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by

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I. Introduction

A multicountry econometric model is presented in this paper. The theoretical basis of the model is discussed in Fair (1979a), and the present paper is an empirical extension of this work. Quarterly data have been collected or constructed for 64 countries, and the model contains estimated equations for 44 countries. The basic estimation period is 1958I-1980I (89 observations). For equations that are relevant only when exchange rates are flexible, the basic estimation period is 1972II-1980I (32 observations). Most of the equations have been estimated by two stage least squares. The U.S. part of the model is the model described in Fair (1976, 1980b).

The model differs from previous models in a number of ways. First, linkages among countries with respect to exchange rates, interest rates, and prices appear to be more important in the present model than they are in previous models. Previous models have been primarily trade linkage models. The LINK model (Ball 1973), for example, is of this kind, although some recent work has been done on making capital movements endogenous in the model.[1]

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Second, the theory upon which the model is based differs somewhat from previous theories. The theoretical model in Fair (1979a) is one in which stock and flow effects are completely integrated. There is no natural distinction in this model between stock-market and flow-market determination of the exchange rate, a distinction that is important in recent discussions of the monetary approach to the balance of payments.[2] The theoretical model also allows for the possibility of price linkages among countries, something which has generally been missing from previous theoretical work.

Third, the number of countries in the model is larger than usual, and the data are all quarterly. Considerable work has gone into the construction of quarterly data bases for all the countries. Some of the quarterly data had to be interpolated from annual data, and a few data points had to be guessed. The collection and construction of the data bases are discussed in the Appendix.

Finally, there is an important difference between the approach taken in this study and an approach like that of Project LINK. I alone have estimated small models for each country and then linked them together, rather than, as Project LINK has done, take models developed by others and link them together. The advantage of the LINK approach is that larger models for each country can be used. It is clearly not feasible for one person to construct medium- or large-scale models for each country. The

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[1] See Hickman (1974, p. 203) for a discussion of this. See also Berner et al. (1976) for discussion of a five-country econometric model in which capital flows are endogenous.

[2] See, for example, Frenkel and Johnson (1976), Dornbusch (1976), Frenkel and Rodriguez (1975), and Kouri (1976).

advantage of the present approach, on the other hand, is that the person constructing the individual models knows from the beginning that they are to be linked together, and this may lead to better specification of the linkages. It is unlikely, for example, that the specification of the exchange rate and interest rate linkages in the present model would develop from the LINK approach. Whether this possible gain in the linkage specification outweighs the loss of having to deal with small models of each country is, of course, an open question.

The theoretical basis of the model is reviewed in Section II. Because of data limitations, not all versions of the theoretical model in Fair (1979a) can be estimated, and the primary purpose of Section II is to present the version of the theoretical model that the econometric model most closely approximates. The econometric model is presented and discussed in Section III. The predictive accuracy of the model is then examined in Section IV, and the properties of the model are discussed in Section V. Section VI contains a brief conclusion.

II. The Theoretical Basis of the Model

Data limitations usually make the transition from a theoretical model to an empirical model less than straightforward. This is certainly true in the present case, where much of the international data that one would like to have are of poor quality or do not exist. The transition from the theoretical models in Fair (1974, 1979a) to the present econometric model is discussed in this section. The theoretical models will first be reviewed, and then the modifications needed for the empirical work will be discussed.

The basic theoretical model that has guided my empirical work is presented in Fair (1974). Individual agents in this model derive their decisions from the solutions of multiperiod maximization problems: households maximize utility and firms maximize profits. The variables that explain the decision variables are the ones that affect these solutions. These problems require that agents form expectations of the future values of a number of variables. Even though the model is deterministic, agents make expectation errors. They do not know the complete structure of the model and must form their expectations are the basis of a limited set of information (usually only the past history of a few variables). These expectation errors lead at times to "disequilibrium" in the labor, goods, and financial markets, and much of the modeling is concerned with the effects of disequilibrium. Another important feature of the modeling is making sure that all flows of funds among the agents are accounted for.

The idea for the two-country model in Fair (1979a) came from considering how one would link the above theoretical model, which is a single-country model, to a model just like it. One way in which the two-country model is distinguished from previous models is in the determination of the exchange rate. The distinction between the stock-market and flow-market determination of the exchange rate, which has played an important role in the literature on the monetary approach to the balance of payments, is not relevant in the model. The exchange rate, like the price level, the wage rate, and the interest rate, is merely one endogenous variable out of many, and in no rigorous sense can it be said to be "the" variable that clears a particular market. Because of the accounting for all flows of funds, the model is one in which stock and flow effects are completely integrated.

There are a number of versions of the two-country model, depending

(1) on whether there are fixed or flexible exchange rates, (2) on whether the bonds of the two countries are perfect substitutes, (3) on the level of aggregation of the sectors in the countries, (4) on whether reaction functions of the monetary authorities with respect to interest rates and the exchange rate are postulated, and (5) on the treatment of the forward rate. Before considering the transition to the empirical model, it will be necessary to outline some of these versions.

Consider first the case in which there are two sectors per country: private (p) and government (g). In what follows capital letters denote variables for country 1; lower case letters denote variables for country 2; and an asterisk (*) on a variable denotes the other country's holdings of the variable. Each country has its own money (M,m) and its own bond (B,b). The bonds are one-period securities. Negative values of B and b denote liabilities. The interest rate on B is R and on b is r. e is the price of country 2's currency in terms of country 1's currency, and F is the (one-period) forward price of country 2's currency. Each country holds a positive amount of the international reserve (Q,q), which is denominated in the currency of country 1.

It is unnecessary for present purposes to consider explicitly the labor and goods markets. Instead, the savings of each sector can be represented by writing one equation per sector:

(1) $$S_p = f_1(R, r, e, \dots) ,$$

(2) $$S_g = f_2(R, r, e, \dots) ,$$

(3) $$s_p = f_3(R, r, e, \dots) ,$$

(4) $$s_g = f_4(R, r, e, \dots) .$$

S and s denote savings, the difference between a sector's revenue and its expenditures. In the complete model the savings variables are determined by definitions, where many of the right hand side variables in these definitions are determined in the labor and goods markets. Almost every variable in the model has at least an indirect effect on savings, and so the argument list in the above functions is long. The two interest rates and the exchange rate have been listed explicitly in the functions only for emphasis.

Each sector faces a budget constraint:

$$(5) \qquad 0 = S_p - \Delta M_p - \Delta B_p - e\Delta b_p^* ,$$

$$(6) \qquad 0 = S_g + \Delta M_g - \Delta B_g - \Delta Q ,$$

$$(7) \qquad 0 = s_p - \Delta m_p - \Delta b_p - \frac{1}{e}\Delta B_p^* ,$$

$$(8) \qquad 0 = s_g + \Delta m_g - \Delta b_g - \frac{1}{e}\Delta q .$$

For simplicity it is assumed that the countries do not hold each other's money and that the governments do not hold foreign bonds.

Coming out of the solutions of the maximization problems of the private sector are demands for domestic and foreign bonds and domestic money, which can be represented as:

$$(9) \qquad B_p = f_9(R, r, e, \dots) ,$$

$$(10) \qquad b_p^* = f_{10}(R, r, e, \dots) ,$$

$$(11) \qquad M_p = f_{11}(R, r, e, \dots) ,$$

$$(12) \qquad b_p = f_{12}(R, r, e, \dots) ,$$

$$(13) \qquad B_p^* = f_{13}(R, r, e, \ldots) ,$$

$$(14) \qquad m_p = f_{14}(R, r, e, \ldots) .$$

The equilibrium conditions for the bond and money markets are:

$$(15) \qquad 0 = B_p + B_g + B_p^* ,$$

$$(16) \qquad M_g = M_p ,$$

$$(17) \qquad 0 = b_p + b_g + b_p^* ,$$

$$(18) \qquad m_g = m_p .$$

There is finally an equation stating that there is no change in total world reserves:

$$(19) \qquad 0 = \Delta Q + \Delta q .$$

One of equations (1), (5), and (9)-(11) is redundant, and one of equations (3), (7), and (12)-(14) is redundant. It will be useful to drop equations (10) and (13). Also, the savings variables satisfy the property that $S_p + S_g + es_p + es_g = 0$, and so one of equations (1)-(8), (15)-(18), and (19) is redundant. It will be useful to drop equation (19). This leaves 16 independent equations. There are 19 variables in the model: S_p, S_g, s_p, s_g, B_p, b_p^*, M_p, b_p, B_p^*, m_p, M_g, m_g, Q, q, R, r, e, B_g, b_g.[3] In the case of fixed exchange rates e is exogenous and Q is endogenous, and in the case

[3] There are also, of course, lagged variables in the model because some of the variables enter the equations in change form. All lagged variables are taken to be predetermined.

of flexible exchange rates e is endogenous and Q is exogenous. Given that one of these two variables is taken to be exogenous, the model can be closed by taking B_g and b_g to be the exogenous monetary policy variables.[4]

It should be clear from this representation that e, like R and r, is not determined solely in stock markets or in flow markets. It is simultaneously determined along with the other endogenous variables. When R, r, and e are determined in the above version of the model, they will be said to be "implicitly" determined. An alternative to this version is one in which reaction functions of the monetary authorities are postulated. Reaction functions for R and r can be written:

(20) $R = f_{20}(\ldots)$,

(21) $r = f_{21}(\ldots)$,

where the arguments in the functions are variables that affect the monetary authorities' decisions regarding short term interest rates. In this case monetary policy is explained by equations (20) and (21) and so is endogenous in the model. Adding these equations means that B_g and b_g must be taken to be endogenous. It is also possible to postulate an exchange rate reaction function for one of the monetary authorities, where e is on the left hand side and variables that affect the decision of the

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[4]Note that the monetary policy variables are B_g and b_g in this model. The monetary authorities affect the economy by exchanging bonds for money or reserves, subject to the government budget constraints (6) and (8). This in turn affect interest rates and other endogenous variables. There is no banking sector in the version of the model presented here. If a banking sector were added, then two other monetary policy variables would be introduced for each country: the discount rate and the reserve requirement rate. See Fair (1979a) for a discussion of this.

monetary authority regarding e are on the right hand side:

$$(22) \qquad e = f_{22}(\ldots) .$$

In this case, as in the fixed exchange rate case, Q is endogenous.

The next issue to consider is the case in which the bonds of the two countries are perfect substitutes. The covered interest rate from country 1's perspective on the bond of country 2, say r', is $(e/F)(1+r) - 1$, where F is the forward rate. If for $R = r'$ people are indifferent as to which bond they hold, then the bonds will be defined to be perfect substitutes. If this is the case, then the above model is modified as follows. First, equations (9) and (12) drop out, since the private sector is now indifferent between the two bonds. Second, arbitrage will insure that $R = r'$, and so a new equation is added:

$$(23) \qquad R = (e/F)(1+r) - 1 .$$

Third, the model is underidentified with respect to B_p, B_p^*, b_p, and b_p^*, and so one of these variables must be taken to be exogenous.[5]

A key question to consider in the perfect substitution case is how the forward rate, F, is determined. If F is equal to the expected future spot rate, then one could try to estimate an equation explaining F, where the explanatory variables would be variables that one believes affect expectations. An alternative to this would be to assume that expectations are rational and estimate the model under this constraint. If F is determined in either of these two ways, it will be said to play

[5] This indeterminacy is analogous to the indeterminacy that arises in, say, a two-consumer, two-firm model in which the two consumers are indifferent between the goods produced by the two firms. It is not possible in this model to determine the allocation of the two goods between the two consumers.

an "active" role in the model. If F is active, then it is obviously not possible to have all three variables-- R, r, and e --implicitly determined or determined by reaction functions. Given equation (23) and the equation (implicit if rational expectations, explicit otherwise) for F, only two of the three variables can be implicitly determined or determined by reaction functions. Also, if exchange rates are fixed, then it is not possible to have both R and r implicitly determined or determined by reaction functions if F is active. An alternative case to F being active is the case in which R, r, and e are implicitly determined or determined by reaction functions and F is determined by equation (23). In this case F will be said to play a "passive" role in the model. Given R, r, and e, F merely adjusts to insure that the arbitrage condition holds.

The version of the model that was used as a basis for the empirical work is the one in which the bonds are perfect substitutes, F is passive, and R, r, and e are determined by reaction functions. Whether this choice, which was partly dictated by data availability, provides an adequate basis for constructing an empirical model is an open question. No direct tests of the assumptions behind this choice are attempted in this paper. The choice is indirectly tested by examining how well the model explains the historical data. The results of this test are presented and discussed in Section IV.

The assumption that is most questionable in this choice is probably the assumption that e is determined by a reaction function. The alternative assumption is that e is implicitly determined, with reserves, Q, exogenous. In practice there is obviously some intervention of the monetary authorities in the exchange markets, and so this alternative assumption is also questionable. The assumption that e is determined by a reaction function means that intervention is complete: the monetary authority has a target e each period and achieves this target by appropriate changes in Q . This assumption may not be, however, as restrictive as it first sounds. The monetary authority is likely to be aware of the market forces that are operating on e in the absence of intervention (i.e., the forces behind the determination of e when e is implicitly determined), and it may take these into account in setting its target each period. If some of the explanatory variables in the reaction function are in part measures of these forces, then the estimated reaction function may provide a better explanation of e than one would otherwise have thought. Similar arguments apply to the assumption that R and r are determined by reaction functions.

The assumption that F is passive means that the forward market imposes no "discipline" on the monetary authority's choice of the exchange rate. Again, if the monetary authority takes into account market forces operating on e in the absence of intervention, including market forces in the forward market, and if the explanatory variables in the reaction function for e are in part measures of these forces, then the estimated reaction function for e may not be too bad an approximation. Given this assumption and given that F does not appear as an explanatory variable in any of the equations, F plays no role in the empirical model. For each country it is determined by an estimated version of the arbitrage condition, equation (23), but the predictions from these equations have no effect on the predictions of any of the other variables in the model.

The assumption that F is passive is not sensible in the case of fixed exchange rates: for most observations F is equal to or very close to e when e is fixed. A different choice was thus made for the fixed rate case. This choice was designed to try to account for the possibility that the bonds of the different countries are not perfect substitutes as well as for the fact that F is not passive. The procedure that was followed in the fixed rate case is as follows. The U.S. was assumed to be the "leading" country with respect to the determination of interest rates. Assume in the above model that the U.S. is country 1. Consider the determination of r, country 2's interest rate. If exchange rates are fixed, bonds are perfect substitutes, and F is equal to e, then r is determined by equation (23) and is equal to R. In other words, country 2's interest rate is merely country 1's interest rate: country 1 sets the one world interest rate and country 2's monetary authority has no control over country 2's rate. If the bonds are not perfect substitutes, then equation (23) does not hold and country 2's monetary authority can affect its rate. If, however, the bonds are close to being perfect substitutes, then very large changes in b_g will be needed to change r very much. In the empirical work interest rate reaction functions were estimated for each country, but with the U.S. interest rate added as an explanatory variable to each equation. If the bonds are close to being perfect substitutes, then the U.S. rate should be the only significant variable in these equations and have a coefficient estimate close to 1.0. If the bonds are not at all close substitutes, then the coefficient estimate should be close to zero and the other variables should be significant. The in-between case should correspond to both the U.S. rate and the other variables being significant.

The above discussion about the U.S. rate in the interest rate reaction functions does not pertain to the flexible exchange rate case. One would thus not expect the interest rate reaction functions to be the same in the fixed and flexible rate cases, and so in the empirical work separate interest rate reaction functions were estimated for each country for the fixed and flexible rate periods. Note that the U.S. rate may still be an explanatory variable in the reaction functions for the flexible rate period. This would be, however, because the U.S. rate is one of the variables that affects the monetary authority's interest rate decision, not because the U.S. rate is being used to try to capture the degree of substitutability of the bonds. It should finally be noted in this regard that the interest rate reaction function for the U.S. was estimated over the entire sample period. This procedure is consistent with the above assumption that the U.S. is the interest rate leader in the fixed rate period. If it is the leader, then it is not constrained as the other countries are, and so there is no reason on this account to expect the function to be different in the fixed and flexible rate periods.

The next issue to consider in the transition to the empirical model is the level of aggregation of the sectors. In the empirical model the private and government sectors are aggregated together, and so there is only one sector per country. In this case the budget constraint for country 1 is the sum of equations (5) and (6):

(24) $$0 = S - \Delta B - e\Delta b^* - \Delta Q \ .$$

S is equal to $S_p + S_g$, ΔB is equal to $\Delta B_p + \Delta B_g$, and the p subscript has been dropped from b^* since it is now unnecessary. The budget constraint for country 2 is similarly the sum of equations (7) and (8):

(25) $$0 = s - \Delta b - \frac{1}{e}\Delta B^* - \frac{1}{e}\Delta q \ .$$

Note that because of the assumption that a country holds no foreign money, the money supply variables drop out of the sums. Equations (15) and (17) are now written as:

(26) $0 = B + B^* ,$

(27) $0 = b + b^* .$

Consider now a further type of aggregation. Let $\Delta A = \Delta B + e\Delta b^* + \Delta Q$ and $\Delta a = \Delta b + \frac{1}{e}\Delta B^* + \frac{1}{e}\Delta q$. In this notation equations (24) and (25) are:

(28) $0 = S - \Delta A ,$

(29) $0 = s - \Delta a .$

If one adds the first difference of (26), the first difference of (27) multiplied by e , and (19), the result is:

(30) $0 = \Delta A + e\Delta a .$

Equation (30) is redundant, given (28) and (29), because S and s satisfy the property that $S + es = 0$. This aggregation is very convenient because it allows data on A and a to be constructed by summing past values of S and s from some given base period values. Data on S (the balance of payments on current account) are available for most countries, whereas data on B , B^* , b , and b^* (i.e., bilateral financial data) are generally not available. There is, of course, a cost to this type of aggregation, which is that capital gains and losses on bonds from exchange rate changes are not accounted for. Given the current data, there is little that can be done about this. Note that this aggregation is made possible in the model by the assumption that the bonds are perfect substitutes. If the bonds are not perfect substitutes, then equations (9) and (12) do not drop out, and bilateral financial data would be needed to estimate them.

It will be convenient to rewrite the above model in the form that was used as a basis for the empirical work:

(i)	$S = f_{i}(R, r, e, \ldots)$,	[saving of country 1]
(ii)	$s = f_{ii}(R, r, e, \ldots)$,	[saving of country 2]
(iii)	$0 = S - \Delta A$,	[budget constraint of country 1]
(iv)	$0 = s - \Delta a$,	[budget constraint of country 2]
(v)	$R = f_{v}(\ldots)$,	[interest rate reaction function of country 1]
(vi)	$r = f_{vi}(\ldots)$,	[interest rate reaction function of country 2]
(vii)	$e = f_{vii}(\ldots)$,	[exchange rate reaction function]
(viii)	$R = (e/F)(1+r) - 1$.	[arbitrage condition]

It should finally be noted that although nothing has been said about the determination of S and s in this section, this determination is an important part of the empirical model. It will be discussed in the next section. The purpose of this section was to try to make clear the assumptions behind the use of the reaction functions and the aggregation.

III. The Econometric Model

The econometric model for all countries except the U.S. is presented in Tables 1 through 4. The variables for a particular country i are presented in alphabetic order in Table 1; the equations for country i are listed in Table 2; the trade and price linkages among the countries are presented in Table 3; and the coefficient estimates for all the countries are presented in Table 4. The purpose of this section is to explain these tables. To conserve space, it is assumed in the following discussion that the tables have been read carefully. Parts of the tables that are self explanatory are not discussed, and the discussion is not self contained without the tables.

The econometric model for the U.S. is the one discussed in Fair (1976, 1980b). It is much larger than the model for an individual country in Table 2, and it captures many more features of the economy. The two key exogenous foreign sector variables in this model are the import price deflator and the real value of exports, and when the U.S. model is embedded in the overall model, these two variables become endogenous. Since the U.S. model is described in detail elsewhere, it will not be discussed in this section. All references to the econometric work in this section pertain only to the non U.S. part of the model.

The Data

The raw data were taken from two of the four tapes that are constructed every month by the International Monetary Fund: the International Financial Statistics (IFS) tape and the Direction of Trade (DOT) tape. The way in which each variable was constructed is explained in brackets in Table 1. Some variables were taken directly from the tapes, and some were constructed from other variables. When "IFS" precedes a number in the

TABLE 1. The Variables for Country i in Alphabetic Order

Notes: lc = local currency; all prices are in lc; e and F are units of lc per \$; an * denotes that the variable is in units of lc. † denotes exogenous variable. †† denotes that the variable was used only in the construction of the data.

Eq. No.	Variable	
18	A^*_{it}	= net stock of foreign security and reserve holdings, end of quarter, in lc. [$= A^*_{it-1} + BOP^*_{it}$. Base value of zero was used for the quarter prior to the beginning of the data.]
17	BOP^*_{it}	= total net goods, services, and transfers in lc. Balance of Payments on current account. [See Table A-3.]
2	C_{it}	= personal consumption in 75lc. [IFS96F/CPI_{it} .]
	††CPI_{it}	= consumer price index, 1975 = 1.0. [= (IFS64 or IFS64X)/100 .]
	†e_{i75}	= average exchange rate in 1975, lc per \$. [= IFSRF for 1975.]
9b	e_{it}	= exchange rate, average for the quarter, lc per \$. [= IFSRF .]
20	ee_{it}	= exchange rate, end of quarter, lc per \$. [= IFSAE .]
	††$EMPL_{it}$	= industrial or manufacturing employment index, 1975 = 100. [IFS67 or IFS67EY .]
15	EX_{it}	= total exports (NIA) in 75 lc. [= (IFS90C or IFS90N)/PX_{it} .]
	†$EXDIS_{it}$	= discrepancy between NIA export data and other export data, in 75 lc. [$= EX_{it} - e_{i75}X75\$_{it} - XS_{it}$.]
10b	F_{it}	= three-month forward rate, lc per \$. [= IFSB .]
	†G_{it}	= government purchases of goods and services in 75 lc. [= (IFS91F or IFS91FF)/PY_{it} .]
3	I_{it}	= gross fixed investment in 75 lc. [= IFS93E/PY_{it} .]
14	IM_{it}	= total imports (NIA) in 75 lc. [= IFS98C/PM_{it} .]
	†$IMDIS_{it}$	= discrepancy between NIA import data and other import data, in 75 lc. [$= IM_{it} - M_{it} - MS_{it}$.]
	††IP_{it}	= industrial production index, 1975 = 100. [= IFS66 .]
1	M_{it}	= merchandise imports (fob) in 75 lc. [= IFS71V/PM_{it} .]
	†MS_{it}	= other goods, services, and income (debit) in 75 lc. BOP data. [= (IFS77ADD$\cdot e_{it}$)/PM_{it} .]
	††$M\$_{it}$	= merchandise imports (fob) in \$. [= IFS71V/e_{it} .] [Also equals $(PM_{it}M_{it})/e_{it}$.]
19	$M75\$A_{it}$	= merchandise imports (fob) in 75\$ from Type A countries. [$= \sum_j XX75\$_{jit}$.]
	†$M75\$B_{it}$	= merchandise imports (fob) in 75\$ from Type B countries. [$= M_{it}/e_{i75} - M75\$A_{it}$.]
6	$M1^*_{it}$	= money supply in lc. [= IFS34 .]
V	PM_{it}	= import price index, 1975 = 1.0. [IFS75/100 .]
IV	PM'_{it}	= import price index from DOT data. [$= \{e_{it}\sum_j(PX\$_{jt}XX75\$_{jit})\}/\{e_{i75}\sum_j XX75\$_{jit}\}$.]
	†POP_{it}	= population in millions. [= IFS99Z .]
	†$PW\$_{it}$	= world price index, \$/75\$. [$= \{\sum^*_{j\neq i}(PX\$_{jt}X\$_{jt})\}/\sum^*_{j\neq i}X\$_{jt}$, where $\sum^*$ denotes summation that excludes Type B countries and countries 26-35.]
11	PX_{it}	= export price index, 1975 = 1.0. [= IFS74/100 .]
III	$PX\$_{it}$	= export price index, \$/75\$. [$= (e_{i75}PX_{it})/e_{it}$.]
5	PY_{it}	= GNP or GDP deflator, 1975 = 1.0. [= (IFS94A or IFS99B)/Y_{it} .]

TABLE 1 (continued)

Eq. No.	Variable	
7a,7b	r_{it}	= three-month interest rate, percentage points. [= IFS60, IFS60B, or IFS60C .]
8	R_{it}	= long-term interest rate, percentage points. [= IFS61 or IFS61A .]
16	S_{it}	= final sales in 75 lc. [$= Y_{it} - \Delta V_{it}$.]
	$^{\dagger}SDIS_{it}$	= discrepancy in real NIA data (in 75 lc) due to use of different deflators. [$= S_{it} - C_{it} - I_{it} - G_{it} - EX_{it} + IM_{it}$.]
	$^{\dagger}TT^{*}_{it}$	= total net transfers in lc. [See Table A-3.]
12	ΔV_{it}	= inventory investment in 75 lc. [$=$ IFS93I/PY_{it} .]
13	V_{it}	= stock of inventories, end of quarter, in 75 lc. [$= V_{it-1} + V_{it}$. Base value of zero was used for the quarter prior to the beginning of the data.]
	$^{\dagger}XS_{it}$	= other goods, services, and income (credit) in 75 lc. BOP data. [= (IFS77ACD$\cdot e_{it}$)/PX_{it} .]
	$^{\dagger\dagger}X\$_{it}$	= merchandise exports (fob) in \$. [= IFS70/e_{it} .]
	$^{\dagger\dagger}XX\$_{ijt}$	= merchandise exports (fob) from i to j in \$. [DOT tape.] [$XX\$_{i65t} = X\$_{it} - \sum_{j\neq 65} XX\$_{ijt}$ and $XX\$_{65it} = M\$_{it} - \sum_{j\neq 65} XX\$_{jit}$.] [$XX\$_{ijt} = 0$ if $i = j$.]
I	$XX75\$_{ijt}$	= merchandise exports (fob) from i to j in 75\$. [$= (e_{it}XX\$_{ijt})/(e_{i75}PX_{it})$ if i is a Type A country; = 0 if i is a Type B country.]
II	$X75\$_{it}$	= merchandise exports (fob) in 75\$. [$= \sum_j XX75\$_{ijt}$.] [Also equals $X\$_{it}/PX\$_{it}$.] [Equals 0 and is not used if i is a Type B country.]
4	Y_{it}	= real GNP or GDP in 75 lc. [= IFS99AP, IFS99BP, IFS99AR, or IFS99BR .]
	$^{\dagger}\alpha_{jit}$	= share of i's total merchandise imports from Type A countries imported from j in 75\$. [$= XX75\$_{jit}/M75\$A_{it}$.]
	$^{\dagger}\psi_{1it}$	$= ((ee_{it} + ee_{it-1})/2)/e_{it}$.
	$^{\dagger}\psi_{2it}$	$= PM_{it}/PM'_{it}$.

Notes: 1. For countries with no PM data, PM_{it} was taken to be PM'_{it} (so that $\psi_{2it} = 1$) and M_{it} was taken to be $[e_{it}\sum_j(PX\$_{jt}XX75\$_{jit})]/PM_{it}$. For these countries it it not the case that $M\$_{it} = (PM_{it}M_{it})/e_{it}$ because the summation $\sum_j(PX\$_{jt}XX75\$_{jit})$ is only over Type A countries. $M\$_{it}$ pertains to all countries.

2. For the oil exporting countries (countries 26-35), CPI was used in place of PY to deflate IFS91F or IFS91FF (for G_{it}), IFS93E (for I_{it}), and IFS93I (for ΔV_{it}).

TABLE 2. The List of Equations for Country i

Variables Explained by Stochastic Equations

1.	$M_{it} = f_1(r_{it} \text{ or } R_{it}, PY_{it}, PM_{it}, Y_{it}, A^*_{it-1}/PY_{it-1}, M_{it-1})$	[merchandise imports in 75 lc]
2.	$C_{it} = f_2(r_{it} \text{ or } R_{it}, Y_{it}, A^*_{it-1}/PY_{it-1}, C_{it-1})$	[private consumption in 75 lc]
3.	$\Delta I_{it} = f_3(\Delta Y_{it}, \Delta Y_{it-1}, \Delta Y_{it-2}, \Delta Y_{it-3}, I_{it-1}, t)$	[change in gross fixed investment in 75 lc]
4.	$Y_{it} = f_4(S_{it}, V_{it-1}, Y_{it-1})$	[GNP in 75 lc]
5.	$PY_{it} = f_5(PM_{it}, r_{it} \text{ or } R_{it}, \tilde{Y}_{it}, PY_{it-1}, t)$	[GNP deflator]
6.	$M1^*_{it} = f_6(r_{it}, PY_{it}Y_{it}, M1^*_{it-1}, t)$	[money supply in lc]
7a.	$r_{it} = f_{7a}(\dot{PY}_{it-1}, \dot{M1}_{it-1}, \tilde{Y}_{it}, A^*_{it}/PY_{it}, A^*_{it-1}/PY_{it-1}, \dot{PM}_{it-1}, r_{it-1}, t, r_{1t}, r_{8t})$	[three-month interest rate]
7b.	$r_{it} = f_{7b}(\text{same as 7a plus } e_{it})$	[three-month interest rate]
8.	$R_{it} = f_8(r_{it}, r_{it-1}, r_{it-2}, (\dot{PY}_{it} + \dot{PY}_{it-1} + \dot{PY}_{it-2})/3, R_{it-1}, t)$	[long-term interest rate]
9b.	$e_{it} = f_{9b}(PY_{it}, r_{it}, \tilde{Y}_{it}, \Delta(A^*_{it-1}/PY_{it-1}), e_{8t}, e_{it-1})$	[exchange rate, average for the quarter]
10b.	$F_{it} = f_{10b}(ee_{it}, r_{it}/r_{1t})$	[three-month forward rate]
11.	$PX_{it} = f_{11}(PY_{it}, PW\$_{it}, e_{it})$	[export price index]

Variables Explained by Definitions

12.	$\Delta V_{it} = Y_{it} - S_{it}$	[inventory investment in 75 lc]
13.	$V_{it} = V_{it-1} + \Delta V_{it}$	[stock of inventories in 75 lc]
14.	$IM_{it} = M_{it} + MS_{it} + IMDIS_{it}$	[total imports (NIA) in 75 lc]
15.	$EX_{it} = e_{i75} \cdot X75\$_{it} + XS_{it} + EXDIS_{it}$	[total exports (NIA) in 75 lc]
16.	$S_{it} = C_{it} + I_{it} + G_{it} + EX_{it} - IM_{it} + SDIS_{it}$	[final sales in 75 lc]
17.	$BOP^*_{it} = PX_{it}(e_{i75} \cdot X75\$_{it} + XS_{it}) - PM_{it}(M_{it} + MS_{it}) + TT^*_{it}$	[balance of payments on current account in lc]
18.	$A^*_{it} = A^*_{it-1} + BOP^*_{it}$	[net stock of foreign security and reserve holdings in lc]
19.	$M75\$A_{it} = M_{it}/e_{it} - M75\$B_{it}$	[merchandise imports in 75$ from Type A countries]
20.	$ee_{it} = 2\psi_{1it}e_{it} - ee_{it-1}$	[exchange rate, end of quarter]

Variables Explained When the Countries are Linked Together (Table 3)

21.	$X75\$_{it}$	[merchandise exports in 75$]
22.	PM_{it}	[import price index]

Exogenous Variables

1.	e_{i75}	[average exchange rate for 1975]
2.	$EXDIS_{it}$	[discrepancy for export data]
3.	G_{it}	[government purchases of goods and services in 75 lc]
4.	$IMDIS_{it}$	[discrepancy for import data]
5.	MS_{it}	[non merchandise imports in 75 lc]
6.	$M75\$B_{it}$	[merchandise imports from Type B countries in 75$]
7.	POP_{it}	[population]
8.	PX_{it} for oil exporting countries	[export price index]
9.	$PW\$_{it}$	[world price index]
10.	$SDIS_{it}$	[discrepancy for real NIA data]
11.	TT^*_{it}	[net transfers in lc]
12.	XS_{it}	[nonmerchandise exports in 75 lc]
13.	ψ_{1it}	[ratio of $(ee_{it} + ee_{it-1})/2$ to e_{it}]
14.	ψ_{2it}	[ratio of PM_{it} to PM'_{it}]

Notes:
1. A · over a variable denotes percentage change.
2. $\tilde{Y}_{it}$ is a function of Y_{it} and is interpreted as a demand pressure variable. It is discussed in the text.
3. The arguments in the functions are for illustrative purposes only. The exact explanatory variables and functional forms are presented in Table 4.

TABLE 3. Equations That Pertain to the Trade and Price Linkages among Countries

Equations

I	$XX75\$_{jit} = \alpha_{jit} M75\$A_{it}$	[merchandise exports from j to i in 75\$.] [= 0 if j is a Type B country.]
II	$X75\$_{it} = \sum_j XX75\$_{ijt}$	[merchandise exports of i in 75\$.] [= 0 if i is a Type B country.]
III	$PX\$_{it} = (e_{i75} PX_{it})/e_{it}$	[export price index of i , \$/75\$.] [= 0 if i is a Type B country.]
IV	$PM'_{it} = \dfrac{e_{it} \sum_j (PX\$_{jt} XX75\$_{jit})}{e_{i75} \sum_j XX75\$_{jit}}$	[import price index of i from DOT data.]
V	$PM_{it} = \psi_{2it} PM'_{it}$	[import price index of i .]

Notes: α_{jit} = share of i's total merchandise imports from Type A countries imported from j in 75\$.

α_{jit} is exogenous.

TABLE 4. Estimated Equations

A * means that the variable is lagged one quarter. t-statistics in absolute value are in parentheses.

Equation 1: $\log\frac{M_{it}}{POP_{it}}$ is the dependent variable.

Country	$\log PY_{it}$	$\log PM_{it}$	r_{it}	R_{it}	$\log\frac{Y_{it}}{POP_{it}}$	$\frac{A^*_{it-1}}{PY_{it-1}POP_{it-1}}$	$\log\frac{M_{it-1}}{POP_{it-1}}$	R^2	SE	DW	Sample Period
					Explanatory Variables						
Canada	.086* (0.56)	−.092* (0.78)			.82 (5.45)	.000062 (2.03)	.57 (7.29)	.992	.0374	1.96	581-801
Japan	.12 (1.01)	−.11 (1.78)	−.0034* (1.05)		.15 (1.14)	.00020 (0.78)	.83 (10.29)	.995	.0448	1.98	581-801
Austria	.23 (0.78)	−.19 (0.94)	−.017* (2.09)		1.22 (3.25)	37.4 (1.23)	.36 (2.78)	.990	.0352	2.01	651-793
Belgium	.33 (3.36)	−.37 (4.40)		−.012* (1.50)	1.05 (5.97)		.48 (6.00)	.996	.0323	2.26	581-784
Denmark	.57* (4.04)	−.37* (3.87)	−.0021* (0.87)		.53 (2.55)	.031 (3.12)	.55 (6.58)	.987	.0430	2.38	581-794
France	.23 (1.42)	−.17 (1.54)	−.0012* (0.28)		.54 (2.75)		.70 (6.85)	.993	.0463	1.84	581-784
Germany			−.0050* (3.16)		.94 (4.12)		.58 (5.60)	.995	.0297	1.87	611-801
Italy	.24 (1.71)	−.051 (0.52)		−.016* (1.32)	.88 (2.75)	.00035 (1.38)	.40 (4.08)	.971	.0658	2.20	611-794
Netherlands	.11 (1.11)	−.14 (2.18)			1.10 (4.50)		.39 (3.67)	.992	.0314	2.07	611-794
Norway				−.012 (0.55)	.85 (4.53)	.0042 (2.46)	.57 (6.49)	.966	.0603	2.28	621-794
Sweden			−.0054* (1.21)		1.00 (5.87)	.00077 (0.51)	.50 (5.41)	.980	.0383	2.47	611-794
Switzerland	.074 (1.26)	−.191 (1.86)	−.021* (2.56)	−.0042 (0.37)	1.68 (6.58)	.018 (3.35)	.33 (3.47)	.994	.0289	2.42	581-794
U.K.					1.20 (6.36)	.00011 (0.97)	.36 (3.65)	.982	.0365	2.07	581-801
Finland	.10 (0.37)	−.17 (1.06)			1.33 (5.38)	.000028 (0.93)	.26 (2.65)	.970	.0694	2.27	581-794
Greece	.35 (1.44)	−.16 (0.85)	−.0090* (1.29)		.92 (5.74)		.20 (1.84)	.967	.0960	2.28	581-794
Ireland	.073 (0.60)	−.033 (0.35)		−.0097 (2.16)	1.27 (6.09)	.00026 (1.52)	.47 (5.99)	.987	.0492	2.16	581-794
Portugal				−.0047 (0.54)	1.15 (6.04)		.20 (1.61)	.909	.1542	2.17	581-784
Spain	.16 (1.75)	−.13 (1.49)	−.030 (1.45)		.59 (3.04)		.63 (7.53)	.980	.0568	2.25	621-784
Yugoslavia					.69 (4.44)	.063 (2.41)	.56 (5.56)	.953	.0837	2.07	611-774
Australia				−.041* (4.02)	.79 (4.66)	.00015 (2.60)	.75 (10.40)	.862	.0614	1.93	603-801
New Zealand					.91 (5.87)	.00022 (4.01)	.44 (5.06)	.838	.0803	2.00	582-781
South Africa			−.030* (4.10)		.36 (2.59)		.84 (17.73)	.892	.0660	2.27	621-794
Iran					.51 (2.34)	.0077 (2.75)	.56 (4.34)	.972	.0805	1.48	711-781
Libya					.15 (1.02)		.81 (9.68)	.923	.0755	2.29	721-774
Nigeria						.0023 (4.88)	.77 (13.59)	.977	.0788	1.68	712-781
Saudi Arabia						.026 (2.80)	.69 (6.35)	.992	.0628	2.09	721-782
Venezuela					1.74 (2.99)	.000029 (2.13)	.45 (3.09)	.928	.0721	2.09	711-784
Argentina						.17 (3.41)	.45 (2.96)	.589	.1114	1.89	711-754
Brazil					.60 (1.60)	.19 (1.43)	.83 (7.63)	.828	.0922	1.61	711-784
Chile	.72 (6.64)	−.69 (6.87)			1.04 (1.64)	.00091 (2.38)	.21 (2.35)	.894	.1561	2.33	641-774
Colombia			−.056* (3.14)			.00018 (3.99)	.76 (7.34)	.730	.0781	2.09	711-784
Mexico					1.13 (4.73)	.13 (3.17)	.74 (10.37)	.945	.0411	1.89	711-794
Peru					.049 (0.07)		.95 (8.71)	.781	.1226	1.91	711-784
Egypt					.20 (0.44)		.94 (8.71)	.958	.0916	2.00	721-774
Israel					.55 (1.72)	.000070 (0.50)	.32 (2.05)	.328	.1297	2.30	691-794
Jordan					.88 (3.33)		.59 (4.60)	.838	.1509	2.22	731-784
Syria	.51 (1.72)	−.19 (0.88)			.79 (2.10)	.00011 (0.81)	.25 (1.94)	.818	.1366	2.11	641-784
India						.91 (0.72)	.25 (1.29)	.445	.1213	1.92	722-781
Korea	.16* (0.83)	−.13* (1.33)			.54 (1.87)	.0034 (2.19)	.77 (10.36)	.979	.1079	2.06	641-784
Malaysia	.67* (2.36)	−.42* (2.32)			.51 (2.41)	.00023 (1.25)	.21 (2.63)	.895	.0432	1.05	711-793
Pakistan					.97 (1.14)		.52 (2.33)	.602	.1163	2.66	731-792
Philippines	.93 (5.05)	−.52 (5.67)	−.015 (2.60)		.30 (1.02)	.00039 (4.21)	.28 (3.21)	.688	.0863	2.22	581-794
Thailand	.54	−.38			.40	.0093	.52	.843	.0502	2.11	[illegible]

Equation 2: $\log \frac{C_{it}}{POP_{it}}$ is the dependent variable.

Country	r_{it}	R_{it}	$\log \frac{Y_{it}}{POP_{it}}$	$\frac{A^*_{it-1}}{PY_{it-1} POP_{it-1}}$	$\log \frac{C_{it-1}}{POP_{it-1}}$	t	$\hat{\rho}_1$	R^2	SE	DW	Sample Period
				Explanatory Variables							
Canada	-.0011		.11	.0000092	.90			.998	.00867	2.43	581-801
	(1.55)		(3.39)	(1.53)	(24.18)						
Japan	-.0022		.18		.78			.999	.0133	2.36	581-801
	(3.06)		(2.68)		(10.00)						
Austria	-.0062		.54		.41			.990	.0184	1.87	651-793
	(1.75)		(6.13)		(4.36)						
Belgium	-.00094	-.0052*	.50	.00123	.41			.997	.0123	1.74	581-784
	(0.80)	(1.73)	(8.02)	(3.48)	(5.30)						
Denmark			.58		.28			.984	.0222	1.18	581-794
			(11.20)		(4.43)						
France		-.0013*	.25		.76			.999	.0091	2.00	581-784
		(1.03)	(6.92)		(18.72)						
Germany	-.0016		.32	3.79	.71			.998	.00805	2.33	611-801
	(2.77)		(4.41)	(0.80)	(11.12)						
Italy	-.0012		.23		.71	.0014		.995	.0181	2.11	611-794
	(1.30)		(2.49)		(9.66)	(2.19)					
Netherlands		-.0048	.44	.010	.63			.996	.0128	2.32	611-794
		(1.81)	(4.51)	(2.50)	(8.12)						
Norway		-.0060	.45	.000063	.47			.988	.0161	1.77	621-794
		(0.97)	(6.42)	(0.17)	(5.98)						
Sweden			.29		.64			.979	.0163	2.07	611-794
			(4.24)		(8.07)						
Switzerland	-.0036		.27	.0021	.79			.996	.0121	2.12	581-794
	(1.60)		(4.31)	(1.10)	(15.44)						
U.K.	-.00086*		.51	.00019	.40			.990	.0123	1.72	581-801
	(1.00)		(8.63)	(3.94)	(5.49)						
Finland			.36	.0000026	.68			.993	.0238	2.19	581-794
			(5.17)	(0.64)	(10.14)						
Ireland		-.0043	.58	.000023	.41			.994	.0143	1.55	581-794
		(5.22)	(11.65)	(0.58)	(7.54)						
Portugal		-.0013	.28		.51			.993	.0304	2.05	581-784
		(0.85)	(6.60)		(7.25)						
Spain	-.0066		.31		.71			.987	.0230	2.06	621-784
	(1.18)		(3.70)		(10.04)						
Yugoslavia			.49		.47			.991	.0236	1.52	611-774
			(6.48)		(5.69)						
Australia	-.0023		.31	.000020	.73			.996	.0107	1.80	603-801
	(1.47)		(2.64)	(1.75)	(6.46)						
New Zealand			.34	.000057	.71		.69	.984	.0165	1.70	582-781
			(1.26)	(1.86)	(2.99)		(2.58)				
South Africa	-.0051		.42		.71			.986	.0150	2.14	621-794
	(3.28)		(4.41)		(10.32)						
Iran			.12	.00047	.83		.52	.991	.0245	1.67	614-781
			(0.81)	(0.49)	(3.68)		(1.54)				
Libya				.000041	.93			.990	.0351	1.36	651-774
				(1.29)	(18.20)						
Nigeria			.042	.0014			.62	.679	.0708	1.66	712-781
			(0.10)	(1.96)			(1.59)				
Saudi Arabia				.013	.70		.71	.970	.0472	1.84	721-782
				(1.23)	(2.59)		(2.65)				
Venezuela			.24	.0000024	.88		.58	.993	.0152	1.94	621-784
			(1.27)	(0.45)	(8.61)		(3.24)				
Argentina			.59	.016	.37			.969	.0173	1.31	671-754
			(8.79)	(2.97)	(4.48)						
Brazil			.14		.87			.997	.0176	1.12	641-784
			(3.53)		(24.16)						
Chile			.03	.00034	.92			.970	.0640	2.31	641-774
			(0.20)	(2.30)	(24.00)						
Colombia			.067		.85			.890	.0201	1.40	711-784
			(0.86)		(10.62)						
Mexico			.43		.45			.972	.0251	1.65	581-794
			(7.91)		(6.62)						
Peru	-.00071		.54	.0012	.63			.970	.0190	1.94	641-782
	(0.27)		(3.05)	(0.42)	(4.87)						
Egypt			.12	.00058	.90			.903	.0244	1.40	611-774
			(1.54)	(0.81)	(10.46)						
Israel			.23		.72			.929	.0290	1.80	691-794
			(1.97)		(8.05)						
Jordan			.54		.26			.904	.0395	1.22	731-784
			(7.01)		(2.31)						
Syria			.40		.49		.62	.880	.0593	1.75	641-784
			(0.64)		(0.65)		(0.91)				
India		-.094	.57	.27	.48			.808	.0287	2.07	722-781
		(3.02)	(3.10)	(0.74)	(3.17)						
Korea	-.0026		.46		.31			.957	.0558	1.88	641-784
	(1.74)		(7.83)		(3.59)						
Malaysia			.29		.66			.957	.0212	1.60	711-793
			(3.86)		(6.70)						
Philippines	-.0024		.66	.000067	.24			.963	.0250	1.06	581-794
	(1.69)		(13.75)	(3.48)	(4.33)						
Thailand	-.0022		.30		.65		.43	.995	.0108	1.53	654-794
	(1.54)		(1.70)		(2.96)		(1.64)				

TABLE 4 (continued)

Equation 3: ΔI_{it} is the dependent variable

Country	ΔY_{it}	ΔY_{it-1}	ΔY_{it-2}	ΔY_{it-3}	I_{it-1}	t	$\hat{\rho}_1$	R^2	SE	DW	Sample Period
	Explanatory Variables										
Canada	.17	.08	-.09	.07	-.056	5.4		.305	137.5	1.74	581-801
	(2.31)	(1.60)	(1.95)	(0.88)	(1.83)	(1.96)					
Japan		.21	.17	.17	-.062	7.9		.315	211.5	2.16	581-801
		(3.17)	(2.60)	(2.53)	(2.34)	(1.89)					
Austria	.54	-.32	-.02	.38	-.15	.049		.981	1.55	2.11	651-793
	(5.51)	(3.76)	(0.20)	(4.13)	(2.10)	(1.60)					
Belgium	.15	.04	.06	.10	-.15	.16		.506	1.77	1.75	581-784
	(4.13)	(1.70)	(2.54)	(2.66)	(2.61)	(2.42)					
Denmark	.24	.05	.08	.04	-.064	.0056		.876	.272	2.35	581-794
	(10.63)	(2.45)	(3.71)	(2.28)	(1.83)	(1.34)					
France	.29	.05	.02	.14	-.013	-.0017		.642	.839	2.07	581-784
	(5.49)	(1.29)	(0.53)	(2.02)	(0.37)	(0.06)					
Germany	.48	.01	.00	.03	-.051	.015		.647	1.33	1.96	611-801
	(5.95)	(0.17)	(0.06)	(0.45)	(1.57)	(1.18)					
Italy	.40	.04	.07	.11		.027		.744	96.2	2.12	611-794
	(11.03)	(1.50)	(2.52)	(3.85)		(0.05)					
Netherlands	.23	-.00	.03	.06	-.093	.0063		.425	.253	1.95	611-794
	(4.71)	(0.01)	(0.78)	(1.34)	(2.37)	(1.90)					
Sweden	.17	.02	.01	.00	-.054	.0014		.699	.177	2.02	611-794
	(6.28)	(1.22)	(0.29)	(0.16)	(2.15)	(0.72)					
Switzerland	.45	.06	.07	.31	-.062	.0036		.296	.270	2.27	581-794
	(4.46)	(0.98)	(1.06)	(3.40)	(2.76)	(2.09)					
U.K.	.06	.13	-.03	.01	-.058	1.4	-.43	.682	140.2	2.10	582-801
	(1.12)	(3.12)	(0.68)	(0.16)	(1.15)	(0.84)	(2.96)				
Finland	.22	.05	.11	.24	-.0067	-.82		.453	177.4	2.14	581-794
	(3.84)	(1.12)	(2.41)	(3.93)	(0.22)	(0.44)					
Greece	.24	.05	.03	.01	-.090	.042		.659	1.31	1.89	581-794
	(5.13)	(1.21)	(0.85)	(0.40)	(2.18)	(2.08)					
Ireland	.31	.08	.10	.13		.018		.799	5.87	2.11	581-794
	(6.93)	(1.74)	(2.20)	(2.42)		(0.62)					
Portugal	.18	-.00	-.01	.02	-.078	.016		.814	.367	1.92	581-784
	(11.67)	(0.10)	(0.39)	(1.30)	(2.00)	(1.96)					
Spain	.27	.05	.08	.03	-.023	.018		.775	6.10	2.26	621-784
	(8.12)	(1.76)	(2.83)	(1.10)	(0.64)	(0.13)					
Yugoslavia	.25	-.01	-.08	-.09	-.0082	.016		.867	.949	1.88	611-774
	(2.46)	(0.16)	(1.21)	(1.35)	(0.19)	(0.80)					
Australia	.26	.01	.13	.02	-.085	1.9	-.55	.956	99.2	2.20	604-801
	(4.98)	(0.21)	(2.93)	(0.43)	(1.81)	(1.43)	(3.73)				
New Zealand	.16	.35	.07	.12	-.11	.59	.40	.446	13.7	2.00	583-781
	(0.52)	(1.55)	(0.36)	(0.61)	(1.31)	(1.31)	(2.20)				
South Africa	.08	.09	.01	.09	-.068	1.1		.153	62.8	2.39	621-794
	(0.61)	(0.86)	(0.07)	(0.90)	(1.17)	(0.87)					
Libya	.25	-.07	.02	.01	-.093	.57		.386	9.15	0.99	651-774
	(4.57)	(1.27)	(0.41)	(0.21)	(2.28)	(2.51)					
Nigeria	.18	-.02	-.01	-.01				.833	41.8	1.82	712-781
	(10.52)	(0.99)	(0.41)	(0.44)							
Argentina	.20	.02	.00	.02	-.13	.12		.962	1.06	1.80	671-754
	(9.31)	(1.01)	(0.14)	(0.87)	(1.32)	(1.37)					
Brazil	.23	-.01	-.05	.08	-.056	.047		.370	.894	1.60	641-784
	(2.14)	(0.08)	(0.72)	(1.32)	(1.32)	(1.02)					
Chile	.12	.00	.01	.00	-.128	-1.78		.862	58.0	1.88	641-774
	(6.14)	(0.08)	(0.86)	(0.26)	(2.75)	(3.23)					
Colombia	.34	-.00	-.10	.03	-.142	52.0		.399	508.0	1.47	711-784
	(1.65)	(0.01)	(0.37)	(0.11)	(1.71)	(2.45)					
Mexico	.25	.10	.10	.14	-.082	.055		.599	1.16	2.15	581-794
	(6.24)	(2.86)	(2.99)	(3.69)	(2.10)	(2.18)					
Peru	.28	.05	-.03	.13	-.027	.011		.269	.605	1.61	641-782
	(1.76)	(0.29)	(0.19)	(1.04)	(0.85)	(1.49)					
Israel	.073	.04	.03	.07	-.33	2.19		.555	56.6	2.03	691-794
	(2.98)	(1.70)	(1.45)	(3.53)	(3.19)	(2.40)					
India	.10	.07	-.03	.01	-.12	.13		.688	.959	1.82	722-781
	(1.84)	(1.41)	(0.53)	(0.11)	(1.52)	(2.12)					
Korea	.34	-.02	.17	.19	-.17	1.9		.884	54.0	2.35	641-784
	(3.03)	(0.17)	(1.54)	(1.69)	(1.85)	(1.55)					
Malaysia	.35	.12	.05	-.04	-.058	1.3		.647	54.9	1.90	711-793
	(4.78)	(1.78)	(0.69)	(0.63)	(0.59)	(0.39)					
Philippines	.14	-.01	-.03	-.08	-.014	3.1		.457	187.3	2.00	581-794
	(4.66)	(0.48)	(0.88)	(2.52)	(0.59)	(1.57)					
Pakistan	.23	-.03	-.00	-.06	-.019	-5.7		.939	165.9	1.72	731-792
	(6.44)	(0.81)	(0.12)	(1.63)	(0.17)	(0.38)					

Equation 4: Y_{it} is the dependent variable.

Country	Explanatory Variables				Implied Values						
	S_{it}	V_{it-1}	Y_{it-1}	$\hat{\rho}_1$	λ	α	β	R^2	SE	DW	Sample Period
Canada	.45	-.052	.60		.40	.1300	.96	.9995	221.3	1.84	581-801
	(7.23)	(2.15)	(9.81)								
Japan	.73	-.0099	.28	.54	.72	.0138	1.01	.9997	217.6	1.94	581-801
	(9.22)	(0.32)	(3.70)	(5.67)							
Austria	.69	-.083	.43		.57	.1456	1.45	.9949	2.11	1.82	651-793
	(6.65)	(1.34)	(5.09)								
Belgium	1.00	-.15	.13	.77	.87	.1724	0.87	.9998	1.76	1.71	581-784
	(30.61)	(3.23)	(5.64)	(9.42)							
Denmark	1.01	-.056	.036	.70	.964	.0581	0.82	.9996	.217	1.70	581-794
	(57.07)	(2.00)	(2.44)	(8.44)							
France	1.07	-.16	.18	.65	.82	.1951	1.56	.9997	1.29	1.89	581-784
	(12.98)	(2.94)	(2.98)	(7.20)							
Germany	.99	-.12	.17	.73	.83	.1446	1.33	.9990	1.45	1.99	611-801
	(10.12)	(1.23)	(2.77)	(8.11)							
Italy	.77	-.0013	.27	.69	.73	.0018	30.77	.9987	211.2	1.79	611-794
	(11.81)	(0.06)	(4.77)	(7.45)							
Netherlands	.99	-.14	.20	.65	.80	.1750	1.36	.9996	.210	1.78	611-794
	(22.02)	(3.44)	(6.04)	(6.54)							
Norway	.94	-.034	.073	.81	.927	.0367	0.38	.9982	.293	1.74	621-794
	(14.84)	(0.35)	(1.61)	(6.36)							
Sweden	1.00	-.053	.059	.83	.941	.0563	1.11	.9977	.471	1.92	611-794
	(16.46)	(1.03)	(1.38)	(9.48)							
Switzerland	.93	-.056	.20	.69	.80	.0700	2.32	.9985	.240	1.75	581-794
	(12.54)	(2.95)	(3.43)	(8.96)							
U.K.	1.14	-.18	.11	.35	.89	.2022	1.39	.9960	240.3	1.95	581-801
	(12.19)	(2.78)	(1.81)	(3.18)							
Finland	1.04	-.086	.12	.89	.88	.0977	1.86	.9979	241.0	1.94	581-794
	(11.56)	(1.14)	(1.96)	(10.63)							
Greece	1.03		.03	.85	.97	0	—	.9992	1.30	1.74	581-794
	(46.38)		(1.80)	(14.65)							
Ireland	1.04	-.082	.06	.73	.94	.0872	1.22	.9988	6.72	1.76	581-794
	(23.92)	(1.50)	(1.69)	(8.33)							
Portugal	1.05	-.033	.051	.75	.949	.0348	3.06	.9972	1.26	1.81	581-784
	(23.08)	(1.04)	(1.41)	(9.77)							
Spain	1.05	-.035	.013	.86	.987	.0355	1.80	.9996	6.19	1.86	621-784
	(31.69)	(1.06)	(0.55)	(10.39)							
Australia	.79	-.081	.29		.71	.1141	0.99	.9950	248.8	2.02	603-801
	(9.80)	(1.36)	(3.96)								
New Zealand	.096	-.019	.97	.75	.03	.6333	3.47	.9997	8.32	1.85	582-781
	(2.86)	(3.25)	(28.03)	(9.49)							
South Africa	.23	-.038	.83		.17	.2235	1.58	.9965	76.0	2.00	621-794
	(3.38)	(1.73)	(11.12)								
Libya	.86		.040	.99	.96	0	—	.9998	4.27	0.73	651-774
	(44.83)		(2.08)	(47.94)							
Saudi Arabia	.99	-.12	.035	.77	.965	.1244	0.21	.9998	.0827	1.00	721-782
	(29.72)	(1.05)	(1.06)	(3.83)							
Venezuela	.21		.80	.77	.20	0	—	.9998	99.5	1.72	621-784
	(3.03)		(11.22)	(7.95)							
Argentina	1.04	-.032	.01	.71	.99	.0323	1.56	.999	1.18	1.62	671-754
	(48.65)	(0.79)	(0.32)	(5.08)							
Brazil	.39	-.043	.65	.74	.35	.1229	0.93	.9994	1.73	1.83	641-784
	(3.85)	(1.04)	(3.85)	(7.26)							
Mexico	1.02		.013	.74	.987	0	—	.9995	1.54	1.79	581-794
	(40.73)		(0.53)	(10.23)							
Peru	.47	-.064	.63	.75	.37	.1730	1.56	.9993	.544	1.41	641-782
	(4.79)	(2.35)	(6.96)	(8.30)							
Egypt	.63		.41	.79	.59	0	—	.999	6.17	1.07	661-774
	(10.57)		(7.08)	(7.73)							
Jordan	1.08	-.24	.046	.30	.954	.2516	0.53	.999	0.869	1.18	731-784
	(42.45)	(3.45)	(1.58)	(1.79)							
India	1.03	-.084		.94	1.00	.0840	0.36	.9939	1.18	1.89	722-781
	(15.67)	(0.08)		(0.99)							
Korea	.85	-.15	.30	-.43	.70	.2143	1.00	.9905	98.9	2.04	641-784
	(7.38)	(2.29)	(2.64)	(2.36)							
Philippines	1.08	-.013	.040	.92	.960	.0135	9.23	.9998	99.0	2.05	581-794
	(83.51)	(1.85)	(3.69)	(19.91)							
Thailand	.77	-.18	.43	.87	.57	.3158	1.11	.9996	.408	1.37	621-794
	(6.34)	(2.39)	(4.16)	(9.44)							

TABLE 4 (continued)

Equation 5: $\log PY_{it}$ is the dependent variable.

Explanatory Variables

Country	$\log PM_{it}$	r_{it}	R_{it}	$\log\frac{\tilde{Y}_{it}}{POP_{it}}$	$\log PY_{it-1}$	t	$\hat{\rho}$	R^2	SE	DW	Sample Period
Canada	.061* (4.57)		.0026 (2.40)	.022* (9.29)	.93 (54.42)	.00030 (3.19)		.9998	.0050	1.95	581-801
Japan		.0028 (2.43)			.88 (14.98)	.0019 (2.11)	.69 (6.08)	.9996	.0079	1.98	581-801
Austria	.20* (3.44)			.013 (1.72)	.63 (6.10)	.0031 (3.17)		.997	.0130	2.32	651-793
Belgium	.073 (5.11)			.0098* (3.47)	.89 (40.20)	.00096 (5.50)		.9997	.0057	1.88	581-784
Denmark	.11* (3.58)		.0017 (0.73)	.0050* (0.68)	.75 (12.08)	.0034 (3.71)		.9994	.0119	2.05	581-794
France	.071* (3.97)				.88 (23.41)	.0012 (3.21)	.47 (5.16)	.9997	.0061	2.32	581-784
Germany	.034* (3.10)		.00085* (1.63)	.019* (6.70)	.94 (37.16)	.00039 (1.70)		.9996	.0049	2.30	611-801
Italy	.060 (4.66)	.0019* (2.70)			.91 (51.83)	.00080 (4.32)		.9996	.0099	1.90	611-794
Netherlands	.061* (3.17)			.012 (2.30)	.83 (14.89)	.0022 (2.87)		.9995	.0087	1.87	611-794
Norway	.18 (5.47)		.013* (2.85)		.47 (6.41)	.0061 (7.98)		.999	.0115	1.23	621-794
Sweden	.072* (5.42)	.0018* (2.15)	.0033* (1.17)		.85 (27.29)	.0013 (5.12)		.9997	.0064	1.73	611-794
Switzerland	.025* (0.94)	.00071* (0.40)		.019 (2.33)	.94 (23.76)	.00064 (1.36)		.999	.0088	2.13	581-794
U.K.	.048* (1.99)		.0033* (2.31)	.0018* (0.26)	.92 (25.66)	.00051 (1.48)		.9996	.0103	2.10	581-801
Finland	.068 (3.08)			.016* (2.37)	.90 (22.97)	.00089 (2.34)		.9995	.0111	1.59	581-794
Greece	.073 (2.99)			.0068* (0.70)	.91 (23.03)	.00087 (2.79)		.999	.0163	1.70	581-794
Ireland	.073* (2.35)		.0014* (0.99)	.014* (1.78)	.89 (19.31)	.0012 (2.31)		.999	.0159	1.85	581-794
Portugal	.16 (3.54)			.018* (1.76)	.84 (14.00)	.00072 (2.06)		.998	.0205	2.46	581-784
Spain	.058 (4.67)			.011* (1.19)	.97 (33.50)	-.00012 (0.20)		.999	.0123	2.09	621-784
Yugoslavia				.076 (2.24)	.96 (14.29)	.0016 (0.77)	.25 (1.92)	.997	.0345		611-774
Australia	.046 (1.48)		.0052 (1.69)	.013* (1.15)	.90 (15.96)	.00073 (1.69)		.999	.0150	1.77	603-801
New Zealand	.056* (2.83)				.92 (29.24)	.00076 (2.83)		.9982	.0162	1.94	582-781
South Africa	.12* (2.61)			.027* (1.92)	.83 (11.33)	.0014 (2.13)		.998	.0199	2.36	621-794
Brazil	.058 (1.97)				.90 (29.70)	.0046 (1.77)		.999	.0149	1.66	711-784
Chile	.24 (6.95)				.53 (5.52)	.0548 (1.52)	.94 (13.10)	.9996	.0668	2.11	641-774
Colombia	.068 (1.46)				.73 (7.58)	.0103 (1.88)		.998	.0199	1.86	711-784
Israel	.088 (1.83)			.032* (1.34)	.95 (13.30)	-.00040 (0.22)		.999	.0253	1.93	691-794
Jordan	.073 (0.59)				.50 (2.85)	.014 (2.23)		.853	.0905	1.53	731-784
Syria	.14 (3.24)				.78 (12.39)	.00053 (0.70)		.987	.0385	2.30	641-784
India	.070 (1.16)				.43 (0.75)	.0038 (0.54)	.67 (1.39)	.962	.0269	2.19	722-781
Korea	.11 (3.15)	.0015 (1.35)		.019* (1.43)	.59 (6.14)	.013 (3.84)		.996	.0430	2.46	641-784
Malaysia	.048 (0.95)			.068 (4.17)	.62 (5.68)	.0064 (3.81)		.983	.0253	2.31	711-793
Pakistan	.071 (2.74)				.77 (11.37)	.0036 (2.09)		.996	.0141	2.38	731-792
Philippines	.026 (1.79)	.0031 (2.07)		.022* (2.31)	.96 (32.14)	.00018 (0.34)		.9988	.0196	1.67	581-794
Thailand	.050 (1.09)				.89 (10.38)	.00087 (1.90)		.9949	.0196	1.05	654-794

TABLE 4 (continued)

Equation 6: $M1^*_{it}/POP_{it}$ is the dependent variable.

Country	Explanatory Variables: r_{it}	$\frac{PY_{it}Y_{it}}{POP_{it}}$	$\frac{M1^*_{it-1}}{POP_{it-1}}$	t	R^2	SE	DW	Sample Period
Canada	-6.7 (3.67)	.040 (2.72)	.92 (17.86)	.46 (1.55)	.994	19.7	2.65	581-801
Japan	-4.4 (0.82)	.37 (3.18)	.71 (8.09)	.053 (0.35)	.997	9.68	2.53	581-801
Austria		.17 (2.30)	.67 (6.60)	.020 (1.26)	.993	.387	1.90	651-793
Belgium	-.29 (3.90)	.30 (5.44)	.62 (8.82)	.053 (3.57)	.997	.897	2.40	581-784
Denmark	-.064 (5.55)	.45 (10.94)	.44 (7.92)	.0052 (2.09)	.997	.184	1.81	581-794
France	-.028 (2.98)	.33 (5.70)	.59 (7.48)	.0103 (3.40)	.996	.149	2.41	581-784
Germany	-.017 (5.50)	.28 (4.83)	.61 (8.42)	-.0011 (0.92)	.998	.0424	2.56	611-801
Italy	-4.5* (2.95)	.28 (2.47)	.93 (13.67)	.29 (0.57)	.998	30.8	2.53	611-794
Netherlands	-.035 (7.06)	.62 (8.52)	.20 (2.37)	.0033 (2.15)	.997	.0639	2.02	611-794
Norway	-.0042* (0.19)	.51 (5.98)	.18 (1.41)	.016 (3.05)	.990	.257	2.14	621-794
Sweden	-.016* (0.86)	.26* (4.03)	.65 (6.59)	-.0084 (2.46)	.989	.170	2.23	611-794
Switzerland	-.047 (2.25)	.043 (0.55)	.89 (18.31)	.0098 (2.08)	.995	.186	1.90	581-794
U.K.	-1.8 (5.97)	.18 (6.33)	.71 (13.96)	.048 (1.03)	.999	4.46	2.00	581-801
Finland	-4.2* (0.48)	.25* (7.44)	.32 (3.35)	-2.7 (3.76)	.994	56.5	2.23	581-794
Greece	-.061 (1.64)	.64 (9.20)	.05 (0.45)	.011 (1.84)	.996	.400	1.61	581-794
Ireland	-1.6 (4.05)	.10 (3.83)	.90 (21.78)	.085 (1.40)	.997	5.49	1.96	581-794
Portugal	-.074 (0.76)	.30 (1.97)	.85 (12.65)	.0081 (1.21)	.995	.530	2.11	581-784
Spain	-.47 (1.19)	.60 (6.20)	.46 (4.76)	.042 (1.82)	.997	1.25	1.92	621-784
Australia	-6.8* (5.06)	.12 (4.99)	.80 (15.54)	.087 (0.67)	.998	9.40	1.31	603-801
New Zealand	-10.6 (4.89)	.18* (4.23)	.76 (12.02)	-.68 (2.76)	.986	13.6	2.39	582-781
South Africa	-1.4 (3.74)	.049 (2.68)	.84 (14.37)	.23 (3.03)	.994	3.22	2.05	621-794
Iran	-.036 (0.43)	.049 (1.37)	.97 (14.45)	.0044 (0.42)	.991	.593	1.91	614-781
Colombia	-1.5 (0.08)	.26 (2.83)	.58 (3.97)	-9.5 (1.32)	.995	80.4	2.08	711-784
Peru	-.069 (1.34)	.12 (2.94)	.88 (16.03)	.0040 (0.80)	.996	.195	2.17	641-782
Korea	-.013* (0.56)	.086 (5.05)	.83 (16.80)	.025 (1.41)	.997	.995	2.28	641-784
Philippines		.097* (4.60)	.71 (10.35)	.078 (1.24)	.995	6.44	1.85	581-794
Thailand	-.0043* (1.55)	.23 (5.81)	.20 (1.48)	.0024 (3.76)	.992	.0227	1.85	654-794

TABLE 4 (continued)

Equation 7a: r_{it} is the dependent variable.

Country	U.S. Rate r_{1t}	German Rate r_{8t}	$\dot{PY}_{it-1}$	$\frac{\dot{MI}_{it-1}}{POP_{it-1}}$	$\frac{\tilde{Y}_{it}}{POP_{it}}$	$\frac{A^*_{it}}{PY_{it}POP_{it}}$	$\frac{A^*_{it-1}}{PY_{it-1}POP_{it-1}}$	$\Delta\frac{A^*_{it}}{PY_{it}POP_{it}}$	r_{it-1}	t	$\hat{\rho}_1$	R^2	SE	DW	Sample Period
Canada	.82 (4.75)		.059 (2.17)						.13 (0.80)	.022 (0.62)	.61 (3.88)	.965	.257	1.36	631-701
Japan				.0089 (0.89)	43.5* (3.98)	-.096 (1.32)	.085 (1.09)		.39 (3.49)	-.17 (3.71)		.793	.769	2.21	581-712
Austria		.15 (5.11)			8.0* (2.37)				.16 (1.11)	-.012 (2.25)		.915	.132	1.84	651-711
Belgium	.31 (3.47)	.23 (2.43)	.020 (0.81)		6.4 (1.71)			-.39* (2.87)	.47 (3.12)	.00010 (0.01)		.904	.448	1.99	581-712
Denmark	.19 (3.32)		.037 (4.33)		2.3 (1.17)			-.54* (1.48)	.75 (10.61)	-.0085 (1.14)		.926	.333	1.48	581-712
France	.37 (3.87)		.089 (4.32)					-1.8* (1.40)	.71 (12.35)	-.013 (1.49)		.926	.489	2.09	581-712
Germany	.44 (3.90)		.11 (3.66)		11.7* (3.08)			-3.1* (1.73)	.67 (11.36)	-.0067 (0.43)		.954	.419	1.58	611-711
Italy		.12 (5.90)		.0029 (0.60)		-.0092 (3.00)	.0102 (3.17)		.55 (7.73)			.936	.167	2.27	611-712
Netherlands	.65 (5.43)		.013 (0.72)	.025 (2.16)		-4.8* (2.29)	3.6* (1.85)		.66 (7.27)	-.043 (1.82)		.962	.401	1.82	611-711
Sweden	.27 (3.29)							-.21 (1.37)	.65 (6.75)	-.0044 (0.44)		.873	.342	2.16	611-712
Switzerland	.04 (1.28)	.04 (2.00)							.76 (11.09)	.0041 (1.19)		.928	.173	2.03	581-711
U.K.	.19 (2.21)				11.7* (2.84)	-.039* (2.93)	.031 (2.17)		.67 (7.75)	.0060 (0.54)		.907	.418	1.67	581-712
Finland			.019 (2.36)						.45 (2.85)	.0016 (0.70)		.239	.259	1.59	581-712
Greece			.017 (1.74)		1.2 (0.64)				1.00 (30.06)	.0072 (1.81)		.944	.736	2.11	581-794
Ireland	.16 (1.46)		.021 (1.08)	.0026 (0.51)					.63 (6.32)	.013 (1.27)		.822	.601	1.92	581-712
Portugal	.013 (0.64)			.0029 (1.46)	.57* (0.73)				.97 (14.88)	.0012 (0.42)		.941	.117	2.17	581-712
Spain	.12 (3.32)			.000020 (0.60)					.92 (12.87)	-.0055 (0.89)		.938	.161	2.47	621-712
Australia	.08 (1.83)				6.4* (4.46)			-.0025 (2.03)	.91 (17.06)	-.0099 (1.78)		.938	.183	1.94	603-712
South Africa			.0015 (0.44)		3.9* (1.58)			-.0052 (1.41)	.85 (5.83)	.0079 (0.78)		.963	.321	1.92	621-794
Iran	.15 (3.22)				3.2 (2.12)			-.036 (1.64)	.81 (13.77)	.0069 (1.42)		.941	.402	2.10	614-781
Korea			.0079 (0.67)						.87 (16.49)	-.033 (1.75)		.856	2.32	1.85	641-784
Pakistan			.014 (0.89)						.84 (8.43)	-.0080 (0.28)		.808	.706	1.46	731-792
Philippines	.095 (1.46)					-.0044 (0.94)	.0047 (1.02)		.92 (20.00)	-.0073 (1.08)		.877	.739	1.79	581-794
Thailand	.25 (3.50)			.0043 (0.86)	.36 (1.13)				.62 (7.40)	.016 (2.34)		.890	.562	1.76	654-794

TABLE 4 (continued)

Equation 7b: r_{it} is the dependent variable.

Explanatory Variables

Country	U.S. Rate r_{1t}	German Rate r_{8t}	$\dot{PY}_{it-1}$	$\frac{\dot{M1}_{it-1}}{POP_{it-1}}$	$\frac{\tilde{Y}_{it}}{POP_{it}}$	$\frac{A^*_{it}}{PY_{it}POP_{it}}$	$\frac{A^*_{it-1}}{PY_{it-1}POP_{it-1}}$	$\Delta\frac{A^*_{it}}{PY_{it}POP_{it}}$	$\dot{PM}_{it-1}$	e_{it}	r_{it-1}	t	$\hat{\rho}_1$	R^2	SE	DW	Sample Period
Canada	.35		.035	.023	6.7	-.0086	.0071				.66	.035	.29	.971	.477	1.90	711-801
	(3.68)		(1.01)	(2.06)	(0.71)	(1.07)	(1.04)				(3.99)	(0.71)	(1.20)				
Japan			.058		1.6*	-.12	.13				.81			.976	.451	1.59	722-801
			(2.95)		(1.00)	(5.15)	(6.94)				(13.22)						
Austria					12.8*	-.089	.088				.83	.0099		.806	.393	2.02	723-793
					(2.55)	(0.54)	(0.56)				(7.83)	(0.27)					
Belgium			.041	.042	58.2			-.52*			.52	.21		.836	.968	2.44	722-784
			(0.55)	(1.43)	(4.78)			(1.70)			(4.05)	(2.66)					
Denmark			.16		21.5*	-5.0*	3.2*		.037		.45	-.14		.749	1.97	2.31	732-794
			(2.10)		(1.50)	(1.75)	(1.24)		(1.29)		(3.12)	(0.60)					
France	.18	.34						-6.4*	.0094	.074	.44	.074		.953	.516	1.95	722-784
	(0.97)	(4.42)						(2.32)	(1.28)	(2.01)	(5.24)	(3.31)					
Germany	.12		.14		41.1			-3.1*			.67	.014		.870	.966	1.97	722-801
	(0.68)		(1.57)		(3.21)			(0.69)			(5.97)	(0.28)					
Italy						-.11	.11			15.7	.65	.00029		.933	.989	1.72	722-794
						(8.85)	(8.47)			(4.04)	(7.68)	(0.01)					
Netherlands	.63		.29		93.1						.32	.39		.782	1.66	1.73	722-794
	(3.03)		(2.26)		(4.04)						(2.80)	(3.73)					
Norway		.34	.13	.0099	15.9	-1.61	1.05				.22	-.36		.584	1.44	2.27	722-794
		(2.37)	(1.62)	(1.08)	(0.80)	(2.08)	(1.50)				(1.43)	(1.68)					
Sweden		.19			41.3*	-4.4	2.1		.018		.34	-.62		.918	.502	2.06	722-794
		(3.50)			(5.31)	(6.2)	(3.54)		(3.16)		(3.51)	(4.48)					
Switzerland	.11				9.1*	-3.1*	2.3*		.0069		.16	.094		.991	.952	2.31	722-794
	(3.57)				(3.53)	(6.65)	(5.63)		(3.43)		(1.36)	(3.74)					
U.K.				.031	8.9*						.72	.053	.59	.831	1.11	1.87	722-801
				(1.60)	(0.69)						(1.05)	(0.46)	(0.85)				
Finland								-.00074			.78	-.0046		.793	.382	1.91	722-794
								(1.39)			(8.32)	(0.54)					
Ireland				.011							.83	.0083		.708	1.43	1.24	722-794
				(0.48)							(6.89)	(0.25)					
Portugal	.11		.014	.011	6.3					154.1	.72	.097		.946	1.01	2.39	722-784
	(0.46)		(1.04)	(0.63)	(1.01)					(1.94)	(4.85)	(1.17)					
Spain	.069		.021					-.087*			.56	.041		.970	.176	2.30	722-784
	(2.60)		(2.99)					(2.64)			(4.93)	(2.79)					
Australia	.077				24.3*			-.0052			.59	.013		.942	.408	2.48	722-801
	(1.59)				(4.57)			(1.27)			(6.78)	(3.12)					
New Zealand				.017	14.3						.77	.16		.905	.593	1.58	732-781
				(1.76)	(1.07)						(3.06)	(2.72)					

TABLE 4 (continued)

Equation 8: R_{it} is the dependent variable.

$3\dot{PY}_{it}$ = average percentage change in PY (at an annual rate) for quarters t , t-1 , and t-2 .

Country	r_{it}	r_{it-1}	r_{it-2}	R_{it-1}	$3\dot{PY}_{it}$	t	$\hat{\rho}_1$	R^2	SE	DW	Sample Period
	Explanatory Variables										
Canada	.33	-.27	.04	.84	.014	.0023		.982	.250	1.55	581-801
	(3.95)	(2.23)	(0.79)	(11.37)	(1.11)	(0.54)					
Belgium	.07	.06	-.05	.70	.014*	.0091		.984	.163	1.43	581-784
	(2.05)	(1.40)	(2.08)	(14.00)	(1.69)	(4.52)					
Denmark	.18	-.06	-.04	.72		.027		.972	.553	1.93	581-794
	(3.64)	(1.21)	(1.05)	(9.64)		(2.90)					
France	.21	-.11	.05	.72		.0088		.986	.214	2.04	581-784
	(4.15)	(1.61)	(1.21)	(13.88)		(3.67)					
Germany	.25	-.14	.00	.83		-.00067		.939	.316	1.58	611-801
	(4.94)	(2.18)	(0.09)	(15.86)		(0.37)					
Italy	.17	-.08	.02	.85		.0034	.39	.993	.255	1.64	611-794
	(4.29)	(1.68)	(0.57)	(16.07)		(0.58)	(3.06)				
Netherlands	.17	-.11	.05	.73	.043	.0083		.966	.297	1.76	611-794
	(4.41)	(2.89)	(2.07)	(9.90)	(2.18)	(2.35)					
Norway	.09	-.02	.01	.86	.0098	.00069		.969	.218	1.51	621-794
	(2.47)	(0.91)	(0.69)	(12.62)	(0.95)	(0.15)					
Sweden	.13	-.05	-.04	.92	.013	.0040		.992	.148	1.43	611-794
	(2.83)	(0.87)	(1.21)	(20.45)	(1.81)	(1.34)					
Switzerland	.30	-.02	.15	.51		.0084	.57	.983	.155	1.89	581-794
	(2.42)	(0.14)	(1.53)	(3.23)		(2.37)	(3.26)				
U.K.	.19	-.06	-.02	.79	.029	.011		.979	.483	1.81	581-801
	(1.66)	(0.39)	(0.32)	(10.93)	(1.28)	(1.73)					
Ireland	-.07	.31	-.09	.76	.026	.018		.966	.716	2.22	581-794
	(0.47)	(1.71)	(0.96)	(9.55)	(0.95)	(2.30)					
Portugal	.15	.14	-.08	.81		.0025		.991	.297	1.33	581-784
	(3.01)	(2.30)	(1.49)	(14.70)		(1.07)					
Australia	.39	-.19	-.09	.84	.018	.0023		.994	.158	1.61	603-801
	(5.97)	(2.41)	(1.75)	(16.48)	(2.89)	(1.22)					
New Zealand	.13	.17	.04	.57	.012	.011		.983	.156	1.96	582-781
	(2.16)	(3.23)	(0.51)	(3.65)	(1.16)	(1.87)					
South Africa	.50	-.46	.06	.84	.013*	.0070		.989	.204	1.52	621-794
	(3.29)	(1.92)	(0.49)	(14.57)	(1.83)	(1.57)					
India	-.01	.02	.02	.65		.0030		.987	.0355	1.98	722-781
	(1.70)	(3.11)	(2.99)	(10.40)		(1.31)					

TABLE 4 (continued)

Equation 9b: $\log e_{it}$ is the dependent variable.

Explanatory Variables

Country	German Rate $\log e_{8t}$	$\log e_{it-1}$	$\log\frac{PY_{it}}{PY_{1t}}$	$\frac{1}{4}\log\frac{(1+r_{it}/100)}{(1+r_{1t}/100)}$	$\log\left[\frac{\tilde{Y}_{it}/POP_{it}}{ZJ_{it}^{\prime u}}\right]$	$\Delta\frac{A^*_{it-1}}{PY_{it-1}POP_{it-1}} - e_{175}\Delta\frac{A^*_{1t-1}}{PY_{1t-1}POP_{1t-1}}$	$\hat{\rho}_1$	R^2	SE	DW	Sample Period
Canada		.91 (9.09)	.10 (0.88)	−.14 (0.10)			.51 (2.49)	.966	.0121	1.79	711-801
Japan		.83 (8.99)		−.36 (0.24)	.064 (1.18)	−.0042 (4.58)		.946	.0328	1.88	722-801
Austria	.95 (46.94)	.022 (1.00)	.074 (0.79)	−2.1 (3.14)			.84 (8.87)	.999	.00485	1.71	723-793
Belgium	.80 (17.92)	.014 (0.25)			.0075 (0.56)	−.0040 (1.56)	.76 (6.49)	.988	.0109	1.73	722-784
Denmark	.50 (8.03)	.084 (0.86)	.49 (3.69)			−.042 (2.40)		.889	.0195	1.16	732-794
France	.53 (5.04)	.36 (2.34)	.98 (2.85)			−.063 (0.69)	.68 (3.73)	.853	.0238	1.52	722-784
Germany		.66 (5.32)	1.3 (2.88)	−4.1 (1.77)		−.40 (2.72)		.944	.0395	1.95	722-801
Italy	.32 (4.29)	.66 (6.30)	.47 (4.22)			−.00089 (3.37)		.974	.0268	1.75	722-794
Netherlands	.78 (22.26)	.092 (2.19)					.47 (2.70)	.995	.0095	1.95	722-794
Norway	.20 (4.08)	.53 (5.41)		−1.0 (1.22)				.879	.0267	1.30	722-794
Sweden	.42 (7.13)	.31 (3.34)	.88 (6.71)	−4.5 (4.73)				.805	.0213	1.13	722-794
Switzerland	.90 (6.28)	.15 (1.16)	.99 (2.69)	−6.3 (1.36)	.082* (1.07)	−.12 (1.86)	.68 (4.25)	.987	.0294	1.56	722-794
U.K.	.30 (3.77)	.80 (9.70)	.34 (3.06)		.029* (1.44)	−.00076 (1.26)		.937	.0332	2.30	722-801
Finland	.27 (2.88)	.78 (8.41)	.31 (3.30)	−2.7 (1.50)				.756	.0233	1.61	722-794
Ireland		.88 (9.13)	.10 (1.00)		−.089 (2.59)			.931	.0351	1.70	722-794
Portugal	.42 (4.85)	.63 (8.67)	.68 (6.79)					.983	.0279	2.23	722-784
Spain	.52 (4.79)	.51 (5.40)	.60 (5.60)					.938	.0312	1.69	722-784
Australia		.89 (12.83)	.11 (1.30)		.032 (1.66)	−.00044 (1.44)		.922	.0287	1.93	722-801
New Zealand		.90 (5.75)	.36 (1.09)		.092 (1.68)	−.00031 (1.03)		.956	.0344	2.30	732-781
Brazil		.68 (14.56)	.29 (6.37)					.995	.0525	1.32	641-784
Colombia		.90 (9.02)	.070 (0.92)					.992	.0207	2.19	711-784
India		.74 (9.14)	.089 (0.96)		.044 (2.59)			.857	.0237	1.62	722-781

TABLE 4 (continued)

Equation 10b: log F_{it} is the dependent variable.

For this equation the numbers in parentheses are standard errors rather than t-statistics.

	Explanatory Variables					
Country	log ee_{it}	$\frac{1}{4}\log\frac{(1+r_{it}/100)}{(1+r_{1t}/100)}$	R^2	SE	DW	Sample Period
Canada	.97461	.92	.999	.00202	1.57	711-801
	(.00457)	(.083)				
Japan	1.00128	1.34	.987	.0172	1.17	722-801
	(.00228)	(.40)				
Austria	.99954	.83	.997	.0083	1.35	723-793
	(.00048)	(.36)				
Belgium	.99924	1.45	.996	.0069	2.32	722-784
	(.00040)	(.25)				
Denmark	.99887	.78	.972	.0108	2.28	732-794
	(.00064)	(.24)				
France	1.00042	.91	.998	.0033	1.86	722-784
	(.00019)	(.14)				
Germany	1.00137	.25	.998	.0078	1.36	722-801
	(.00025)	(.23)				
Netherlands	1.00038	.82	.999	.0046	1.92	722-794
	(.00014)	(.13)				
Norway	.99843	.65	.951	.0176	2.43	722-794
	(.00068)	(.52)				
Sweden	.99946	.95	.979	.0076	1.45	722-794
	(.00027)	(.23)				
Switzerland	1.00058	.93	.9996	.0057	1.25	722-794
	(.00032)	(.18)				
U.K.	.99911	1.38	.998	.0060	1.33	722-801
	(.00232)	(.21)				
Finland	1.00509	2.11	.950	.0116	1.50	722-794
	(.00203)	(.41)				

TABLE 4 (continued)

Equation 11: $\log PX_{it}$ is the dependent variable.

Country	$\log PY_{it}$	$\log PW\$_{it}$	$\log e_{it}$	$\log PW\$_{it}e_{it}$	const.	$\hat{\rho}_1$	R^2	SE	DW	Sample Period
	Explanatory Variables									
Canada	.92	.35	.13			.98	.999	.0137	1.51	581-801
	(7.11)	(4.59)	(1.14)			(64.26)				
Japan	.74	.38	.64		.69	.98	.988	.0206	1.91	581-801
	(3.64)	(3.58)	(8.50)		(2.99)	(67.81)				
Austria	.29			.64	2.57	.66	.984	.0217	2.12	651-793
	(3.41)			(5.28)	(5.19)	(6.99)				
Belgium	.31			.54	1.76	.88	.993	.0166	1.98	581-784
	(3.56)			(5.39)	(5.24)	(20.12)				
Denmark	.06	.85	.49		2.53	.56	.996	.0195	1.79	581-794
	(1.37)	(12.58)	(4.67)		(4.68)	(6.21)				
France	.20	.76	.48		2.62	.53	.999	.0114	1.96	581-784
	(6.59)	(23.91)	(12.84)		(12.93)	(5.91)				
Germany	.38	.43	.20		1.15	.94	.998	.0104	1.68	611-801
	(3.19)	(6.33)	(4.24)		(4.05)	(22.85)				
Italy	.29	.72	.65		.27	.89	.999	.0184	2.24	611-794
	(2.94)	(6.51)	(7.25)		(6.83)	(18.08)				
Netherlands	.22			.82	4.91	.92	.995	.0159	1.99	611-794
	(2.66)			(8.84)	(8.76)	(20.17)				
Norway		1.10	.88		4.57	.75	.994	.0232	1.90	621-794
		(18.72)	(6.00)		(6.00)	(9.39)				
Sweden	.46	.62	.24		1.26	.92	.999	.0120	1.89	611-794
	(5.28)	(7.82)	(3.35)		(3.25)	(22.42)				
Switzerland	.50	.29	.28		1.66	.55	.994	.0154	2.23	581-794
	(16.05)	(4.50)	(4.89)		(4.83)	(6.05)				
U.K.	.56	.54	.32		.29	.94	.9996	.0102	2.00	581-801
	(11.40)	(9.81)	(7.44)		(7.12)	(26.30)				
Finland	.31			.83	-1.17	.88	.998	.0252	2.07	581-794
	(3.24)			(8.73)	(9.00)	(18.59)				
Greece	.34	.50	.63		2.11	.66	.983	.0493	2.06	581-794
	(1.82)	(2.54)	(2.28)		(2.23)	(7.72)				
Ireland	.50	.56	.42		.321	.94	.999	.0147	1.84	581-794
	(7.19)	(6.93)	(7.26)		(5.57)	(24.91)				
Spain	.10	.72	.66		1.89	.34	.981	.0450	1.94	621-784
	(1.17)	(6.53)	(5.31)		(5.49)	(2.95)				
Yugoslavia	.21	.75	1.00		4.05	.12	.999	.0386	1.94	611-774
	(3.69)	(9.47)	(44.09)		(42.41)	(0.95)				
Australia	.32	.60	.15		.087	.89	.991	.0341	1.49	603-801
	(1.80)	(3.59)	(0.94)		(1.78)	(16.39)				
New Zealand	.60	.24	.25		.161	.91	.989	.0352	1.11	582-781
	(3.72)	(1.36)	(1.77)		(2.57)	(15.85)				
South Africa	.19	.72	.26		.11	.84	.993	.0327	1.98	621-794
	(1.26)	(4.76)	(1.73)		(2.08)	(13.20)				
Brazil	.07			.95	4.63	.84	.997	.0583	1.72	641-784
	(0.56)			(7.66)	(7.57)	(10.13)				
Colombia	1.10			.30	-.92	.75	.982	.0963	1.57	711-784
	(2.07)			(0.63)	(0.59)	(4.67)				
Israel	.11	.75	1.06		-2.14	.82	.999	.0323	2.08	691-794
	(1.09)	(4.41)	(13.12)		(12.81)	(10.28)				
Jordan	.35			.17		.86	.886	.0993	1.18	731-784
	(1.68)			(1.11)		(9.35)				
Syria				1.63	-2.08	.78	.979	.0852	1.10	641-784
				(12.93)	(15.56)	(9.42)				
India	.21			.78	3.76	.25	.949	.0531	1.79	722-781
	(0.69)			(4.65)	(4.62)	(1.20)				
Korea		.81	.95		.79	.86	.997	.0292	1.48	641-784
		(11.92)	(13.94)		(11.84)	(12.71)				
Malaysia	.87	.74	.40		-.278	.71	.970	.0611	1.63	711-793
	(2.54)	(2.34)	(0.95)		(0.77)	(5.73)				
Pakistan				.54	-1.09	.68	.838	.0702	1.39	731-792
				(1.85)	(1.54)	(4.69)				
Philippines		.96	.90		-1.83	.87	.992	.0621	1.48	581-794
		(7.77)	(10.37)		(10.47)	(15.47)				
Thailand	.67	.53	1.28		4.95	.87	.978	.0549	1.95	621-794
	(1.69)	(1.73)	(0.61)		(0.60)	(12.50)				
U.S.	.94	.29			.30	.96	.999	.0106	1.34	581-801
	(8.63)	(5.14)			(7.69)	(31.39)				

TABLE 4 (continued)

Regressions for the construction of the demand pressure variable.

$\log\frac{Y_{it}}{POP_{it}}$ is the dependent variable.

Country	t	Growth Rate (annual rate)	R^2	SE	DW	Sample Period
Canada	.00831 (80.57)	3.4	.986	.0250	0.17	581-801
Japan	.0184 (50.23)	7.6	.966	.0889	0.03	581-801
Austria	.0105 (53.06)	4.3	.982	.0259	0.42	651-793
Belgium	.0100 (75.06)	4.1	.985	.0297	0.43	581-784
Denmark	.00819 (46.06)	3.3	.961	.0423	0.81	581-794
France	.0103 (96.70)	4.2	.991	.0236	0.09	581-784
Germany	.00814 (61.56)	3.3	.980	.0258	0.32	611-801
Italy	.00833 (45.24)	3.4	.964	.0352	0.15	611-794
Netherlands	.00827 (48.56)	3.3	.969	.0325	0.25	611-794
Norway	.00884 (86.90)	3.6	.991	.0179	1.23	621-794
Sweden	.00585 (29.53)	2.4	.920	.0378	0.27	612-794
Switzerland	.00527 (25.76)	2.1	.883	.0487	0.09	581-794
U.K.	.00557 (67.40)	2.2	.982	.0200	0.88	581-801
Finland	.0102 (49.67)	4.1	.966	.0488	0.33	581-794
Greece	.0143 (55.80)	5.8	.973	.0611	0.78	581-794
Ireland	.00812 (60.93)	3.3	.978	.0317	0.71	581-794
Portugal	.0131 (46.15)	5.4	.962	.0632	0.47	581-784
Spain	.0114 (44.99)	4.6	.968	.0409	0.45	621-784
Yugoslavia	.0129 (61.82)	5.3	.983	.0338	0.84	611-774
Australia	.00690 (45.63)	2.8	.969	.0306	0.48	603-801
New Zealand	.00508 (41.85)	2.0	.956	.0250	0.09	582-781
South Africa	.00436 (21.05)	1.8	.861	.0365	0.24	621-794
Iran	.0184 (45.73)	7.6	.969	.0622	0.16	614-781
Libya	.0145 (14.47)	5.9	.802	.1079	0.22	651-774
Nigeria	.0160 (4.39)	6.6	.411	.1539	0.53	712-781
Saudi Arabia	.0146 (12.97)	6.0	.867	.0430	0.28	721-782
Venezuela	.0048 (32.55)	1.9	.940	.0239	0.08	621-784
Argentina	.0085 (16.08)	3.4	.917	.0329	0.88	671-754
Brazil	.0164 (48.79)	6.7	.975	.0450	0.21	641-784
Chile	.00054 (0.93)	0.2	.298	.0701	0.75	641-774
Colombia	.0068 (22.18)	2.7	.940	.0159	0.23	711-784
Mexico	.0072 (36.15)	2.9	.937	.0474	0.47	581-794
Peru	.00399 (16.48)	1.6	.824	.0308	0.11	641-782
Egypt	.0057 (11.87)	2.3	.747	.0462	0.09	661-774
Israel	.00631 (10.47)	2.5	.717	.0505	0.55	691-794
Jordan	.0212 (8.04)	8.8	.739	.0885	0.73	731-784
Syria	.0110 (21.02)	4.5	.881	.0698	0.13	641-784
India	.0048 (7.01)	1.9	.979	.0231	0.98	722-781
Korea	.0203 (37.33)	8.4	.977	.0729	2.83	641-784
Malaysia	.0118 (28.19)	4.8	.961	.0249	1.01	711-793
Pakistan	.0036 (4.47)	1.4	.908	.0308	1.81	731-792
Philippines	.00609 (34.82)	2.5	.933	.0416	1.35	581-794
Thailand	.0113 ([illegible])	4.6	.985	.0226	0.22	654-794

table, this refers to the variable on the IFS tape with the particular number. Some adjustments were made to the raw data, and these are explained in the Appendix. The main adjustment that was made was the construction of quarterly National Income Accounts (NIA) data from annual data when the quarterly data were not available. Another important adjustment concerned the linking of the Balance of Payments data to the other export and import data. The two key variables involved in this process are BOP* and TT*, and, as noted in Table 1, the construction of these variables is explained in Table A-3 in the Appendix.[6] Most of the data are not seasonally adjusted.

Note that two interest rates are listed in Table 1, the short term rate (r_{it}) and the long term rate (R_{it}). The notation for these two rates should not be confused with the notation in Section II, where both r and R denoted short term rates. For many countries only discount rate data are available for r_{it}, and this is an important limitation of the data base. The availability of interest rate data by country is discussed in Table A-1 in the Appendix.

A^*_{it} in Table 1 was constructed by summing past values of BOP^*_{it} from a base period value of zero. The summation began in the first quarter for which data on BOP^*_{it} existed. This means that the A^*_{it} series is off by a constant amount each period (the difference between the true value of A^*_{it} in the base period and zero). In the estimation work the functional forms were chosen so that this error was always absorbed in the estimate of the constant term. It is important to note that A^*_{it}

[6]The balance of payments variable is denoted BOP* rather than S. S is used to denote final sales. This should not be confused with the notation in Section II, where S denotes the balance of payments.

measures only the net asset position of the country vis-a-vis the rest of the world. Domestic wealth, such as the domestically owned housing stock and plant and equipment stock, is not included.

An Outline of the Model

Table 2 contains a complete description of the equations for country i except for the functional forms and coefficient estimates of the stochastic equations. There are up to 11 estimated equations per country, and these are listed first in Table 2. Equations 12 through 20 are definitions.

Equation 1 determines the demand for merchandise imports, and equation 14 provides the link from merchandise imports to total NIA imports. Equations 2 and 3 determine the demands for consumption and investment, respectively. Equation 16 is the definition for final sales. The level of final sales is equal to consumption plus investment plus government spending plus exports minus imports plus a discrepancy term. Government spending is exogenous. Exports are determined when the countries are linked together. The key export variable is $X75\$_{it}$, and equation 15 links this variable to NIA exports. Equation 4 determines production, and equation 12 determines inventory investment, which is the difference between production and sales. Equation 13 defines the stock of inventories.

Equation 5 is the key price equation in the model. It determines the GNP deflator. The existence of a price equation in the model means that equilibrium is not necessarily assumed to exist in the product market. Any difference between demand and supply in a period is reflected in a change in inventories. The other price equation in the model is equation 11, which determines the export price index as a function of the GNP deflator and other variables.

Equation 17 defines the balance of payments on current account, BOP^*_{it} . Equation 17 and the equations involved in determining its right hand side variables are represented by equation (i) (or (ii)) in Section II. Given BOP^*_{it} , the asset variable A^*_{it} is determined by equation 18. This equation is analogous to equation (iii) (or (iv)) in Section II. The demand for money is determined by equation 6. Although the money supply drops out of the budget constraint when the private and government sectors are aggregated, it is an explanatory variable in the interest rate reaction functions in the model and so needs to be explained. Equation 6 is analogous to equation (11) (or (14)) in Section II.

Equations 7a and 7b are the interest rate reaction functions. They are analogous to equation (v) (or (vi)) in Section II. The "a" denotes that the equation is estimated over the fixed exchange rate period, and the "b" denotes that it is estimated over the flexible rate period. Equation 8 introduces a variable that was not considered in Section II, the long term interest rate. This equation is a standard term structure equation.

Equation 9b is the exchange rate reaction function. It is analogous to equation (vii) in Section II and is estimated only over the flexible exchange rate period. e_{it} in equation 9b is the average exchange rate for the period, whereas ee_{it} in equation 20 is the end-of-period rate. Equation 20 links e_{it} to ee_{it} , where ψ_{1it} in the equation is the historic ratio of e_{it} to $(ee_{it} + ee_{it-1})/2$. ψ_{1it} is taken to be exogenous. ee_{it} is used in equation 10b, along with the interest rates, to determine the forward rate, F_{it} . Equation 10b is an estimate of the arbitrage condition, equation (viii) in Section II. As noted in Section II, F_{it} plays no role in the model, and so neither does ee_{it} .

The trade and price linkages are presented in Table 3. Table 3 takes as input from each country the total value of merchandise imports in 75\$ ($M75\$A_{it}$), the export price index (PX_{it}), and the exchange rate (e_{it}). It returns for each country the total value of merchandise exports in 75\$ ($X75\$_{it}$) and the import price index (PM_{it}). These latter two variables are used as inputs by each country. The model is solved for each quarter by iterating between the equations for each country in Table 2 and the equations in Table 3.

Note from Table 1 that the data taken from the DOT tape are merchandise exports from i to j in \$ ($XX\$_{ijt}$). These data were converted to 75\$ by multiplying $XX\$_{ijt}$ by $e_{it}/(e_{i75}PX_{it})$ (see $XX75\$_{ijt}$ in Table 1). This could only be done, however, if data on e_{it} and PX_{it} existed. Type A countries are countries for which these data exist, and Type B countries are the remaining countries. The share variable α_{jit} that is used in Table 3 is defined in Table 1. α_{jit} is the share of i's total merchandise imports from Type A countries imported from j in 75\$. If j is a Type B country, then α_{jit} is zero. Given the definition of $M75\$A_{it}$ in Table 1, α_{jit} has the property that $\sum_j \alpha_{jit} = 1$. Table 3 deals only with Type A countries. Total merchandise imports of a country from Type B countries, $M75\$B_{it}$ in Table 1, is taken to be exogenous in the model.

The Estimated Equations

The estimated equations are presented in Table 4. Equations 1-6 and 8 were estimated by two stage least squares, and the remaining equations were estimated by ordinary least squares. Lagged dependent variables were used extensively in the estimation work to try to account for expectational and lagged adjustment effects. This procedure is consistent with the treatment of expectations in the theoretical model discussed in Section II, where expectations are assumed to be formed on the basis of a limited set of information. Explanatory variables were dropped from the equations if they had coefficient estimates of the wrong expected sign. A number of the equations were estimated under the assumption of first order serial correlation of the error term. $\hat{\rho}$ in Table 4 denotes the estimate of the serial correlation coefficient. In many cases variables were left in the equations if their coefficient estimates were of the expected sign even if the estimates were not significant by conventional standards.[7]

Both current and one-quarter lagged values were generally tried for the explanatory price and interest rate variables, and the values that gave the best results were used. Similarly, both the short term and long term interest rate variables were tried, and the variable that gave the best results was used. All the equations except 10b and 11 were estimated with a constant and three seasonal dummy variables. To conserve space, the coefficient estimates of these four variables are not reported in Table 4. In most cases the functional form chosen for the equations was the log form. Data limitations prevented all the equations from being estimated for all countries and also required that shorter sample periods from the basic period be used for many countries. The main part of the model, excluding the U.S., consists of countries Canada through the U.K.

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[7]There is considerable collinearity among many of the explanatory variables, especially the price variables, and the number of observations is fairly small for equations estimated only over the flexible exchange rate period. Many of the coefficients are thus not likely to be estimated very precisely, and this is the reason for retaining variables even if their coefficient estimates had fairly large estimated standard errors.

in Table 4. Iran through Venezuela are the primary oil exporting countries.

The specification of the following equations is generally consistent with the theory outlined in Section II. When it is not, such as the use of income as an explanatory variable in the consumption function, this will be noted. No attempt is made in the following discussion to provide a detailed explanation of the transition from the theory to the econometric specifications. Some of this was provided in Section II, particularly with respect to the use of the interest rate and exchange rate reaction functions. Detailed explanation of a number of the other equations is presented in Fair (1976), where the transition from the single-country theoretical model in Fair (1974) to the econometric model of the U.S. is discussed. As with most macroeconometric work, these transitions are not as tight as one would like, but there may be little that can be done about this given the nature of the data.

The asset variable, A^*_{it} , is an important explanatory variable in a number of the equations. One should, however, be aware of the limitations of this variable. As noted earlier, this variable measures only the net asset position of the country vis-a-vis the rest of the world. It does not include the domestic wealth of the country. Also, the value of the asset variable for each country is off by a constant amount, and this required a choice for the functional form of the variable in the equations that one might not have chosen otherwise.

<u>Equation 1: The demand for imports</u>

Equation 1 explains the real per capita merchandise imports of country i . The explanatory variables include the price of domestic goods, the price of imports, the interest rates, per capita income, and the lagged value of real per capita assets. For the main countries these variables were generally found to be significant. The two price variables are expected to have coefficients of opposite signs and of roughly the same size in absolute value, and this was generally found to be the case.

Equation 2: Consumption

Equation 2 explains real per capita consumption. The explanatory variables include the interest rates, real per capita income, and the lagged value of real per capita assets. These variables were generally found to be significant. The use of income in this equation is inconsistent with the treatment of a household's decision problem in the theoretical model outlined in Section II. If a household is choosing consumption and labor supply to maximize utility, then income is not the appropriate variable to put on the right hand side of the consumption equation. This procedure can be justified if households are always constrained in their labor supply decision, and this is what must be assumed here. This issue is treated consistently in the U.S. model, where income is not used as an explanatory variable in the consumption equations. (See Chapter 4 in Fair (1976).)

The interest rate variables in the import and consumption equations are nominal rates. I added various proxies of expected future rates of inflation to the equations (in addition to the nominal interest rate) to see if their coefficient estimates had the expected positive sign. The proxies consisted of various weighted averages of current and past inflation rates. I also tried subtracting each proxy from the nominal rate and then adding this "real" rate to the equation. The results were not very good, which may be due to the difficulty of measuring expected future inflation rates. In future work more attempts of this kind should be made, but for the present purposes the nominal rates have been used.