

# Preface

The financial crisis of 2007–2009 swallowed billions of dollars and caused many corporate defaults. Massive monetary intervention by the US and European central bank stabilized the global financial system, but the long-term consequences of this low interest rate/high government debt policy remain unclear. To avoid such crises scenarios in the future, better regulation was called for by many politicians. The market for portfolio credit derivatives has almost dried out in the aftermath of the crisis and has only recently recovered. Banks are not considered default free anymore, their CDS spreads can tell the story. This has major consequences for OTC derivative transactions between banks and their clients, since the risk of a counterparty credit default cannot be neglected anymore. Concerning interest rates, it has become unclear if there are risk-free rates at all, and if so, how these should be modeled. On top, we have observed negative interest rates for government bonds of countries like Switzerland, Germany, and the US—a feature not captured by many stochastic models.

The conference *Innovations in Derivatives Markets—Fixed income modeling, valuation adjustments, risk management, and regulation*, March 30–April 1, 2015 at the Technical University of Munich shed some light on the tremendous changes in the financial system. We gratefully acknowledge the support by the *KPMG Center of Excellence in Risk Management*, which allowed us to bring together leading experts from fixed income markets, credit modeling, banking, and financial engineering. We thank the contributing authors to this volume for presenting the state of the art in postcrisis financial modeling and computational tools. Their contributions reflect the enormous efforts academia and the financial industry have invested in adapting to a new reality.

The financial crisis made evident that changes in risk attitude are imperative. It is therefore fortunate that postcrisis mathematical finance has immediately accepted to go the path of critically reflecting its old paradigms, identifying new rules, and, finally, implementing the necessary changes. This renewal process has led to a paradigm shift characterized by a changed attitude toward—and a reappraisal of—liquidity and counterparty risk. We are happy that we can invite the reader to gather

insight on these changes, to learn which assumptions to trust and which ones to replace, as well as to enter into the discussion on how to overcome the current difficulties of a practical implementation.

Among others, the plenary speakers Damiano Brigo, Stéphane Crépey, Ernst Eberlein, John Hull, Wolfgang Runggaldier, Luis Seco, and Wim Schoutens are represented with articles in this book. The process of identifying and incorporating key features of financial assets and underlying risks is still in progress, as the reader can discover in the form of a vital panel discussion that complements the scientific contributions of the book. The book is divided into three parts. First, the vast field of counterparty credit risk is discussed. Second, FX markets and particularly multi-curve interest-rate models are investigated. The third part contains innovations in financial engineering with diverse topics from dependence modeling, measuring basis spreads, to innovative fee structures for hedge funds.

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