ROUTLEDGE ADVANCES IN RISK MANAGEMENT

Managing Currency Options in Financial Institutions

Vanna-Volga method

Yat-fai LAM and Kin-keung LAI

ROUTLEDGE

Managing Currency Options in Financial Institutions

This book presents practices for managing currency options with the Vanna-Volga method. It describes the underlying theories and applications of the Vanna-Volga method in managing currency options of a financial institution while conforming to the Basel III regulatory requirements, which demand a high consistency between the valuation and market risk calculation methodologies of financial instruments.

The book includes technical details that shed understanding on the major applications, including valuation, volatility recovery, dynamic portfolio replication and value-at-risk. Those who study finance, risk management, quantitative finance or similar areas, as well as practitioners who wish to learn how to valuate, hedge and manage the market risk of currency options with more advanced models and techniques, will find the book of invaluable use.

Yat-fai LAM is the Principal at Structured Products Analytics of CapitaLogic Limited, an adjunct faculty teaching master programmes in banking/finance/financial engineering/financial services at City University of Hong Kong and an adjunct dissertation supervisor of The University of Warwick's Master of Science programmes in Hong Kong. Prior to assuming his current positions, Yat-fai has worked for a bank regulator, an international bank, an asset management firm and a credit rating agency, specializing in the implementation of the Basel New Capital Accord.

Kin-keung LAI received his PhD at Michigan State University in 1977 and is currently a Chair Professor of Management Science at the City University of Hong Kong. He is the president of the Asia-Pacific Industrial Engineering and Management Society, the General Secretary of the Hong Kong Operational Research Society and a council member of the International Federation of Operations Research Societies. His main research interests include supply chain and operation management, forecasting, computational intelligence and risk analysis.

Routledge Advances in Risk Management
Edited by Kin-keung LAI and Shouyang Wang

1 **Volatility Surface and Term Structure**
High-profit options trading strategies
Shifei Zhou, Hao Wang, Kin-keung LAI and Jerome Yen

2 **China's Financial Markets**
Issues and opportunities
Ming Wang, Jerome Yen and Kin-keung LAI

3 **Managing Risk of Supply Chain Disruptions**
Tong Shu, Shou Chen, Shouyang Wang, Kin-keung LAI and Xizheng Zhang

4 **Information Spillover Effect and Autoregressive Conditional Duration Models**
Xiangli Liu, Yanhui Liu, Yongmiao Hong and Shouyang Wang

5 **Emerging Financial Derivatives**
Understanding exotic options and structured products
Jerome Yen and Kin-keung LAI

6 **Operational Risk Management in Container Terminals**
Eric Su, Edward Tang, Kin-keung LAI and Yan Pui Lee

7 **Managing Currency Options in Financial Institutions**
Vanna-Volga method
Yat-fai LAM and Kin-keung LAI

Managing Currency Options in Financial Institutions

Vanna-Volga method

Yat-fai LAM and Kin-keung LAI

Routledge
Taylor & Francis Group
LONDON AND NEW YORK

First published 2016
by Routledge
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

and by Routledge
711 Third Avenue, New York, NY 10017

Routledge is an imprint of the Taylor & Francis Group, an informa business

British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library

Library of Congress Cataloging-in-Publication Data
Lam, Yat-Fai.
Managing currency options in financial institutions : Vanna-Volga method / Yat-Fai Lam and Kin-Keung Lai.
pages cm. — (Routledge advances in risk management)
1. Options (Finance) 2. Foreign exchange futures. 3. Currency swaps. 4. Bank investments. 5. Financial risk management.
I. Lai, Kin Keung. II. Title.
HG6024.A3L3266 2015
332.4'5—dc23 2015011524

ISBN: 978-1-138-77805-4 (hbk)
ISBN: 978-1-315-67713-2 (ebk)

Typeset in Times
by Apex CoVantage, LLC

Contents

This page intentionally left blank

Figures

This page intentionally left blank

Tables