Acknowledgments

SOME THIRTY years ago, someone inadvertently triggered the chain of events that has led to this book. Robert Carvallo was his name. Inclined to tolerate trials and errors with benevolence, he has been much more than my first boss. He has been a patient teacher. He had seen me struggling with one of the first HP 12C circulating in Paris as I was trying to calculate the present value of the cash flows expected from an office building that Paribas had bought in downtown Manhattan. This made me apt, according to him, to manage bond portfolios. Without this fresh assignment, I would not have been confronted, early in my professional life, with the issue of expectations formation. I vividly remember how I was wondering in 1983, child of the inflation age that I was, whether it was a good idea to lend money to the French Republic for 7 years at 13.70 percent. Had someone told me then that 22 years later, France would issue a 50-year bond bearing a 4 percent coupon, or that 30 years later we would see negative nominal interest rates on short-dated government bonds, I would have questioned his or her sanity. No wonder that Robert Carvallo used to tell me that nothing is more important in economics and finance than seeking to understand how expectations are formed! To Robert Carvallo's name, I want to associate those of Jean-Paul Villain, who opened Paribas's doors a second time for me in 1992, and of André Lévy-Lang, Dominique Hoenn, and Philippe Dulac. Their decision to appoint me Chief Economist of the Paribas Group in 1996 was bold indeed, since I did not possess any of the usual academic passports one would expect the chief economist of an international banking group to hold. Despite my interest in expectations, I certainly did not expect them to entrust me with such a responsibility. To honor their trust as well as that of the Paribas staff became a duty, which pushed me to broaden and deepen my autodidact's education.

Other persons, many other persons, have helped me, sometimes inadvertently, sometimes not, along this journey. From my days at Paribas, I also remember with some nostalgia my discussions with Olivier de Boysson, Pascal Blanqué, Gavin Francis, Paul Mortimer-Lee, Jean-Luc Proutat, and Philippe Richer. Our freewheeling discussions on many issues, starting with the valuation of long-term bonds, further seeded this book. We had empirically (re)discovered that bond investors in low and stable inflation countries seem to have a longer inflation memory than investors in high and volatile inflation countries. But we lacked the tools and the knowledge to transform this observation into an operational theory. For my days at Allianz, I want to thank wholeheartedly Paul Achleitner, Fethija Alp, Elizabeth Corley, Joachim Faber, Udo Frank, Wolfram Gerdes, Andreas Gruber, Bernd Gutting, Marianne Heidt, Alexander Hirt, Stefan Hofrichter, Alex Langnau, Peter Lockyer, Jacco Maters, Xiaofeng Qi, Markus Riess, Stéphane Szczyglak, Jason Szielinski, Günther Thallinger, Andreas Uterman, and Maximilian Zimmerer. They have often tolerated an employee, a colleague, or a boss, sometimes a friend, who was physically present at his desk, but whose mind was somewhat absent, at least from time to time. It is indeed somewhat difficult to write a book with some academic ambitions when one is immersed in a nonacademic professional life. In the Allianz galaxy, my maverick friend Frank Veneroso deserves a special tribute. Our first conversation, back in 2001, quickly evolved around financial instability, expectations formation, and positive feedback loops. Although my understanding of Allais's theory of psychological time was then still very rudimentary, he immediately grasped its philosophy. His constant questioning has helped me to identify what I did not understand, and sometimes to find answers.

No one can, more than my elder son Pierre, claim credit for this book. Although he was educated as a mining engineer, his interest in finance and economics led him to follow the solo, high-sea navigation on which his father had embarked. Not only did he, like a few other precious friends, urge me to finish this book, but also he offered to convert my Word manuscript into LaTex. Without his work, which went well beyond that of a zealous assistant, and even with Frédéric Samama's valuable introduction, I would never have dared to submit my work to Myles Thompson at Columbia University Press. He and his associate, Bridget Flannery-McCoy, have been instrumental in helping this book to mature. An easy task it was not, to say the least, to find academics willing to spend some of their precious time to review the work of an unknown French practitioner purporting to challenge the rational expectations hypothesis by unearthing a 50-year-old theory conceived by another Frenchman, albeit a more famous one. Bridget did it. I am grateful to my anonymous reviewers for their advice, especially those directing me to a more elaborate discussion of rational learning, prospect theory, and intertemporal choice. Tribute is also due to Ron Harris and Lisa Hamm, respectively project editor and senior designer at Columbia University Press, for being the rigorous and creative architects of the steps that have followed and completed Bridget's work. And, Noah Arlow deserves a very special praise for fathering what is undoubtedly a very brilliant cover: original, suggestive and right to the point. To the team led by Ben Kolstad, the editorial services manager at Cenveo Publisher Services, I want to express not only my gratitude, but also my admiration for the highly professional work they have done to usher this book through the production process: it has been a demanding pleasure to work with them. To Patti Scott, who has meticulously copyedited the manuscript and my occasionally "clunky" English; to Robert Swanson, whose index is a valuable and integral part of this book; to Shashi Kumar and his composition team, who have rigorously gathered together and put in good order the many components of this book; to Pam Andrada, who has read through the page proofs: I wholeheartedly say "well done"! To the members of the Editorial Board of Columbia University Press, I would like to say that I appreciate, beyond what they can imagine, their open-mindedness, their ability to take risks, and their willingness to jump into the unknown. Ironically and at first glance at least, their decision to support my work seems to belie the "expectations" model presented in this book, a model in which the "track record" plays a critical role. With people like them, it is possible to have a dream and to see it come true. And what would life be without dreams?

Jokes about "that book that Daddy will never finish writing" have been the hallmark of many family conversations for more than a decade. Alice and Nicolas, Pierre's sister and brother, and Véronique, their mother, have been very kind and loving to keep on teasing me during all

this time. For a father or a husband writing a book is not a very present one, and the time not given when it is due is lost forever. Morgane, Pierre's wife, would probably not disagree with this last statement. I plead guilty. For my defense, I will only say that the world is governed neither by men nor by women, but by ideas. Sometimes, the ideas that rule the world need to be challenged, for they make it not as good as it could be. I have conceived challenging the rational expectations hypothesis as a contribution, intangible as it may seem, to the well-being of my children and the generations that will follow them. Within the narrow circle of close relatives, my mother deserves a special tribute. Thanks to her presence and her example when I was a child or a teenager, she—more than anyone else—taught me to value and to respect effort, work, and rigor. Her scientific education and inclination often led her to wish I had been less attracted by literary disciplines and more by scientific ones. Hopefully, this book contains enough applied mathematics to oblige her, be it belatedly.

As Robert Carvallo and, despite his exceptional longevity, Maurice Allais passed away too early to have a chance to assess my work and to appreciate his influence: I will always miss their assessments. I have not been one of Allais's students. Had he not been awarded the Nobel Prize, I might indeed never have discovered his works. Quite soon after 1988, I gathered that Allais proposed alternative and original solutions to questions I was encountering in my professional life, provided I could rise to the daunting challenge of enhancing my mathematical skills. About 10 years later, when I was editor-in-chief of *Conjoncture*, Paribas' monthly economic bulletin, it happened that I quoted Allais in one of my articles. Somehow, this article landed on his desk. I was more than impressed when my assistant, Patricia Chanoinat, told me on the phone that Professor Allais wanted to talk to me. In the following years, we had a few phone conversations. I met him and his wife Jacqueline only once on April 26, 2002, when they invited me for a lunch at the Racing Club de France. On this occasion, he gave me a set of research materials that have accompanied me ever since, and I informed him about my project to write this book. He encouraged me to do so, curious as he was to see whether his "expectations" theory could be extended to a new field. For many years, I have rightly feared that I would not complete my work soon enough to present it to him. I wish I could have triggered brilliant conversations between Robert Carvallo and Maurice Allais on the themes contained in this book. But my intellectual journey started too late and proceeded too slowly to make it happen. Robert Carvallo had the intuition of hysteresis effects, of the elasticity of time, and of nonlinearities, the three pillars of Allais's HRL formulation. He would have been thrilled to discover a theory that gives a concrete and operational content to such intuitions. And, once convinced of Allais's penetrating originality in this field, he would have embarked on exploring other aspects of Allais's works: his theory of risky choices, his theory of probabilities. Had these conversations been able to take place, this book would be much more advanced than it is. The responsibility for this is mine and mine alone.

Paris–Munich–Kerners, 1998–2014

For the element of time, which is the centre of the chief difficulty of almost every economic problem, is itself absolutely continuous: Nature knows no absolute partition of time into long periods and short; but the two shade into one another by imperceptible gradations, and what is a short period for one problem, is a long period for another.

Alfred Marshall

The subjective cause [of crises] is probably linked to this capacity that men have to forget received impressions. Little by little, new generations, who have not directly suffered the ills produced by the last crisis, come to the management of affairs. A deposit of excitable material re-forms in society.

Vilfredo Pareto

A prominent shortcoming of our structural models is that, for ease in parameter estimation, not only are economic responses presumed fixed through time, but they are generally assumed to be linear.

Alan Greenspan

Unless we know why people expect what they expect, any argument is completely valueless which appeals to [expectations] as *causae efficientes.*

Joseph Schumpeter

The proposition that expectations are volatile and incapable of being rationally calculated is no theory of expectations ... The development of alternative market-specific schemes of expectations formation is, surely, the next logical step in macroeconomic theorising.

Mark Blaug