Bernd Siissmuth

Business Cycles

Contemporary World

Description, Causes, Aggregation, and Synchronization

With 25 Figures and 17 Tables

Physica-Veiiag

A Springer-Verlag Company

Contents

Inti	roducti	ion	.1	
1.1	Busin	ness Cycle Research:,21st Century Perspective		
	1.1.1	The Classic View	.3	
	1.1.2	From CBC to RBC School	_4	
1.2	Recen	t Empirical Pindirigs in Favor of CBC	.4	
	1.2.1	Aggregate Investment Fluctuations and Business Cycles	4	
	1.2.2	The Cyclically of the Aggregate Investment Series	5	
	1.2.3	Investment, the RBC View and Disaggregated Dynamics	6	

Part I. Methodology

2.	General Considerations and Historiography		
	2.1	Metho	bodologies: Econometrics vs. Natural Sciences
	2.2	The E	Econometric Approach to Time Series Analysis
3.	The	e Anal	ysis of Cyclical Dynamics
	3.1	The I	Detrending Problem 16
	3.2	Volati	lity and Spectral Analysis
		3.2.1	Contribution-to-Variance Analysis 20
		3.2.2	Spectral Analysis: The Umvariate Case 2
		3.2.3	The Analysis of Complex Roots
		3.2.4	Spectral Analysis: The Multivariate Case

Part II. National, Supra- and International Cycles

4.	The	G7 and Eurol5 Economies: 1960 - 2000	.35
	4.1	Data and Strategy.	.35
	4.2	National Uni- and Bivariate Stylized Facts	.37
		.2.1 General Salient Facts	38
		.2.2 Robust Univariate Stylized Facts: National Cycles	42
		.2.3 Robust Bivariate Stylized Facts: National Cycles	.43
	4.3	Supranational Bivariate Stylized Facts	.47

X Contents

5.	Mode-Locking and the Global Cycle		
	5.1	Introduction and Motivation of the Discussion	
	5.2	Generalizing Economic Cycles' Mode-Lock Modelling 72	
	5.3	A Model Incorporating Information Externalities	
		5.3.1 The Model without Information Externalities 75	
		5.3.2 Introducing Information Externalities	
		5.3.3 Calibration of the Model and Some Simulations '81	
	5.4	Outlook and Concluding Remark	

Part III. The Sectoral Constitution of Macro-Cycles

6.	An	Aggregation Problem for Linear Models? 9)1
	6.1	Description of US Business Cycles	2
		6.1.1 Business Cycles in Central US NIPA Time Series	2
		6.1.2 Cycles in Disaggregated US Manufacturing Investment)5
	6.2	Testing Autoregressivity and Aggregate Feedback 10	0
	6.3	Linear Models of the Aggregation Process.)2
	6.4	Evaluation of Linear Models)7
7.	Th	e Synchronization of Sectoral Cycles)9
	7.1	Definitions of Synchronization)9
	7.2	A Recent Approach: Method and Findings	11
	7.3	The "Shift-Win"-Approach: Method and Findings	17
8.	A I	Non-Linear Synchronization Model	23
	8.1	Theoretical Underpinning of the Model	24
		8.1.1 The Medium-Term Investment Objective: Smoothing . 12	24
		8.1.2 The Short-Term. Investment Objective: Herding	26
		8.1.3 The. Integrated Model: Smoothing and Herding. 12	28
		8.1.4 The Synchronization Mechanism	32
	8.2	A Thorough Simulation Study	34
		8.2.1 Calibration as an Alternative to Estimation	34
		8.2.2 Setting Up the Simulation Strategy and Determining	
		Priors	36
		8.2.3 Monte Carlo Simulations of the Model Incorporating	
		Shocks	38
		8.2.4 Evaluation of the Model and Outlook	41
9.	Co	nclusion	1 9
		• ,•	
Ab	brev	/1ations	53
Re	ferei	nces	55