herd mentality, monstrous egotism, poor understanding of finance, simple ineptitude, and a lack of appreciation of the basic principles of banking, inadvertently conspired to bring about the worst banking crisis since the Great Depression, if not of all time.

This book is for them. It is not for beginners, it is for senior staff. Of course, it is also for junior staff who may or may not aspire to reach the heights of the Board, but who want to understand *before* they get there what they don't teach you at business school: the practical but vital principles of bank liquidity, capital and asset–liability management.

This book is also about the principles of bank strategy and corporate governance. These principles are, in the main, not new (although some of them are). But they deserve to be renewed and never forgotten, especially during the next bull market run. Being about basic principles, *The Principles of Banking* omits a lot of product detail and complex mathematics on the more technical aspects of finance, much of which was covered to considerable depth in my book *Bank Asset and Liability*

Management (John Wiley & Sons, 2007). That book discussed such issues as analysing the yield curve, bank capital, securitisation, Basel II, value-at-risk (VaR) methodology, interest-rate risk hedging, derivatives pricing, determinants of the swap spread, and money markets trading. It also included detailed coverage of all the various products, both cash products such as bonds and floating-rate notes and derivatives such as credit default swaps (CDS) and caps/floors. We do not repeat that material here (and, as that book was over 1,400 pages long, that's just as well!), although we do repeat the material that remains very relevant, and more important than ever in the light of recent events: the four chapters on bank asset–liability management (ALM) and the asset–liability committee (ALCO). But otherwise in this book we focus on key issues in bank strategy and liquidity management. So if you require detailed product technical knowledge, please consult the earlier book.

Where we do get detailed and technical is in the field of liquidity risk management and management reporting. The 2007–2009 financial crisis highlighted the need for banks to "get back" to the roots of banking and concentrate on liquidity management, which is the essence of banking. In my earlier book I devoted four chapters to ALM and liquidity risk management, but clearly that wasn't enough! In this book we dedicate a lot more page space to this essential topic. Liquidity is a key focus of bank regulators in the post-crisis age, so it is important to be up to speed with this subject at a detailed level.

We also get very detailed and technical in Chapter 5. This chapter covers the yield curve, which is a very important topic. All senior management should be familiar with the yield curve, with the no-arbitrage principles of finance that drive its use, and how to analyse and interpret it. Why? Quite simply, because the curve drives everything. A bank sets the price of its assets and the cost of its liabilities from what its own internal risky yield curve implies. An understanding and appreciation of what the correct valuation of balance sheet items should be, requires an understanding of what drives the yield curve. It is worth taking the time and effort to become thoroughly *au fait* with Chapter 5. It has been kept deliberately technical, although still accessible, for the specific enjoyment of senior management and board members.

This book looks at the high-level principles of finance. The first principle of banking is common sense. Being cautious and sensible is an essential prerequisite for sound and efficient bank management. Beyond this we cover further basic principles in the following chapters, but here is a flavour of them to start with:

1. Secure your funding base – that is, your liquidity – for all contingencies, *before* you start lending beyond your deposit base.

2. Establish a sound base of customer deposits, and ensure that a majority of lending is funded from core, stable deposits.
3. Lend prudently, and with sound judgement (that is, not following the herd), and if necessary across a diverse range of customers (but not to customers or sectors outside your area of expertise: know your risk).
4. Maintain a strong capital base of equity, sufficient to absorb all losses and *unexpected* losses, and still continue as a going concern.
5. See (1).

The essential message for bankers and regulators is one of conservatism. Liquidity crises are rare events, and it is possible for a person to spend his or her entire time in a senior managerial position at a bank and never experience one. The temptation to relax some of the conservative principles recommended in this book is strong. However, because of the importance of banks to the world's economic system, it is imperative that when a liquidity crisis does occur, a bank is able to survive it without support from the taxpayer. This is harder to do if one adopts a less-than-strict view about the liquidity and ALM risks involved in banking.

Traditionally, we describe a bank as a financial institution that is in the business of taking deposits and advancing loans, and which makes money from the difference in interest rates paid and received on these two products (the "net interest income"). This picture is still true today; even for the most complex banks with operations across multiple jurisdictions and product lines, it all still boils down to managing funding costs and running a sensible funding policy. While today even small banks deal in a variety of cash and derivative instruments across time zones, reflecting the high product sophistication in the finance industry, and the sources of revenue for banks are now quite diverse, the basic principles of running both a simple and a complex bank are unchanged, and identical. So while the modern banking institution is a complex beast, basic management objectives have remained unchanged. Or at least, they should have. In the lead-up to the financial crash, some senior bank management forgot this fact. Or quite possibly they were never aware of it in the first place.

So to reiterate, this book covers essential principles of banking that will guide senior management towards a more sustainable business model for their banks, and regulators towards a more stable banking system. It is something of a handbook for competent management. Incidentally, *The Principles of Banking* does not review the causes of the financial crash of 2007–2009. Also, it does not offer macro-level prescriptions for the economy as a whole. These subjects are discussed in my book *The Future of Finance* (John Wiley & Sons, 2010).

We must remember that at the core of *all* capital markets activity lies the need to bring together the suppliers of capital with the borrowers of capital. This was the original business logic behind the very first banks, and in that respect very little has changed. There is much other activity surrounding this basic function in the markets, but this function is paramount. As Mr. Letts goes on to say, "The first duty of the high street bank, surely, is stability. To be entrusted with the savings of small-time customers is a heavy responsibility". And the key ingredient in discharging this responsibility is the management of the bank's assets and liabilities. It is this that we focus on in this book, high-level ALM and its twin siblings, capital and liquidity management. On the ALM desk in a bank, the cash assets and liabilities are king and must be managed prudently. Liquidity and disciplined ALM are the water of life in banking. That's something the Fremen would have understood.

LAYOUT OF THE BOOK

The book is divided into five parts, covering the various different but relevant aspects of banking principles. These are:

Part I – A primer on banking
Part II – Bank asset–liability management
Part III – Bank liquidity risk management
Part IV – Bank strategy and governance
Part V – Application software, spreadsheets and teaching aids.

For newcomers to the market, junior bankers and students, we include a primer on banking basics in Chapter 1. A detailed background on financial instruments, a summary of financial market arithmetic, and a comprehensive glossary of banking and finance terms are included in the author's earlier book *Bank Asset and Liability Management*.

Highlights of *The Principles of Banking* include:

- a detailed look at the ALM function as undertaken by banks and securities houses, including risk management and management reporting;
- comprehensive coverage of liquidity risk management, including liquidity metrics, reporting, contingency planning and the liquid asset buffer;
- the role and function of the bank ALM committee (ALCO); including the organisation of the Group ALCO (GALCO) function in a multinational or multi-entity banking group;
- a detailed technical analysis of internal funds pricing, and how it should be set up in a bank;

- capital and liquidity risk reporting and stress testing;
- strategy formulation, and capital and funding management;
- recommended best-practice on effective bank corporate governance.

Files on the Wiley website, www.wiley.com/go/principlesofbanking, accompany this book. They hold policy document templates, risk report samples, teaching aids, applications software and Excel spreadsheets. These are discussed in Chapter 19, and hopefully should be of some use to practitioners.

Note that we do not discuss operational risk in this book. The principles of operational risk are not unique to banks, and would be applicable in any corporate environment. That said, bank management will need to be aware of the operational risk charge element in their regulatory capital requirement.

As always, the aim is to remain accessible and practical throughout; we hope this has been achieved. Comments on the text are most welcome and should be sent to the author care of John Wiley & Sons Singapore Pte. Ltd.