

## Index

accommodative monetary policies 16, 24, Figure 2.1 accountability of European central bank 361 accumulation of capital and tax distortions 40 accumulation of net assets 16 adjustment costs and income fluctuations 111, Figure 4.2 adjustment under uncertainty 102 aggrage income and per capita income stabilization - tradeoff Figure 4.5 Aldrich-Vreland Act, US, 1908 307 American options 104 asset demand, seasonal shifts 306 asset market stabilization and the Fed 290 asymmetrical role of DM 340 asymmetry of countries and sustainability of cooperation 152 Austria, convertibility 225 paper standard 222 relations with Zollverein 222 autonomy of European central bank 360 average and marginal tax rates 80, Table 3A.2 balance of payments disequilibrium private 198 public 199 Banca Romana 281 Banca Nazionale nel Regno d'Italia (BNR) 246 branches in central and Southern Italy 247 Banco di Napoli (BN) 247 Banco di Sicilia (BS) 247 bancor, Keynes's 195 bank assets, Italy, 1861-84 Table 9.7 bank credit, Italy 260 365

bank deposits, Italy, 1860 and 1880 Table 9.2 Bank of International Settlements 3 Bank of Italy 263 bank reserve ratios 13 bank reserves, effects of interest on 46 Banking Act of 1874, Italy 250 Banking Act of 1875, Germany 231 banking, free 227, 244 banking multiplier 282 banking practices, national differences 273 banking school 290 Banknotensperrgesetz 229 banks, central, relation with Treasuries 272 banks of issue, Italy 245 banks, note-issuing, German 228 Baring crisis, 1890 305 bilateral margins in EMS 340 BNT (Tuscan National Bank) 246 branches of BNR in central and Southern Italy 247 Britain: policy targets, estimated desired values Table 6.3 estimated relative ranking Table 6.2 budget constraint, government 19 budget position of government 16 Bundesbank 343 capital account liberalization, 1992 33 capital accumulation and tax distortions 40 capital controls 2, 15 capital market liberalization and inflation policy 29 cash-in-advance model 93 central bank, common 7 independence 214 lack of in US before 1914 303 central bankers' preferences 7, 176



## 366 Index

centre country - Germany 3 and inflation 82, 202 Clearinghouses 304 repudiation 36 Coinage Act of 1873, Germany 230 deflationary bias in payments system 196 Convention, Dresden 1838 220 depoliticized money supply 237 Gulden 220 destabilizing effects of Federal Reserve legal tender 224 System 29 small change, Germany 221 Deutsche Bank 219 direct contraction effect of tax on bank Thaler 218 treaty, Munich 1837 220 deposits 38 treaty, Vienna 1857 223 discount factors, estimated Table 6.10 unification, Germany 220 operations, Italian banks 1881 Table 9.5 unification, Italy 260 rate in Italy 266 cointegration of taxes and seigniorage 58 discountable bills, Italy 256 cointegration tests, exchange rate disequilibrium in balance of payments, constraint Table 3.10 private 198 public 199 inflation and expenditure rate Table disequilibrium models 99 inflation rate and tax rate Table 3.7(a) regional 203 total seigniorage and total distortions, tax and capital accumulation 40 expenditure Table 3.6(b) total seigniorage and total taxes Table divergence indicators in EMS 4 3.6(a)dollar exchange rate and US imports 103 tax rate and expenditure rate Table 3.8(b) Dresden Coinage Convention 1838 220 total taxes and total expenditure Table dynamic endowment economy 108 3.8(a) dynamic game, inverse 163 Cologne mark, silver 218 Committee of EC Central Bank elastic currency and the Fed 307 Governors 341, 346 employment, full 124 common central bank 7, 144, Figure 5.3 endogenous factor mobility 108 common currency 132, 337 endowment economy, dynamic 108 costs and benefits 6 engine of growth 349 with separate central banks 139, Figure entry and exit, sunk costs 103 Europe, supranational currency for 195 competitive revaluation 205 Europe and US, policy coordination 206 conflicting targets and cooperation 164 European central bank 2, 339 constraint, government budget 19 accountability 361 'contingent' securities 201 autonomy 360 contracts, wage, overlapping 99 European central banking system 358 controls, capital 2, 15 European Community, Committee of convergence of inflation 4 Central Bank Governors 341, 346 convertibility, Austria 225 European currency, parallel 334 suspension of 5 transition to 208 cooperation, and conflicting targets 164 European Currency Unit (ECU) 3, 341 reform of 352 sustainability 165 costs and benefits of common currency 6 European financial market, single 337 costs of adjustment and income European monetary authority 10 fluctuations 111, Table 4.2 European Monetary Board 339 independence of 341 credit and speculation 292 currency areas, optimal 5, 95 European Monetary Fund 3 currency, common 337 European Monetary System (EMS) 2, 13, elastic, and the Fed 367 an optimal currency area? 213 European, parallel 334 school 330 realignments under, joint decisions 356 supranational, in Europe 195 Europe Monetary Union 2 European options 104 debt, indexed 200 European Payments Union (EPU) 197



Index 367

exchange rate constraint: cointegration future tax policy, expectations of 24 test Table 3.10 exchange rate, dollar and US imports 103 German government relations with realignments 2 Reichsbank 233 German monetary diversity 217 exchange rate regimes and government budgets 53 German Reich 1871 229 and seigniorage 71 Germany Banking Act of 1875 231 a centre country 3 and stabilization 95 exchange rates, fixed and flexible 17 Coinage Act of 1873 230 flexible 134, Figure 5.1 note-issuing banks 228 exchange rates, real, variability 100 paper money 226 exercise of options 105 policy targets, estimated desired expectations of future tax policy 24 values Table 6.7; estimated relative expenditure rate and inflation: ranking Table 6.6 cointegration test Table 3.7(b) unification of coinage 220 and tax rate: cointegration test Table gold discoveries 1840s 223 gold standard 230 expenditure, total and total seigniorage: international 322 rules of the game 5 cointegration test Table 3.6(b) great depression, 1929-33 and the Fed 316 and total tax: cointegration test Table gross domestic product (GDP) and 3.8(a)expenditure, unit root tests Table 3.5 monetary base 69, Table 3.9 gross national product (GNP) nominal, factor mobility 95 US Figure 10.11 endogenous 108 real, US Figure 10.1, Table 10.1 international 7 government budget constraint 19 and optimal currency areas 96 budget position 16 expenditure and output 55, Table 3.2 Federal Reserve Act 307 Federal Reserve System (Fed), great depression, 1929-33 and the Fed 316 growth, engine of 349 destabilizing effects 291 and elastic currency 307 Gulden, coinage 220 foundation 307 and US recession of 1920-21 315 high powered money, US figure 10.8 hysteresis 119 and Great Depression, 1929-33 316 and US recession of, 1937-38 317 financial markets, liberalization 4 imports, US and dollar exchange rate 103 single, European 337 income fluctuations and adjustment financial panics 305 costs 111, Figure 4.2 and recessions 311 and uncertainty 111, Figure 4.3 fiscal drag 84, Table 3B.1 increasing returns to stabilization 113 fiscal policy and single currency 206 Independent Treasury, US 303 fiscal transfers 121 indexation 122 fixed exchange rates 17 indexed debt 200 flexible exchange rates 17, 134, Figure 5.1 industrial production, US figure 10.2, fluctuations in income and adjustment Table 10.2 costs 111, Figure 4.2 inelastic US money supply before 1914 305 and uncertainty 111, Figure 4.3 inflation 1950-86 54, Table 3.1 inflation anchor 248 foreign welfare and public expenditure 137 convergence 4 franc zone 203 and debt, 1970s 82, 202 France, policy pargets, estimated desired and expenditure rates: cointegration values Table 6.5 test Table 3.7(b) estimated relative ranking Table 6.4 and marginal tax rate, UK free banking 227, 244 1955-85 Figure 3A.1 policy in advance of capital market full employment 124 full liquidity 90 liberalization 29



## 368 Index

inflation and tax rate: cointegration test Table 3.7(a) rate not set by governments 80 tax 6, 40 and tax rates in US 60 and taxes, optimal mix 56 inflation-unemployment tradeoff 98 inflation, welfare arguments for 93 interactions, strategic 123 interest on bank reserves, effects 46 parity, uncovered 101 rate smoothing and the Fed 310 rates, nominal, US Figure 10.6, Table Internal Market Programme, EC 357 international factor mobility 7 international gold standard 322 intra-European trade 9 inverse dynamic game 163 inverse dynamic Nash game 171 IS and LM shocks 91, 310 issuing banks, plurality and monetary stability 265 Italian banks, discount operations 1881 Table 9.5 rediscounting 258 Italy bank assets 1861-84 Table 9.7 bank credit 260 bank deposits in 1860 and 1880 Table Bank of 263 Banking Act of 1874 250 banks of issue 245 decomposition of M/Y Table 2A.1 discount rate 266 Italy, discountable bills 256 monopoly of currency issue 249 note circulation 268 paper currency 1861-84 Table 9.8 policy targets, estimated desired values Table 6.9; estimated relative ranking Table 6.8 regional banks Tables 9.1 and 9.4 regional differences 251 rise in reserve requirements 15 savings banks, 1860 and 1880 Table 9.3 unification of coinage 260

Keynes's bancor 195 Krone, gold 225

legal tender coinage 224 lender of last resort 309 liberalization of capital markets 1992 33 liberalization of financial markets 4 liquidity, full 90 liquidity and utility 92

LM and IS shocks 91, 310

log-linear utility function 25

long-run effects of seigniorage on growth
of tax base 15

managed realignments in EMS 350 marginal and average tax rates 80, Table 3A.2 marginal tax rates and inflation, UK 1955-85 Figure 3A.1 margins, bilateral, in EMS 340 Mark, 1871 230 micro foundations for role of money 100 mismatch and unemployment 125 mobility of factors 95 endogenous 108 international 7 monetary aggregates, US, increase in variability after 1914 315 monetary autonomy, loss of 338 base 18; and GDP 69, Table 3.9 diversity in Germany 217 monetary policy accommodating/tight 16 accommodating 24, Figure 2.1 restrictive 27, Figure 2.2 symmetry in 347 monetary and political unification 235 monetary stability and plurality of issuing banks 265 monetary targets, supranational 197 unification 2 money balances, real and utility 100 high powered, US Figure 10.8 money, role of, microfoundations 100 money stocks, M2, US Figure 10.10 money supply, depoliticised 237 monopoly of currency issue, Italy 249 multiplier, banking 282 Munich Coinage Treaty, 1837 220

Nash equilibrium 137
Nash game, inverse dynamic 171
National Banking Acts, US, 1863, 64 and 65 302
National Banking System, US 302
inelasticity of money supply under 305
National Monetary Commission, US, 1908 307
net asset accumulation 16
New York Clearinghouses Association 304
nominal GNP, US Figure 10.11
nominal interest rates, US Figure 10.6, Table 10.5
seasonal pattern Figure 10.7

Napoli, Banco di 247



Index 369

nominal price rigidity 98 price deflator, implicit, US figure 10.3, nontradables and tradables 97 Table 10.3 note circulation in Italy 268 price stickiness 102 note-issuing banks, Germany 228 prices, nominal, rigidity of 98 prices, wholesale, US Figure 10.4, Table Nyborg Agreements 356 private balance of payments ongoing uncertainty optimal currency areas 5, 95 disequilibrium 198 Prussia, paper money in 219 is EMS one? 213 and factor mobility 96 Prussian Bank 227 mix of taxes and inflation 56 public balance of payments seigniorage 54, 88 disequilibrium 199 output stabilization 290 public expenditure and foreign welfare 137 option pricing theory 104 values and uncertainty 104 Ramsey-type model 33 options, American 104 rational expectations of future taxes 24 European 104 readiness to adjust, changes in and exercise of 105 uncertainty Figure 4.4 real, and relocation 106 real bills doctrine 291, 308 overlapping wage contracts 99 real exchange rates, variability 100 overshooting 99 real GNP, US Figure 10.1, Table 10.1 real options and relocation 106 panics, financial 305 real rigidities 123 of 1907 307 real stock prices, US Figure 10.5 paper currency in Italy, 1861-84 Table 9.8 realignments of exchange rates 2 paper money in Germany 226 in EMS, arranged 350; joint in Prussia 219 decisions 356; residual small 362; and paper standard, Austria 222 short-term interest rates 5 parallel currency, European 344 recessions, relation to financial panics 311 per capita incomes and aggregate incomes US, 1920-21 and the Fed 315 US, 1937-38 and the Fed 317 stabilization tradeoff Figure 4.5 policies, time-inconsistent 200 rediscounting by Italian banks 258 policy coordination, Europe and US 206 regional banks, Italy Tables 9.1 and 9.4 policy on inflation in advance of capital regional differences in Italy 251 market liberalization 29 regional disequilibrium 203 policy, tax, expectations of 24 Reich, German 1871 229 Reichsbank 1876 8, 229 policy, monetary, accommodating 24, Figure 2.1 relations with German government 233 restrictive 27, Figure 2.2 relative short-term interest rates, control of policy on reserve requirement 22 362 policy targets, Britain, estimates of desired relocation and real options 106 values Table 6.3; estimates of relative and uncertainty 107 ranking Table 6.2 repudiation of debt 36 France, estimates of desired reserve ratios, banks' 13 reserve requirement changes, revenue values Table 6.5; estimates of relative ranking Table 6.4 effects 44 Germany, estimates of desired reserve requirements, increases in Italy 15 values Table 6.7; estimates of relative policy 22 ranking Table 6.6 restrictive monetary policy 27, Figure 2.2 Italy, estimates of desired values Table revaluation, competitive 205 6.9; estimates of relative revenue effects of reserve requirement ranking Table 6.8 changes 44 policymakers' preferences 164 rigidities, real 123 rigidity of nominal prices 98 political and monetary unification 235

risk aversion 128

Romer model 38

Poole, IS and LM analysis 310

preferences of central bankers 176



## 370 Index

rules of the game, gold standard 5 symmetrical currency in Europe 195 supranational monetary targets 197 savings banks in Italy, 1860-80 Table 9.3 suspension of convertibility 5 seasonal pattern in US high powered sustainability of cooperation 165 money Figure 10.9 and asymmetry of countries 152 in US nominal interest rates Figure 10.7 symmetry of monetary policy 347 seasonal shifts in asset demand 306 seasonal variations in demand for Tanzi effect 89 targets, monetary, supranational 197 money 334 securities, 'contingent' 201 tastes of central bankers 7 seigniorage 7, 13, 19, 218, Table 2.1 tax (on bank deposits) effects 38 effects on growth of the tax base 15 base, growth of, effects of seigniorage 15 and exchange rate regimes 71 distortions and capital accumulation 40 in Italy, alternative estimates 44, Table inflation 6 and inflation rates in US 60 2A.2 optimal 54, 88 policy, expectations of 24 rate and expenditure rate: cointegration and taxes, cointegration 58 total, and total expenditure: test Table 3.8(a) cointegration test Table 3.6(b) rate and inflation rate: cointegration total, and total taxes: cointegration test Table 3.7(a) test Table 3.6(a) rates, average and marginal, UK unit root tests Table 3.4 1955-85 Figure 3A.1 self-fulfilling speculation 5 rates, average and marginal 80, Table Shaw, Leslie M., and Independent 3A.2 taxes on incomes and money, welfare Treasury 304 shocks, IS and LM 91, 310 costs 80 and inflation, optimal mix 56 short-term interest rates relative, and realignments 5 rational expectations of 24 control of 362 and seigniorage: cointegration 58 Sicilia, Banco di 247 total, and total expenditure: silver standard 218 cointegration test Table 3.8(a) single currency and fiscal policy 206 total, and total seigniorage: cointegration tests Table 3.6(a) Single European Act 337 single European financial market 337 unit root tests Table 3.3 tests, unit root 61 small change coinage, Germany 221 solvency constraint Table 3.11 tests,  $Z_{\alpha}$ ,  $Z_{\mu}$  and  $Z_{\tau}$  61 solvency of European governments 74 Thaler, coinage 218 Sound Money League, US 329 tight monetary policy 16, Figure 2.2 speculation and credit 292 time-inconsistent policies 200 speculation, self-fulfilling 5 time-series properties of tax and inflation speculation, stock market 311 rates 54 stabilization, of aggregate incomes and per tradables and nontradables 97 capita incomes, tradeoff Figure 4.5 tradeoff between inflation and of asset markets 290 unemployment 98 and exchange rate regimes 95 transfers, fiscal 121 increasing returns to 113 transition, equilibrium path 35, Figure of output 290 state banks, US 302 transition to a European currency 208 states, paper money, Germany 231 Treasuries, relations with central sterilizing reserve flows 4 banks 272 stickiness of prices 102 stock market speculation 311 uncertainty, adjustment under 102 stock prices, real, US Figure 10.5 and change in readiness to adjust Figure strategic interactions 123 Strong, Benjamin 317 and income fluctuations 111, Figure 4.3 sunk costs of entry and exit 103 ongoing 103



Index 371

and option values 104 and relocation 107 uncovered interest parity 101 unemployment-inflation tradeoffs 98 unemployment and mismatch 125 unification, political and monetary 235 unit root tests 61 expenditure Table 3.5 seigniorage Table 3.4 taxes Table 3.3 UK inflation and marginal tax rates 1955-85 Figure 3A.1 UC central bank, lack of before 1914 303 and Europe, policy coordination 206 high powered money Figure 10.8; seasonal pattern Figure 10.9 implicit price deflator Figure 10.3, Table imports and dollar exchange rate 103 industrial production Figure 10.2, Table 10.2 inelastic money supply before 1914 305 inflation and tax rates 60 money stock M2 Figure 10.10 nominal GNP Figure 10.11 nominal interest rates Figures 10.6, Table 10.5; seasonal pattern Figure real GNP figure 10.1, Table 10.1

US, real stock prices Figure 10.5 recession, 1920-21 and the Fed 315, 335 recession, 1937-38 and the Fed 317 wholesale prices Figure 10.4, Table 10.4 utility functions, log-linear 25 utility and liquidity 92 utility and real balances 100 value of an option 104, Figure 4.1; and uncertainty 104 Vereinsmünze 221 Very Short Term Financing Facility 3 Vienna Coinage Treaty, 1857 223 velocity, variability 68 wage contracts, overlapping 99 wealth tax 200 welfare arguments for inflation 93 welfare costs of taxes on incomes and money 80 wholesale prices, US Figure 10.4, Table 10.4 Werner Report 9 World War I 321

 $Z_{\alpha}$ ,  $Z_{\mu}$  and  $Z_{\tau}$  tests 61 Zollpfund 223 Zollverein 216 Austria relations with 222