Preface

After having completed my doctoral thesis which was approved by the Faculty of Business, Economics and Social Sciences at the University of Hohenheim in June 2005, I would like to express my gratitude to a number of persons and institutions without whose help this “novel” never could have been written.

Firstly, I would like to thank my wife Barbara Radke for her wonderful, heartfelt emotional support, for her patience, and for her understanding for all those late night and weekend working sessions throughout the creation of this book. Moreover, I am deeply indebted to our son Jan-Luca Radke who had to do lots of playground sessions without his father. A special thanks belongs to my parents Renate and Dietrich Radke who helped us a lot during one of the hardest parts of our life. Furthermore, I am grateful to Ela and Jens Friderichs who have given lectures to me and to my family, and hopefully will give us further lectures in the future on the mysteries of life and how to cope with them.

I would like to thank my supervisor Prof. Dr. Harald Hagemann for his professional support. He provided me a very friendly, liberal, and stimulating environment for research. Furthermore, I am deeply indebted to his personal support, and to his ever-human behaviour which motivated me in very difficult circumstances to finish my doctoral thesis. I am also very grateful to my second supervisor Prof. Dr. Hans-Michael Trautwein who supported my work with valuable suggestions and comments at our meetings in Hohenheim and Oldenburg. Moreover, I am deeply indebted to his personal assistance and to his loyalty. I am also indebted to Prof. Joaquim Pinto de Andrade for his encouraging comments and useful hints at our meetings in Hohenheim, Oldenburg and Brasilia. Furthermore, I am very thankful to Prof. Dr. Heinz-Peter Spahn for assisting in the examination and administration procedure.

Many thanks go to my former and current colleagues for their emotional support and for the nice work atmosphere they provided at the Department of Economics at the University of Hohenheim. Particularly, I would like to thank (in alphabetical order) Dr. Tone Arnold, Andreja Benkovic, Isabell Benignus, Anand Chopra, Christine Eisenbraun, Andreas Findeis, PD Dr. Björn Frank, Oliver Frör, Dr. Daniel Hartmann, Michael Knittel, Oliver Kreh, Dr. Peter Kühnl, Ulrike Lehr, Dr. Jörg Naeve, Dr. Matthias Rösch, Ralf Rukwud, Oliver Schelling, Rosemarie Schlecht, Dr. Olaf Schneider, Deborah Schöller Markus Schreyer, Prof. Dr. Ulrich Schwalbe, Dr. Stephan Seiter, Sybille Sobczak, Dr. Udo Vullhorst, and Carsten Wander. Especially, I am indebted to my colleague and friend Dr. Karin Knottenbauer for her emotional and professional support.
I would like to thank the “Landesgraduiertenförderung des Landes Baden-Württemberg” for having been granted a generous scholarship for two and a half years.

I am also grateful to the “Stiftung Ausbildung, Fort- und Weiterbildung der Landesbank Baden-Württemberg” for having been granted a generous financial support for the publication of this book.

Let me finally mention that this book has been typed with $\LaTeX$. I would like to express my thanks to all those people who have created and continuously updated this nice and reliable software.

Marc Peter Radke
Stuttgart-Hohenheim, August 2005
# Contents

Preface ......................................................... ix  
List of Figures ................................................. xvii  
List of Tables .................................................. xix

1 Introduction and Overview ................................. 1  
  1.1 History vs. Theory ....................................... 1  
  1.2 Outline of the Book ...................................... 7

I Theoretical and Empirical Foundations .................... 11

2 Financial Crises and Financial Instability: Definitions and Principles 13  
  2.1 A General Definition of Financial Crises ................. 13  
  2.2 Asset Price Fluctuations and Aggregate Economic Activity ... 15  
    2.2.1 Determinants of Asset Prices ...................... 17  
    2.2.2 Asset Prices and Financial Constraints .......... 19  
      2.2.2.1 Perfect Capital Market Theory ................ 19  
      2.2.2.2 Imperfect Capital Market Theory .............. 20  
      2.2.2.3 A Comparison with Real World Financial Constraints ... 23  
    2.2.3 Asset Prices and Aggregate Demand ............... 25  
    2.2.4 Asset Prices, Liquidity, Solvency and the Emergence of Cumulative Processes ........... 27  
      2.2.4.1 Liquidity, Solvency, and Profits: Definitions and Interdependencies ................ 27  
      2.2.4.2 Determinants of Bankruptcy .................... 31  
      2.2.4.3 Cumulative Expansions and Contractions .......... 33
  2.3 Determinants of Financial Instability ................ 39  
    2.3.1 A General Definition of Financial Instability .... 39  
    2.3.2 Cash Flow Positions and Present Values ........... 40  
      2.3.2.1 Hedge, Speculative and Ponzi-Finance .......... 40  
      2.3.2.2 Financial Instability in Closed Economies ..... 46  
      2.3.2.3 Foreign Hedge, Foreign Speculative, and Foreign Ponzi Finance ................... 48  
      2.3.2.4 Financial Instability in Open Economies ....... 51
  2.3.3 Adequacy of Refinancing Possibilities ............... 54
  2.3.4 Excess Volatility in Asset Prices ................... 56
  2.3.5 Monetary Instability and Debt Deflation ............. 64
  2.4 Exogenous and Endogenous Financial Crises ............. 67
3 Stylized Facts and Standard Theory of Financial Crises

3.1 Defining and Identifying Financial Crises

3.1.1 Currency Crises

3.1.2 Banking Crises

3.1.3 Twin Crises

3.2 Frequency and Severity of Financial Crises

3.2.1 Incidence of Financial Crises

3.2.2 Duration and Costs of Financial Crises

3.3 Business Cycles, Financial Liberalization, and Financial Crises

3.3.1 Basic Links

3.3.2 Financial Liberalization in the Post Bretton Woods Era

3.4 Stylized Behaviour of Macroeconomic Variables During Episodes of Financial Crises

3.4.1 Financial Market Variables

3.4.1.1 Monetary Aggregates and Foreign Exchange Reserves

3.4.1.2 Deposits and Domestic Credit

3.4.1.3 Interest Rates

3.4.1.4 Equity and Real Estate Prices

3.4.2 Current Account Variables

3.4.3 Capital Account Variables

3.4.4 Real Sector Variables

3.4.5 Balance Sheet Variables

3.4.5.1 Liquidity and Profit Variables

3.4.5.2 Market Valuation and Solvency Variables

3.4.6 An Assessment

3.5 Standard Theory of Financial Crises and its Correspondence with the Stylized Facts

3.5.1 Inconsistent Macroeconomic Policy Models

3.5.2 Self-Fulfilling Expectations Models

3.5.3 Asymmetric Information Models

3.5.4 Credit Constraint and Balance Sheet Models

3.5.5 Endogenous Financial Crisis Models

3.5.6 An Assessment

II A Cyclical Theory of Financial Crises

4 A Model of Financial Crises and Endogenous Fluctuations in Industrial Countries

4.1 The Real Side

4.2 The Financial Side

4.2.1 A Stylized Financial Structure

4.2.2 Financial Market Equilibria

4.3 Short-Run Comparative-Static Analysis

4.3.1 General Results

4.3.2 A Comparative-Static View of Financial Crises
4.4 Long-Run Dynamic Analysis ........................................ 139
  4.4.1 Finance, Investment and Long-Run Profit Expectations .... 139
  4.4.2 The Local Dynamics of the System ......................... 149
  4.4.3 Phase Diagram Analysis ...................................... 152
  4.4.4 The Global Dynamics of the System ....................... 159
  4.4.5 A Dynamic View of Financial Crises and Macroeconomic Fluc-
           tuations ..................................................... 168
            4.4.5.1 The Emergence of Endogenous Long-Run Equilibrium
                    Business Cycles .................................... 169
            4.4.5.2 The Emergence of Financial Crises ................ 173
  4.4.6 A Keynesian Perspective on Global Dynamics .............. 176
4.5 A Comparison with Standard Theory of Financial Crises .... 179
  4.5.1 Inconsistent Macroeconomic Policy Models .............. 180
  4.5.2 Self-Fulfilling Expectations Models ................... 183
  4.5.3 Asymmetric Information Models ......................... 186
  4.5.4 Credit Constraint and Balance Sheet Models ............ 189
  4.5.5 Endogenous Financial Crisis Models ................... 192
  4.5.6 An Assessment ............................................. 194
4.6 A Comparison with Standard Business Cycle Theory .......... 198
  4.6.1 Theories of Endogenous Business Cycles ............... 199
  4.6.2 Theories of Exogenous Shock-Driven Business Cycles .... 202
  4.6.3 An Assessment ............................................. 204
4.7 Mathematical Supplements ....................................... 207

5 A Model of Financial Crises and Endogenous Fluctuations in Emerging Market Countries 213
  5.1 The Real Side ................................................. 214
  5.2 The Financial Side ............................................ 217
            5.2.1 A Stylized Financial Structure ...................... 217
            5.2.2 Financial Market Equilibria ......................... 220
  5.3 Short-Run Comparative-Static Analysis .................... 223
            5.3.1 General Results ..................................... 223
            5.3.2 A Comparative-Static View of Financial Crises .... 228
  5.4 Long-Run Dynamic Analysis .................................. 235
            5.4.1 Finance, Investment and Long-Run Profit Expectations
                    ......................................................... 235
            5.4.2 The Local Dynamics of the System .................. 240
            5.4.3 Phase Diagram Analysis ................................ 243
            5.4.4 The Global Dynamics of the System ................ 249
            5.4.5 A Dynamic View of Financial Crises and Macroeconomic Fluc-
                    tuations ..................................................... 254
                5.4.5.1 The Emergence of Endogenous Long-Run Equilibrium
                        Business Cycles .................................... 255
                5.4.5.2 Domestic Financial Crisis without Currency Crisis ... 259
                5.4.5.3 The Occurrence of a Twin Crisis ............... 262
            5.4.6 A Keynesian Perspective on Global Dynamics ......... 266
5.5 A Comparison with Standard Theory of Financial Crises
5.5.1 Inconsistent Macroeconomic Policy Models
5.5.2 Self-Fulfilling Expectations Models
5.5.3 Asymmetric Information Models
5.5.4 Credit Constraint and Balance Sheet Models
5.5.5 Endogenous Financial Crisis Models
5.5.6 An Assessment
5.6 A Comparison with Standard Business Cycle Theory
5.7 Mathematical Supplements

6 A Calibration Model of Financial Crises in Emerging Markets
6.1 The Nature of Calibration Models
6.1.1 Solution Procedures to Dynamic General Function Models, Limitations, and Simulation Methods
6.1.2 Simulation of Financial Crises with Calibration Techniques
6.2 The Real Side
6.3 The Financial Side
6.3.1 A Stylized Financial Structure
6.3.2 Financial Market Equilibria
6.4 The Balance of Payments
6.5 Monetary and Exchange Rate Policy
6.6 Analytical Solution of the Model
6.7 Simulation Classifications and Assumptions
6.7.1 Financial Crises as a Cyclical Phenomenon
6.7.2 Financial Crises as an Adverse Exogenous Shock Phenomenon
6.8 Sensitivity Analysis and Method of Graphical Representation
6.9 Simulation of Financial Crises as a Cyclical Phenomenon
6.9.1 The Boom Phase
6.9.2 The Overborrowing Phase and the Upper Turning Point
6.9.3 The Bust Phase
6.10 Simulation of Financial Crises Caused by an Adverse Foreign Interest Rate Shock

7 Conclusion
7.1 New Perspectives for Economic Theory
7.2 Policy Recommendations

A Tobin’s q-Theory of Investment
B Financial Constraints in Perfect Capital Markets
C An Example of Off-Balance Sheet Transactions
D Forward vs. Backward Looking Variables and Solutions of General Dynamic Rational Expectations Models
D.1 Forward and Backward Solutions of Linear Differential Equations
D.2 The Leibnitz Rule: Differentiating a Definite Integral
D.3 Backward and Forward Looking Variables
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>D.4</td>
<td>Forward Looking Variables, Rational Expectations and Dynamic Stability</td>
<td>379</td>
</tr>
<tr>
<td>D.5</td>
<td>Solutions to General Dynamic Rational Expectations Models</td>
<td>383</td>
</tr>
<tr>
<td>E</td>
<td>Kalecki’s Theory of Profits</td>
<td>385</td>
</tr>
<tr>
<td></td>
<td>Symbol Glossary</td>
<td>389</td>
</tr>
<tr>
<td></td>
<td>Bibliography</td>
<td>393</td>
</tr>
</tbody>
</table>