Appendix B
The ROW Part of the MCI Model

November 11, 2013

Table B.1
The Countries and Variables in the MCI Model

Quarterly Countries			**Local Currency**	**Trade Share Equations Only**		
1	US	United States	U.S. Dollar (mil.)	40	TU	Turkey
2	CA	Canada	Can. Dollar (mil.)	41	PD	Poland
3	JA	Japan	Yen (bil.)	42	RU	Russia
4	AU	Austria	Euro (mil.)	43	UE	Ukraine
5	FR	France	Euro (mil.)	44	EG	Egypt
6	GE	Germany	Euro (mil.)	45	IS	Israel
7	IT	Italy	Euro (mil.)	46	KE	Kenya
8	NE	Netherlands	Euro (mil.)	47	BA	Bangladesh
9	ST	Switzerland	Swiss Franc (bil.)	48	HK	Hong Kong
10	UK	United Kingdom	Pound Sterling (mil.)	49	SI	Singapore
11	FI	Finland	Euro (mil.)	50	VI	Vietnam
12	AS	Australia	Aust. Dollar (mil.)	51	NI	Nigeria
13	SO	South Africa	Rand (mil.)	52	AL	Algeria
14	KO	Rep. of Korea	Won (bil.)	53	IA	Indonesia
Annual Countries				54	IN	Iran
15	BE	Belgium	Euro (mil.)	55	IQ	Iraq
16	DE	Denmark	Den. Kroner (bil.)	56	KU	Kuwait
17	NO	Norway	Nor. Kroner (bil.)	57	LI	Libya
18	SW	Sweden	Swe. Kroner (bil.)	58	UA	United Arab Emirates
19	GR	Greece	Euro (mil.)	59	AO	All Other
20	IR	Ireland	Euro (mil.)			
21	PO	Portugal	Euro (mil.)			
22	SP	Spain	Euro (mil.)			
23	NZ	New Zealand	N.Z. Dollar (mil.)			
24	SA	Saudi Arabia	Riyals (bil.)			
25	VE	Venezuela	Bolivares (bil.)			
26	CO	Colombia	Col. Pesos (bil.)			
27	JO	Jordan	Jor. Dinars (mil.)			
28	SY	Syria	Syr. Pound (mil.)			
29	ID	India	Ind. Rupee (bil.)			
30	MA	Malaysia	Ringgit (mil.)			
31	PA	Pakistan	Pak. Rupee (bil.)			
32	PH	Philippines	Phil. Peso (bil.)			
33	TH	Thailand	Baht (bil.)			
34	CH	China	Yuan (bil.)			
35	AR	Argentina	Arg. Peso (mil.)			
36	BR	Brazil	Reais (mil.)			
37	CE	Chile	Chi. Peso (bil.)			
38	ME	Mexico	New Peso (mil.)			
39	PE	Peru	Nuevos Soles (mil.)			

• The countries that make up the EMU, denoted EU in the model, are AU, FR, GE, IT, NE, FI, BE, IR, PO, SP, GR. (GR begins in 2001.) (Luxembourg, which is also part of the EMU, is not in the model.)
• Prior to 1999:1 the currency is Schillings for AU, Fr. Francs for FR, DM for GE, Lira for IT, Guilders for NE, Markkaa for FI, Bel. Francs for BE, Irish Pounds for IR, Escudes for PO, Pesetas for SP, and Drachmas for GR (prior to 2001:1). The units are in euro equivalents. For example, in 1999:1 the Lira was converted to the euro at 1936.27 Liras per euro, and 1936.27 was used to convert the Lira to its euro equivalent for 1998:4 back.
• The NIPA base year is 2005 for all countries except BE (2010), NO (1995), IR (2010), PO (2006), SP (2000), NZ (1995), ME (2003).

Table B.2
The Variables for a Given Country in Alphabetical Order

Variable	Eq. No.	Description
a_{ij}	L-1	Share of i's merchandise exports to j out of total merchandise imports of j. [See below]
A	I-7	Net stock of foreign security and reserve holdings, end of quarter, in lc. [$A_{-1} + S$. Base value of zero used for the quarter prior to the beginning of the data.]
C	2	Personal consumption in constant lc. [OECD data or IFS96F/PY]
E	9 or I-14	Exchange rate, average for the period, lc per $. [IFSRF]
EE	I-9	Exchange rate, end of period, lc per $. [IFSAE]
EX	I-2	Total exports (NIPA) in constant lc. [OECD data or (IFS90C or IFS90N)/ PY]
$EXDS$	exog	Discrepancy between NIPA export data and other export data in constant lc. [$EX - PX00(E00 \cdot X00\$ + XS)$.]
$E00$	exog	E in 2005, 2005 lc per 2005 $. [IFSRF in 2005]
F	10	Three-month forward exchange rate, lc per $. [IFSB]
G	exog	Government purchases of goods and services in constant lc. [OECD data or (IFS91F or IFS91FF)/PY] (Denoted GZ for countries CO and TH.)
H	9	Exchange rate, average for the period, lc per DM euro. [E/E_{GE}]
I	3	Gross fixed investment in constant lc. [OECD data or IFS93/PY]
IM	I-1	Total imports (NIPA) in constant lc. [OECD data or IFS98C/PY]
$IMDS$	exog	Discrepancy between NIPA import data and other import data in constant lc. [$IM - PM00(M + MS)$]
J	13	Total employment in millions. [OECD data or IFS67 or IFS67E or IFS67EY or IFS67EYC]
$JMIN$	I-13	Minimum amount of employment needed to produce Y in millions. [Y/LAM]
LAM	exog	Computed from peak-to-peak interpolation of $\log(Y/J)$.
$L1$	14	Labor force in millions. [OECD data]
M	1	Total merchandise imports (fob) in 2005 lc. [IFS71V/PM]
MS	exog	Other goods, services, and income (debit) in 2005 lc, BOP data. [((IFS78AED+IFS78AHD)E)/PM]
$M00\$A$	I-8	Merchandise imports (fob) from the trade share matrix in 2005 $. [See below]
$M00\$B$	exog	Difference between total merchandise imports and merchandise imports from the trade share matrix in 2005 $ (i.e., imports from countries other than the 44 in the trade share matrix). [$M/E00 - M00\$A$]
$M1$	6	Money supply in lc. [IFS34 or IFS34A.N+IFS34B.N or IFS35L.B or IFS39MAC or IFS59MA or IFS59MC]
NW	I-15	National Wealth in constant lc. [$NW_{-1} + I + V1 + EX - IM$. Base value of zero used for the quarter prior to the beginning of the data.]
PM	I-13	Import price deflator, 2005 = 1.0. [IFS75/100]
PMP	L-4	Import price index from DOT data, 2005 = 1.0. [See below]
$PM00$	exog	PM in the NIPA base year divided by PM in 2005.
POP	exog	Population in millions. [IFS99Z]
$POP1$	exog	Population of labor-force-age in millions. [OECD data]
$PSI1$	exog	[$(EE + EE_{-1})/2]/E$]
$PSI2$	exog	[PM/PMP]
$PW\$$	L-5	World price index, $/2005$. [See below]
PX	11	Export price index, 2005 = 1.0. [IFS74/100. If no IFS74 data for t, then $PX_t = PX\$_t(E_t/E00_t$, where $PX\$_t$ is defined next.]

Table B.2 (continued)

Variable	Eq. No.	Description
$PX\$$	I-16	Export price index, \$/2005\$, 2005 = 1.0. [$(E00 \cdot PX)/E$. If no IFS74 data at all, then $PX\$_t = PX_{USt}$ for all t. If IFS74 data only from t through $t+h$, then for $i > 0$, $PX\$_{t-i} = PX\$_t(PX_{USt-i}/PX_{USt}$ and $PX\$_{t+h+i} = PX\$_{t+h}(PX_{USt+k+i}/PX_{USt}$.
$PX00$	exog	PX in the NIPA base year divided by PX in 2005.
PY	5	GDP or GNP deflator, equals 1.0 in the NIPA base year. [OECD data or (IFS99B/IFS99B.P]
RB	8	Long term interest rate, percentage points. [IFS61]
RS	7	Three-month interest rate, percentage points. [IFS60 or IFS60B or IFS60C or IFS60L or IFS60P]
S	I-6	Total net goods, services, and transfers in lc. Current account balance. [See Table B.6] (Denoted SZ for countries CO and TH.)
$STAT$	exog	Statistical discrepancy in constant lc. [$Y - C - I - G - EX + IM - V1$]
T	exog	Time trend. [For quarterly data, 1 in 1952.1, 2 in 1952.2, etc.; for annual data, 1 in 1952, 2 in 1953, etc.]
TT	exog	Total net transfers in lc. [See Table B.7]
UR	I-10	Unemployment rate. [$(L1 - J)/L1$]
V	I-5	Stock of inventories, end of period, in constant lc. [$V_{-1} + V1$. Base value of zero was used for the period (quarter or year) prior to the beginning of the data.]
$V1$	I-4	Inventory investment in constant lc. [OECD data or IFS93I/PY]
W	not used	Nominal wage rate. [IFS65..C or IFS65A or IFS65EY or IFS65UMC]
X	I-3	Final sales in constant lc. [$Y - V1$] (Denoted XZ for country PE.)
XS	exog	Other goods, services, and income (credit) in 2005 lc. BOP data. [(E(IFS78ADD+IFS78AGD))/PX]
$X00\$$	L-3	Merchandise exports from the trade share matrix in 2005 \$. [See below]
$XX00\$_{ij}$	L-2	Merchandise exports from i to j in 2005\$. [See below]
Y	4	Real GDP or GNP in constant lc. [OECD data or IFS99B.P or IFS99B.R]
YS	exog	Potential value of Y. [From a peak-to-peak interpolation of $\log Y$.]
ZZ	I-12	Demand pressure variable. [$\log Y - \log YS$]

Construction of variables related to the trade share matrix:

The raw data are:

$XX\$_{ij}$	Merchandise exports from i to j in \$, $i, j = 1, ..., 58$ [DOT data. 0 value used if no data]
$X\$_i$	Total merchandise exports (fob) in \$. $i = 1, ..., 39$ [IFS70/E or IFS70D]

The constructed variables are:

$XX\$_{i59} =$	$X\$_i - \sum_{j=1}^{58} XX\$_{ij}, i = 1, ..., 39$
$XX00\$_{ij} =$	$XX\$_{ij}/PX\$_i, i = 1, ..., 39, j = 1, ..., 59$ and $i = 40, ..., 58, j = 1, ..., 58$
$M00\$A_i =$	$\sum_{j=1}^{58} XX00\$_{ji}, i = 1, ..., 58; M00\$A_{59} = \sum_{j=1}^{39} XX00\$_{j59}$
$a_{ij} =$	$XX00\$_{ij}/M00\$A_j, i = 1, ..., 39, j = 1, ..., 59$ and $i = 40, ..., 58, j = 1, ..., 58$
$X00\$_i =$	$\sum_{j=1}^{59} XX00\$_{ij}, i = 1, ..., 39; X00\$_i = \sum_{j=1}^{58} XX00\$_{ij}, i = 40, ..., 58$
$PMP_i =$	$(E_i/E00_i) \sum_{j=1}^{58} a_{ji} PX\$_j, i = 1, ..., 39$
$PW\$_i =$	$(\sum_{j=1}^{58} PX\$_j X00\$_j)/(\sum_{j=1}^{58} X00\$_j), i = 1, ..., 39$ An element in this summation is skipped if $j = i$. This summation also excludes the oil exporting countries, which are SA, VE, NI, AL, IA, IN, IQ, KU, LI, UA.

- Variables available for trade share only countries are $M00\$A$, $PX\$$, $X00\$$.
- lc = local currency
- IFSxxxxx = variable number xxxxx from the IFS data

Table B.2 (continued)
The EU Variables

Variable	Eq. No.	Description
E	9	Exchange rate, average for the period, euro per \$. [IFSRF]
PY	[ ]	GDP deflator. $[(\sum_{i=1}^{6} PY_i Y_i)/Y_{EU}$, where the summation is for $i =$ GE, AU, FR, IT, NE, FI.]
RB	8	Long term interest rate, percentage points. [IFS61]
RS	7	Three-month interest rate, percentage points. [IFS60]
Y	[ ]	Real GDP in constant euros. $[Y_{GE} + \sum_{i=1}^{5}[Y_i/(E00_i/E00_{GE})]$, where the summation is for $i =$ AU, FR, IT, NE, FI.]
YS	[ ]	Potential value of Y_{EU}. $[YS_{GE} + \sum_{i=1}^{5}[YS_i/(E00_i/E00_{GE})]$, where the summation is for $i =$ AU, FR, IT, NE, FI.]
ZZ	I-18	Demand pressure variable. $[\log Y_{EU} - \log YS_{EU}]$

Table B.3
The Equations for a Given Country

STOCHASTIC EQUATIONS

Eq.	LHS Variable	Explanatory Variables
1	$\log(IM/POP)$	cnst, $\log(IM/POP)_{-1}$, $\log(PY/PM)$, $\log[(C+I+G)/POP]$ [Total Imports (NIPA), constant lc]
2	$\log(C/POP)$	cnst, $\log(C/POP)_{-1}$, RS or RB, $\log(Y/POP)$ [Consumption, constant lc]
3	$\log I$	cnst, $\log I_{-1}$, $\log Y$, RS or RB [Fixed Investment, constant lc]
4	$\log Y$	$\log Y_{-1}$, $\log X$, $\log V_{-1}$ [Real GDP, constant lc]
5	$\log PY$	cnst, $\log PY_{-1}$, $\log PM$, ZZ, T [GDP Price Deflator, base year = 1.0]
6	$\log[M1/(POP \cdot PY)]$	cnst, $\log[M1/(POP \cdot PY)]_{-1}$ or $\log[M1_{-1}/(POP_{-1}PY)]$, RS, $\log(Y/POP)$ [Money Supply, lc]
7	RS	cnst, RS_{-1}, $100[(PY/PY_{-1})^4 - 1]$, ZZ, RS_{GE}, RS_{US} [Three-Month Interest Rate, percentage points]
8	$RB - RS_{-2}$	cnst, $RB_{-1} - RS_{-2}$, $RS - RS_{-2}$, $RS_{-1} - RS_{-2}$ [Long Term Interest Rate, percentage points]
9	$\Delta \log E$	cnst, $\log(PY/PY_{US} - \log E_{-1}$, $.25\log[(1 + RS/100)/(1 + RS_{US}/100)]$ [Exchange Rate, lc per \$] [For all countries but AU, FR, IT, NE, ST, UK, FI, BE, DE, NO, SW, GR, IR, PO, and SP]
9	$\Delta \log H$	cnst, $\log(PY/PY_{GE} - \log H_{-1}$, $.25\log[(1 + RS/100)/(1 + RS_{GE}/100)]$ [Exchange Rate, lc per DM] [For countries AU, FR, IT, NE, ST, UK, FI, BE, DE, NO, SW, GR, IR, PO, and SP]
10	$\log F$	$\log EE$, $.25\log[(1 + RS/100)/(1 + RS_{US}/100)]$ [Three-Month Forward Rate, lc per \$]
11	$\log PX - \log[PW\$(E/E00)]$	$\log PY - \log[PW\$(E/E00)]$ [Export Price Index, 2005 = 1.0]
13	$\Delta \log J$	cnst, T, $\log(J/JMIN)_{-1}$, $\Delta \log Y$, $\Delta \log Y_{-1}$ [Employment, millions]
14	$\log(L1/POP1)$	cnst, T, $\log(L1/POP1)_{-1}$, UR [Labor Force, millions]

Table B.3 (continued)

IDENTITIES

Eq.	LHS Variable	Explanatory Variables
I-1	$M =$	$(IM - IMDS)/PM00 - MS$ [Merchandise Imports, 2005 lc]
I-2	$EX =$	$PX00(E00 \cdot X00\$ + XS) + EXDS$ [Total Exports (NIPA), constant lc]
I-3	$X =$	$C + I + G + EX - IM + STAT$ [Final Sales, constant lc]
I-4	$V1 =$	$Y - X$ [Inventory Investment, constant lc]
I-5	$V =$	$V_{-1} + V1$ [Inventory Stock, constant lc]
I-6	$S =$	$PX(E00 \cdot X00\$ + XS) - PM(M + MS) + TT$ [Current Account Balance, lc]
I-7	$A =$	$A_{-1} + S$ [Net Stock of Foreign Security and Reserve Holdings, lc]
I-8	$M00\$A =$	$M/E00 - M00\$B$ [Merchandise Imports from the Trade Share Calculations, 2005 $]
I-9	$EE =$	$2PSI1 \cdot E - EE_{-1}$ [Exchange Rate, end of period, lc per $]
I-10	$UR =$	$(L1 - J)/L1$ [Unemployment Rate]
I-11	$JMIN =$	Y/LAM [Minimum Required Employment, millions]
I-12	$ZZ =$	$\log Y - \log YS$ [Demand Pressure Variable]
I-13	$PM =$	$PSI2 \cdot PMP$ [Import Price Deflator, 2005 = 1.0]
I-14	E	$E = H \cdot E_{GE}$ [Exchange Rate: lc per $] [Equation relevant for countries AU, FR, IT, NE, ST, UK, FI, BE, DE, NO, SW, GR, IR, PO, and SP only]
I-15	$NW =$	$NW_{-1} + I + V1 + EX - IM$ [National Wealth, constant lc]
I-16	$PX\$ =$	$(E00/E)PX$ [Export Price Index, $/2005$]

• From 1999:1 on for GE: $E_{GE} = E_{EU}$, $RS_{GE} = RS_{EU}$, and $RB_{GE} = RB_{EU}$. From 1999:1 on for an EU country i (except GE): $H_i = 1.0$, $RS_i = RS_{EU}$, and $RB_i = RB_{EU}$.
• $PX\$$ and $M00\$A$ are exogenous for trade share only countries.

Table B.3 (continued)

Equations that Pertain to the Trade and Price Links Among Countries

L-1	$a_{ij} =$	fraction of country i's exports imported by j. Computed from trade share equations [Trade Share Coefficients]
L-2	$XX00\$_{ij} =$	$a_{ij} M00\$A_j, i = 1, ..., 39, j = 1, ..., 59$ and $i = 40, ..., 58, j = 1, ..., 58$ [Merchandise Exports from i to j, 2005$]
L-3	$X00\$_i =$	$\sum_{j=1}^{59} XX00\$_{ij}, i = 1, ..., 39$
	$X00\$_i =$	$\sum_{j=1}^{58} XX00\$_{ij}, i = 40, ..., 58$ [Total Merchandise Exports, 2005$]
L-4	$PMP_i =$	$(E_i/E00_i) \sum_{j=1}^{58} a_{ji} PX\$_j, i = 1, ..., 39$ [Import Price Deflator, 2005 = 1.0]
L-5	$PW\$_i =$	$(\sum_{j=1}^{58} PX\$_j X00\$_j) / \sum_{j=1}^{58} X00\$_j), i = 1, ..., 39$ An element in this summation is skipped if $j = i$. This summation also excludes the oil exporting countries, which are SA, VE, NI, AL, IA, IN, IQ, KU, LI, UA. [World Price Index, $/2005$]

Trade Share Equations

• For each i, j equation, the left hand side variable is $\log(a_{ijt} + .00001)$. The three right hand side variables are the constant, $\log(a_{ijt-1} + .00001)$, and $PX\$_{it}/(\sum_{k=1}^{58} a_{kjt-1} PX\$_{kt})$, where the summation excludes the oil exporting countries, which are SA, VE, NI, AL, IA, IN, IQ, KU, LI, UA. Also, an element in the summation is skipped if $k = j$.

Linking of the Annual and Quarterly Data

• Quarterly data exist for all the trade share calculations, and all these calculations are quarterly. Feeding into these calculations from the annual models are predicted annual values of $PX\$_i$, $M00\$A_i$, and E_i. For each of these three variables the predicted value for a given quarter was taken to be the predicted annual value multiplied by the ratio of the actual quarterly value to the actual annual value. This means in effect that the distribution of an annual value into its quarterly values is taken to be exogenous.

• Once the quarterly values have been computed from the trade share calculations, the annual values of $X00\$_i$ that are needed for the annual models are taken to be the sums of the quarterly values. Similarly, the annual values of PMP_i and $PW\$_i$ are taken to be the averages of the quarterly values.

Table B.4
Coefficient Estimates and Test Results
for the ROW Equations

ρ = first order autoregressive coefficient of the error term.
† = variable is lagged one period.
t-statistics are in parentheses.

Table B1: Coefficient Estimates for Equation 1

$$\log(IM/POP) = a_1 + a_2 \log(IM/POP)_{-1} + a_3 \log(PY/PM) + a_4 \log[(C + I + G)/POP)]$$

	a_1	a_2	a_3	a_4	ρ	SE	DW
Quarterly							
CA	-0.160	0.943	0.086	0.069	0.320	0.0279	2.05
	(-0.55)	(37.55)	(2.47)	(1.35)	(4.40)	1961.2–2013.2	
JA	-0.014	0.963	0.033	0.028	0.134	0.0319	2.03
	(-0.09)	(50.16)	(2.90)	(0.79)	(1.77)	1966.1–2013.2	
AU	-0.674	0.925	0.024	0.145		0.0283	1.86
	(-1.47)	(37.89)	(0.69)	(2.04)		1970.1–2013.1	
FR	-1.321	0.874	0.065	0.258		0.0275	1.92
	(-3.62)	(28.98)	(4.13)	(3.87)		1961.1–2012.4	
GE	-0.113	0.988	0.022	0.025		0.0232	1.95
	(-0.50)	(87.47)	(1.43)	(0.72)		1971.1–2012.4	
IT	-0.672	0.914	0.051	0.150		0.0351	1.81
	(-2.71)	(40.99)	(3.44)	(3.22)		1961.1–2013.1	
NE	-0.031	0.947	0.069	0.055		0.0216	1.86
	(-0.13)	(48.75)	(3.77)	(1.29)		1961.1–2013.1	
ST	-0.399	0.907	0.042	0.213	0.338	0.0227	2.08
	(-1.35)	(22.09)	(1.28)	(1.60)	(3.91)	1971.1–2013.2	
UK	-2.193	0.754	0.022	0.467		0.0277	1.90
	(-5.14)	(16.41)	(1.34)	(5.27)		1961.1–2013.2	
FI	-0.269	0.952	0.034	0.073		0.0538	2.50
	(-0.95)	(35.29)	(1.15)	(1.37)		1965.1–2013.2	
AS	-1.812	0.841	0.076	0.327		0.0373	1.46
	(-4.69)	(24.47)	(3.50)	(4.72)		1966.1–2013.2	
SO	-0.350	0.914	0.017	0.113		0.0703	1.83
	(-0.82)	(26.17)	(0.51)	(1.64)		1962.1–2012.4	
KO	-0.652	0.897		0.170		0.0497	1.87
	(-3.41)	(33.71)		(3.73)		1974.1–2012.4	
Annual							
BE	0.082	0.877	0.276	0.116		0.0504	2.03
	(0.06)	(8.68)	(3.00)	(0.53)		1962–2012	
DE	-1.265	0.826	0.047	0.380		0.0514	2.05
	(-1.86)	(12.22)	(0.43)	(2.19)		1962–2012	
NO	0.340	0.667	0.197	0.219		0.0518	1.65
	(0.77)	(4.97)	(2.93)	(1.35)		1962–2012	
SW	-0.400	0.938	0.030	0.128		0.0592	1.97
	(-0.41)	(9.27)	(0.34)	(0.50)		1965–2012	
GR	-0.372	0.900	0.144	0.129		0.0762	1.68
	(-0.37)	(10.87)	(1.40)	(0.74)		1962–2009	
IR	-1.711	0.813	0.118	0.356		0.0692	1.01
	(-1.64)	(10.25)	(1.22)	(2.04)		1962–2012	
PO	-1.385	0.295	0.482	0.773		0.0706	1.53
	(-2.48)	(2.68)	(5.71)	(5.63)		1962–2012	
SP	-1.699	0.681	0.312	0.453		0.0712	1.29
	(-1.18)	(7.97)	(4.35)	(2.09)		1962–2012	
NZ	-3.149	0.660	0.275	0.609		0.0716	1.83
	(-1.45)	(4.72)	(2.73)	(1.86)		1962–2011	
SA	-0.649	0.564		0.499		0.1426	0.96
	(-1.71)	(4.93)		(3.14)		1970–2012	
VE	-2.488	0.112		1.401		0.1281	1.18
	(-6.14)	(0.99)		(6.89)		1962–2012	
CO	-2.163	0.140	0.116	0.941		0.0751	1.49
	(-1.83)	(0.98)	(2.49)	(5.20)		1970–2012	

Table B1: Coefficient Estimates for Equation 1

	a_1	a_2	a_3	a_4	ρ	SE	DW
JO	-1.038	0.320		0.771		0.1040	1.01
	(-1.35)	(2.42)		(4.62)			1978–2009
SY	-4.594	0.304	0.097	1.042		0.1253	1.37
	(-3.63)	(2.29)	(2.68)	(4.74)			1965–2009
ID	-1.008	0.846		0.398		0.1032	1.82
	(-1.91)	(8.79)		(2.00)			1962–2012
MA	-1.266	0.793		0.339		0.0944	1.58
	(-1.75)	(10.70)		(2.36)			1972–2012
PA	-1.030	0.420		0.600		0.0895	1.39
	(-3.18)	(3.56)		(4.19)			1974–2012
PH	-1.276	0.781		0.475		0.1592	2.13
	(-1.52)	(8.88)		(1.82)			1962–2012
TH	-0.968	0.737		0.454		0.1034	1.64
	(-3.01)	(9.30)		(3.30)			1962–2012
CH	-0.850	0.574		0.581		0.1111	1.40
	(-2.83)	(4.98)		(3.34)			1984–2011
BR	-2.514	0.764		0.453		0.1008	2.23
	(-0.96)	(4.89)		(1.31)			1995–2011
CE	-2.322	0.343		0.851		0.1022	1.18
	(-3.57)	(2.27)		(4.26)			1978–2012
ME	-2.775	0.825	0.294	0.404		0.1542	1.36
	(-1.71)	(11.72)	(2.15)	(2.10)			1962–2011
PE	-8.972			1.803		0.0746	1.14
	(*****)			(21.44)			1992–2012

Table B1: Test Results for Equation 1

	Lags	log PY	RHO	T	Stability			End Test		overid	
	p-val	p-val	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly											
CA	0.000	0.319	0.000	0.122	23.23	5	5.086	1.000	1998.4		
JA	0.046	0.000	0.059	0.001	21.68	5	6.257	0.352	1998.3		
AU	0.758	0.000	0.000	0.003	28.82	4	4.872	1.000	1998.3		
FR	0.170	0.800	0.037	0.713	7.76	4	3.226	0.602	1998.3	0.004	5
GE	0.067	0.466	0.429	0.033	8.75	4	4.573	0.345	1998.4		
IT	0.118	0.938	0.023	0.012	11.48	4	3.204	1.000	1998.3	0.000	5
NE	0.130	0.661	0.362	0.009	4.65	4	1.859	0.979	1998.4	0.032	5
ST	0.000	0.947	0.000	0.000	38.85	5	1.428	0.412	1998.3		
UK	0.197	0.977	0.311	0.065	7.25	4	3.453	0.890	1998.3	0.006	5
FI	0.000	0.893	0.001	0.373	35.37	4	2.223	1.000	1998.3	0.000	4
AS	0.000	0.564	0.000	0.012	8.07	4	4.945	1.000	1998.2	0.000	6
SO	0.253	0.650	0.000	0.767	7.26	4	9.078	0.910	1998.3		
KO	0.763		0.000	0.001	18.91	3	3.643	0.512	1998.4		
Annual											
BE	0.328	0.642	0.947	0.001	34.83	4	7.384	0.056	1996	0.006	5
DE	0.327	0.134	0.872	0.000	43.52	4	7.384	0.636	1998	0.000	5
NO	0.278	0.385	0.010	0.913	32.81	4	7.384	0.955	1998	0.194	5
SW	0.024	0.719	0.786	0.023	39.17	4	9.411	0.105	1998	0.000	5
GR	0.281	0.002	0.137	0.004	10.36	4	8.251	0.240	1998	0.045	5
IR	0.011	0.284	0.000	0.122	21.52	4	4.003	0.045	1998		
PO	0.012	0.863	0.244	0.677	5.29	4	7.384	0.938	1995		
SP	0.031	0.579	0.000	0.039	13.97	4	7.384	0.273	1998		
NZ	0.289	0.000	0.000	0.000	22.73	4	7.638	1.000	1998	0.000	5
SA	0.057		0.000	0.255	15.57	3	4.510	0.857	1998		
VE	0.315		0.000	0.832	2.12	3	3.363	0.682	1998		
CO	0.043	0.277	0.000	0.004	5.92	4	4.510	1.000	1998		
JO	0.023		0.000	0.314							
SY	0.326	0.206	0.002	0.116	9.66	4	6.911	1.000	1998		
ID	0.602		0.478	0.231	5.40	3	7.384				
MA	0.484		0.140	0.767	10.79	3	3.901	0.917	1998		
PA	0.079		0.000	0.000	3.93	3	3.335	0.000	1998		
PH	0.318		0.327	0.048	21.66	3	7.384	1.000	1999		
TH	0.723		0.000	0.102	2.84	3	7.384	0.045	1998		
CH	0.031		0.062	0.591							
CE	0.558		0.000	0.004	1.13	3	2.043				
ME	0.384	0.000	0.000	0.000	13.84	4	7.638	1.000	1998		

Table B2: Coefficient Estimates for Equation 2

$\log(C/POP) = a_1 + a_2 \log(C/POP)_{-1} + a_3 RS + a_4 RB + a_5 \log(Y/POP)$

	a_1	a_2	a_3	a_4	a_5	ρ	SE	DW
Quarterly								
CA	-0.006	0.901		-0.0012†	0.094		0.0073	2.09
	(-0.30)	(48.94)		(-5.78)	(5.08)		1961.2–2013.2	
JA	0.130	0.906		-0.0011	0.069	-0.232	0.0099	2.05
	(6.25)	(27.77)		(-3.07)	(2.24)	(-3.23)	1966.1–2013.2	
AU	0.134	0.944	-0.0004		0.037		0.0123	2.74
	(3.30)	(26.32)	(-0.73)		(1.08)		1970.1–2013.1	
FR	-0.014	0.810	-0.0002		0.180		0.0069	1.96
	(-0.67)	(28.73)	(-1.58)		(6.35)		1961.1–2012.4	
GE	0.025	0.931			0.063		0.0095	2.31
	(1.05)	(45.32)			(2.97)		1963.1–2013.2	
IT	0.033	0.937			0.056		0.0071	1.36
	(0.76)	(29.50)	(-0.05)		(1.61)		1961.1–2013.1	
NE	0.163	0.942		-0.0004	0.036		0.0097	2.14
	(4.25)	(43.94)		(-0.76)	(1.75)		1967.1–2013.1	
ST	0.044	0.926		-0.0014	0.047		0.0045	1.95
	(3.26)	(28.80)		(-3.96)	(1.67)		1977.1–2013.2	
UK	-0.342	0.805		-0.0013	0.226		0.0104	1.63
	(-5.35)	(25.70)		(-4.35)	(6.11)		1961.1–2013.2	
FI	0.026	0.845	-0.0004		0.142		0.0127	2.43
	(0.92)	(25.00)	(-1.51)		(4.27)		1961.1–2013.2	
AS	-0.078	0.899			0.104		0.0070	1.99
	(-2.89)	(42.39)			(4.68)		1966.1–2013.2	
SO	0.084	0.955	-0.0006†		0.034		0.0195	2.23
	(0.67)	(35.27)	(-2.00)		(1.20)		1962.1–2012.4	
KO	0.201	0.861		-0.0009	0.106		0.0186	1.89
	(3.88)	(19.69)		(-1.57)	(2.71)		1974.1–2012.4	
Annual								
BE	0.228	0.805			0.162		0.0134	1.62
	(3.11)	(9.38)			(1.90)		1962–2012	
DE	0.235	0.623			0.287		0.0216	1.82
	(3.79)	(6.36)			(3.51)		1962–2012	
NO	0.041	0.934			0.053		0.0217	1.55
	(0.97)	(19.75)			(1.28)		1962–2012	
SW	0.245	0.641			0.272		0.0165	1.14
	(3.42)	(7.76)			(4.26)		1965–2012	
GR	0.009	0.881	-0.0014		0.117		0.0213	1.39
	(0.06)	(22.05)	(-2.47)		(2.36)		1962–2009	
IR	1.136	0.567		-0.0034	0.296		0.0257	1.25
	(6.14)	(7.26)		(-2.91)	(5.17)		1962–2012	
PO	0.247	0.618		-0.0015	0.341		0.0345	1.50
	(2.30)	(8.03)		(-1.65)	(4.47)		1962–2012	
SP	0.182	0.478			0.476		0.0132	0.99
	(3.00)	(6.80)			(6.76)		1962–2012	

Table B2: Coefficient Estimates for Equation 2

	a_1	a_2	a_3	a_4	a_5	ρ	SE	DW
NZ	0.033	0.562		-0.0027	0.415		0.0169	1.47
	(0.24)	(5.66)		(-3.26)	(4.32)			1962–2011
SA	-0.019	0.846			0.119		0.1411	2.16
	(-0.04)	(10.00)			(1.14)			1970–2012
VE	-0.494	0.727			0.412		0.0756	1.87
	(-1.68)	(9.28)			(3.49)			1962–2012
CO	0.712	0.494			0.403		0.0226	1.71
	(3.67)	(4.92)			(4.89)			1970–2012
SY	1.512				0.827		0.0659	1.12
	(4.03)				(24.21)			1965–2009
ID	0.192	0.170	-0.0029		0.665		0.0250	1.88
	(4.53)	(1.57)	(-3.04)		(8.04)			1962–2012
MA	0.367	0.516			0.411		0.0433	1.28
	(2.07)	(4.00)			(3.76)			1972–2012
PA	-0.036	0.859			0.147		0.0346	1.60
	(-0.46)	(8.18)			(1.44)			1974–2012
PH	-0.034	0.875	-0.0025		0.135		0.0194	1.77
	(-0.49)	(16.30)	(-4.09)		(2.61)			1962–2012
TH	0.067	0.436			0.479		0.0249	1.58
	(3.24)	(6.06)			(7.73)			1962–2012
CH	-0.117	0.594	-0.0029		0.330		0.0249	1.28
	(-2.17)	(6.41)	(-0.95)		(4.38)			1984–2011
AR	1.129	0.385			0.468		0.0499	1.38
	(1.22)	(2.65)			(4.90)			1994–2012
BR	0.750	0.452			0.441		0.0160	0.79
	(1.46)	(3.65)			(4.90)			1995–2011
CE	0.237	0.490			0.453		0.0383	1.52
	(1.52)	(5.90)			(6.44)			1978–2012
ME	0.364	0.492			0.457		0.0302	0.80
	(1.77)	(5.25)			(5.06)			1962–2011
PE	1.091	0.455			0.404		0.0200	1.39
	(2.57)	(3.75)			(5.29)			1992–2012

Table B2: Test Results for Equation 2

	Lags	RHO	T	Leads	Stability			End Test		overid	
	p-val	p-val	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly											
CA	0.128	0.225	0.099	0.005	8.63	4	5.086	1.000	1998.4		
JA	0.297	0.091	0.509	0.009	6.05	5	6.257	1.000	1998.3	0.040	4
AU	0.000	0.000	0.810	0.334	47.02	4	4.872	1.000	1998.3	0.008	4
FR	0.083	0.000	0.845	0.305	15.27	4	3.226	1.000	1998.3		
GE	0.001	0.016	0.000	0.752	13.66	3	3.332	1.000	1998.4		
IT	0.002	0.000	0.000	0.025	13.81	4	3.204	0.935	1998.3	0.004	4
NE	0.231	0.090	0.000	0.146	6.69	4	1.977	1.000	1998.4		
ST	0.004	0.015	0.026	0.001	19.32	4	1.428	1.000	1998.3	0.013	4
UK	0.331	0.000	0.007	0.004	18.30	4	3.453	0.824	1998.3		
FI	0.001	0.000	0.355	0.225	11.38	4	2.115	0.462	1998.3	0.025	3
AS	0.952	0.744	0.690	0.785	1.97	3	4.945	1.000	1998.2	0.881	4
SO	0.068	0.120	0.000	0.004	10.12	4	9.078	1.000	1998.3	0.000	4
KO	0.520	0.315	0.033	0.059	11.08	4	3.643	0.977	1998.4	0.006	3
Annual											
BE	0.199	0.185	0.002	0.353	11.50	3	7.384	1.000	1996	0.060	4
DE	0.621	0.030	0.220	0.411	3.25	3	7.384	0.773	1998	0.053	5
NO	0.119	0.101	0.130	0.252	19.09	3	7.384	1.000	1998	0.023	4
SW	0.002	0.000	0.004	0.730	9.98	3	6.224	1.000	1998	0.001	4
GR	0.257	0.003	0.000	0.177	14.14	4	8.251	0.960	1998		
IR	0.000	0.004	0.044	0.511	16.84	4	4.003	1.000	1998	0.001	3
PO	0.059	0.020	0.000	0.051	15.45	4	7.384	0.938	1995	0.006	3
SP	0.002	0.000	0.000	0.398	15.53	3	7.384	0.364	1998	0.014	4
NZ	0.086	0.030	0.968	0.198	8.71	4	7.638	1.000	1998	0.188	3
SA	0.730	0.519	0.915	0.142	0.41	3	4.510	0.571	1998		
VE	0.900	0.664	0.709	0.328	3.24	3	7.384	0.955	1998		
CO	0.950	0.003	0.549	0.992	1.53	3	1.130	0.000	1998		
SY	0.747	0.002	0.753	0.170	4.96	2	6.911	0.591	1998		
ID	0.372	0.318	0.030	0.905	6.61	4	7.384				
MA	0.011	0.001	0.354	0.514	4.91	3	3.901	0.000	1998		
PA	0.490	0.002	0.542	0.880	23.77	3	3.335	0.200	1998		
PH	0.563	0.517	0.017	0.289	9.50	4	7.384	1.000	1999		
TH	0.503	0.000	0.002	0.731	7.89	3	7.384	0.000	1998		
CH	0.069	0.007	0.400	0.175							
CE	0.405	0.001	0.000	0.001	0.25	3	2.043				
ME	0.009	0.000	0.290	0.586	46.91	3	7.638	0.217	1998		

Table B3: Coefficient Estimates for Equation 3

$$\log I = a_1 + a_2 \log I_{-1} + a_3 \log Y + a_4 RS + a_5 RB$$

	a_1	a_2	a_3	a_4	a_5	SE	DW
Quarterly							
CA	-0.357	0.913	0.106		-0.0013†	0.0212	1.40
	(-2.51)	(35.27)	(3.15)		(-2.56)	1961.2–2013.2	
AU	0.470	0.933	0.017		-0.0047	0.0246	2.38
	(3.37)	(28.38)	(0.53)		(-2.64)	1970.1–2013.1	
FR	0.227	0.957	0.021		-0.0020†	0.0171	1.98
	(4.90)	(56.32)	(1.28)		(-4.54)	1961.1–2012.4	
GE	0.437	0.804	0.139		-0.0016	0.0337	2.06
	(3.26)	(20.20)	(4.38)		(-0.96)	1963.1–2013.2	
IT	0.282	0.939	0.032		-0.0008†	0.0197	1.28
	(3.95)	(38.57)	(1.83)		(-2.13)	1961.1–2013.1	
NE	0.261	0.821	0.133		-0.0045†	0.0527	2.57
	(2.37)	(19.20)	(3.64)		(-2.27)	1961.1–2013.1	
ST	0.023	0.967	0.021		-0.0035	0.0212	1.52
	(0.18)	(26.89)	(0.42)		(-1.79)	1971.1–2013.2	
UK	0.017	0.904	0.082		-0.0012†	0.0325	2.15
	(0.17)	(28.03)	(2.54)		(-1.65)	1961.1–2013.2	
FI	0.253	0.927	0.038	-0.0012		0.0418	2.28
	(2.88)	(31.72)	(1.67)	(-1.38)		1961.1–2013.2	
AS	-0.227	0.953	0.062		-0.0013	0.0266	1.78
	(-1.79)	(42.22)	(2.08)		(-2.03)	1966.1–2013.2	
SO	0.074	0.955	0.037		-0.0034†	0.0380	2.12
	(0.82)	(67.52)	(2.72)		(-4.43)	1962.1–2012.4	
KO	0.103	0.960	0.028			0.0487	1.83
	(1.23)	(40.12)	(1.05)			1974.1–2012.4	
Annual							
BE	0.462	0.599	0.321		-0.0151	0.0465	1.81
	(1.87)	(6.50)	(3.73)		(-4.56)	1962–2012	
DE	-0.907	0.574	0.459		-0.0084	0.0612	1.61
	(-2.45)	(6.06)	(3.89)		(-3.17)	1962–2012	
NO	0.174	0.896	0.066	-0.0063		0.0662	1.45
	(1.26)	(13.32)	(1.21)	(-2.36)		1962–2012	
SW	-0.005	0.696	0.244	-0.0072		0.0566	1.31
	(-0.02)	(7.15)	(2.75)	(-2.59)		1965–2012	
GR	0.314	0.507	0.412	-0.0132		0.0885	1.69
	(0.85)	(4.57)	(3.76)	(-4.32)		1962–2009	
IR	0.649	0.923	0.012		-0.0040	0.1035	0.98
	(1.84)	(9.34)	(0.12)		(-0.74)	1962–2012	
PO	0.434	0.850	0.095		-0.0012	0.0784	0.96
	(1.39)	(6.69)	(0.74)		(-0.48)	1962–2012	
SP	0.664	0.869	0.071	-0.0048		0.0650	0.80
	(1.47)	(9.10)	(0.62)	(-2.09)		1962–2012	

Table B3: Coefficient Estimates for Equation 3

$$\log I = a_1 + a_2 \log I_{-1} + a_3 \log Y + a_4 RS + a_5 RB$$

	a_1	a_2	a_3	a_4	a_5	SE	DW
NZ	-1.589	0.619	0.474		-0.0062	0.0755	1.19
	(-2.21)	(5.00)	(2.88)		(-1.89)		1962–2011
ID	-1.841	0.616	0.518			0.0512	1.46
	(-3.63)	(5.60)	(3.61)				1962–2012
PA	0.226	0.799	0.134			0.0882	1.00
	(0.73)	(7.67)	(1.20)				1974–2012
CH	-1.287	0.462	0.630	-0.0097		0.0694	0.95
	(-1.91)	(2.27)	(2.57)	(-1.19)			1984–2011

Table B3: Test Results for Equation 3

	Lags	RHO	T	Leads	Stability			End Test		overid	
	p-val	p-val	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly											
CA	0.000	0.000	0.169	0.074	5.15	4	5.086	1.000	1998.4	0.010	4
AU	0.007	0.027	0.773	0.180	15.53	4	4.872	1.000	1998.3	0.488	4
FR	0.888	0.072	0.057	0.427	6.50	4	3.226	0.645	1998.3	0.487	4
GE	0.029	0.162	0.006	0.605	7.73	4	3.332	1.000	1998.4		
IT	0.000	0.000	0.000	0.000	8.85	4	3.204	0.326	1998.3	0.000	4
NE	0.000	0.000	0.004	0.027	2.94	4	1.859	1.000	1998.4	0.000	4
ST	0.000	0.000	0.054	0.001	10.75	4	5.162	0.961	1998.3		
UK	0.213	0.353	0.000	0.927	3.86	4	3.453	0.000	1998.3	0.000	4
FI	0.020	0.012	0.000	0.024	13.08	4	2.115	1.000	1998.3	0.000	4
AS	0.127	0.030	0.152	0.081	4.79	4	4.945	0.739	1998.2	0.085	4
SO	0.465	0.127	0.000	0.650	7.63	4	9.078	1.000	1998.3	0.004	4
KO	0.154	0.325	0.000	0.032	7.92	3	3.643	1.000	1998.4	0.037	5
Annual											
BE	0.329	0.394	0.008	0.362	5.32	4	7.384	1.000	1996	0.215	4
DE	0.082	0.075	0.000	0.683	12.76	4	7.384	0.864	1998	0.003	4
NO	0.030	0.033	0.131	0.828	5.04	4	7.384	0.591	1998	0.051	5
SW	0.000	0.007	0.253	0.636	15.97	4	6.224	0.474	1998	0.055	4
GR	0.356	0.456	0.022	0.307	17.61	4	8.251	0.560	1998	0.059	4
IR	0.000	0.000	0.001	0.002	6.27	4	4.003	0.000	1998		
PO	0.000	0.000	0.000	0.072	12.06	4	7.384	0.125	1995	0.041	4
SP	0.000	0.000	0.286	0.000	2.98	4	7.384	0.000	1998	0.000	4
NZ	0.000	0.001	0.968	0.117	7.44	4	7.638	1.000	1998	0.206	4
ID	0.113	0.003	0.178	0.671	4.25	3	7.384				
PA	0.000	0.000	0.132	0.809	0.64	3	3.335	0.000	1998		
CH	0.000	0.002	0.092	0.000							

Table B4: Coefficient Estimates for Equation 4

$\log Y = a_1 + a_2 \log Y_{-1} + a_3 \log X + a_4 \log V_{-1}$

	a_1	a_2	a_3	a_4	ρ	Implied Values See eq. (17) in Section 3.6.4 λ	α	β	SE	DW
Quarterly										
FR	0.196	0.140	0.880	-0.0353	0.776	0.860	0.041	0.585	0.0042	1.88
	(4.27)	(7.78)	(47.17)	(-1.94)	(15.95)				1961.1–2012.4	
IT	-0.001	0.441	0.562	-0.0035	0.479	0.559	0.006	0.954	0.0068	1.94
	(-0.02)	(9.88)	(12.26)	(-2.16)	(6.96)				1961.1–2013.1	
AS	0.317	0.471	0.552	-0.0504	0.115	0.529	0.095	0.460	0.0077	2.01
	(4.50)	(8.93)	(10.41)	(-3.89)	(1.35)				1966.1–2013.2	
Annual										
PA	-0.099	0.075	0.956	-0.0207		0.925	0.022	1.508	0.0035	1.19
	(-1.77)	(2.16)	(29.90)	(-1.93)					1974–2012	

Table B4: Test Results for Equation 4

	Lags	RHO	T	Leads	Stability			End Test	
	p-val	p-val	p-val	p-val	AP	df	λ	p-val	End
Quarterly									
FR	0.000	0.338	0.127	0.489	27.48	5	3.226	0.989	1998.3
IT	0.850	0.971	0.349	0.001	13.56	5	3.204	1.000	1998.3
AS	0.129	0.110	0.757	0.033	2.36	5	2.306	1.000	1998.2
Annual									
PA	0.008	0.011	0.175	0.246	11.34	4	3.335	0.800	1998

Table B5: Coefficient Estimates for Equation 5

$$\log PY = a_1 + a_2 \log PY_{-1} + a_3 \log PM + a_4 ZZ + a_5 T$$

	a_1	a_2	a_3	a_4	a_5	ρ	SE	DW
Quarterly								
CA	0.028	0.997	0.009	0.08937†	-0.00009	0.586†	0.0068	2.09
	(1.19)	(50.59)	(0.61)	(2.19)	(-0.87)	(10.03)	1961.2–2013.2	
JA	0.018	0.986	0.005		-0.00009	0.479†	0.0071	2.07
	(3.55)	(184.07)	(1.33)		(-3.41)	(7.78)	1966.1–2013.2	
AU	-0.007	0.974	0.014	0.06307†	0.00005	-0.237†	0.0066	2.00
	(-1.15)	(167.00)	(2.21)	(2.35)	(1.82)	(-3.17)	1970.1–2013.1	
FR	-0.096	0.895	0.075	0.18887†	0.00046	0.402†	0.0071	2.09
	(-3.06)	(40.05)	(5.47)	(4.15)	(3.15)	(5.99)	1961.1–2012.4	
GE	0.014	0.997	0.004	0.10216†	-0.00004		0.0066	2.09
	(2.33)	(175.07)	(0.97)	(4.05)	(-1.47)		1963.1–2013.2	
IT	0.026	0.953	0.051	0.14664†	-0.00007		0.0099	1.48
	(2.95)	(208.40)	(13.31)	(4.89)	(-1.70)		1961.1–2013.1	
NE	0.016	0.992	0.004	0.15859†	-0.00004		0.0066	1.58
	(1.32)	(105.05)	(0.72)	(6.65)	(-0.78)		1967.1–2013.1	
ST	0.005	0.981	0.010	0.09725†		0.497†	0.0036	2.01
	(0.51)	(120.04)	(1.12)	(5.31)	(-0.05)	(7.28)	1971.1–2013.2	
UK	-0.057	0.896	0.090†	0.15854†	0.00029	0.431†	0.0099	2.27
	(-2.66)	(53.37)	(6.93)	(3.97)	(2.88)	(6.59)	1961.1–2013.2	
FI	0.015	0.961	0.040	0.04139	-0.00004		0.0145	2.31
	(1.22)	(102.34)	(5.07)	(1.71)	(-0.66)		1961.1–2013.2	
AS	0.021	0.994		0.15584†	-0.00006	0.469†	0.0089	2.18
	(1.26)	(164.91)		(2.74)	(-0.73)	(6.79)	1969.1–2013.2	
SO	0.024	0.954	0.048		-0.00003		0.0171	1.87
	(0.67)	(103.05)	(5.85)		(-0.18)		1962.1–2012.4	
KO	-0.007	0.973		0.11682†	0.00007		0.0144	1.76
	(-0.42)	(196.69)		(3.70)	(0.80)		1974.1–2012.4	
Annual								
BE	0.093	0.976	0.053	0.31668†	-0.00160		0.0197	0.39
	(2.37)	(30.43)	(1.96)	(1.61)	(-1.94)		1962–2012	
DE	0.044	0.921	0.076		-0.00056		0.0218	0.42
	(1.07)	(21.37)	(2.02)		(-0.60)		1962–2012	
NO	-0.247	0.827	0.093	0.39819†	0.00612		0.0360	1.60
	(-1.04)	(6.12)	(1.11)	(1.73)	(1.24)		1962–2012	
SW	0.202	0.898	0.153	0.24029†	-0.00392		0.0181	0.89
	(5.41)	(32.18)	(6.67)	(2.43)	(-4.70)		1965–2012	
IR	0.015	0.846	0.159†	0.31197†	-0.00022		0.0367	0.73
	(0.15)	(11.45)	(2.70)	(3.43)	(-0.10)		1962–2012	
PO	-0.297	0.731	0.278	0.31567†	0.00673		0.0233	1.19
	(-6.07)	(40.71)	(18.71)	(2.83)	(6.28)		1962–2012	
SP	0.320	0.985	0.104†	0.53546†	-0.00596		0.0344	0.28
	(3.37)	(25.99)	(3.00)	(2.46)	(-2.80)		1962–2012	
NZ	-0.037	0.724	0.276	0.14016†	0.00167		0.0343	1.41
	(-0.40)	(16.11)	(8.09)	(0.95)	(0.75)		1962–2011	
JO	0.162	0.872	0.159		-0.00217		0.0374	1.89
	(0.95)	(12.10)	(3.72)		(-0.56)		1978–2009	
SY	-0.135	0.895	0.113		0.00427		0.0655	1.34
	(-0.60)	(18.71)	(4.28)		(0.85)		1965–2009	

Table B5: Coefficient Estimates for Equation 5

	a_1	a_2	a_3	a_4	a_5	ρ	SE	DW
MA	-0.926	0.352	0.259		0.01837		0.0356	1.78
	(-5.25)	(3.13)	(4.59)		(5.28)		1972–2012	
PA	0.287	0.724	0.292		-0.00482		0.0329	1.75
	(0.96)	(10.70)	(6.30)		(-0.74)		1974–2012	
PH	0.014	0.800	0.175†	0.22256†	0.00146		0.0642	1.65
	(0.05)	(8.35)	(2.92)	(1.05)	(0.26)		1962–2012	
TH	0.092	0.763	0.178	0.31402†	-0.00049		0.0349	1.02
	(0.96)	(10.18)	(4.00)	(3.02)	(-0.24)		1962–2012	
CH	-0.561	0.544	0.189†	0.51177	0.01371		0.0380	1.14
	(-2.75)	(4.50)	(3.55)	(2.07)	(3.02)		1984–2011	
CE	-0.313	0.593	0.341	0.54102†	0.00721		0.0489	1.32
	(-2.42)	(7.91)	(4.41)	(2.78)	(2.56)		1978–2012	

Table B5: Test Results for Equation 5

	Lags-1	Lags-2	RHO	Stability			End Test		overid	
	p-val	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly										
CA	0.449	0.103	0.300	24.93	6	5.086	0.011	1998.4		
JA	0.000	0.000	0.000	77.28	5	6.257	0.986	1998.3		
AU	0.181	0.727	0.640	3.96	6	4.872	1.000	1998.3	0.000	6
FR	0.328	0.001	0.069	25.55	6	3.226	1.000	1998.3	0.000	7
GE	0.688	0.002	0.001	8.34	5	3.332	1.000	1998.4	0.000	6
IT	0.000	0.000	0.000	41.52	5	3.204	1.000	1998.3	0.000	6
NE	0.005	0.000	0.014	10.29	5	1.977	1.000	1998.4		
ST	0.682	0.810	0.885	4.76	6	1.428	1.000	1998.3	0.034	6
UK	0.000	0.000	0.000	26.53	6	3.453	1.000	1998.3	0.000	7
FI	0.013	0.000	0.075	10.79	5	2.115	1.000	1998.3	0.000	4
AS	0.037	0.047	0.011	15.24	5	5.911	0.561	1998.2		
SO	0.009	0.013	0.006	24.03	4	9.078	0.876	1998.3	0.000	5
KO	0.515	0.478	0.802	3.63	4	3.643	1.000	1998.4	0.001	7
Annual										
BE	0.000	0.000	0.000	98.21	5	7.384	1.000	1996		
DE	0.000	0.000	0.000	98.77	4	7.384	1.000	1998		
NO	0.002	0.000	0.001	8.61	5	7.384	0.182	1998	0.000	4
SW	0.000	0.000	0.000	26.08	5	6.224	1.000	1998	0.001	4
IR	0.000	0.000	0.000	43.83	5	4.003	1.000	1998	0.000	4
PO	0.050	0.005	0.008	38.19	5	7.384	1.000	1995	0.002	4
SP	0.000	0.000	0.000	98.77	5	7.384	1.000	1998	0.000	4
NZ	0.033	0.151	0.043	9.54	5	7.638	1.000	1998	0.034	4
JO	0.987	0.987	0.786							
SY	0.004	0.011	0.003	20.82	4	6.911	1.000	1998		
MA	0.014	0.000	0.005	5.86	4	3.901	0.583	1998		
PA	0.377	0.159	0.559	6.15	4	3.335	0.300	1998		
PH	0.568	0.211	0.231	34.68	5	7.384	1.000	1999		
TH	0.000	0.026	0.000	63.20	5	7.384	0.727	1998		
CH	0.010	0.001	0.010					44	0.004	4
CE	0.071	0.005	0.063	19.41	5	2.043				

Table B6: Coefficient Estimates for Equation 6

$$\log[M1/(POP \cdot PY)] = a_1 + a_2 \log[M1/(POP \cdot PY)]_{-1} + a_3 \log[M1_{-1}/(POP_{-1} \cdot PY)] + a_4 RS + a_5 \log(Y/POP)$$

	a_1	a_2	a_3	a_4	a_5	SE	DW
Quarterly		real	nominal				
CA	-0.287		0.931	-0.0029	0.103	0.0272	2.29
	(-2.55)		(53.97)	(-2.61)	(4.08)	1968.1–2008.4	
GE	-0.374	0.969		-0.0033	0.078	0.0340	2.28
	(-2.25)	(63.21)		(-2.34)	(2.31)	1966.1–2012.4	
NE	-0.073		0.924	-0.0046	0.091	0.0203	2.16
	(-1.33)		(63.04)	(-5.96)	(4.53)	1961.1–2012.4	
ST	0.070	0.971		-0.0077	0.019	0.0355	1.82
	(0.80)	(59.52)		(-3.87)	(0.48)	1976.1–2013.1	
UK	0.144	0.976		-0.0030	0.004	0.0137	2.13
	(1.74)	(121.26)		(-6.07)	(0.69)	1971.2–2006.1	
FI	-1.115		0.742	-0.0063	0.416	0.0680	1.84
	(-3.28)		(15.05)	(-3.08)	(4.78)	1970.1–2012.4	
AS	-0.528		0.946	-0.0032	0.115	0.0239	2.03
	(-3.98)		(72.65)	(-3.54)	(4.30)	1966.1–2012.4	
KO	0.099		0.926		0.054	0.0597	2.46
	(1.49)		(24.23)		(1.42)	1974.1–2012.4	
Annual							
BE	0.506	0.924		-0.0092	0.024	0.0341	1.84
	(2.12)	(21.68)		(-5.32)	(0.98)	1962–2012	
DE	-0.576		0.777	-0.0078	0.299	0.0497	1.96
	(-1.98)		(12.79)	(-2.81)	(3.05)	1962–2008	
SW	0.021	0.966		-0.0071	0.039	0.0404	1.88
	(0.13)	(13.68)		(-3.94)	(0.71)	1965–2008	
IR	-0.211		0.749	-0.0214	0.260	0.1656	2.20
	(-0.10)		(8.39)	(-1.09)	(1.12)	1983–2012	
PO	-0.663	0.843		-0.0009	0.215	0.1254	1.48
	(-0.98)	(10.76)		(-0.35)	(1.59)	1962–2012	
SP	0.748		0.861	-0.0016	0.053	0.0500	1.12
	(3.22)		(8.16)	(-0.80)	(0.52)	1962–2004	
VE	-1.652	0.842		-0.0019	0.732	0.1911	1.77
	(-1.80)	(9.77)		(-1.17)	(1.91)	1962–2012	
ID	-0.731		0.648	-0.0005	0.411	0.0483	1.72
	(-2.59)		(4.97)	(-0.24)	(2.79)	1962–2012	
PA	-0.188		0.844	-0.0099	0.206	0.0682	1.69
	(-0.58)		(6.95)	(-1.80)	(1.33)	1974–2007	
PH	-0.416		0.714	-0.0094	0.272	0.0765	2.17
	(-1.27)		(8.43)	(-2.57)	(2.86)	1962–2007	

Table B6: Test Results for Equation 6

	[a]N vs R	Lags	RHO	T	Stability			End Test		overid	
	p-val	p-val	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly											
CA	0.041	0.284	0.009	0.558	15.96	4	6.476	1.000	1998.4	0.158	5
GE	0.882	0.078	0.000	0.000	48.44	4	3.676	1.000	1998.4	0.000	4
NE	0.351	0.015	0.250	0.437	6.52	4	1.868	0.000	1998.4		
ST	0.009	0.000	0.050	0.025	16.31	4	1.000	0.031	1998.3	0.131	5
UK	0.000	0.036	0.037	0.061	3.59	4	17.141	0.433	1998.3	0.274	4
FI	0.007	0.083	0.000	0.000	35.00	4	2.457	1.000	1998.3	0.009	4
AS	0.701	0.313	0.237	0.952	3.25	4	5.018	0.521	1998.2	0.114	4
KO	0.732	0.003	0.003	0.054	3.12	3	3.643	1.000	1998.4	0.009	5
Annual											
BE	0.721	0.869	0.554	0.464	3.78	4	7.384	0.056	1996		
DE	0.932	0.381	0.883	0.019	2.37	4	4.902	0.615	1998		
SW	0.155	0.920	0.675	0.692	2.92	4	7.208	0.000	1998		
IR	0.710	0.480	0.580	0.683	1.40	4	1.000	0.000	1998		
PO	0.002	0.030	0.048	0.101	41.15	4	7.384	1.000	1995		
SP	0.048	0.421	0.048	0.138	2.75	4	7.384	0.000	1998		
VE	0.341	0.229	0.000	0.000	16.83	4	7.384	0.091	1998		
ID	0.340	0.872	0.329	0.950	6.73	4	7.384				
PA	0.508	0.106	0.610	0.981	5.67	4	3.850	0.000	1998		
PH	0.367	0.171	0.471	0.351	3.89	4	9.061	0.414	1999		

Table B7: Coefficient Estimates for Equation 7

$RS = a_1 + a_2 RS_{-1} + a_3 PCPY + a_4 ZZ + a_5 RS_{GE} + a_6 RS_{US}$

	a_1	a_2	a_3	a_4	a_5	a_6	ρ	SE	DW
Quarterly									
EU	0.46	0.849	0.040†	23.0		0.08		0.616	1.79
	(3.72)	(32.20)	(2.17)	(6.79)		(3.98)		1972.2–2012.4	
CA	0.20	0.816		6.6		0.23		0.780	1.63
	(1.48)	(22.72)		(3.05)		(4.99)		1972.2–2013.2	
JA	-0.12	0.810	0.112			0.11	0.394	0.540	2.07
	(-0.92)	(21.08)	(4.91)			(3.28)	(4.59)	1972.2–2013.2	
AU	1.39	0.752		43.0		0.08		0.709	1.89
	(4.66)	(18.16)		(7.06)		(2.51)		1972.2–1998.4	
FR	-0.22	0.742	0.032	2.5	0.20	0.17		0.884	1.62
	(-0.59)	(15.60)	(0.98)	(0.32)	(3.41)	(3.52)		1972.2–1998.4	
GE	0.67	0.850	0.040†	32.9		0.08		0.716	1.95
	(2.72)	(24.79)	(1.35)	(6.98)		(2.53)		1972.2–1998.4	
IT	1.17	0.876	0.064	20.8			0.324	1.074	1.93
	(2.05)	(16.61)	(2.09)	(2.04)			(2.94)	1972.2–1998.4	
NE	0.03	0.516		8.1	0.36	0.16		1.440	1.68
	(0.05)	(7.19)		(1.16)	(4.03)	(2.39)		1972.2–1998.4	
ST	0.17	0.840	0.138				0.452	0.565	1.89
	(1.20)	(14.00)	(2.21)				(5.17)	1972.2–2013.2	
UK	0.41	0.812	0.011	7.1		0.23		0.869	1.52
	(2.51)	(23.34)	(0.63)	(3.58)		(5.70)		1972.2–2013.2	
FI	1.02	0.939		6.9				0.940	1.77
	(2.75)	(32.90)		(3.44)				1972.2–1998.4	
AS	0.17	0.888	0.022	11.3		0.14		0.974	1.72
	(0.91)	(35.72)	(0.97)	(2.62)		(3.71)		1972.2–2013.2	
SO	0.37	0.900				0.13	0.482	0.978	2.01
	(0.79)	(21.32)				(2.59)	(5.25)	1972.2–2012.4	
Annual									
BE	0.71	0.600	0.025	34.2	0.42			1.491	2.33
	(0.65)	(3.54)	(0.25)	(1.26)	(2.22)			1972–1998	
DE	-0.52	0.631	0.222	14.2	0.50			1.999	2.35
	(-0.75)	(6.48)	(2.12)	(1.04)	(3.24)			1972–2012	
NO	0.01	0.802		25.3	0.33			1.433	2.10
	(0.01)	(11.26)		(2.92)	(3.41)			1972–2012	
SW	-0.29	0.761	0.046	9.7		0.34		1.638	2.52
	(-0.53)	(7.77)	(0.45)	(0.99)		(2.91)		1972–2012	
IR	2.69		0.157		0.25	0.73		2.051	1.85
	(2.12)		(2.25)		(1.33)	(3.88)		1972–1998	
PO	-0.73	0.761	0.328	38.5				2.583	1.89
	(-0.56)	(8.52)	(4.21)	(2.81)				1972–1998	
SP	1.83	0.555	0.195			0.21		3.009	2.40
	(0.88)	(3.07)	(1.72)			(0.72)		1972–1998	
NZ	0.52	0.746	0.311	2.5				1.722	1.52
	(0.68)	(7.92)	(5.01)	(0.46)				1979–2011	
ID	0.28	0.828	0.262					1.563	1.89
	(0.24)	(11.35)	(4.23)					1972–2012	
PA	1.95	0.668	0.147	15.9				1.395	2.24
	(2.18)	(6.81)	(3.37)	(2.09)				1974–2012	
PH	1.29	0.675	0.164			0.29		2.375	1.52
	(1.13)	(8.19)	(3.45)			(2.11)		1972–2012	

Table B7: Test Results for Equation 7

	Lags	RHO	T	Stability			End Test		overid	
	p-val	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly										
EU	0.539	0.096	0.658					44	0.154	3
CA	0.000	0.011	0.205	11.01	4	4.121	1.000	1998.4	0.000	6
JA	0.105	0.227	0.079	7.80	5	4.121	1.000	1998.3	0.034	7
AU	0.773	0.165	0.067	2.04	4	2.696			0.311	6
FR	0.544	0.115	0.052	5.17	6	2.696			0.012	4
GE	0.826	0.644	0.372	2.53	5	2.696			0.290	5
IT	0.364	0.207	0.940	1.21	5	2.696	0.510	1998.3	0.022	7
NE	0.179	0.010	0.582	2.44	5	1.125			0.050	5
ST	0.550	0.186	0.083	4.39	4	1.308	1.000	1998.3	0.017	7
UK	0.002	0.001	0.043	7.67	5	4.121	1.000	1998.3	0.004	5
FI	0.448	0.270	0.688	0.82	3	1.468			0.370	4
AS	0.379	0.042	0.091	8.29	5	4.121	1.000	1998.2	0.001	5
SO	0.462	0.904	0.018	9.34	4	4.173	0.062	1998.3	0.016	6
Annual										
BE	0.017	0.186	0.868	5.58	5	2.469				
DE	0.057	0.136	0.301	6.69	5	3.901	1.000	1998		
NO	0.216	0.714	0.815	8.19	4	3.901	0.833	1998		
SW	0.325	0.039	0.215	5.06	5	3.901	1.000	1998		
IR	0.979	0.950	0.098	4.74	4	2.469				
PO	0.980	0.788	0.043	4.00	4	2.469				
SP	0.575	0.123	0.449	1.98	4	2.469				
NZ	0.390	0.095	0.775	7.09	4	4.077	1.000	1998		
ID	0.655	0.730	0.906	3.43	3	3.901				
PA	0.421	0.376	0.297	8.34	4	3.335	0.100	1998		
PH	0.117	0.122	0.290	12.01	4	3.901	1.000	1999		

Table B8: Coefficient Estimates for Equation 8

$RB - RS_{-2} = a_1 + a_2(RB_{-1} - RS_{-2}) + a_3(RS - RS_{-2})$
$+a_4(RS_{-1} - RS_{-2})$
For annual, RS_{-1} replaces RS_{-2}

	a_1	a_2	a_3	a_4	ρ	SE	DW
Quarterly							
EU	0.071	0.940	0.322	-0.303		0.3637	1.65
	(1.60)	(43.26)	(4.14)	(-3.08)		1970.3–2012.4	
CA	0.097	0.922	0.343	-0.301		0.3755	1.96
	(2.28)	(37.74)	(2.54)	(-1.84)		1961.2–2013.2	
JA	0.036	0.894	0.433	-0.462		0.4076	2.09
	(0.90)	(24.71)	(2.21)	(-1.62)		1966.1–2013.2	
AU	0.064	0.948	0.170	-0.070	0.392	0.2639	1.92
	(0.97)	(30.56)	(1.60)	(-0.87)	(4.17)	1970.1–1998.4	
FR	0.042	0.947	0.278	-0.174	0.296	0.3857	2.00
	(0.67)	(25.77)	(1.94)	(-1.25)	(3.02)	1961.1–1998.4	
GE	0.117	0.926	0.489	-0.500		0.3983	1.95
	(2.43)	(41.26)	(5.35)	(-4.27)		1963.1–2013.2	
IT	0.097	0.705	0.495	-0.292	0.584	0.4434	1.95
	(1.04)	(7.27)	(3.89)	(-3.13)	(5.02)	1961.1–1998.4	
NE	0.179	0.872	0.366	-0.297		0.4907	1.95
	(2.47)	(20.14)	(3.56)	(-3.19)		1961.1–1998.4	
ST	0.021	0.945	0.519	-0.518		0.2887	1.95
	(0.82)	(49.10)	(5.16)	(-3.70)		1971.1–2013.2	
UK	0.018	0.973	0.300	-0.310		0.4496	1.63
	(0.41)	(38.16)	(1.75)	(-1.49)		1961.1–2013.2	
AS	0.021	0.953	0.345	-0.373		0.4696	1.66
	(0.50)	(25.03)	(2.30)	(-2.27)		1966.1–2013.2	
SO	0.149	0.920	0.837	-1.151		0.6480	1.99
	(1.79)	(23.19)	(2.57)	(-2.57)		1962.1–2012.4	
KO	0.120	0.913	0.387	-0.160		0.9987	2.05
	(0.99)	(21.54)	(2.47)	(-0.87)		1974.1–2012.4	
Annual							
BE	0.509	0.753	0.378			0.6957	1.43
	(2.05)	(7.89)	(5.64)			1962–1998	
DE	0.348	0.727	0.419			1.0940	1.71
	(1.65)	(7.36)	(5.42)			1962–2012	
NO	-0.042	0.851	0.451			0.6330	1.80
	(-0.47)	(9.35)	(6.93)			1962–2012	
IR	0.475	0.545	0.468			1.1547	1.47
	(2.04)	(4.55)	(6.21)			1962–1998	
PO	0.065	0.785	0.386			1.2882	1.69
	(0.31)	(9.01)	(5.17)			1962–1998	
NZ	-0.145	0.865	0.491			0.4776	2.33
	(-1.35)	(7.69)	(7.02)			1989–2011	
TH	0.012	0.831	0.339			0.9981	2.23
	(0.07)	(11.36)	(5.61)			1978–2012	

Table B8: Test Results for Equation 8

	[a]Restr.	Lags	RHO	T	Leads	Stability			End Test		overid	
	p-val	p-val	p-val	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly												
EU	0.254	0.002	0.001	0.625	0.221					44	0.000	6
CA	0.057	0.131	0.737	0.556	0.066	4.25	4	5.086	1.000	1998.4	0.069	5
JA	0.006	0.028	0.562	0.077	0.009	2.81	4	6.257	1.000	1998.3	0.026	5
AU	0.380	0.080	0.867	0.034	0.232	2.47	5	3.475			0.016	6
FR	0.223	0.214	0.879	0.041	0.189	3.84	5	2.445			0.162	6
GE	0.226	0.004	0.006	0.326	0.293	3.76	4	3.332	1.000	1998.4	0.001	5
IT	0.194	0.447	0.717	0.244	0.206	6.90	5	2.445			0.882	6
NE	0.489	0.369	0.021	0.126	0.465	3.51	4	1.104			0.471	5
ST	0.013	0.014	0.815	0.054	0.027	4.99	4	1.428	0.373	1998.3	0.008	5
UK	0.759	0.282	0.006	0.046	0.682	5.66	4	3.453	1.000	1998.3	0.003	5
AS	0.189	0.226	0.003	0.097	0.091	8.73	4	4.945	1.000	1998.2	0.005	5
SO	0.326	0.011	0.033	0.035	0.300	4.61	4	9.078	0.573	1998.3	0.069	5
KO	0.513	0.676	0.542	0.063		4.69	4	3.643	1.000	1998.4	0.010	5
Annual												
BE	0.372	0.158	0.030	0.002	0.499	12.00	3	24.156				
DE	0.775	0.793	0.243	0.027	0.535	8.52	3	7.384	1.000	1998		
NO	0.318	0.416	0.440	0.029	0.759	6.00	3	7.384	0.955	1998		
IR	0.708	0.538	0.013	0.004	0.786	9.70	3	3.136				
PO	0.002	0.002	0.160	0.004	0.115	7.86	3	6.370				
NZ	0.005	0.127	0.345	0.086	0.468	1.00	0	0.000				
TH	0.081	0.391	0.469	0.691	0.617	6.47	3	2.333	1.000	1998		

Table B9: Coefficient Estimates for Equation 9

$$\Delta \log E = a_1 + \lambda[\log(PY/PY_{US}) - \log E_{-1}] + .25\lambda\beta \log[(1 + RS/100)/(1 + RS_{US}/100)]$$

or

$$\Delta \log H = a_1 + \lambda[\log(PY/PY_{GE}) - \log H_{-1}] + .25\lambda\beta \log[(1 + RS/100)/(1 + RS_{GE}/100)]$$

	a_1	λ	$\lambda\beta$	ρ	SE	DW
Quarterly						
EU	-0.028	0.087	-1.479	0.305	0.0463	1.95
	(-2.63)	(2.47)	(-1.37)	(3.51)	1972.2–2012.4	
CA	0.009	0.050	-0.583	0.384	0.0242	1.91
	(2.22)		(-0.63)	(5.29)	1972.2–2013.2	
JA	-0.127	0.050	-1.336	0.293	0.0478	1.92
	(-19.79)		(-1.45)	(3.79)	1972.2–2013.2	
AU	0.003	0.050		0.476	0.0044	2.13
	(3.52)			(5.68)	1972.2–1998.4	
FR	0.011	0.172		0.219	0.0199	2.04
	(3.98)	(3.33)		(1.96)	1972.2–1998.4	
GE	-0.031	0.088	-1.960	0.302	0.0490	1.98
	(-2.32)	(2.03)	(-1.55)	(2.78)	1972.2–1998.4	
IT	0.024	0.050		0.335	0.0333	1.95
	(4.99)			(3.64)	1972.2–1998.4	
NE	0.007	0.050	-1.546		0.0092	2.02
	(7.86)		(-5.53)		1972.2–1998.4	
ST	-0.326	0.050			0.0227	1.58
	(******)				1977.1–2013.2	
UK	-0.002	0.050	-0.403		0.0399	1.42
	(-0.43)		(-0.72)		1972.2–2013.2	
FI	0.009	0.077	-0.446	0.354	0.0295	2.00
	(1.03)	(1.37)	(-0.47)	(3.05)	1972.2–1998.4	
AS	0.012	0.049		0.300	0.0461	1.95
	(1.47)	(1.68)		(3.56)	1972.2–2013.2	
KO	0.010	0.109		0.366	0.0472	1.93
	(1.64)	(2.40)		(3.92)	1974.1–2012.4	
Annual						
BE	0.036	0.171			0.0288	1.39
	(3.09)	(2.11)			1972–1998	
DE	-0.228	0.050			0.0255	0.88
	(-57.16)				1972–2012	
NO	-0.220	0.050			0.0521	1.44
	(-26.97)				1972–2012	
SW	-1.559	0.331			0.0599	1.85
	(-3.86)	(3.93)			1972–2012	
GR	0.150	0.299			0.0667	0.96
	(5.35)	(1.84)			1972–2000	
IR	0.069	0.141			0.0618	0.96
	(2.92)	(1.15)			1972–1998	

Table B9: Coefficient Estimates for Equation 9

	a_1	λ	$\lambda\beta$	ρ	SE	DW
PO	0.190	0.353			0.0951	0.56
	(2.89)	(1.52)				1972–1998
SP	0.054	0.168			0.0722	1.27
	(3.89)	(1.16)				1972–1998
NZ	0.064	0.050	-5.586		0.1006	1.23
	(2.55)		(-2.49)			1978–2011
PH	-0.790	0.265			0.0971	1.02
	(-2.13)	(2.26)				1972–2012

Table B9: Test Results for Equation 9

	[a]Restr.	Lags	RHO	T	Stability			End Test		overid	
	p-val	p-val	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly											
EU	0.804	0.426	0.432	0.957					44	0.478	4
CA	0.906	0.337	0.138	0.078	0.91	3	4.121	0.000	1998.4	0.084	7
JA	0.609	0.538	0.118	0.516	2.39	3	4.121	1.000	1998.3	0.019	7
AU	0.003	0.039	0.183	0.004	3.51	2	2.696			0.009	7
FR	0.176	0.518	0.490	0.504	1.96	3	2.696			0.403	6
GE	0.903	0.757	0.947	0.842	4.36	4	2.696			0.437	6
IT	0.001	0.915	0.519	0.004	4.39	2	2.696			0.114	7
NE	0.736	0.839	0.007	0.408	0.32	2	1.125			0.104	7
ST	0.088	0.012	0.023	0.017	1.88	1	1.513	0.259	1998.3	0.003	7
UK	0.000	0.000	0.001	0.000	7.50	2	4.121	1.000	1998.3	0.000	7
FI	0.255	0.900	0.634	0.237	0.98	4	1.468			0.095	6
AS	0.526	0.471	0.272	0.177	1.68	3	4.121	0.000	1998.2	0.047	6
KO	0.036	0.402	0.181	0.076	10.00	3	3.643	0.070	1998.4	0.555	6
Annual											
BE	0.940	0.134	0.127	0.969	24.80	2	2.469				
DE	0.000	0.000	0.000	0.000	24.57	1	3.901	1.000	1998		
NO	0.033	0.102	0.101	0.008	2.78	1	3.901	0.583	1998		
SW	0.403	0.414	0.638	0.490	2.90	2	3.901	1.000	1998		
GR	0.002	0.003	0.001	0.000	10.98	2	7.528	0.125	1998		
IR	0.000	0.001	0.000	0.000	5.68	2	2.469				
PO	0.026	0.000	0.000	0.005	8.75	2	2.469				
SP	0.003	0.051	0.002	0.008	4.34	2	2.469	0.500	1998		
NZ	0.546	0.016	0.034	0.045	2.77	2	6.953	0.000	1998		
PH	0.271	0.001	0.000	0.108	1.35	2	3.901	1.000	1999		

Table B10: Coefficient Estimates for Equation 10

$\log F = a_1 \log EE + a_2(.25) \log[(1 + RS/100)/(1 + RS_{US}/100)]$

	a_1	a_2	ρ	SE	DW
Quarterly					
CA	0.9824	1.761	0.793	0.0096	2.28
	(49.23)	(3.68)	(11.64)		1972.2–1997.3
JA	1.0010	1.182	0.359	0.0087	1.84
	(1301.92)	(6.85)	(4.47)		1972.2–2006.3
AU	0.9930	1.049	0.250	0.0058	2.10
	(299.71)	(8.25)	(2.60)		1972.2–1998.4
FR	1.0076	0.644		0.0071	1.54
	(333.90)	(4.78)			1972.2–1989.3
GE	0.9960	1.198	0.720	0.0032	2.21
	(250.42)	(10.89)	(10.67)		1972.2–1998.4
IT	0.9967	1.057		0.0105	1.74
	(257.91)	(8.62)			1976.3–1998.4
NE	0.9921	1.154		0.0086	1.91
	(184.37)	(6.31)			1972.2–1990.4
ST	1.0003	1.115		0.0059	1.48
	(11391.90)	(14.92)			1972.2–2013.2
UK	1.0028	1.246	0.199	0.0049	2.01
	(742.91)	(12.21)	(2.32)		1972.2–2006.3
FI	0.9897	1.177	0.555	0.0088	2.42
	(128.83)	(4.65)	(5.52)		1972.2–1989.3
AS	1.0038	1.142		0.0065	1.95
	(458.71)	(15.96)			1976.1–2006.4

Table B11: Coefficient Estimates for Equation 11
$\log PX - \log[PW\$(E/E00)] = \lambda[\log PY - \log[PW\$(E/E00)]$

	λ	ρ_1	ρ_2	SE	DW
Quarterly					
CA	0.652	1.279	-0.298	0.0167	1.96
	(14.67)	(19.06)	(-4.48)		1961.2–2012.4
JA	0.394	1.267	-0.277	0.0134	1.96
	(17.14)	(17.95)	(-3.96)		1966.1–2012.4
AU	0.868	0.822	0.162	0.0091	2.00
	(37.21)	(10.86)	(2.16)		1970.1–2012.4
FR	0.766	0.960	0.031	0.0116	1.99
	(27.00)	(13.49)	(0.45)		1961.1–2012.4
GE	0.800	1.055	-0.069	0.0081	1.99
	(41.52)	(14.86)	(-0.98)		1963.1–2012.4
IT	0.622	0.920	0.041	0.0179	1.98
	(16.24)	(13.14)	(0.60)		1961.1–2012.4
NE	0.557	1.158	-0.168	0.0166	2.01
	(12.53)	(16.83)	(-2.47)		1961.1–2012.4
ST	0.860	0.814	0.168	0.0120	2.06
	(34.37)	(10.56)	(2.19)		1971.1–2012.4
UK	0.692	1.028	-0.040	0.0190	2.00
	(17.23)	(14.69)	(-0.58)		1961.1–2012.4
FI	0.452	0.965	0.028	0.0228	1.97
	(9.27)	(13.96)	(0.40)		1961.1–2012.4
AS	0.492	1.345	-0.375	0.0321	1.90
	(8.15)	(19.81)	(-5.53)		1966.1–2012.4
SO	0.636	0.860	0.115	0.0403	2.01
	(11.58)	(12.23)	(1.63)		1962.1–2012.4
KO	0.865	1.152	-0.166	0.0379	1.90
	(12.44)	(13.71)	(-2.00)		1974.1–2012.4
Annual					
BE	0.497	1.065	-0.150	0.0252	1.99
	(8.38)	(7.44)	(-1.04)		1962–2012
DE	0.607	1.059	-0.115	0.0184	1.96
	(12.78)	(7.40)	(-0.85)		1962–2012
SW	0.499	1.169	-0.263	0.0311	1.77
	(6.53)	(7.97)	(-1.87)		1965–2012
IR	0.494	1.170	-0.191	0.0277	1.97
	(7.62)	(8.11)	(-1.35)		1962–2012
SP	0.534	1.107	-0.145	0.0343	1.70
	(7.16)	(7.79)	(-1.06)		1962–2012

Table B11: Coefficient Estimates for Equation 11

	λ	ρ_1	ρ_2	SE	DW
NZ	0.496	0.890	-0.056	0.0709	1.94
	(3.62)	(6.05)	(-0.40)		1962–2012
CO	0.789	1.012	-0.055	0.1199	1.96
	(3.43)	(6.10)	(-0.34)		1972–2012
ID	0.535	0.876	-0.169	0.0591	1.94
	(6.30)	(6.14)	(-1.02)		1962–2012
MA	0.764	0.846	0.010	0.1176	1.94
	(2.87)	(5.11)	(0.06)		1972–2012
PA	0.196	0.948	-0.019	0.0672	2.17
	(1.19)	(6.74)	(-0.13)		1974–2012
TH	0.542	0.934	-0.408	0.0593	1.82
	(6.99)	(7.10)	(-3.18)		1962–2012
CH	0.500	1.151	-0.251	0.0426	1.97
		(6.22)	(-1.32)		1984–2012
ME	0.500	1.171	-0.228	0.0547	1.92
		(8.41)	(-1.67)		1962–2012

Table B11: Test Results for Equation 11

	[a]Restr.	Stability			End Test	
	p-val	AP	df	λ	p-val	End
Quarterly						
CA	0.005	3.05	3	3.147	0.000	1998.4
JA	0.000	2.73	3	6.354	1.000	1998.3
AU	0.000	7.72	3	4.906	1.000	1998.3
FR	0.013	10.52	3	3.226	0.688	1998.3
GE	0.000	7.45	3	3.376	0.966	1998.4
IT	0.187	1.40	3	3.226	0.000	1998.3
NE	0.000	8.03	3	1.868	0.579	1998.4
ST	0.024	5.62	3	1.435	0.000	1998.3
UK	0.010	2.66	3	3.501	0.796	1998.3
FI	0.000	18.27	3	2.137	0.570	1998.3
AS	0.002	5.13	3	5.018	0.000	1998.2
SO	0.023	2.15	3	9.078	1.000	1998.3
KO	0.000	15.13	3	3.643	0.116	1998.4
Annual						
BE	0.000	2.34	3	7.384	0.000	1996
DE	0.632	1.18	3	7.384	0.591	1998
SW	0.000	17.72	3	6.224	1.000	1998
IR	0.281	-8.71	3	4.003	1.000	1998
SP	0.004	3.03	3	7.384	1.000	1998
NZ	0.000	5.96	3	7.384	0.591	1998
CO	0.053	4.06	3	4.510	1.000	1998
ID	0.237	1.84	3	7.384		
MA	0.614	3.34	3	3.901	1.000	1998
PA	0.105	1.70	3	3.335	1.000	1998
TH	0.303	3.22	3	7.384	1.000	1998

Table B13: Coefficient Estimates for Equation 13

$$\Delta \log J = a_1 + a_2 T + a_3 \log(J/JMIN)_{-1} + a_4 \Delta \log Y + a_5 \Delta \log Y_{-1}$$

	a_1	a_2	a_3	a_4	a_5	ρ	SE	DW
Quarterly								
CA	0.004	-0.00001	-0.148	0.311	0.153		0.0040	1.64
	(3.17)	(-1.79)	(-5.29)	(3.58)	(3.27)		1961.2–2013.2	
JA	0.005	-0.00002	-0.045	0.075			0.0033	2.11
	(4.97)	(-4.40)	(-3.33)	(3.40)			1966.1–2013.2	
AU	-0.002	0.00003	-0.108	0.045			0.0062	2.20
	(-0.78)	(2.26)	(-3.65)	(0.32)			1970.1–2013.1	
FR		0.00001	-0.100	0.128		-0.359	0.0043	1.93
	(0.05)	(1.52)	(-5.35)	(4.37)		(-5.31)	1961.1–2012.4	
GE	-0.008	0.00004	-0.120	0.575			0.0057	1.86
	(-4.55)	(4.74)	(-3.69)	(4.83)			1963.1–2013.2	
IT	-0.001	0.00001	-0.111	0.153			0.0054	2.05
	(-0.48)	(1.78)	(-5.34)	(3.76)			1961.1–2013.1	
NE	0.003		-0.154	0.251			0.0038	1.52
	(3.76)	(0.07)	(-6.00)	(4.76)			1961.1–2013.1	
ST	0.004		-0.190	0.040			0.0068	2.37
	(2.21)	(0.03)	(-6.07)	(0.39)			1971.1–2013.2	
UK	-0.003	0.00003	-0.120	0.120		0.449	0.0030	2.15
	(-3.08)	(4.59)	(-6.50)	(5.79)		(7.05)	1961.1–2013.2	
FI	-0.001	0.00001	-0.085	0.209			0.0068	1.52
	(-0.33)	(1.09)	(-5.06)	(2.83)			1961.1–2013.2	
AS	0.008	-0.00001	-0.209	0.095		0.400	0.0041	2.06
	(5.08)	(-1.39)	(-6.39)	(3.23)		(5.48)	1966.1–2013.2	
Annual								
BE	-0.022	0.00053	-0.197	0.439			0.0092	1.70
	(-4.60)	(4.98)	(-1.84)	(5.36)			1962–2012	
DE	-0.001	0.00002	-0.410	0.309			0.0113	1.55
	(-0.12)	(0.19)	(-5.51)	(4.14)			1962–2012	
NO	-0.010	0.00032	-0.166	0.405			0.0129	0.85
	(-1.48)	(2.21)	(-1.98)	(3.24)			1962–2012	
SW		0.00007	-0.135	0.380			0.0132	0.99
	(-0.01)	(0.49)	(-2.92)	(4.12)			1965–2012	
IR	-0.030	0.00048	-0.365	0.584			0.0163	1.49
	(-4.99)	(3.07)	(-3.82)	(7.91)			1962–2012	

Table B13: Test Results for Equation 13

	Lags	RHO	Leads	Stability			End Test		overid	
	p-val	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly										
CA	0.000	0.005	0.198	8.20	5	5.086	0.933	1998.4	0.002	5
JA	0.518	0.016	0.028	15.28	4	6.257	1.000	1998.3		
AU	0.000	0.115	0.163	5.86	4	4.300	0.672	1998.4	0.006	6
FR	0.061	0.118	0.003	13.73	5	1.729	1.000	1998.3		
GE	0.001	0.577	0.600	11.79	4	3.332	0.788	1998.4	0.073	6
IT	0.002	0.155	0.214	5.61	4	3.204	1.000	1998.3		
NE	0.000	0.000	0.060	50.02	4	3.204	0.957	1998.4	0.000	6
ST	0.011	0.006	0.183	12.43	4	1.428	1.000	1998.3	0.000	6
UK	0.069	0.024	0.015	6.15	5	3.453	0.187	1998.3		
FI	0.000	0.000	0.021	43.31	4	2.115	1.000	1998.3	0.000	7
AS	0.358	0.210	0.000	6.31	5	4.945	1.000	1998.2		
Annual										
BE	0.271	0.147	0.101	8.28	4	7.384	0.556	1996		
DE	0.290	0.050	0.108	5.91	4	7.384	0.955	1998		
NO	0.000	0.000	0.131	9.68	4	7.384	0.636	1998		
SW	0.000	0.000	0.015	17.37	4	6.224	0.842	1998		
IR	0.114	0.016	0.546	6.01	4	4.003	0.045	1998		

Table B14: Coefficient Estimates for Equation 14

$\log(L1/POP1) = a_1 + a_2 T + a_3 \log(L1/POP1)_{-1} + a_4 UR$

	a_1	a_2	a_3	a_4	SE	DW
Quarterly						
JA	-0.012	0.00001	0.972	-0.120	0.0031	2.18
	(-1.69)	(0.90)	(56.65)	(-2.73)		1966.1–2013.2
AU	-0.069	0.00010	0.901	-0.073	0.0059	2.41
	(-3.33)	(2.75)	(29.99)	(-0.80)		1970.1–2013.1
ST	-0.014	0.00006	0.980	-0.160	0.0066	2.78
	(-1.05)	(1.98)	(37.58)	(-1.91)		1977.1–2013.2
FI	-0.023		0.949	-0.026	0.0056	2.19
	(-3.14)	(-0.25)	(55.08)	(-1.92)		1961.1–2013.2
AS	-0.053	0.00006	0.899	-0.040	0.0039	1.77
	(-3.44)	(3.55)	(30.88)	(-2.59)		1966.1–2013.2
Annual						
BE	-0.115	0.00014	0.827	-0.026	0.0072	2.06
	(-2.16)	(1.46)	(10.14)	(-0.69)		1962–2012
NO	-0.023	0.00026	0.952	-0.184	0.0124	1.03
	(-0.60)	(0.85)	(15.76)	(-1.13)		1962–2012
SW	-0.074	0.00047	0.841	-0.296	0.0074	1.55
	(-3.18)	(3.51)	(17.11)	(-4.33)		1965–2012
IR	-0.107	0.00079	0.816	-0.228	0.0123	2.28
	(-4.15)	(4.68)	(18.58)	(-4.13)		1962–2012

Table B14: Test Results for Equation 14

	Lags	RHO	Stability			End Test		overid	
	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly									
JA	0.104	0.126	11.81	4	6.257	1.000	1998.3	0.003	5
AU	0.012	0.010	1.91	4	4.872	0.161	1998.3	0.263	5
ST	0.000	0.000	6.80	4	1.513	1.000	1998.3	0.001	5
FI	0.068	0.017	11.66	4	2.115	0.692	1998.3	0.000	5
AS	0.104	0.344	6.77	4	4.945	1.000	1998.2	0.381	5
Annual									
BE	0.391	0.737	7.95	4	3.092	0.111	1996		
NO	0.000	0.000	20.53	4	7.384	0.636	1998		
SW	0.003	0.102	5.65	4	6.224	0.263	1998		
IR	0.717	0.329	11.31	4	4.003	0.727	1998		

Table B.5
Links Between the US and ROW Models

The data on the variables for the United States that are needed when the US model is imbedded in the MCF model were collected as described in Table B.2. These variables are (with the US subscript dropped): $EXDS$, $IMDS$, M, MS, $M00\$A$, $M00\$B$, PM, PMP, $PSI2$, $PW\$$, PX (= $PX\$$), S, TT, XS, and $X00\$$. The PX_{US} variable here is not the same as the PX variable for the United States in Appendix A. The variable here is denoted $USPX$ in the MCF model. The PX variable for the United States is the price deflator of total sales of the firm sector.

Variable	Determination
$X00\$_{US}$	Determined in Table B.3
PMP_{US}	Determined in Table B.3
$PW\$_{US}$	Determined in Table B.3
PX_{US}	Determined by an equation that is equivalent to equation 11 for the other countries. See the discussion in Section B.6.
$PEX =$	$DEL3 \cdot PX_{US}$. In the US model by itself, PEX is determined as $PSI1 \cdot PX$, which is equation 32 in Table A.2. This equation is dropped when the US model is linked to the ROW model. $DEL3$ is constructed from the data as PEX/PX_{US} and is taken to be exogenous.
$PM_{US} =$	$PSI2_{US}PMP_{US}$. This is the same as equation I-19 for the other countries.
$PIM =$	$DEL4 \cdot PM_{US}$. PIM is an exogenous variable in the US model by itself. $DEL4$ is constructed from the data as PIM/PM_{US} and is taken to be exogenous.
$EX =$	$(X00\$_{US} + XS_{US} + EXDS_{US})/1000$. This is the same as equation I-2 for the other countries. EX is an exogenous variable in the US model by itself. $EXDS_{US}$ is constructed from the data as $1000EX - X00\$_{US} - XS_{US}$ and is taken to be exogenous.
$M_{US} =$	$1000IM - MS_{US} - IMDS_{US}$. This is the same as equation I-1 for the other countries. $IMDS_{US}$ is constructed from the data as $1000IM - M_{US} - MS_{US}$ and is taken to be exogenous.
$M00\$A_{US} =$	$M_{US} - M00\$B_{US}$. This is the same as equation I-8 for the other countries.
$S_{US} =$	$PX_{US}(X00\$_{US} + XS_{US}) - PM_{US}(M_{US} + MS_{US}) + TT_{US}$. This is the same as equation I-6 for the other countries.

• The new exogenous variables for the US model when it is linked to the ROW model are $DEL3$, $DEL4$, $EXDS_{US}$, $IMDS_{US}$, $M00\$B_{US}$, MS_{US}, $PSI2_{US}$, TT_{US}, and XS_{US}. EX and PIM are exogenous in the US model by itself, but endogenous when the US model is linked to the ROW model.

Table B.6
Construction of the Balance of Payments Data: Data for S and TT

The relevant raw data variables are:

$M\$'$	Goods imports (fob) in \$, BOP data. [IFS78ABD or IFS1A9DX]
$M\$$	Goods imports (fob) in \$. [IFS71V/E]
$X\$'$	Goods exports (fob) in \$, BOP data. [IFS78AAD or IFS1A9CX]
$X\$$	Goods exports (fob) in \$. [IFS70/E]
$MS\$$	Services and income (debit) in \$, BOP data. [IFS78AED + IFS78AHD or IFS1B9DX + IFS1C9DX]
$XS\$$	Services and income (credit) in \$, BOP data. [IFS78ADD + IFS78AGD or IFS1B9CX + IFS1C9CX]
$XT\$$	Current transfers, n.i.e., (credit) in \$, BOP data. [IFS78AJD or IFS1D9CA]
$MT\$$	Current transfers, n.i.e., (debit) in \$, BOP data. [IFS78AKD or IFS1D9DA]

When quarterly data on all the above variables were available, then $S\$$ and $TT\$$ were constructed as:

$$S\$ = \quad X\$' + XS\$ - M\$' - MS\$ + XT\$ - MT\$$$

$$TT\$ = \quad S\$ - X\$ - XS\$ + M\$ + MS\$$$

where $S\$$ is total net goods, services, and transfers in \$ (balance of payments on current account) and $TT\$$ is total net transfers in \$.

When only annual data on $M\$'$ were available and quarterly data were needed, interpolated quarterly data were constructed using $M\$$. Similarly for $MS\$$.

When only annual data on $X\$'$ were available and quarterly data were needed, interpolated quarterly data were constructed using $X\$$. Similarly for $XS\$$, $XT\$$, and $MT\$$.

When no data on $M\$'$ were available, then $M\$'$ was taken to be $\lambda M\$$, where λ is the last observed value of $M\$'/M\$$. Similarly for $MS\$$ (where λ is the last observed annual value of $MS\$/M\$$.)

When no data on $X\$'$ were available, then $X\$'$ was taken to be $\lambda X\$$, where λ is the last observed value of $X\$'/X\$$. Similarly for $XS\$$ (where λ is the last observed annual value of $XS\$/X\$$), for $XT\$$ (where λ is the last observed annual value of $XT\$/X\$$), and for $MT\$$ (where λ is the last observed annual value of $MT\$/X\$$).

The above equations for $S\$$ and $TT\$$ were then used to construct quarterly data for $S\$$ and $TT\$$.

After data on $S\$$ and $TT\$$ were constructed, data on S and TT were constructed as:

$$S = \quad E \cdot S\$$$

$$TT = \quad E \cdot TT\$$$

Note from MS and XS in Table B.2 and from $MS\$$ and $XS\$$ above that

$$MS\$ = \quad (PM \cdot MS)/E$$

$$XS\$ = \quad (PX \cdot XS)/E$$

Note also from Table B.2 that

$$M\$ = \quad (PM \cdot M)/E$$

$$X\$ = \quad (E00 \cdot PX \cdot X00\$)/E$$

Therefore, from the above equations, the equation for S can be written

$$S = \quad PX(E00 \cdot X00\$ + XS) - PM(M + MS) + TT$$

which is equation I-6 in Table B.3.