

# Managing Pension Liability Credit Risk: *Maintaining a Total Portfolio Perspective*

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**W**idening credit spreads during the 2007–2008 credit crisis significantly impacted pension fund liabilities and funding ratios. U.S. interest rates fell over 100 basis points (bps) in the 15-month period ending September 30, 2008, while pension discount rates rose. Pension discount rates increased over this period because corporate bond credit spreads widened over 200 bps—more than offsetting the drop in interest rates—and pension liabilities are discounted using yields on high-quality corporate bonds. Rising pension discount rates caused the present value of pension liabilities to decrease, leaving pension funding ratios as equity markets fell severely. Plan sponsors who implemented liability hedges via interest rate swaps and/or Treasuries saw their liability hedge appreciate in value as interest rates fell. Their liability has actually decreased in value, however, as corporate bond yields and the corresponding pension discount rates rose, causing, in this case, a liability-hedging gain.

The widening of credit spreads during the credit crisis has raised a very important question for those who have implemented a liability-driven investing (LDI) solution or are considering LDI: How should a plan sponsor manage the risk of corporate bond credit spreads widening or narrowing? I believe many practitioners have taken too narrow a view of this question and have evaluated liability credit

risk as a pure liability-hedging issue. The main point of this article is that in order to construct efficient LDI solutions and avoid pure funding ratio outcomes, it is essential to view the liability credit risk from a total portfolio perspective (inclusive of the “risky” asset component (i.e., equity) of an LDI solution).

This article is not an endorsement for including a credit spread in pension liability discount rates. I agree with the economists who argue that there is no economic justification for doing so. In fact, incorporating a credit spread leads to chronic underfunding on a riskless basis and, as discussed in detail throughout this article, makes it more difficult to hedge liability discount rate risk. However, the current regulatory environment does utilize a credit spread in pension discount rates, and this article should be viewed as a guide for how best to manage credit spread risk for plan sponsors who choose to incorporate it.

## UNDERSTANDING PENSION LIABILITY DISCOUNT RATE RISK

I start with an in-depth discussion of pension liability discount rate risk. The present value of a liability is determined in two steps—establishing the cash flow profile of expected benefit payments and then discounting the future payments at the appropriate discount rate. Liability return is the change in the present value of liabilities from one period to the

# Optimality In Pension Funding The Risk And Return Perspective

**John Eatwell, Murray Milgate, Peter Newman**



## **Optimality In Pension Funding The Risk And Return Perspective:**

*The Oxford Handbook of Pensions and Retirement Income* Gordon L. Clark, Alicia H. Munnell, J. Michael Orszag, 2006-07-20 This handbook draws on research from a range of academic disciplines to reflect on the implications for provisions of pension and retirement income of demographic ageing it reviews the latest research policy related tools analytical methods and techniques and major theoretical frameworks

*Risk Management for Pension Funds* Francesco Menoncin, 2021-02-09 This book presents a consistent and complete framework for studying the risk management of a pension fund It gives the reader the opportunity to understand replicate and widen the analysis To this aim the book provides all the tools for computing the optimal asset allocation in a dynamic framework where the financial horizon is stochastic longevity risk and the investor's wealth is not self financed This tutorial enables the reader to replicate all the results presented The R codes are provided alongside the presentation of the theoretical framework The book explains and discusses the problem of hedging longevity risk even in an incomplete market though strong theoretical results about an incomplete framework are still lacking and the problem is still being discussed in most recent literature

*Restructuring Retirement Risks* David Blitzstein, Olivia S. Mitchell, Stephen P. Utkus, 2006-08-03 Highlighting retirement security as a major policy concern this book addresses the question What are the risks rewards in pensions what paths can stakeholders choose to solve these problems It deals with employees needs expectations employers intentions realizations policymakers efforts to resolve the many challenges

**Sovereign Wealth Funds** Abdullah Al-Hassan, Mr. Michael G Papaioannou, Martin Skancke, Cheng Chih Sung, 2013-11-11 This paper presents in a systematic normative manner the salient features of a SWF's governance structure in relation to its objectives and investment management that can ensure its efficient operation and enhance its financial performance In this context it distinguishes among the various governing bodies and analyzes key aspects of the investment policy and setting of the risk tolerance level in order to ensure consistent risk bearing capacity and greater accountability Further it discusses the important role of SWFs in macroeconomic management and the need for close coordination with other macroeconomic and financial policies as well as their role in global financial stability

*Pension Fund Risk Management* Marco Micocci, Greg N. Gregoriou, Giovanni Batista Masala, 2010-01-25 As pension fund systems decrease and dependency ratios increase risk management is becoming more complex in public and private pension plans Pension Fund Risk Management Financial and Actuarial Modeling sheds new light on the current state of pension fund risk management and provides new technical tools for addressing pension risk from an integr

**Perspectives on Investment Management of Public Pension Funds** Frank J. Fabozzi, CFA, 1999-02-15 Perspectives on Investment Management of Public Pension Funds covers all aspects of the management of public pension funds Experts in the field provide practical guidelines for managers on the implications of investment strategies behind these funds

Hedge Funds and Financial Markets Julian Holler, 2012-01-02 Hedge funds have started to play an important role in financial markets during the last

decade They have affected important aspects of financial intermediation such as asset allocation decisions and corporate governance Julian Holler provides an excellent theoretical and empirical analysis of these issues His analysis offers strong support that hedge funds enable investors to improve asset allocation decisions Consequently hedge funds are an interesting alternative asset class for institutional investors In contrast to results for the U S capital market his research provides evidence that hedge fund activism does not persistently increase the value of firms in Germany This result suggests that the institutional environment has a strong influence on the effectiveness of corporate governance mechanisms

**Corporate Risk Management** Donald H. Chew, 2008 More than thirty leading scholars and finance practitioners discuss the theory and practice of using enterprise risk management ERM to increase corporate values ERM is the corporate wide effort to manage the right hand side of the balance sheet a firm s total liability structure in ways that enable management to make the most of the firm s assets While typically working to stabilize cash flows the primary aim of a well designed risk management program is not to smooth corporate earnings but to limit the possibility that surprise outcomes can threaten a company s ability to fund its major investments and carry out its strategic plan Contributors summarize the development and use of risk management products and their practical applications Case studies involve Merck British Petroleum the American airline industry and United Grain Growers and the conclusion addresses a variety of topics that include the pricing and use of certain derivative securities hybrid debt and catastrophe bonds Contributors Tom Aabo Aarhus School of Business Alb ric Braas and Charles N Bralver Oliver Wyman Keith C Brown University of Texas at Austin David A Carter Oklahoma State University Christopher L Culp University of Chicago Neil A Doherty University of Pennsylvania John R S Fraser Hyrdo One Inc Kenneth R French University of Chicago Gerald D Gay Georgia State University Jeremy Gold Jeremy Gold Pensions Scott E Harrington University of South Carolina J B Heaton Bartlit Beck Herman Palenchar Joel Houston University of Florida Nick Hudson Stern Stewart Christopher James University of Florida A John Kearney and Judy C Lewent Merck Robert C Merton and Lisa K Meulbroek Harvard Business School Merton H Miller University of Chicago Jouahn Nam Pace University Andrea M P Neves CP Risk Management LLC Brian W Nocco Nationwide Insurance Andr F Perold Harvard Business School S Waite Rawls III Continental Bank Kenneth J Risko Willis Risk Solutions Angelika Sch chlin University of St Gallen Betty J Simkins Oklahoma State University Donald J Smith Boston University Clifford W Smith Jr University of Rochester Charles W Smithson Continental Bank Ren M Stulz Ohio State University D S All the articles that comprise this book were first published in the Journal of Applied Corporate Finance Morgan Stanley s ownership of the journal is a reflection of its commitment to identifying outstanding academic research and promoting its application in the practicing corporate and investment communities

**Handbook of Asset and Liability Management** Stavros A. Zenios, William T. Ziemba, 2007-08-08 The Handbooks in Finance are intended to be a definitive source for comprehensive and accessible information in the field of finance Each individual volume in the series presents an accurate self contained survey of a sub field of finance suitable for

use by finance and economics professors and lecturers professional researchers graduate students and as a teaching supplement It is fitting that the series Handbooks in Finance devotes a handbook to Asset and Liability Management Volume 2 focuses on applications and case studies in asset and liability management The growth in knowledge about practical asset and liability modeling has followed the popularity of these models in diverse business settings This volume portrays ALM in practice in contrast to Volume 1 which addresses the theories and methodologies behind these models In original articles practitioners and scholars describe and analyze models used in banking insurance money management individual investor financial planning pension funds and social security They put the traditional purpose of ALM to control interest rate and liquidity risks into rich and broad minded frameworks Readers interested in other business settings will find their discussions of financial institutions both instructive and revealing Focuses on pragmatic applications Relevant to a variety of risk management industries Analyzes models used in most financial sectors

**CFA Program Curriculum 2017 Level III, Volumes 1 - 6** CFA Institute, 2016-08-01 Apply CFA Program concepts and skills to real world wealth and portfolio management for the 2017 exam The same official curricula that CFA Program candidates receive with program registration is now publicly available for purchase CFA Program Curriculum 2017 Level III Volumes 1 6 provides complete authoritative guidance on synthesizing the entire CFA Program Candidate Body of Knowledge CBOK into professional practice for the 2017 exam This book helps you bring together the skills and concepts from Levels I and II to formulate a detailed professional response to a variety of real world scenarios Coverage spans all CFA Program topics and provides a rigorous treatment of portfolio management all organized into individual study sessions with clearly defined Learning Outcome Statements Visual aids clarify complex concepts and practice questions allow you to test your understanding while reinforcing major content areas Levels I and II equipped you with foundational investment tools and complex analysis skill now you ll learn how to effectively synthesize that knowledge to facilitate effective portfolio management and wealth planning This study set helps you convert your understanding into a professional body of knowledge that will benefit your clients financial futures Master essential portfolio management and compliance topics Synthesize your understanding into professional guidance Reinforce your grasp of complex analysis and valuation Apply ethical and professional standards in the context of real world cases CFA Institute promotes the highest standards of ethics education and professional excellence among investment professionals The CFA Program Curriculum guides you through the breadth of knowledge required to uphold these standards The three levels of the program build on each other Level I provides foundational knowledge and teaches the use of investment tools Level II focuses on application of concepts and analysis particularly in the valuation of assets and Level III builds toward synthesis across topics with an emphasis on portfolio management

**Optimal Bank Recovery** Mr.C. A. E. Goodhart, Miguel A. Segoviano Basurto, 2015-09-30 Banks living wills involve both recovery and resolution Since it may not always be clear when recovery plans or actions should be triggered there is a role for an objective

metric to trigger recovery We outline how such a metric could be constructed meeting criteria of i adequate loss absorption ii distinguishing between weak and sound banks iii little susceptibility to manipulation iv timeliness v scalable from the individual bank to the system We show how this would have worked in the U K during 2007 11 This approach has the added advantage that it could be extended to encompass a whole ladder of sanctions of increasing severity as capital erodes

Optimal Financial Decision Making under Uncertainty Giorgio Consigli, Daniel Kuhn, Paolo Brandimarte, 2016-10-17 The scope of this volume is primarily to analyze from different methodological perspectives similar valuation and optimization problems arising in financial applications aimed at facilitating a theoretical and computational integration between methods largely regarded as alternatives Increasingly in recent years financial management problems such as strategic asset allocation asset liability management as well as asset pricing problems have been presented in the literature adopting formulation and solution approaches rooted in stochastic programming robust optimization stochastic dynamic programming including approximate SDP methods as well as policy rule optimization heuristic approaches and others The aim of the volume is to facilitate the comprehension of the modeling and methodological potentials of those methods thus their common assumptions and peculiarities relying on similar financial problems The volume will address different valuation problems common in finance related to asset pricing optimal portfolio management risk measurement risk control and asset liability management The volume features chapters of theoretical and practical relevance clarifying recent advances in the associated applied field from different standpoints relying on similar valuation problems and as mentioned facilitating a mutual and beneficial methodological and theoretical knowledge transfer The distinctive aspects of the volume can be summarized as follows Strong benchmarking philosophy with contributors explicitly asked to underline current limits and desirable developments in their areas Theoretical contributions aimed at advancing the state of the art in the given domain with a clear potential for applications The inclusion of an algorithmic computational discussion of issues arising on similar valuation problems across different methods Variety of applications rarely is it possible within a single volume to consider and analyze different and possibly competing alternative optimization techniques applied to well identified financial valuation problems Clear definition of the current state of the art in each methodological and applied area to facilitate future research directions

Asset and Liability Management Handbook G. Mitra, K. Schwaiger, 2011-03-29 Recent years have shown an increase in development and acceptance of quantitative methods for asset and liability management strategies This book presents state of the art quantitative decision models for three sectors pension funds insurance companies and banks taking into account new regulations and the industries risks Data Envelopment Analysis Joe Zhu, 2016-03-22 This handbook compiles state of the art empirical studies and applications using Data Envelopment Analysis DEA It includes a collection of 18 chapters written by DEA experts Chapter 1 examines the performance of CEOs of U S banks and thrifts Chapter 2 describes the network operational structure of transportation organizations and the relative network data envelopment analysis model

Chapter 3 demonstrates how to use different types of DEA models to compute total factor energy efficiency scores with an application to energy efficiency In chapter 4 the authors explore the impact of incorporating customers willingness to pay for service quality in benchmarking models on cost efficiency of distribution networks and chapter 5 provides a brief review of previous applications of DEA to the professional baseball industry followed by two detailed applications to Major League Baseball Chapter 6 examines efficiency and productivity of U S property liability P L insurers using DEA while chapter 7 presents a two stage network DEA model that decomposes the overall efficiency of a decision making unit into two components Chapter 8 presents a review of the literature of DEA models for the performance assessment of mutual funds and chapter 9 discusses the management strategies formulation of the international tourist hotel industry in Taiwan Chapter 10 presents a novel use of the two stage network DEA to evaluate sustainable product design performances In chapter 11 authors highlight limitations of some DEA environmental efficiency models and chapter 12 reviews applications of DEA in secondary and tertiary education Chapter 13 measures the relative performance of New York State school districts in the 2011 2012 academic year Chapter 14 provides an introductory prelude to chapters 15 and 16 which both provide detailed applications of DEA in marketing Chapter 17 then shows how to decompose a new total factor productivity index that satisfies all economically relevant axioms from index theory with an application to U S agriculture Finally chapter 18 presents a unique study that conducts a DEA research front analysis applying a network clustering method to group the DEA literature over the period 2000 to 2014

Toward Better Regulation of Private Pension Funds Hemant Shah,1997 **Asset Management Standards** O. Loistl,Robert Petrag,2006-07-07 Asset management Standards discussion s main focus on governance issues matches the established structural components of the Asset Management Standard s systematic classification Numerous innovations called for a nearly complete revision This new edition offers again a reliable source of information on the major issues in asset management

Modern Portfolio Theory and Investment Analysis Edwin J. Elton,Martin J. Gruber,Stephen J. Brown,William N. Goetzmann,2014-01-21 An excellent resource for investors Modern Portfolio Theory and Investment Analysis 9th Edition examines the characteristics and analysis of individual securities as well as the theory and practice of optimally combining securities into portfolios A chapter on behavioral finance is included aimed to explore the nature of individual decision making A chapter on forecasting expected returns a key input to portfolio management is also included In addition investors will find material on value at risk and the use of simulation to enhance their understanding of the field

*Introduction to Private Equity, Debt and Real Assets* Cyril Demaria,2020-06-15 Fully revised and updated to reflect changes in the private equity sector Building on and refining the content of previous editions Introduction to Private Equity Debt and Real Assets Third Edition adopts the same logical systematic factual and long term perspective on private markets private equity private debt and private real assets combining academic rigour with extensive practical experience The content has been fully revised to reflect developments and innovations in private markets exploring

new strategies changes in structuring and the drive of new regulations New sections have been added covering fund raising and fund analysis portfolio construction and risk measurement as well as liquidity and start up analysis In addition private debt and private real assets are given greater focus with two new chapters analysing the current state of these evolving sectors Reflects the dramatic changes that have affected the private market industry which is evolving rapidly internationalizing and maturing fast Provides a clear synthetic and critical perspective of the industry from a professional who has worked at many levels within the industry Approaches the private markets sector top down to provide a sense of its evolution and how the current situation has been built Details the interrelations between investors funds fund managers and entrepreneurs This book provides a balanced perspective on the corporate governance challenges affecting the industry and draws perspectives on the evolution of the sector      *The New Palgrave Dictionary of Money and Finance* John Eatwell,Murray Milgate,Peter Newman,1992-10-14 The first reference work ever to be awarded the Eccles Prize for Excellence in Economic Writing from Columbia Business School Continuing in the tradition of The New Palgrave this 3 volume set provides an unparalleled guide to modern money banking and finance In over 1 000 substantial essays by leading academic and professional authorities it provides the most comprehensive analysis available of contemporary theory and the fast evolving global monetary and financial framework In its scope and depth of coverage it is indispensable for the academic and practitioner alike      Pension Revolution Keith P. Ambachtsheer,2011-07-05 Praise for Pension Revolution When Keith Ambachtsheer puts his keen mind to work on a problem watch out Here he exposes today s fragile arrangements for the most serious social dilemma of our times financing retirement Then he provides a compelling and powerful set of solutions His writings are essential reading for all who care about the future of American living standards Peter Bernstein founder and President Peter L Bernstein Inc and author of Capital Ideas and Against the Gods This book describes one of the most ingenious inventions in the history of mankind pension funds offering credible promises about old age income It reads like a thriller how can well governed pension funds be created in an imperfect world in which mortals wrestle with foibles and moral shortcomings One of the world s leading experts on pensions searches for the answer and finds it Lans Bovenberg Scientific Director Network for Studies on Pensions Aging and Retirement Tilburg University The Netherlands Pension Revolution exposes the inadequacies of current pension systems and persuasively makes the case for the fundamental changes that are needed It is essential reading for both the pension industry and policymakers Elizabeth Bryan Chair Investment Committee Unisuper Management PM Ltd Australia Most analyses of complicated issues deal with complexity by simplifying or only looking at one piece part and in doing so provide limited value In stark contrast Keith Ambachtsheer boldly wades into the complexity in Pension Revolution to come up with a valuable integrative solution He is a most welcome revolutionary Roger Martin Dean Joseph L Rotman School of Management University of Toronto Canada We have known Keith for over ten years and consistently over that time he has constructively and comprehensively challenged conventional



wisdom He has done this so effectively that many of his initial thoughts have now become universally accepted norms Such is his energy however that he continues to push the boundaries of pension and investment thinking Peter Moon Chief Investment Officer Universities Superannuation Scheme Ltd UK Pension Revolution not only explains the shortcomings of the existing pension system and the underlying design features that have resulted in the current pension upheaval It also offers thoughtful and creative suggestions for prospective pension design A must read for anyone interested in the future of retirement finance James Poterba Professor of Economics Massachusetts Institute of Technology and a member of the TIAA CREF Board of Trustees

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