APPENDIX

An Appendix is a source of the relevant technical information. Table A–1 lists the real data; Table A–2 posts estimations of the probable states. Vensim EKF optimisation control and pay-off definition files as well the file with identified magnitudes of the model parameters are also presented here. For the reader's convenience, there is also a listing of the variables.

Table A–1. Macroeconomic real data for the USA, 1969–2003

	a	*S*	*v*	*u*
1969	0.042	1.826	0.965	0.710
1970	0.042	1.925	0.950	0.721
1971	0.043	1.941	0.940	0.709
1972	0.044	1.925	0.944	0.708
1973	0.045	1.936	0.951	0.705
1974	0.044	2.202	0.944	0.719
1975	0.044	2.207	0.915	0.711
1976	0.045	2.127	0.923	0.707
1977	0.045	2.086	0.930	0.706
1978	0.046	2.068	0.939	0.708
1979	0.046	2.125	0.942	0.712
1980	0.045	2.259	0.928	0.726
1981	0.046	2.269	0.924	0.720
1982	0.045	2.331	0.903	0.738
1983	0.046	2.197	0.904	0.719
1984	0.047	2.069	0.925	0.709
1985	0.048	2.044	0.928	0.712
1986	0.048	2.052	0.930	0.716
1987	0.049	2.032	0.938	0.720
1988	0.050	1.999	0.945	0.720
1989	0.050	1.974	0.947	0.710
1990	0.050	1.964	0.944	0.711
1991	0.050	1.960	0.932	0.716
1992	0.051	1.919	0.925	0.713
1993	0.052	1.903	0.931	0.709
1994	0.053	1.897	0.939	0.705
1995	0.053	1.898	0.944	0.702
1996	0.054	1.879	0.946	0.696
1997	0.055	1.862	0.951	0.693

1998	0.057	1.857	0.955	0.706
1999	0.058	1.869	0.958	0.714
2000	0.058	1.872	0.960	0.723
2001	0.058	1.929	0.952	0.729
2002	0.059	1.924	0.942	0.716
2003	…	…	0.940	…

Data sources: http://www.economagic.com; *Survey of Current Business*, May 2004.

Vensim EKF files

kalman.prm

a/ Q_a / Ψ_a

N/ Q_N / Ψ_N

s/ Q_s / Ψ_s

u/ Q_u / Ψ_u

v/ Q_v / Ψ_v

z/ Q_z / Ψ_z

pay-off.vpd

a/ R_a

N/ R_N

s/ R_s

u/ R_u

v/ R_v

z/ R_z

File 1.out

:COMSYS After 2689 simulations

:COMSYS Best payoff is 760.449

:COMSYS User terminated multiple search session

:OPTIMIZER=Powell

:SENSITIVITY=All Constants=10

:MULTIPLE_START=Random

:RANDOM_NUMER=Linear

:OUTPUT_LEVEL=2

:TRACE=On

:MAX_ITERATIONS=10000

:RESTART_MAX=0

:PASS_LIMIT=2

:FRACTIONAL_TOLERANCE=0.0003

:TOLERANCE_MULTIPLIER=21

:ABSOLUTE_TOLERANCE=1

:SCALE_ABSOLUTE=1

:VECTOR_POINTS=25

$b = 0.540364$

$e_1 = 2.5$

$e_2 = 100$

$g = 0.0458095$

$i_1 = 0.2$

$i_2 = 0.399884$

$j = 0.342394$

$k = 0.203148$

$K_c / L_c = 0.0981$

$m_1 = 0.00671803$

$m_2 = 0.235709$

$m_3 = 0.0149$

$n_1 = -0.245966$

$n_2 = 0.34711$

$n_3 = 0.6$

$p_1 = 0.03$

$r = 0.0534057$

$v_c = 0.92536$

$R_a = 1.25e\text{-}006$

$Q_a = 2.93e\text{-}007$

$\Psi_a = 1.25e\text{-}006$

$R_N = 17000$

$Q_N = 10000$

$\Psi_N = 17000$

$R_s = 0.0134$

$Q_s = 0.00093$

$\Psi_s = 0.0234$

$R_u = 0.0005$

$\Psi_u = 2.7e\text{-}005$

$Q_u = 5.51e\text{-}009$

$R_v = 0.0003$

$Q_v = 5.16e\text{-}007$

$\Psi_v = 0.00435$

$Q_z = 7.06078e\text{-}007$

$\Psi_z = 1e\text{-}007$

$R_z = 1e\text{-}007$

Table A–2. EKF estimations of the US macroeconomic variables, 1969–2003

	a	*s*	*v*	*u*
1969	0.042	1.826	0.965	0.710
1970	0.042	1.881	0.953	0.716
1971	0.043	1.913	0.944	0.720
1972	0.043	1.926	0.940	0.723
1973	0.044	1.936	0.939	0.725
1974	0.044	2.010	0.936	0.727
1975	0.044	2.065	0.929	0.729
1976	0.044	2.082	0.926	0.729
1977	0.045	2.083	0.924	0.729
1978	0.045	2.079	0.924	0.728
1979	0.046	2.088	0.925	0.727
1980	0.046	2.127	0.923	0.728
1981	0.046	2.158	0.921	0.727
1982	0.046	2.192	0.919	0.727
1983	0.046	2.183	0.920	0.724
1984	0.047	2.145	0.923	0.720
1985	0.048	2.111	0.927	0.717
1986	0.048	2.088	0.930	0.714
1987	0.049	2.067	0.933	0.712
1988	0.049	2.046	0.936	0.710
1989	0.050	2.025	0.939	0.709
1990	0.050	2.008	0.941	0.708
1991	0.051	1.995	0.942	0.707
1992	0.051	1.976	0.942	0.707
1993	0.052	1.958	0.943	0.707

1994	0.053	1.943	0.945	0.706
1995	0.053	1.933	0.946	0.706
1996	0.054	1.922	0.948	0.706
1997	0.055	1.910	0.950	0.706
1998	0.056	1.902	0.951	0.706
1999	0.057	1.899	0.953	0.707
2000	0.058	1.900	0.954	0.709
2001	0.058	1.916	0.954	0.712
2002	0.059	1.931	0.952	0.716
2003	0.059	1.949	0.950	0.720

The main variables:

K – net fixed assets;

N – labour force;

L – employment;

P – NNP;

K/L – capital intensity;

$s = K/P$ – capital-output ratio;

$u = w/a$ – relative wage (unit value of labour power);

$v = L/N$ – employment ratio;

w – worker's real wage;

$a = P/L$ – labour productivity (output per worker);

$M = (1 - u)P$ – total profit;

$(1 - u)/s$ – gross profit rate.