

**„The Rise of Real Long-Term Interest Rates since the 1970s:
Comparative Trends, Causes and Consequences“**

by David Felix
Emeritus Professor of Economics,
Washington University in St. Louis

January, 2002

Report for the Enquete Commission
„Globalisation of the World Economy – Challenges and Answers“

Summary of Felix Report

Real long-term interest rates have averaged far higher during 1980-2001 than under the Bretton Woods regime or the floating exchange rate regime of the 1970s. There is little disagreement that the spread of capital decontrol was a major factor, and that voluminous volatile financial flows between financial markets have increased the power of financial capital to “discipline” domestic monetary-fiscal policy. The post-1980 years have witnessed a shift of monetary-fiscal policy in both the industrial and developing countries from a primary focus on high employment growth to financial market stability. The major disagreements are over the welfare consequences of these developments.

Positive views rely on the proposition that free capital markets price capital assets more or less correctly and thus allocate resources efficiently. This proposition lacks validation from either economic theory or econometric testing. The Keynesian view that financial markets are inherently prone to misprice capital assets and to destabilize themselves has stronger theoretical and empirical support.

But the contention that the “disciplining” of macroeconomic policy by liberated financial markets is welfare improving relies on a weaker view of financial market efficiency. Policy prodding by the financial markets is beneficial because the markets are able to self-correct to reduce the incidence of failure more readily than policy makers can. The weaker view became a platform for blaming financial crises on policy mistakes which misled the financial markets. But as the frequency of crises has risen over the past two decades, the “disciplining” case has self-destructed. In their post crises analysis proponents have been citing a widening collection of mutually contradictory policy flaws, leaving them bereft of coherent reform packages consistent with free capital mobility that can produce crisis-free-results.

The negative view has the following strands:

- 1) Productivity, the volume of trade, real investment and GDP growth rates averaged much higher in the Bretton Woods era, when capital flows were controlled, than in 1980-2001, when they were liberated.
- 2) The weaker post-1980 performance is due in large part to dominance of exchange rate movements after the 1970s by volatile financial flows that have generated highly volatile exchange rates and misalignments. These increase risks in trade and investment, tilting the latter from capacity building projects toward the acquisition of existing capacity.
- 3) “Disciplining” monetary-fiscal policy under free capital mobility increased income concentration. The tax reforms that reduced fiscal deficits shifted the tax burden from capital to labor income. And the ballooning of debt financing and equity prices during 1980-2000, with long and even short-term interest rates exceeding GDP growth, increased the national income share of high income households.
- 4) The financial bubble may now be imploding, but evidence from the 1930s and now from Japan indicates that real interest rates remain above the growth rate even in depressions.

The general policy inference is that collective action to adopt an updated set of Bretton Woods type measures remains a requisite for more stable, equitable global growth.

Table of Contents

The Rise of Real Long-term Interest Rates After the 1970s: Comparative Trends, Causes and Consequences

I.	I Trends of Real Interest, Inflation and GDP Growth: Bretton Woods and Beyond	
		Pages
	A. The G-7 Countries	1-5
	B. The Developing Countries	5-8
II.	Financial Liberalization as the Major Cause of High Real Interest Rates	8-11
III.	Has Financial Liberalization Accelerated or Retarded Economic Welfare?	
	A. Positive responses based on the Efficient Market Hypothesis	11-13
	B. The negative Keynesian-based response	13-15
	C. The negative empirical evidence and overall policy implications	15-23
	References	23-25

The Rise of Real Long-Term Interest Rates since the 1970s: Comparative Trends, Causes and Consequences

David Felix
Emeritus Professor of Economics
Washington University in St. Louis

I. Real Interest, Inflation and Growth Rates: Bretton Woods and Beyond

A. The G-7 Countries:1959-2001*

The following six tables compare the average rates of the above three variables in three sub-periods, each under distinctly different international financial policy regimes in the G-7 countries. 1959-71 covers the height of the Bretton Woods era. The European members of the G-7 had at the end of 1958 terminated the European Payments Union and liberated foreign exchange transactions on current account. With the partial exception of Japan, which lagged a few years in following suit, all the G-7 now adhered to the Bretton Woods adjustable-peg exchange rate system anchored to the U.S. dollar, which was in turn anchored to gold. But all except Canada maintained some controls on external capital movements. In 1972-81, the adjustable-peg system was abandoned for floating exchange rates, but capital controls were still operative in Japan and the European members of the G-7. By the early 1980s, however, enough of the G-7 had lifted controls on capital movements to allow inter-country financial transactions to expand rapidly. By the end of the 1980s decontrol encompassed all the OECD countries, and in the 1990s a majority of the more advanced developing countries as well. Thus was the problematic globalizing of financial markets encouraged to spread.

This report focuses on one of the problematics: the sharp upsurge of real interest rates accompanying the capital decontrol. Tables 1 and 2 show that the upsurge occurred at both the long and the short end of the yield curve. Tables 3 and 4 show that the upsurge of the past two decades lifted both real interest rates of the G-7 well above their GDP growth rates. Tables 5 and 6 record their GDP growth and inflation rates.

*My thanks to Washington University graduate student Ricardo da Costa e Silva for collecting and processing the data for the six tables.

Table 1
G-7 Real Interest Rates on Ten-Year Government Bonds: 1959-2001

	Canada	France	Germany	Italy	Japan ^a	U.K.	U.S.	G-7 Avg.
1959 – 71	2.80	1.57	2.87	2.23	1.18	2.63	1.76	2.25
1972 – 81	0.63	0.80	3.09	-3.13	0.43	-1.21	0.45	0.15
1982 – 91	6.54	5.54	4.70	4.10	4.46	4.62	5.74	5.10
1992-2001	5.32	4.68	4.12	4.80	3.23	4.07	4.05	4.33

^aJapanese data begin in 1966.

Sources: OECD, Historical Statistics, 1995. OECD, Economic Outlook, various issues. IMF, International Statistical Yearbook, various years.

Table 1 uses the 10 year treasury bond rate of each of the G-7 to compare the real long-term interest rates under the three financial policy regimes. Since treasury bonds are free of credit risk if issued in the domestic currency of the country, the interest rate on such bonds is lower than on private bonds of comparable maturity. GDP price deflators, broad price indices that are weighted composites of sectoral price indices (see Table 6), were used in Tables 1 and 2 to deflate nominal interest rates to real rates. The most salient revelation of Table 1 is that in every one of the G-7 the real long-term rate during the two capital decontrol decades has averaged far higher than under either of the two prior international financial policy regimes. A related finding is that the capital decontrol decades saw a major convergence of G-7 rates compared to the preceding periods. Specifically, The 1982-2001 real rate of the G-7 averaged 4.72% compared to the 1959-71 average rate of 2.11%, and the 1972-81 average rate of 0.15%. The dispersion around the 1982-2001 rate for the group averaged merely 0.55%, compared to 0.56% around its much lower 1959-71 mean rate, and 1.33% around its negligible 1972-81 mean rate.

Table 2 shows merely small deviations of short-term interest rate trends from the long-rate pattern. One difference is worth noting. During the capital decontrol decades, 1982-2001, G-7 short-term interest rates averaged even higher relative to the short rate averages of the preceding two financial policy eras than was the case for the long-term rates. That is, capital decontrol was associated with some flattening of the yield curve. However, the individual country data in Table 2 indicates that the flattening was concentrated in the European members of the G-7.

Table 2
G-7 Real Short-Term Interest Rates: 1959-2001^a

	Canada	France	Germany	Italy	Japan	U.K.	U.S.	G-7 Avg.
1959-71	1.46	0.92	0.34	-2.30	2.68	1.25	1.01	0.77
1972-81	0.13	-0.26	1.87	-2.38	-0.75	-3.24	-0.08	-0.67
1982-91	5.57	4.53	3.49	4.36	4.26	5.33	4.77	4.61
1992-2001	3.49	3.91	3.03	3.99	1.64	3.65	2.95	3.24

^aPrior to 1974 money market rates had to be used for France, Germany, Italy, and Japan. All others are treasury bill rates.

Sources: Same as for Table 1.

A major consequence of the real interest upsurge shown in Table 3, is that the real long-term interest rates exceeded real GDP growth rates in all the G-7 during the past two decades. Table 3 also shows that one has to go back to the inter-war period with its Great Depression decade, to find a comparable relationship, whereas during the golden age of the gold standard, 1881-1913, real interest and real GDP growth rates were about equal.

Table 3
G-7 Real Interest on 10-year Treasury Bonds minus Real GDP Growth: 1959-2001

	Canada	France	Germany	Italy	Japan	U.K.	U.S.	G-7 Avg.
1959-71	-2.05	-3.93	-1.99	-3.02	-8.74	-0.38	-1.91	-3.15
1972-81	-3.57	-2.06	0.69	-6.44	-3.82	-2.76	-2.13	-2.87
1982-91	4.20	3.11	1.93	1.75	0.39	1.93	2.80	2.30
1992-01	2.14	2.76	2.61	3.15	2.25	1.38	0.62	2.13

Memoranda: pre-1959 G-7 real long-term interest rates less real GDP growth rates

1946-58 -0.36

1919-39 2.40

1919-40 -0.03

Sources: Table 1 sources for post-1958 data; Bordo 1993, Table 1 for pre-1959 data.

Table 4 shows that to a lesser degree, real short-term interest rates have also exceeded the GDP growth rates of the G-7 in the past two decades.

Table 4
G-7 Real Short-Term Interest Rates Minus GDP Real Growth Rates:1959-2001

	Canada	France	Germany	Italy	Japan	U.K.	U.S.	G-7 Avg.
1959-71	-3.33	-4.54	-4.41	-5.79	-6.81	-1.72	-2.63	-4.18
1972-81	-4.03	-3.09	-0.50	-5.72	-4.93	-4.75	-2.65	-3.67
1982-91	3.27	2.12	0.74	2.00	0.20	2.63	1.86	1.83
1992-2001	0.36	2.01	1.54	2.35	0.68	0.98	-0.44	1.07

Source and details: See Tables 1, 2 and 5.

Real short and long term interest rates overtook the real GDP growth rates in part because, as is shown by Table 5, GDP growth slackened after 1971, and fell off further in the next two decades in all but the United States and the United Kingdom. And even these two exceptions were unable to regain their Bretton Woods growth rates, while the G-7 average declined monotonically after that period.

Table 5
G-7 Real GDP Growth Rates: 1959-2001

	Canada	France	Germany	Italy	Japan	U.K.	U.S	G-7 Avg.
1959-71	4.98	5.73	5.02	5.41	10.25	3.03	3.77	5.46
1972-81	4.39	2.94	2.44	3.65	4.44	1.63	2.69	3.17
1982-91	2.32	2.37	2.75	2.32	4.07	2.67	2.91	2.77
1991-2001	3.14	1.89	1.48	1.62	0.97	2.66	3.41	2.17

Source: See Table 1.

Table 6 shows the G-7 inflation rates in each of the international financial policy periods, using the GDP deflator as the inflation index. In contrast to the U-shaped pattern of the real interest rates, the inflation pattern in each country and for the G-7 group was bow-shaped. That is to say, the real interest rates moved inversely to the inflation rates. During the Bretton Woods period the average annual inflation rates were in the low to middle single digits. They rose sharply in the 1970s, then fell back. By the 1990s the average inflation rate of each G-7 country was well below its Bretton Woods average, with the Japanese rate in negative, i.e. deflationary, territory.

Table 6
G-7 Inflation Trends: 1959-2001

	Canada	France	Germany	Italy	Japan	U.K.	U.S.	G-7 Avg.
1959-71	3.02	4.25	3.83	4.45	5.32	4.15	3.15	4.02
1972-81	9.11	10.06	4.94	16.05	7.70	14.32	7.86	10.01
1982-91	4.21	5.45	2.79	9.57	1.78	5.92	3.74	4.78
1992-2001	1.64	1.42	1.75	3.41	-0.31	2.68	1.99	1.80

Source: See Table 1.

B. Patterns in the Developing Countries During the Three Financial Policy Regimes.

1. Real Interest Rate Trends in Developing Countries

Bonds denominated in the domestic currencies of developing countries have been too infrequent to allow the construction of tables similar to Tables 1 and 2. Developing countries have had to rely rather on hard currency financing. What is readily deducible from the incomplete information, however, is that since the Bretton Woods era the effective long-term real interest rates must have risen even more steeply for developing countries than for the G-7.

During that era, bilateral and multilateral official aid from the industrialized countries, most of it on concessional (i.e., below market) terms, was the main source of long-term debt finance to developing countries. This began changing toward the end of the 1960s. According to a World Bank compilation, by 1971 private loans, mostly commercial bank loans, already made up 54% of gross long-term debt finance to developing countries [World Bank, 1993, Table 1.1]. It should be noted, however, that the World Bank generously defines “long-term” as loans of more than one-year maturity. In fact, the average maturity remained far greater for official than for commercial bank lending. However, syndicated bank lending, some of it multi-year, surged after 1974, bringing the private share of gross debt financing to developing countries to 64% in 1981. Bank loans were hard currency loans, carrying premiums of varying size added to LIBOR (the London Inter-bank Offer Rate), and were adjustable to subsequent changes of LIBOR. The banks thus imposed higher interest rates on their developing country loans than on their prime domestic customers, and the terms shifted the cost of subsequent exchange and interest rate shocks to the borrowers. The floating exchange rate policy

regime of the 1970s was thus associated with a hardening of real long-term borrowing costs in developing countries, in contrast to an easing of such costs in the G-7.

But while G-7 bank loans to developing countries were well protected against interest and exchange rate shocks, they were not defended against credit risk. Thus when the interest rate surge that accompanied the onset of the capital decontrol era triggered a wave of debt service suspension by heavily indebted developing countries, the U.S. and U.K. governments, whose banks were the most heavily exposed, felt impelled to come to their rescue. With the help of the IMF, they organized a succession of bailout packets. These combined loans from creditor governments, the IMF, and World Bank with “involuntary” loans from the creditor banks, which the debtors were enjoined to use for debt servicing. The bank loans were “involuntary” in that bank participation was made a condition for the official lending to proceed. The banks, in turn, conditioned their participation on the debtor government guaranteeing debt servicing of the bank loans to its private sector; that is, on the debtor governments socializing these private debts. The rescue arrangements persisted until 1987 when, their balance sheets refurbished, the creditor banks refused further involuntary lending. Instead they began unloading their developing country loans at discounted prices in the secondary market. Debtor countries, in turn, began falling behind again in their debt servicing. In 1989 the U.S. introduced the Brady Bond arrangement. This regulated debt write-downs and strengthened the reduced debt servicing by providing U.S. treasury bonds as partial collateral. In all, non-concessional official lending to developing countries rose during the 1980s, but private lending fell sharply. Thus by 1990 official lending made up 78% of net lending to developing countries. [World Bank, 1999; table 2.1]. (Net lending equals annual gross loans minus repayments of principal and interest).

In the 1990s, however, private lending rose once more. The debtor countries prepared the way by working down their bank debt through buy-backs and the sale of public assets. Both were facilitated through the purchase of bank loans in the secondary market at substantial discounts from face value, since the governments accepted at face value their discounted bank debt as partial to full payment for their privatized assets. Thus foreign direct investment, directed initially toward the acquisition of public assets, led the way in the 1990s revival of foreign capital flows to developing countries. A sharp

but uneven increase of private portfolio flows soon followed, while official lending trended downward. The net portfolio flows, however, included the purchase of equity shares, which reached 33% of annual net portfolio inflows in 1996. Net interest-bearing inflows, about equally divided between bond placements and a revival of bank loans rose 570% between 1990 and 1997, but both declined thereafter, as have annual inflows into equities. [World Bank 1999, table 2.1]. By 2001 net inflows from bond placements and bank loans turned negative [IMF, 2001]. Net inflows do not, however, net out capital outflows motivated by other objectives than the repayment of principal. Estimates of these other outflows vary, but all indicate they have substantially reduced the net resource transfers from the portfolio capital flows and greatly increased their volatility [World Bank 1999; boxes 2.1, 2.2. and table 2.2.].

The bonds and bank loans to developing countries generally include risk premiums that raise their effective interest rates above those on G-7 paper of comparable maturity. The premiums vary according to individual country risk assessments, but except for a spike during the 1995 Mexican *tequila* crisis, remained moderate in the 1990s until the Asian crisis. According to the World Bank, during the first half of 1997 bank loan premiums averaged 130 basis points (1.3%) and bond interest rates 247 basis points [World Bank, 1999; table 2.7]. Since then, however, they have trended upward, averaging 1020 basis points at the end of November, 2001, and with much greater dispersion around the mean [UNCTAD, 2001; chart 2.5, BANAMEX, Dec. 2001, graph 10]. Long-term real interest rates of developing countries in the 1990s have thus averaged much higher than those of the G-7. And in contrast to the G-7, capital decontrol has been associated with diverging rather than converging real long-term interest rates between the developing countries.

2. Real Growth Rate Trends in Developing Countries

Table 7 shows that growth rates of developing countries, with a few exceptions, have also trended downward since the Bretton Woods years. The sample, 20 OECD and 33 developing countries, consists of all market economies whose GDP in 1983 exceeded \$10 billion. The GDP growth rates of over two-thirds of the sampled countries averaged below their Bretton Woods averages during 1972-81, the floating exchange rate decade. Exclude the 9 oil exporting countries and the growth fall-off encompassed three-fourths

of the remaining countries in the sample. The fall-off spread to 90% of the sample during the first capital decontrol decade, with a small improvement during the next seven years, which will probably vanish for the entire decade when developing country data for 1999-2001 become fully available.

Table 7

II. GDP Growth Rates: Floating Rate and Capital Decontrol Decades Compared to 1960-1971

	1972-81		1982-91		1992-98	
	Number of countries	%	Number of countries	%	Number of countries	%
Total sample of countries						
Rates higher than 1960-71	17	32.1	5	9.4	10	18.9
“ lower “ “	36	67.9	48	90.6	43	81.1
Less oil-exporting countries						
Rates higher than 1960-71	11	25.0	4	9.1	10	22.7
“ lower “ “	33	75.0	40	90.9	34	77.3

^a Oil Exporters : Algeria, Ecuador, Egypt, Indonesia, Mexico, Nigeria, Norway, United Kingdom, Venezuela

Source: World Bank, World Tables.

3. Inflation Trends in the Developing Countries

Inflation rates in the developing countries have generally followed a bow-shaped pattern resembling the G-7's. However, the upsurge after Bretton Woods has been higher, while the descent during the capital decontrol decades has been slower. Dispersion around the average tendency has also been much greater.

III. Alternative Causal Explanations of the Upsurge of Real Interest Rates

None of the usual suspects--a sustained investment boom, rising fiscal deficits, or bond market reaction to inflation--fit the data well. Table 8 shows that the growth of resource-using private investment of both the G-7 and the OECD groups dropped precipitously in the 1970s, fell further for the G-7 in the next two decades, and recovered only part way for the entire OECD group.

Table 8
Annual Growth Rates of Private Gross Investment at Constant Prices,

	G-7 Countries	O.E.C.D. Countries
1959-71	6.1	6.0
1972-81	2.9	2.7
1982-91	2.4	3.3
1991-2001	1.5	3.7

Source: OECD Economic Outlook, Annex Table 6, various issues.

As for fiscal pressures on prices, Table 9 shows a small increase of the ratio of total fiscal expenditures to GDP in the 1980s for both the European Union and OECD, followed by a sizable decline of the ratios of both groups in the 1990s. The overall fiscal deficit as a percent of GDP declined moderately for both groups in the 1980s and

Table 9
European Union and O.E.C.D Fiscal Trends in the 1980s and 1990s

I. Total Government Expenditures as % of GDP¹

A, European Union	1980/81	1990/91	1999/2000
1. Total Government Expenditures	46.9	47.9	44.9
2. Less Net Interest Payments	43.1	43.5	41.8
B. All O.E.C.D. Countries			
1. Total Government Expenditures	39.6	40.3	38.2
2. Less Net Interest Payments	36.1	37.0	35.5
II. General Government Balance/GDP			
A. European Union			
1. Total Balance	-5.2	-4.2	0.1
2. Primary Balance ²	-1.6	-0.5	3.5
B. All O.E.C.D. Countries			
1. Total Balance	-3.9	-3.3	-0.2
3. Primary Balance ²	-1.1	0.0	4.3

¹Includes state, local and central government expenditures.

²Excludes net interest payments.

Source: OECD Outlook, Annex Tables 28, 30, 32.

virtually disappeared by the end of the 1990s. The OECD's primary deficit disappeared by the early 1990s and, along with the EU's primary balance, were in surplus by the end of the 1990s. In all, fiscal pressures on interest rates diminished rather than increased over the past two decades.

As for inflation, it is generally accepted that lenders try to incorporate higher risk premiums in their lending price when they anticipate higher inflation, and that these inflationary risk premiums rise more for long-term than short-term loans. A sustained period of rising inflation should therefore push up real interest rates and tilt the yield curve upward. Yet as Tables 2, 3, and 6 have shown, the most inflationary decade, 1972-81, is associated with sharp drops in both short- and long-term real interest rates in all the G-7, and a narrowing of the spread between the two rates in all but France and Germany. Conversely, the strong, sustained disinflation of the next two decades is associated with major upsurges of short- and long term interest rates in the first decade along with a further narrowing of the spread in the four European countries and Japan. This was followed in the second decade by a modest decline of the real long rates, except in Italy, and a moderate widening of the spreads, except in France and Germany.

There is, however, general agreement that the liberalization of financial markets in the late 1970s and early 1980s, notably the lifting of capital controls and emergence of globalized financial markets fueled the upsurge of real interest rates. That is, when capital controls were in place, as in the Bretton Woods era, the only easy option open to holders of long-term bonds who feared more inflation from, say, a counter-cyclical easing of monetary and fiscal policy, was to move funds to shorter-term bonds or to equities. Either move tended to reinforce the policy objective of bringing output and employment closer to capacity. However, capital decontrol and the globalizing of financial markets in the 1980s opened another channel through which institutional investors could move easily and quickly between domestic and foreign bonds and equities, and banks and hedge funds could engage in large-scale covered and uncovered interest rate arbitraging. These flows frustrated efforts to implement counter-cyclical macro policies by lowering real interest rates. Moreover, the explosive expansion of cross-currency financial flows greatly increased the volatility of exchange rates and their feedback on domestic prices. The result has been a major switch in macroeconomic policy priorities from a primary

focus on full employment to a primary focus on appeasing the financial markets through tighter monetary-fiscal policies designed to minimize inflation and exchange rate instability. The basic disagreement is whether financial liberalization, its problematic consequences notwithstanding, has been enhancing or retarding national and global economic welfare.

IV. Has Financial Liberalization Enhanced Global Economic Welfare?

A. The Positive Case

The positive case is grounded on the alleged validity of the Efficient Market Hypothesis (EMH). This is the assertion that liberated financial markets efficiently process all available information relevant to the determination of the present value of future cash flows from capital assets and price such assets accordingly. Prices change when new information appears that alters assessments of the determinants—called fundamentals--of the future cash flows and/or the discount factor. However, the ability of financial markets to churn out correct asset prices is hampered by policies that distort the information flows or restrict market transacting. Liberating financial markets improves their ability to value capital assets correctly. This provides more reliable price signals to guide investment and lending decisions, thus improving the global efficiency of real resource allocation. The upsurge of real interest rates and the increased exchange rate volatility have been necessary features of an economic welfare enhancing process.

But how valid is the EMH? Supporting claims divide into two groups. One group simply accepts the validity as proven by more basic economic theory, which is alleged to have firmly established that a system of freely competitive interacting markets is the most efficient social arrangement for carrying out interpersonal economic activities, and that liberated financial markets are in the domain of that general proof. Two recent OECD studies illustrate this perspective. One study, on estimating econometrically that half the rise of real long-term interest rates between the 1970s and the 1980s was due to financial market liberalization, concludes *tout court* that the large rise was a measure of the prior “distortion” that liberalization had eliminated [Orr et al. 1995]. The second study acknowledges that whether the declining cost of financial transacting and the increased scope and diversity of financial services resulting from financial liberalization produced welfare gains, “depends on judgments about the value of the financial services

being provided, in particular, the extent to which the increased financial activity is viewed as being of economic benefit rather than representing excessive or unnecessary financial churning.” But then without citing any supporting real economy data, the study concludes that the benefits were indeed substantial. The elimination of “regulation-driven credit rationing” must have improved allocative efficiency by “opening up opportunities for international portfolio diversification” and by removing a “distortion” whose importance is indicated by the substantial increase of the spread between inter-bank and bank-customer lending rates after 1980 [Edy and Hviding 1995].

In fact, competitive general equilibrium theory has been unable to include financial markets within its domain, and is far from having established the optimality of even its more restricted domain of interacting non-financial markets [Felix 2002]. Even more damaging has been the failure of the many efforts to validate the EMH empirically by finding a set of “fundamentals” that consistently predict the volatile movements of asset prices, especially of exchange rate movements, better than the “random walk” model, which specifies no fundamentals whatsoever [Meese and Rogoff 1983; DeGrauwe et al.1993; Harvey 2001].

The second group takes a political economy view of the matter. The chief benefit of financial market liberalization and globalization has been the increased power of the financial markets to impose more efficient economic policies on countries by withdrawing funds from those adopting low interest, deficit-prone macro policies and populist wage and tax measures. The EMH, while a poor description of the actual pricing behavior of liberated financial markets thus far, is valid as a statement of the direction toward which the financial markets tend, as they learn from experience to reduce pricing mistakes. Such self-correcting properties are much weaker in the political arena, hence the prodding by liberated financial markets, warts and all, accelerates the global adoption of efficient economic policies [The Economist 1995].

This perspective has provided a platform for absolving the financial markets of primary responsibility for the frequent major financial crises and near-crises that have accompanied the spread of financial liberalization in the developing as well as industrial

countries during the past two decades¹. The crises are blamed primarily on flawed design or implementation of liberalization policies that misled the financial markets.

Characteristically, these are conclusions of post-crisis analyses by economists and institutions like the IMF, whose faith in the fundamental rightness of financial market liberalization is threatened by the crises. An embarrassing aspect is that the pre-crisis assessments by many of these analysts, most notably by the IMF and financial investment strategists, had failed to detect the fatal policy flaws they emphasize in their post-crisis analysis. More importantly, as the successive crises keep enlarging the scope and variety of the alleged fatal flaws, the clarity of the requisite policy reforms that are supposed to make financial market liberalization crisis-free has become hopelessly muddled. The IMF as policy advisor is itself in crisis over this.

B. The Keynesian Perspective on Financial Instability

The failure of EMH-based analyses to account for the heightened financial turmoil of the post-Bretton Woods era has revived support for the Keynesian view that mispricing of capital assets is endogenously generated by the inherent inability of economic agents of decentralized capitalist economies to estimate accurately the risks and returns involved in taking investing or lending positions. Such positions have to be based on estimates that are subjectively speculative rather than objectively statistical, because hard facts about the output prices and costs on which the future cash flows that

¹ On the frequency, a mid-1990s IMF study found that nearly three-fourths of all IMF member countries suffered one or more banking crises or “significant banking problems” during 1980-95. Banking crises defined as “cases where there were runs or other substantial portfolio shifts, collapses of financial firms or massive government intervention” afflicted 36 countries, while significant banking problems, defined as “extensive unsoundness short of a crisis” afflicted another 108 countries [Lindgren et al 1996; Annex 1]. The post-1995 crises have raised these numbers “significantly.”

On the linkage to financial liberalization, an econometric analysis of a 26 country sample of countries suffering both banking and currency crises during 1980-95, found that financial sector liberalization within the five years preceding the crisis accurately predicted 67 percent of the banking crises and 71 percent of the currency crises. The study’s causal explanation was that easier access to foreign funds by banks and non-financial corporations and the resulting increase of banking competition promoted debt leveraging and lowered bank credit standards. The M2 money multiplier rose to crisis peaks that averaged 20% higher, and the ratio of domestic credit to nominal GDP rose to crisis peaks averaging 15 percent higher, than their respective pre-liberalization ratios [Kaminsky and Reinhart 1996].

will determine the returns from today's capital assets are unavoidably scarce until the future arrives [Keynes 1936, Chapter 12].

Three major extensions of the Keynesian view that the unstable behavior of financial markets is primarily generated endogenously rather than by policy flaws have been gaining respectability among economists. These are: the Financial Instability Hypothesis (FIH), asymmetric information theory (AIT), and non-linear (a.k.a. chaos) analysis of the dynamics of organized asset markets. The FIH asserts that the dynamics of long-term expectations formation in competitive financial markets tend to produce a progressive reduction of risk standards and increased debt leveraging during profitable phases of the business cycle. As the phase of rising profits extends, the financial markets move from a robust state in which they can easily absorb shocks, whether exogenously or endogenously generated, to a fragile state of widespread debt over-leveraging and overvaluation of capital assets, in which comparable shocks can set off a systemic financial crisis of collapsing asset prices, bankruptcies, credit crunches and debt deflation, absent timely government counter-measures [Minsky 1975]. AIT takes off from the premise that the flow of information on which borrowing and lending decisions are made has built-in biases, because it is in the self-interest of each side of the transaction to seek better terms by holding back relevant information. AIT explores the adverse consequences on lending and asset valuation of informational asymmetries, and the limitations of protective measures against the biases [Hubbard 1998]. Non-linear or chaos mathematics shows that non-linear time paths of variables diverge in response to minute changes in initial conditions, and become chaotic, that is, totally without pattern, after a large number of iterations. This property is now used to explain why short-term traders, who provide high volume liquidity to foreign exchange and securities markets, but also cause prices to change moment to moment, tend to base their positions primarily on price and volume movements rather than on information about "fundamentals" [De Grauwe et al.1993]. EMH devotees regard this as irrational, and are puzzled that such trading survives. Chaos analysts view such trading as quite rational and puzzle over why the EMH survives among economists.

Instability as an innate property of financial markets also turns the tables on the political economy justification for capital decontrol. The FIH, AIT, and even the chaos view of market behavior [Cf. Summers and Summers 1990], rationalize the need for interventionist policies. Capital decontrol, by undermining the enforcement of such policies, is not a necessary step toward greater economic efficiency but a recipe for globalizing financial instability. This was indeed the perspective shaping the Bretton Woods Articles of Agreement. The Articles were designed to promote freely convertible but stable exchange rates as essential for advancing multilateral trade, stable high employment growth and the social welfare state. Because free capital mobility was seen as a destabilizing threat, Article VI authorizes member states to maintain permanent controls on capital account, and enjoins the IMF from supplying credits to members who use the credits to fund capital flight. The Articles remain the charter of the IMF. But by switching in the past two decades to making capital decontrol a condition for receiving its credits, the IMF now honors Article VI more “in the breach than the observance.”

C. Testing the Competing Welfare Claims Empirically

The comparative performance of the real economy under Bretton Woods and under financial market liberalization clearly gives the laurel wreath to Bretton Woods. To the supporting evidence in Tables 5, 7, and 8 above, can be added the data in Tables 10 and 11 below. Table 10 shows that exports in constant prices have been growing at a slower rate since Bretton Woods, and that the rise of the OECD’s export/GDP ratios post-Bretton Woods merely reflects a greater retardation of GDP than of export growth. The rise of global foreign exchange turnover from \$4.6 trillion in 1977 to \$380 trillion in 1998, and from 3.5 times to 68 times global exports [Felix 2002; Table 5], left no positive mark whatsoever on either export or GDP growth.

Nor does Table 11 support the prediction of supporters of financial liberalization that it would improve allocative efficiency. Instead Table 11 shows that the growth of both labor and total factor productivity of the G-7 and the OECD business sectors declined sharply from their Bretton Woods rates². The consolation prize for financial liberalization--the convergence of short and long-term real interest rates among the G-7

(Tables 1 and 2), the disinflation trend (Table 6), and the reduced OECD fiscal deficits (Table 9)—were obtained at a high price in real economy welfare losses.

Table 10
Growth of Exports and OECD Export/GDP Ratios
in Constant Prices

Average Annual Percent Growth of Exports		
	OECD Countries	World
1959-71	8.5	8.2
1972-81	6.4	8.1
1982-91	4.9	4.3
1992-2001	6.7	7.7

OECD Exports/GDP Ratios

1959-71	1.8
1972-81	2.1
1982-91	1.5
1992-2001	2.5

OECD data are weighted averages, using relative GDP as weights. World exports for 1959-74 are deflated by the average of U.S. import and export price indices. For 1975-2001 they are deflated by the IMF unit export value index.

Sources: OECD Economic Outlook, various issues and IMF International Financial Statistics, various issues.

Table 11
Annual Productivity Growth of the OECD Business Sector, 1960-97

	Labor Productivity			Total Factor Productivity		
	<u>1960-73</u>	<u>1973-79</u>	<u>1979-97</u>	<u>1960-73</u>	<u>1973-79</u>	<u>1979-97</u>
	(percentages)					
G-7 Countries	4.5	1.6	1.4	3.1	0.7	0.8
Other OECD Countries	5.0	3.1	2.6	2.9	1.2	1.4
All OECD	4.6	1.8	1.6	3.0	0.8	0.9

Source: OECD Economic Outlook, June, 1999; Annex Table 59.

² The periodization of Table 11 is the OECD's, which doesn't publish the underlying annual data. The OECD has temporarily suspended updating Annex Table 59, the source of Table 11, pending a revision of its methodology. It is unlikely that the revision will reverse the general trends in Table 11.

The consolation prize is further diminished because deficit reduction among the OECD countries has been accomplished by a substantial shift of the tax burden from capital to labor income, which has contributed to the rise of income inequality from Bretton Woods levels that has also featured the past two decades. As a recent OECD study points out, free capital mobility undercuts efforts to tax income from capital, resulting in a rising share of taxes falling on labor income. This tax shift has also increased political pressures to cut back on social programs because it

“drives a large wedge between the real labour compensation as paid by employers and the real take-home pay per worker. To the extent that industrial relations and regulatory restraints on transfer schemes prevent the burden of this wedge from being borne by the worker, firms will be induced to cut back on their use of labour. This may take the form of substitution of (typically low-skilled) labour with other production factors, downsizing of activity, or relocating of activities to countries that offer lower labour costs for a given level of skills and competencies. Concerns about excessive labour costs have prompted initiatives in several E.U. countries (Belgium, France, Greece, The Netherlands, Spain, and the United Kingdom) to cut social security contributions at the bottom end of the pay scale” [OECD 2001; pp.178-79].

In general “globalization and the associated growth in international financial transactions...risk heightening such distorting effects, as new possibilities for international tax evasion and avoidance emerge” [OECD 2001; p.175].

Two other prominent features accompanying financial globalization--greater exchange rate volatility and misalignments, and higher real interest rates—help account for the slower growth of investment, productivity, and of the volume of international trade. The monthly volatility of the dollar exchange rate with the franc, Deutschmark, yen and sterling was 22 percent greater in 1980-84 and 35 percent greater in 1985-89 than in the already volatile 1970s [Blundell-Wignall and Browne 1991; Table 7]. And contrary to predictions of proponents of floating rates and free capital mobility, e.g., Milton Friedman, that the nominal volatility would stabilize the real exchange rates [Friedman 1953], these have also turned out to be highly volatile [Felix 2002;Table 6].³

³Table 6 uses annual trade-weighted real exchange rate indices from 22 OECD countries, plus 10 Asian, 8 Latin American, and 6 Middle East-African developing countries published in Morgan Guarantee Trust Co. World Financial Markets. The main findings are: 1) For the OECD group the coefficient of variation (CV) around the mean rate averaged 6.7%, and the high-to-low range was 19.7% in 1970-79. The two dispersion measures rose to 8.6% and 24.4% respectively in 1980-89, before declining to 5.6% and 17.5% respectively in 1990-99. 2) Only the Euroland countries showed a monotonic decline of the two measures, presumably reflecting the stabilizing effects of the “snake” and its successor, the ERM. 3) The two

Conventional economic theory tells us that both higher real interest rates⁴ and increased nominal and real exchange rate volatility tend to deter long-term real investment and the volume of international commodity trading. Higher real interest rates add to the cost of financing projects. They also tend to tilt investment toward projects with shorter payoff periods, since the negative impact of higher real interest rates on the present value of such projects is less than on longer payoff projects. Increased exchange rate volatility and misalignments work in the same direction by increasing the risks of investing long-term. And they especially penalize foreign exchange dependent projects such as exporting and importing. In economic jargon, they raise the “hurdle” rate, the minimum expected rate of return needed to induce an investor to put money into projects involving front-end outlays, i.e., fixed costs, and delayed revenues.⁵

The rise of real interest rates and exchange rate volatility have thus tilted domestic and foreign private investment toward financial asset plays with quicker expected payoffs than physical investments. Strategies to “grow” the corporation have turned from building new capacity to acquiring existing capacity through mergers and acquisitions (M & A). The successful ideological push to privatize state assets has further enlarged domestic and international opportunities to acquire existing capacity. The counterpart of the slower growth of investment which adds to capacity (Table 8) has been a major expansion of investment that redistributes ownership of existing productive capacity.⁶

dispersion measures were far higher for the developing country group. Their average CV was 15.0%, and the high-to-low range 42.8% in 1970-79, rising to 26.7% and 49.8% respectively in 1980-89, then declining to 18.8% and 37.9% respectively in 1990-99. Presumably, the 1990-99 decline for both groups reflects in part the disinflation and moderate convergence of inflation rates of that decade.

⁴In the 1990s the average real interest rate globally was double its 1960s average [Schmidt-Hebel and Serven 1999; p.8].

⁵Formally, the hurdle rate is the cost of capital multiplied by a coefficient ranging upward from unity that represents the investor’s premium from “waiting,” that is, from postponing the project. The premise is that while information about future costs and revenue is always incomplete, delaying the project may allow more relevant information to become available. The “waiting” premium is the difference between the expected present value of starting the project now, or delaying it [Dixit 1992]. A higher interest rate, a component of both the cost of capital and the discount factor, raises the hurdle rates for all projects, but unevenly. It tilts the investment choice toward lower fixed-cost and faster payback projects. Greater exchange rate volatility and misalignment also raise hurdle rates unevenly, but with an additional tilting away from foreign exchange dependent projects, such as exporting and importing.

⁶M & A rose in the United States from 15.7% of gross private fixed investment in 1981 to 47.8% in 1996 [Security Industry Fact Book 1997]. In developing countries M & A’s share of FDI rose five-fold between

Along with this has come a disproportionate expansion of resources devoted to servicing activities that supply liquidity as well as transfer ownership claims and financial risks. These activities include a great expansion of hedging against the heightened exchange rate risk of exporting, importing and foreign direct investment (FDI), as well as expanded speculation on exchange rate, and security and real estate price movements. The share of OECD investment to enlarge financial capacity was 104 percent higher, and the share of the OECD labor force employed in finance was 21 percent higher in 1980-93 than in 1970-79 [Edey and Hviding 1995; Table 2]. Since 1975, financial services have been the fastest growing component of the international service trade, while FDI in financial facilities was the fastest growing component of FDI during the 1980s [OECD 1994; pp.38-40].

Funding these rapidly expanding financial activities has kept real interest rates high. Between 1980 and 2000 the rise in the dollar value of securities listed on the global bond markets was double the rise of global GDP in current dollars, while the global rise of the capitalized values of company shares was around 2.5 times greater than global GDP. That this ballooning of debt and equity values occurred despite slower growth of real output, investment, and productivity as well as tighter monetary-fiscal policies, raises a number of unsolved puzzles for defenders of financial liberalization.

For example, according to the widely accepted Q-theory of investment M & A activity should increase at the expense of investment in new capacity when the market value of existing capital assets fall below the supply price of new assets, but should fall off when the markets push up the value of existing capital assets beyond the supply price of new assets. Yet M & A activity kept rising *pari passu* with the 1980-2000 boom of share prices in the OECD countries, despite a much slower increase of capital goods prices. Adding to the hurdle rate the risk of capital losses from disposing of a disappointing investment can explain away the anomaly. If investors expect share prices to keep rising, the risk of disposal losses would appear less from acquiring capacity through M & A than from building new plant [Darby et al. 1999]. But this disposes of

1990 and 1997, with acquisitions of privatized assets accounting for a quarter of the FDI inflows to Latin America [Millberg 1999; Tables 2, 8 and p.107].

one anomaly with another. Why did share prices keep booming when the growth of output and productivity had slackened?

The answer that comforted many defenders of the EMH for a time was that farsighted investors were anticipating the major productivity benefits to come when the rapid flow of innovations in information technology (IT) diffused through domestic and global production. Productivity growth rates did finally revive during 1995-2000, notably in the United States where they rose to almost double the rate of the preceding 15 years, though still falling short of their Bretton Woods rates. But the “New Economy” boom ended in 2000 with a collapse of IT sales and share prices, and a return to lower productivity growth rates. A recent McKinsey & Company study indicates why. The study, which divided the U.S. economy into 59 sectors, found that the short-lived acceleration of overall productivity growth had been almost entirely due to surges in six sectors: retail and wholesale trade, telecommunications, securities, the assembly of computers and the manufacture of semiconductors. Of these sectors, the productivity surge in securities and computer assembly mainly reflected pricing rather than output increases. Productivity of the securities sector is measured as the value of securities transacted per employee. The boom of share prices during 1995-2000, therefore, pulled up the measured increase of productivity, just as the decline of share prices since the second quarter of 2000 has pushed it back down. Productivity of computer assembly surged because the hedonic pricing method used by U.S. government statisticians identified quality improvement with faster operating speed of the machines. But this quality improvement was entirely due to the assembly of ever faster operating components purchased from the semiconductor sector, whereas the labor time per assembled computer was unchanged. In all, the McKinsey study concludes, “IT investment had a significant impact on productivity in some industries but virtually none in others” [Uchitelle 2001].

In general, the high productivity growth rates of the Bretton Woods era and the fall-off thereafter probably has had little to do with differences in the rate of technological progress, but a great deal to do with differences in market conditions shaping investment choices. The faster output growth, lower real interest rates and less volatile exchange rates of the Bretton Woods era reduced the risk of investing in large-

scale physical plants to exploit well-known physical relationships that create economies of scale in production. The reversal of these conditions in the post-Bretton Woods era tilted the risk calculus in favor of greater alacrity in moving capital funds and in altering the product mix. This may have been a sensible defense against financial loss in an environment of slower growing aggregate demand for non-financial goods and services and more volatile financial conditions. But the social cost in lost productivity and the misallocation of human capital has been substantial.

Illustrating the latter is the virtually monotonic rise of the share of Finance, Insurance, and Real Estate (FIRE) in the GDP of each of the G-7 countries since the early post-war years. Until around the mid-1970s the rise was paralleled in each country by high or rising rates of growth of non-financial GDP, suggesting that the asset trading and risk spreading services of FIRE were facilitating non-financial growth. But after the mid-1970s there was a parting of the ways; the FIRE shares of GDP began rising at an accelerated rate into the 1990s, while growth of non-financial GDP slackened [Felix 1998; Charts 1 to 7]. The inference is that the increasing absorption of labor and other resources in FIRE after the mid-1970s had a depressing effect on the growth of value added in the rest of the economy.

Yet another puzzle for defenders of the EMH is to explain how the global stock of bonds was able to balloon during the 1980s and 1990s despite the tightened monetary policies of the OECD countries. Part of the answer is that the supply of credit is only loosely tethered to the money supply. But for a more complete answer one has to turn to Minsky's FIH, in which the growing demand for credit during booms in asset prices induces financial innovations by banks that enable them to work around the restrictions of cash reserve and capital requirements in order to service the credit demand. Securitizing loans into marketable bonds and engineering an explosive growth of debt leveraging through customized derivatives have been two of the most prominent off-the-balance sheet activities by which banks fueled the 1980-2000 boom in debt and in asset prices, with the latter providing the increased collateral that seemingly validated the expanded credit. The fragility of this circularity was intensified by an increasing exploitation of asymmetric information by corporate borrowers, notably, as the boom progressed, by an increasing reliance of highly leveraged companies on "aggressive

accounting” and “financial engineering” subterfuges to hide their liabilities and inflate their announced profits in order to push up their share prices. The alacrity with which the monetary authorities of the financial center countries, led by the U.S., came to the rescue of large banks and bond holders when crises threatened them under the “too big to fail” doctrine, without also imposing adequate penalties or post-crisis restrictions, helped sustain the lowered risk standards of lenders fueling the boom.⁷

With the stock of bonds rising faster than nominal GDP growth and real interest rates exceeding real GDP growth rates, it is obvious that the rentier share of national income rose during 1980-2000. And since bond ownership is concentrated in the upper income echelons of households, these financial trends contributed to the increased income concentration that featured the two decades. However, if the falling equity prices, increased bankruptcies, defaults and debt write-offs of the past two years should persist, the global rise in the stock of debt would be halted and even reversed, and so would the income concentration effect of real interest rates exceeding the real GDP growth.

Depressed economic conditions alone, however, are unlikely to keep real long-term interest rates from exceeding real GDP growth. The evidence from both the inter-war years and Japan in the 1990s (see Table 3 above) indicate the contrary; depressed economic conditions reduce output and employment more than they do real long-term interest rates. The economic logic is that the capital losses from debt deflation increase the perceived risk of private long-term lending. In the 1930s both industrial and developing countries resorted to protectionism and official financing mechanisms to revive real investment, although the unilateralism of these efforts undercut their global effectiveness. Bretton Woods, which sought to replace such corrosive unilateralism with

⁷ In Fall 1996 Federal Reserve Chairman Alan Greenspan, concerned at the fragility of the debt and asset price boom in the United States, sought to moderate it by pronouncing his skepticism at the “New Economy” productivity claims, and warning that the share prices were being inflated by “irrational exuberance.” The hostile Wall Street reaction to these pronouncements, however, dissuaded him from pursuing this line further. Instead, Greenspan in 1997 pronounced himself a convert to the “New Economy” view, signaled that he was opposed to raising margin requirements, and would instead regard slumping share prices with concern. Wall Street professionals cynically dubbed this changed position as “Greenspan’s put option on Wall Street.” Thus comforted, they proceeded to oversee another doubling of the Dow in the next three years before the New Economy bubble collapsed. Evidently, the Federal Reserve, that paragon of an independent central bank, is able to resist populist political pressure better than pressure from the financial markets.

collective rules governing trade policy and exchange rates, included multilateral official international lending and controls on private international capital flows in its purview. These helped generate a quarter-century of high, stable, and equitable growth, dubbed “The Golden Age of Capitalism.” Suitably adjusted to today’s international environment, a comparable set of collective measures remains a requisite for returning to a more stable and equitable growth of the global economy.

REFERENCES

- BANAMAX 2001. Mexican Economic Conditions, Mexico City, December.
- BLUNDELL-WIGNALL, Adrian and Frank Browne 1991. Macroeconomic Consequences of Financial Liberalization: A Summary Report, Working Paper No. 98. Paris: OECD Department of Economics and Statistics.
- BORDO, Michael D. 1993. “The Bretton Woods International Monetary System: A Historical Overview,” in Michael D. Bordo and Barry Eichengreen, eds. A Retrospective on the Bretton Woods system: Lessons for International Monetary Reform, University of Chicago Press. 1993.
- DARBY, Julia, Andrew H. Hallett, Jonathan Ireland and Laura Piscitelli 1999. “The Impact of Exchange Rate Uncertainty on the Level of Investment,” The Economic Journal, Vol. 109 March.
- DE GRAUWE, Paul, Hans Dewachter and Mark Embrecht 1993. Exchange Rate Theory: Chaotic Models of Foreign Exchange Markets, Blackwell, Oxford and Cambridge.
- DIXIT, Avinash 1992. “Investment and Hysterisis,” Journal of Economic Perspectives, Vol. 6, Winter.
- EDY, Malcolm and Ketil Hviding 1995. “An Assessment of Financial Reform in OECD Countries,” OECD Economic Studies No. 25, Paris.
- FELIX, David 2002. “The Economic Case Against Free Capital Mobility,” in Leslie Elliott Armijo, ed. Debating the Global Financial Architecture, New York: SUNY Press. 2002. (Forthcoming)
- FELIX, David 1998. “Asia and the Crisis of Financial Globalization,” in Dean Baker, Gerald Epstein and Robert Pollin, eds. Globalization and Progressive Economic Policy, Cambridge: Cambridge University Press, 1998.

- HARVEY, John T. 2001. "Exchange Rate Theory and 'the Fundamentals'," Journal of Post Keynesian Economics, Vol. 24, No.1. Fall.
- HUBBARD, R. Glenn 1998. "Capital Market Imperfections and Investment," Journal of Economic Literature, XXXV, March.
- INTERNATIONAL MONETARY FUND 2001. "IMF Report Confirms Dominant U.S. Position as Recipient of International Capital Flows," IMF Survey, July 30.
- INTERNATIONAL MONETARY FUND, Statistical Yearbook, Washington, D.C. various years.
- KAMINSKY, Graciela and Carmen Reinhart 1996. The Twin Crises: the Causes of Banking and Balance of Payments Crises, International Finance Discussion Paper No.544. Board of Governors of the Federal Reserve System, Washington, D.C.
- KEYNES, John Maynard 1936. The General Theory of Employment, Interest and Money. New York: Harcourt, Brace & Co.
- LINDGREN, Carl-Johan, Gillian Garcia, and Mathew Saal 1996. Bank Soundness and Macroeconomic Policy. Washington, D.C.: International Monetary Fund. June.
- MEESE, R.A. and Kenneth Rogoff 1983. "Empirical Exchange Rate Models of the Seventies: Do They Fit Out of Sample?" Journal of International Economics. Vol. 14, No.2.
- MILBERG, William 1999. "Foreign Direct Investment and Development: Balancing Costs and Benefits," International Monetary and Financial Issues for the 1990s, XI. Geneva: United Nations Conference on Trade and Development.
- MINSKY, Hyman P. 1975. John Maynard Keynes. New York: Columbia University Press.
- MORGAN GUARANTEE TRUST CO. World Financial Markets, New York. Various issues.
- OECD 2001. "Challenges for Tax Policy in OECD Countries," Economic Outlook, No.69. Paris. June.
- OECD 1995. Historical Statistics. Paris.
- OECD 1994. Economic Outlook, Paris. December.
- ORR, Adrian, Malcolm Edy and Michael Kennedy 1995. Real Long-term Interest Rates: the Evidence from Pooled Time Series. OECD Economic Studies No.25. Paris.

SECURITY INDUSTRY FACT BOOK 1997. New York.

SUMMERS, LAWRENCE H, and Victoria P. Summers, “The Case for a Securities Transactions Excise Tax.” Tax Notes, August 13.

THE ECONOMIST 1995. “Who’s in the Driving Seat? A Survey of the World Economy.” London. October 17.

UCHITELLE, Louis 2001 “Deepening Wrinkles in the New Economy.” The New York Times, October 17.

UNCTAD 2001. Trade and Development Report, 2001. United Nations, New York and Geneva.

WORLD BANK, 1999. Global Economic Prospects and the Developing Countries 1999. Washington, D.C.

WORLD BANK 1993. Global Economic Prospects and the Developing Countries 1993. Washington, D.C.

WORLD BANK World Tables Washington, D.C. Various years.