## **Contents**

I	Prefa	ace to th	ne Third Edition	xiii
1 1	Intro	oductio	on .	1
1	1.1	What	Is a Bank, and What Do Banks Do?	1
1	1.2	Liquio	dity and Payment Services	2
		1.2.1	What Came First: Money or Credit?	2
		1.2.2	Money Is Memory	3
		1.2.3	Money as a Bubble	5
		1.2.4	The Three Functions of Money	5
		1.2.5	Money Changing	6
		1.2.6	Payment Services	6
1	1.3	Manag	ging Financial Risks	7
		1.3.1	Transformation Risk	7
		1.3.2	Credit Risk	8
		1.3.3	Financial Markets Risk	8
1	1.4	Allevi	iating Asymmetric Information Problems	9
		1.4.1	Ex Ante Asymmetric Information	9
		1.4.2	Interim Asymmetric Information	9
		1.4.3	Ex Post Asymmetric Information	9
1	1.5	Banki	ng in a World without Frictions	9
		1.5.1	The Consumer	10
		1.5.2	The Firm	11
		1.5.3	The Bank	11
		1.5.4	The Competitive Equilibrium	11
1	1.6	Outlin	ne of the Book	12
1	1.7	Problem		13
1	1.8	Soluti	14	
1	Note	S		14
I	Refe	rences		15

vi Contents

2	Ban	ks and	Informational Frictions	17
	2.1	Introd	luction	17
	2.2	Matur	rity Transformation and Liquidity Insurance	18
		2.2.1	The Diamond-Dybvig Model	19
		2.2.2	The Symmetric Pareto Optimal Allocation	19
		2.2.3	Autarky	20
		2.2.4	Financial Markets	21
		2.2.5	Bank Deposit Contracts	22
	2.3	Financ	23	
	2.4	Moral	24	
	2.5	Credit Risk and Dilution Costs		28
		2.5.1	The Model	28
		2.5.2	Bond Financing	28
			Equity Issue	29
			Bank Loan	29
	2.6	Furthe	30	
	2.7	_		31
		2.7.1	Market versus Bank Finance	31
		2.7.2	Banks and Moral Hazard	32
	2.8	Solutions		32
		2.8.1	Market versus Bank Finance	32
		2.8.2	Banks and Moral Hazard	33
	Note	•		34
	Refe	erences		34
3	The	37		
	3.1	The O		
		Credit	t Multipliers	38
	3.2	Perfec	etly Competitive Banking	39
		3.2.1	The Model	39
		3.2.2	How Do Interest Rates Influence the Volumes	
			of Deposits and Loans?	40
		3.2.3	The Competitive Equilibrium	40
	3.3	Imper	fect Competition	41
		3.3.1	The Monti-Klein Model of a Monopoly Bank	42
		3.3.2	The Oligopoly Version	43
		3.3.3	Product Differentiation	44
		3.3.4	Empirical Evidence	47

Contents vii

3.4	is iner	re a Trade-on between Competition and	
	Financ	ial Stability?	47
	3.4.1	The Fragility View	47
	3.4.2		48
	3.4.3	The Impact of Capital Requirements	48
		Empirical Evidence	49
3.5	Compe	etition and Lending Standards	50
	3.5.1	The Screening Externality	50
	3.5.2	Lending Standards through the Business Cycle	51
	3.5.3	Empirical Evidence	51
3.6	Relatio	onship Banking	52
	3.6.1	A Simple Model	52
	3.6.2	Public and Private Information about Borrowers	53
	3.6.3	Empirical Evidence	53
3.7	Platfor	m Competition and Two-Sided Markets	55
	3.7.1	A Model of the Payment Card Industry	56
	3.7.2	Card Use	57
	3.7.3	Monopoly Network	57
		Competing Networks	58
	3.7.5	Welfare Analysis	59
	3.7.6	Bigtechs	59
3.8		r Reading	60
3.9	Proble	ms	62
	3.9.1	Double Bertrand Competition	62
	3.9.2	Deposit Rate Regulation	63
3.10	Solutio	ons	63
	3.10.1	Double Bertrand Competition	63
	3.10.2	Deposit Rate Regulation	64
Note	S		65
Refe	rences		65
The 1	Lender-	Borrower Relationship	69
4.1		omplete Information Benchmark	70
4.2		State Verification	72
	4.2.1	Incentive-Compatible Contracts	72
	4.2.2	Efficient Incentive-Compatible Contracts	73
4.3	Debt as	s the Least Information-Sensitive Security	74
4.4		ves to Repay	75
	4.4.1	Promise to Lend Again	75
	4.4.2	The Impact of Judicial Enforcement	76

4

viii Contents

	4.5	Sover	eign Debt	7/8
		4.5.1	The Eaton-Gersovitz Paradigm	78
		4.5.2	Critiques of the Eaton-Gersovitz Paradigm	79
		4.5.3	The Political Economy Approach	80
	4.6	Comp	elements	81
		4.6.1	Moral Hazard	81
		4.6.2	Incomplete Contracts	82
		4.6.3	Soft Budget Constraints	83
	4.7	Furthe	er Reading	85
	4.8	Proble	ems	86
		4.8.1	Optimal Risk Sharing with Symmetric Information	86
		4.8.2	Optimal Debt Contracts with Moral Hazard	86
		4.8.3	The Pareto Frontier in the Townsend Model	87
		4.8.4	The Optimality of Stochastic Auditing Schemes	87
	4.9	Soluti	ons	88
		4.9.1	Optimal Risk Sharing with Symmetric Information	88
		4.9.2	Optimal Loan Contracts with Moral Hazard	88
		4.9.3	The Pareto Frontier in the Townsend Model	89
		4.9.4	The Optimality of Stochastic Auditing Schemes	89
	Note	es		90
	Refe	erences		91
5	The	Macro	economic Consequences of Financial	
		erfectio		93
	5.1	A Sho	ort Historical Perspective	94
	5.2	Transı	mission Channels of Monetary Policy	95
		5.2.1	The Money View and the Interest Rate Channel	95
		5.2.2	The Credit View and the Lending Channel	96
		5.2.3	Credit View versus Money View: Comparing the	
			Underlying Assumptions	98
		5.2.4	Empirical Evidence	100
		5.2.5	Nonconventional Monetary Policy	102
	5.3	Financ	cial Fragility and Economic Performance	102
		5.3.1	First Best Allocation (Perfect Information)	103
		5.3.2	Credit Constraints and Limited Liability	104
		5.3.3	Macroeconomic Implications	106
	5.4	Credit	t Cycles	107
		5.4.1	The Financial Accelerator	107
		5.4.2	Changing Credit Standards	108
		5.4.3	Collateral-Driven Credit Cycles	109

Contents ix

	5.5	Aggre	egate Credit Rationing	110
		5.5.1	The Backward-Bending Supply of Credit	111
		5.5.2	Adverse Selection	111
		5.5.3	Cash Flow Diversion	113
		5.5.4	Moral Hazard	114
	5.6	Financ	cial Development and Economic Growth	115
	5.7	Furthe	er Reading	118
	5.8	Proble		120
		5.8.1	Adverse Selection and Aggregate Credit Rationing	120
		5.8.2	Too Much Investment	120
	5.9	Soluti		121
		5.9.1	88 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	121
		5.9.2	Too Much Investment	121
	Note			122
	Refe	erences		123
6	Ban		, Bank Panics, and the Lender of Last Resort	129
	6.1	The F	ractional Reserve System	130
		6.1.1	The Bryant-Diamond-Dybvig Model	130
		6.1.2	Implementing the Optimal Allocation	130
		6.1.3	* *	131
		6.1.4	Speculative Bank Runs	132
		6.1.5		133
	6.2	How t	to Remedy Banks Fragility	134
		6.2.1	Narrow Banking: From the Chicago Plan	
			to Stablecoins	134
		6.2.2	1 &	134
		6.2.3	Equity Financed Banks	135
	6.3		ank Markets	136
		6.3.1	8 1 1	137
		6.3.2		137
		6.3.3	Liquidity Hoarding	138
	6.4		ender of Last Resort (LLR)	138
		6.4.1		138
		6.4.2		139
		6.4.3	Criticisms of the LLR Policy and the Modern	
			Form of Bank Runs	140
	6.5		er Reading	142
	6.6	Proble		143
		6.6.1	Nominal Bank Runs	143
		6.6.2	Aggregated Liquidity Shocks	144

x Contents

	6.7	Soluti	ons	145		
		6.7.1	Nominal Bank Runs	145		
		6.7.2	Aggregated Liquidity Shocks	145		
	Note	S		146		
	Refe	rences		146		
7	Liqu	idity		149		
	7.1	Introd	uction	149		
	7.2	Differ	ent Forms of Liquidity	150		
		7.2.1	Defining Liquidity	150		
		7.2.2	Public and Private Liquidity	151		
		7.2.3	Funding Liquidity and Market Liquidity	151		
	7.3	The S	upply of Private Money	152		
		7.3.1	Do Banks Issue Too Much Money?	152		
		7.3.2	Shadow Banking	154		
	7.4	Private	e and Public Supply of Liquidity	156		
		7.4.1	The Model	156		
		7.4.2	Symmetric Information	156		
		7.4.3	Moral Hazard	157		
		7.4.4	Aggregate Shocks	158		
	7.5	Bubbl	es: When Asset Prices Diverge from Fundamentals	158		
		7.5.1	Bubbles as Sources of Liquidity	158		
		7.5.2	Cash in the Market Pricing	159		
		7.5.3	Liquidity Spirals	159		
	7.6	Liquid	lity Dry-Ups	160		
	7.7	Liquid	lity and Collateral Prices	160		
		7.7.1	Informational Sensitivity of Securities	161		
		7.7.2	Implications	161		
	7.8	Furthe	er Reading	162		
	7.9	Proble	em	163		
	7.10	Soluti	on	164		
	Note	S		165		
	Refe	rences		165		
8	Banl	king Re	egulation: The Microprudential Approach	169		
	8.1	Introduction: Why Are Banks Regulated?				
	8.2	Depos	sit Insurance and Moral Hazard	170		
		8.2.1	The Moral Hazard Issue	171		
		8.2.2	Risk-Related Insurance Premiums	172		

Contents xi

	8.3	Capita	Regulation 1: The Theory	173	
		8.3.1	The Value at Risk Approach	173	
		8.3.2	Risk-Weighted Capital Regulation	174	
		8.3.3	Portfolio Distortions	175	
		8.3.4	What Level for Banks' Capital?	176	
	8.4	Capital	l Requirements 2: The Practice	176	
		8.4.1	The Costs of Capital Regulation	176	
		8.4.2	Empirical Evidence	177	
		8.4.3	Regulatory Competition	178	
		8.4.4	Accounting Rules and the Supplementary		
			Leverage Ratio	178	
		8.4.5	Supervisors' Information and Managers' Incentives	179	
		8.4.6	Market Discipline	180	
	8.5	Further	r Reading	182	
		8.5.1	Banks' Portfolio and Bankruptcy Risk	182	
		8.5.2	Liquidity Regulation	183	
		8.5.3	Disclosure and Market Discipline	183	
	8.6	Proble	ms	184	
		8.6.1	Capital Regulation and Speculative Activities	184	
		8.6.2	Capital Requirements and Business Cycles	185	
	8.7	Solutio	ons	185	
		8.7.1	Capital Regulation and Speculative Activities	185	
		8.7.2	Capital Requirements and Business Cycles	186	
	Note	es		186	
	Refe	erences		186	
9	Syst	emic Ris	sk and Macroprudential Regulation	191	
	9.1				
	9.2	System	nic Risk	191	
		9.2.1	The Determinants of Systemic Risk	192	
		9.2.2		193	
		9.2.3	Measuring Systemic Risk	194	
	9.3	Ex Pos	st Policies: Bank Restructuring and Resolution	195	
		9.3.1	A Bargaining Game between Bankers		
			and Regulators	195	
		9.3.2	Bank Resolution and Managers' Incentives	196	
		9.3.3	Optimal Bailout Mechanisms	196	
		9.3.4	Debt Overhang after a Banking Crisis	199	
		9.3.5	How to Restart a Frozen Market?	199	
		9.3.6	Bail-Ins and CoCo Bonds	200	

xii	Contents
-----	----------

Externalities and Macroprudential Policy			
9.4.1	Nonpecuniary Externalities	201	
9.4.2	Fire-Sale Externalities	202	
9.4.3	Procyclical Leverage and Credit Cycles	203	
Furthe	er Reading	207	
S		207	
rences		208	
ζ		211	
	9.4.1 9.4.2 9.4.3 Furthers	9.4.1 Nonpecuniary Externalities 9.4.2 Fire-Sale Externalities 9.4.3 Procyclical Leverage and Credit Cycles Further Reading serences	