Asset/Liability Management of Financial Institutions
Maximizing Shareholder Value through Risk-Conscious Investing

Edited by
Leo M. Tilman

Published by
Euromoney Institutional Investor
Contents

List of contributors  xii
Contributors’ biographies  xiv
Acknowledgements  xxiii
Preface  xxiv

Part I: Foundations of asset/liability management  1
Chapter 1: The task of asset/liability management  3
Leo M. Tilman
Risk management revolution: a prerequisite to rigorous ALM  4
Risks inherent in financial intermediation  7
Future expected returns  10
The task of ALM  13
Formulating ALM philosophy  14
Challenges and future directions  16

Chapter 2: Asset/liability risks and the nature of financial intermediation  20
Krzysztof M. Ostaszewski
ALM methodologies  21
Analyzing financial intermediation  22
Asset transformation structure  24
Linkage with derivative pricing methodology  25
Conclusions  27

Chapter 3: Asset/liability management as a corporate finance function  31
Prakash Shimpi
ALM, risk management and capital management  31
Foundations of ALM  32
Risk and capital in liability funding  34
ALM for non-financial corporations  35
Corporate finance objectives  36
Increasing the value of the firm  37
Risk structure  38
The insurative model  39
The practitioner’s challenge  43
ALM as a navigation tool  44
## CONTENTS

### Part II: Perspectives on asset/liability management

#### Chapter 4: Asset/liability management considerations for equity analysts and investors

*Todd Bault*
- ALM in the non-financial sector
- ALM in financial services
- Strategic implications
- Conclusions

#### Chapter 5: Role of asset managers in asset/liability management of financial institutions

*Vineer Bhansali*
- Introduction
- Selecting money managers within ALM: a pension plan example
- Defining a money management mandate
- Shortcomings of common fixed-income indices
- Scenario analysis as an important ALM tool
- Extending scenario analysis for non-systematic market factors
- Conclusion

#### Chapter 6: The role of alternative investments in asset/liability management of financial institutions

*George E. Hall and Rishin Roy*
- Introduction
- Hedge funds as an asset class
- Types of hedge funds
- Alternative investment funds: arrival in the public domain
- Hedge funds from an ALM perspective: the demand for alternative investments
- Rewards and risks of investing in hedge funds

### Part III: Advances in asset/liability management

#### Chapter 7: Applications of financial modeling to asset/liability management: advances, challenges, and future directions

*Mark C. Abbott, Samuel H. Cox and Hal W. Pedersen*
- ALM in a financial modeling context
- Financial market modeling
- Investment philosophy and investment strategy models
- Fair value of liabilities
- ALM in insurance product development
- Recent valuation, equity bias, and portfolio rate assumption controversies
- Conclusions
Chapter 8: Applications of structured correlation products to credit risk intermediation

David K.A. Mordecai

Introduction 105
A general theory of financial intermediation 105
Financial intermediaries most active in the structured credit markets 107
Industry, institutional, and economic factors driving supply and demand for structured credit products 108
The ROA/ROE burden: economic and regulatory capital relief 109
The solution: credit arbitrage hedge funds as suppliers of synthetic capital 110
Pricing and trading credit risk: a source of investment alpha 111
Case study: a factor-based analysis of the returns of a structured credit arbitrage fund 115

Chapter 9: Measuring and marking counterparty risk

Eduardo Canabarro and Darrell Duffie

Introduction 122
Counterparty exposures 122
Applications of exposure modeling 127
Market valuation of credit exposures 127
Conclusion 133

Part IV: Asset/liability management of depository institutions

Chapter 10: Asset/liability management of depository institutions

Stanley C. Brach

Introduction 137
ALM of a depository institution 138
General approach to ALM: a balance sheet simulation 138
Conclusion 147

Chapter 11: Constructing optimal benchmarks for bank investment portfolios

Michael Buttner and Ajay Rajadhyaksha

Introduction 149
Current approach 150
Types of risks 151
Constructing benchmark portfolios 152
The optimization problem 159
Practical implementation 159
Conclusion 160
CONTENTS

Chapter 12: Asset/liability management of credit unions 162

Ralph E. Reardon

Introduction 162
Assessment methodology 162
Evaluation of the ALM model and assumptions 165
Core share valuation methodology 166
Quantification of interest rate risk to capital 167
Major assumptions 173
Conclusion 174

Part V: Asset/liability management of insurance companies 175

Chapter 13: Creditworthiness and asset/liability management of insurance companies: a rating agency perspective 177

Robert Riegel and Joel Levine

Introduction 177
Rating methodology 177
Qualitative factors 179
Quantitative analysis 182
Ratio analysis cannot capture all forms of financial risk 196
Blending qualitative and quantitative factors 196
Conclusions 197

Chapter 14: Asset/liability management for life insurers: lessons learned and future directions 198

Anson J. Glacy, Jr and Andres E. Vilms

Introduction 198
Life insurance product types 198
Life insurance investment practices 200
Financial reporting considerations 201
Historic metrics and methods 202
The events of 2002 and their aftermath 207
Future directions 208
Conclusion 213

Chapter 15: Portfolio benchmarks for property-casualty insurers: an asset/liability application 214

James E. Bachman

Introduction 214
The P&C industry and its common fixed-income benchmark 215
ALM as a benchmark development tool 219
Impacts of equities, changing underwriting results, and leverage 223
P&C segment-specific customized benchmarks 226
Summary 229
| Chapter 16: | Understanding options embedded in insurers' balance sheets | 232 |
|           | Larry H. Rubin                                                                 | 232 |
|           | Introduction                                                                   | 232 |
|           | Historical experience and losses                                                | 233 |
|           | Role of expected return assumptions in pricing insurance products              | 234 |
|           | Options written by insurance companies                                          | 236 |
|           | Options granted to insurance companies                                          | 238 |
|           | Conclusion                                                                     | 241 |

| Part VI: | Asset/liability management of pension plans                                      | 243 |
| Chapter 17: | Asset/liability management of pension plans: the future hinges on a better understanding of risk | 245 |
|           | Leo de Bever                                                                   | 245 |
|           | Introduction: pensions after the fall                                           | 245 |
|           | The rising economic cost of funding pensions                                    | 246 |
|           | The pitfalls of keeping pensions 'affordable'                                   | 248 |
|           | The differential response to risk                                               | 250 |
|           | The need for a funding management policy                                        | 251 |
|           | Outdated regulation encourages short-term decisions                             | 252 |
|           | The rising DB risk to sponsor core operations                                   | 253 |
|           | Sharing deficiency risk with plan members                                       | 254 |
|           | Prospective returns on market risk                                              | 254 |
|           | Defined benefit risks: perception and reality                                   | 257 |
|           | Calibrating active and passive risk allocations                                | 258 |
|           | Alternative investments                                                         | 260 |
|           | Joint optimization of active and passive risk                                   | 260 |
|           | Maverick risk                                                                   | 261 |
|           | Conclusion                                                                      | 262 |

| Chapter 18: | Rethinking asset allocation for pension plans: Using risk as the primary driver | 264 |
|           | Joanna Bewick and Derek Young                                                    | 264 |
|           | Introduction                                                                     | 264 |
|           | Traditional asset allocation                                                     | 264 |
|           | Managing risk or managing returns?                                               | 266 |
|           | Risk budgeting                                                                   | 268 |
|           | Conclusion                                                                       | 276 |

| Chapter 19: | Strategic solutions for corporate pension plans                                 | 279 |
|           | Hamish Norton                                                                    | 279 |
|           | Recent history                                                                   | 279 |
|           | Funding status                                                                   | 279 |
CONTENTS

Nature of funding 283
Risks of funding level volatility 285
Overlay portfolios that supplement asset allocation 286
Managing the interest rate dimension of pension plan ALM 287
Managing the equity dimension of pension plan ALM 287
Combining equity and interest rate dimensions using
two-factor options 287
Integration of pension plan with corporate balance sheet 289
Conclusion 290

Part VII: Asset/liability management of government-sponsored enterprises and real estate companies 291

Chapter 20: Asset/liability management at Fannie Mae 293
Cherise McGovern, Peter Niculescu and William Quinn
Introduction 293
Fannie Mae’s role and key characteristics 293
Mortgage investment dynamics 295
Measures of interest rate risk 298
Interest rate risk management 299
Conclusion 307

Chapter 21: Asset/liability management at Freddie Mac 308
Nazir Dossani, Peter Federico and Jan Luytjes
Introduction 308
Background and investment management process 309
ALM: identifying and measuring risk 312
ALM: key models used in measuring risk 316
ALM: managing and controlling risk 322
Reporting and disclosure of risk 324
Conclusion 325

Chapter 22: Asset/liability management of real estate finance companies 330
Richard Shea
Introduction 330
ALM dimensions of specialty real estate companies 332
Commercial real estate finance companies 334
Residential real estate finance companies 337
Structural issues that affect ALM 339
Conclusion 340
Part VIII: Regulatory and accounting aspects of asset/liability management 341

Chapter 23: Regulatory environment overview 343
Edward T. Hida II and Ahmet Yetis

Introduction 343
Depository and lending institutions 344
Insurance industry 350
Asset management industry 356
Final remarks 358

Chapter 24: Accounting standards and requirements 363
Elias Habayeb and Sachin Sethi

SFAS-133: accounting for derivative instruments and hedging activities 363
SFAS-115: accounting for certain investments in debt and equity securities 366
SFAS-140: accounting for transfers and servicing of financial assets and extinguishments of liabilities 367
SFAS-150: accounting for certain financial instruments with characteristics of both liabilities and equity 370

Chapter 25: Implications of regulatory and accounting requirements for asset/liability management decisions 373
Edward T. Hida II, Elias Habayeb, Ahmet Yetis and Sachin Sethi

Hedging and derivatives accounting 373
Investment accounting and liquidity management 381
Securitization 382
Accounting treatment of tier 1 and tier 2 capital items 383