

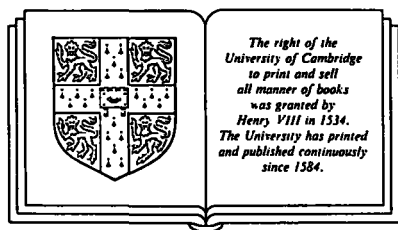
Exchange rate targets and currency bands

Edited by

PAUL KRUGMAN

and

MARCUS MILLER



Cambridge University Press

Cambridge New York Port Chester
Melbourne Sydney

Contents

	<i>List of figures</i>	<i>page</i> xv
	<i>List of tables</i>	xvii
	<i>Preface</i>	xix
	<i>List of conference participants</i>	xxi
1	Editors' introduction	1
	<i>Paul Krugman and Marcus Miller</i>	
1	Modelling currency bands	2
2	Currency bands: extending the model	2
3	Regime shifts: returning to the gold standard and joining the EMS	3
4	Limited reserves and sustainability	4
5	Estimation and testing	5
6	Conclusions	6
PART I MODELLING CURRENCY BANDS		
2	Exchange rates in a currency band: a sketch of the new approach	9
	<i>Paul Krugman</i>	
1	Introduction	9
2	Characteristics of the new approach	12
3	Where do we go from here?	13

PART II CURRENCY BANDS: EXTENDING THE MODEL

3	The linkage between speculative attack and target zone models of exchange rates: some extended results	17
	<i>Robert P. Flood and Peter M. Garber</i>	
1	Introduction	17
2	A model of target zones	18
3	The volatility of exchange rates and interest rates	22
4	A collapsing target zone with discrete intervention	23
5	Conclusions	25
	Discussion	
	<i>Paul Weller</i>	28
4	Target zones, broad and narrow	35
	<i>Francisco Delgado and Bernard Dumas</i>	
1	The model: differential equation for the exchange rate	36
2	Solutions of the model: the constant-trend case	37
3	Limiting properties of target zones under constant-trend fundamentals	41
4	Mean-reverting fundamentals	44
5	Limiting properties of target zones under mean-reverting fundamentals	47
6	Conclusions	51
	Appendix 4A: Model interpretation	52
	Appendix 4B: Monotonic relationship between the band on fundamentals and the band on the exchange rate	53
	Appendix 4C: Asymptotic behaviour for wide bands under constant drift	54
	Appendix 4D: Cubic relationship for narrow bands under constant drift	54
	Discussion	56
	<i>Leonardo Bartolini</i>	

PART III REGIME SHIFTS: THE RETURN TO GOLD AND EMS ENTRY

5	Stochastic process switching: some simple solutions	61
	<i>Kenneth A. Froot and Maurice Obstfeld</i>	
1	Introduction	61
2	The model	62
3	Stochastic process switching	64
	Appendix: A flexible-price model of exchange rates	72

6	Entering a preannounced currency band	75
	<i>Masaki Ichikawa, Marcus Miller and Alan Sutherland</i>	
1	Introduction	75
2	The monetary model and the stationary solution within the band	75
3	Anticipations of managed exchange rates	76
4	Conclusions	80
7	Britain's return to gold and entry into the EMS: joining conditions and credibility	82
	<i>Marcus Miller and Alan Sutherland</i>	
1	Introduction	82
2	The return to gold in the monetary model: a reinterpretation	83
3	A model with price inertia	91
4	Credibility and the EMS	96
5	Conclusions	101
	Appendix 7A: The monetary model	102
	Appendix 7B: The model with price inertia	103
	Discussion	107
	<i>Gregor W. Smith</i>	

PART IV LIMITED RESERVES AND SUSTAINABILITY

8	Speculative attacks on target zones	117
	<i>Paul Krugman and Julio Rotemberg</i>	
1	The basic model	118
2	An exchange rate target with 'small' reserves	119
3	A target zone with large reserves	121
4	A gold standard model	124
5	Gold parity as a boundary	127
6	Conclusions	131
	Discussion	133
	<i>Bernard Dumas</i>	
9	Anomalous speculative attacks on fixed exchange rate regimes: possible resolutions of the 'gold standard paradox'	140
	<i>Willem H. Buiter and Vittorio U. Grilli</i>	
1	Introduction	140
2	The model	141
3	The paradox stated and illustrated	148
4	The gold standard paradox in a discrete time model	155
5	The paradox resolved	164

6	Conclusions	174
	Discussion	176
	<i>Maurice Obstfeld</i>	
10	Sustainable intervention policies and exchange rate dynamics	186
	<i>Giuseppe Bertola and Ricardo J. Caballero</i>	
1	Introduction	186
2	The probability structure of intervention and realignment models	187
3	Intervention, reserves and sustainability	190
4	A sustainable probability structure	192
5	Exchange rate dynamics under sustainable intervention	193
6	Short-run nonlinearities and the long run	200
7	Directions for further research	202
	Appendix: The long-run relationship between exchange rates and fundamentals	203
	Discussion	206
	<i>Lars E.O. Svensson</i>	
PART V ESTIMATION AND TESTING		
11	Estimation and testing in models of exchange rate target zones and process switching	211
	<i>Gregor W. Smith and Michael G. Spencer</i>	
1	Introduction	211
2	Unobservable forcing processes and simulation estimation	212
3	Example 1: two reflecting barriers	216
4	Example 2: one absorbing barrier	227
5	Conclusions	232
	Appendix 11A: Definitions used in the forward rate for two reflecting barriers	232
	Appendix 11B: Expected future spot rates with one absorbing barrier	233
	Discussion	239
	<i>Hossein Samiei</i>	
		<i>r</i>
	<i>Index</i>	244

Figures

	<i>page</i>	
2.1	The exchange rate in a currency band	10
3.1	An exchange rate target zone	20
3.2	Discrete intervention with declining reserves	24
3.3	Collapse with discrete intervention	25
3A.1	A real exchange rate band with discrete intervention	31
3A.2	Permanent collapse with speculative attack	32
3A.3	Temporary collapse with speculative attack	33
4.1	Target zones of different widths	39
4.2	Extreme values of interest rate differential	41
4.3	Exchange rate and interest rate differential. (Wide band of width 7.421–1.999)	42
4.4	Exchange rate and interest rate differential. (Narrow band of width 4.5481–4.4999)	44
4.5	Target zones of different widths: mean-reverting case. (Symmetric solution: $A_0 = 7.8$)	48
4.6	Target zones of different widths: mean-reverting non-symmetric case	49
5.1	Stochastic exchange rate pegging in fundamentals space	68
5.2	Stochastic exchange rate pegging with discrete transitional intervention	70
6.1	A free float, a currency band and preannounced entry	77
7.1	A state-contingent return to gold in the monetary model	85
7.2	Effects of a discrete tightening of money at the time of return	89
7.3	A time-dependent return to gold ($\eta = 0$)	91
7.4	A state-contingent return to gold with price inertia	93
7.5	A time-dependent return to gold following a tightening of monetary policy	95
7.6	Stochastic realignments with Calvo contracts	99

xvi **List of Figures**

7A.1	The monthly real exchange rate	111
8.1	A speculative attack on a target zone with small reserves	120
8.2	The smooth-pasting solution emerges when reserves are large enough	122
8.3	A gold standard with large reserves	128
8.4	A gold standard with inadequate reserves	131
9.1	Speculative attacks when the fundamental follows a random walk without drift: $\rho = \mu = 0$	149
9.2	Speculative attacks when the fundamental follows a random walk with positive drift: $\rho = 0, \mu > 0$	150
9.3	Speculative attacks when the fundamental follows a non-stationary first-order autoregressive process; $\mu = 0, \rho < 0$	153
9.4	Speculative attacks when the fundamental follows a stationary first-order autoregressive process: $\mu = 0, \rho > 0$	154
9.5(a)	The probability that the gold standard survives one more period when world reserves are 'small': $(1 + \gamma\delta)K < 2\delta$	159
9.5(b)	The probability that the gold standard survives one more period when world reserves are 'large': $(1 + \gamma\delta)K > 2\delta$	160
9A.1	Paradoxical and nonparadoxical collapses	179
10.1	Exchange rate and fundamental fluctuation bands	188
10.2	(Almost) constant realignment probability	196
10.3	Linear realignment probability	197
10.4	Symmetric realignment probability	198
10.5	Asymmetric realignment probability	199
10.6	Exchange rates, fundamentals and reserves	200
10.7	Intervention and exchange rates when reserves matter	201

Tables

7A.1	L_N test statistics	<i>page</i> 110
7A.2	Annual real exchange rates	112
9.1	Summary of viability and correctness criteria	148
11.1	Actual and simulated moments and test statistics for the daily Dm/Li rate	220
11.2	Actual and simulated moments and test statistics for point-sampled Dm/Li data	222
11.3	Simulated steady-state moments and test statistics for the Dm/Li rate ($N = 10,000$)	226