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Are World Financial Markets
More Open? If so Why and With
What Effects?

Robert B. Zevin

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# ARE WORLD FINANCIAL MARKETS MORE OPEN? IF SO WHY AND WITH WHAT EFFECTS?

ROBERT B. ZEVIN

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**CONTENTS**

## ARE WORLD FINANCIAL MARKETS MORE OPEN?
## IF SO WHY AND WITH WHAT EFFECTS?[1]*

## 1. Introduction

It is generally considered all too obvious that the world's
financial markets have become continuously, dramatically and
unprecedentedly open in the years since the end of World War II.
And often in the same breath, the equally obvious explanation is
provided that these facts are the consequences of advances in
computers and high-speed communications.

In this essay I demonstrate that financial markets have
certainly tended toward greater openness since the end of World
War II; but, they have reached a degree of integration that is
neither dramatic nor unprecedented in the larger historical
context of several centuries.[2]*  Moreover, as is strongly
suggested by the latter observation, today's openness is not in
any important way a consequence of today's information
technology.

Here, as in other chapters of this volume, financial
openness is of interest because of its consequences for the
autonomy of national economic policy.  How shall we define
financial openness?  If our concern is constraints on policy

2.  I treat "open" and "integrated" as synonyms.

freedom, then our measure of openness might be the dependence of a nation's interest rates, stock market prices, or exchange rate on events in the rest of the world. If a nation's interest rates converge toward or move in common with world interest rates, that nation may have lost control of its interest rates and/or money supply to the world. Of course it may also have lost control of its interest rates with the world to some common cause.

Since it is especially in the nature of financial asset prices to adjust swiftly to important developments, it is particularly appropriate to examine their prices rather than the flow of funds across national boundaries "into" or "out of" assets. The necessary price adjustments in interdependent financial markets will in theory and sometimes do in practice take place without any transactions occurring. That is financial asset prices can change to incorporate new information before any new transactions take place, or can eliminate the profit of arbitrage before any arbitrageurs have traded.[3.]

Exactly what behavior of financial asset prices shall we look for to confirm the existence of relatively open or closed financial markets? The question is not trivial because geographically separate markets can be integrated in two theoretically distinct but empirically overlapping senses.

If news of hostilities between two countries caused bond prices to fall in all the world's major markets, we could conclude that these markets were part of a single efficient system for disseminating and responding to the information

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3. However, Kenen, 1976, pp. 17-18, describes a class of exogenous disturbances that require transnational stock adjustments as well as price adjustments.

concerning a new war and its presumed impact upon aggregate demand. Similarly, if we could show that changes in the expected depreciation of sterling against the dollar in three months' time are directly matched by changes in the difference between interest rates on three-month UK and US treasury bills, this again would demonstrate the efficiency of the transatlantic markets for treasury bills and foreign exchange.[4.]

Now suppose that the US government embarks on a course of higher budget deficits with a concomitant increase in the issuance of treasury bills. The London and New York financial markets are integrated in the second sense if this increase in US treasury bills causes identical increases in US and UK treasury bill rates. That is, the two markets for treasury bills are actually one market, not just because of rapid communications but because the two treasury bill instruments are perfect substitutes in all investor portfolios in the sense of having infinite cross

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4. Throughout my convention is to say that a currency has depreciated (appreciated) against another if its price in units of the other currency has declined (increased). This is in accord with popular usage and the usage that was common among economists as well until quite recently.

elasticities of demand.[5]

Assets in transnational markets that are perfect substitutes for each other are the pure case of a more general phenomenon. Equities of different issuers and bonds of different qualities and maturities are clearly close but imperfect substitutes in well-integrated national markets. It is reasonable to look for the same degree of international substitution as a measure of international integration.

Both types of integration -- induced by efficiency and by substitutability -- will be characterized by high cross-market correlations between asset price movements. The two types of integration differ less in the fact of the correlations than the reasons for them. Efficient markets will move synchronously in response to events with supranational effects on classes of assets. Crop failures, the beginnings and ends of wars or oil price shocks will produce common consequences for similar assets in different markets whether or not they are directly substitutable.

In these cases the extent of observed correlation will depend not only on the degree of cross-market efficiency but also on the frequency and severity of the exogenous shocks. If two

5. This distinction between integration in the sense of efficiency and in the sense of perfect substitutability is made in Allen and Kenen (1980) pp. 13-14; see also Kenen (1976), who defines integration as "the degree to which participants in any market are enabled and obliged to take notice of events occurring in other markets." (p.9). "Enabled" is quite what I mean by efficient while "obliged" covers direct and transitive substitutability as well as other interdependencies (pp.9-10).

In this "other" category, Kenen cites the impact of the oil price shock on asset prices because of the ubiquitous importance of oil. Since this transmission mechanism depends only on openness in oil trading rather than financial markets, I prefer to say that the speed and uniformity of the financial market impact reflects the efficiency of those markets. The efficiency/substitutability distinction is useful for my purposes and unambiguous, while the enabling/obliging division is not.

assets are perfect substitutes, their prices and price changes
will necessarily be identical.  Efficiency is a necessary
precondition for observing systematic correlations;
substitutability and common shocks are alternative additional
conditions, either one of which is a sufficient addition.

International substitutability of assets encompasses most of
what we mean by financial openness as a factor in economic-policy
autonomy.  If domestic financial assets are perfect substitutes
for foreign financial assets, then domestic policy makers can
only exert influence over the effective stock or price of those
assets to the extent that the domestic share of the relevant
world total is large.  Thus, for a relatively small country
control over domestic interest rates or money supply might be
lost and with it control over ultimate targets such as
investment, real growth, and inflation.[6.]

In conclusion, if two financial asset prices are highly
correlated, it follows either that they are close substitutes or
that the same events typically move both their prices.  However,
the latter is tantamount to saying again that they are
substitutes in as much as investors have no reason to expect
different results from holding one or the other.[7.]  Conversely,
if two assets exhibit no price correlation they are necessarily
neither substitutes nor subject to even infrequent common
exogenous shocks.

6.  Kenen, 1976, (p.13) objects that if autonomy means control
over interest rates and integration means international equality
of interest rates then the question of the impact of integration
on autonomy has been answered by definition rather than analysis.
His proposed solution is to measure autonomy by control over the
monetary base.  However, this raises more difficulties than it
resolves since definition of the monetary base is particularly
problematic in a financially open economy (McKinnon, 1982).
7.  This is precisely the meaning of perfect substitutes in the
Arbitrage Pricing Theory, Ross, 1976.

We can take the serial congruence of asset price movements as a first approximation of market integration in the sense of high substitutability, subject to episodic exaggeration by exogenous events with common consequences.[8] Section 2 employs measures of price conformity to explore transnational market integration at various times over the last three hundred years.

Section 3 approaches the same problem from a different point, more specific to the possible impact of financial openness on domestic economic autonomy. I estimate reduced form macroeconomic functions describing financial and real variable determination and examine cross-sectional data and other studies to better distinguish the substitution and common shock explanations of financial market correlations observed in Section 2. I argue that the two oil shocks and the general conditions of capitalist world inflation and disinflation in the 1970's and 1980's were important common sources of synchronous asset market behavior. Section 4 concludes this study with a more explicitly political examination of international relations, financial innovations, and the oil price shocks.

I find no trend toward financial openness over the last century, or over the last three centuries. There is, partly as a consequence, no evidence that the microelectronic revolution has caused a qualitative transformation of international financial markets. Finally, while the existence of a hegemonic power in the international order of nations has coincided with stable exchange rate regimes, the consequences of those regimes for national autonomy have not been uniform.

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8. Identical prices (or yields) is a boundary case of perfectly correlated values. In addition to perfect substitution across markets, such an identity also implies that transaction and information costs for cross-market arbitrage are zero.

## 2. How Open Has the World Become?

### 2.1 In the Beginning

In our modern myopia, we usually forget that a world of separate national monies was not the primeval economic garden from which we evolved. It could as well be argued that the intermittent attempts of nations to impose their sovereign control over money have waxed and waned. The century from 1870 to 1970 was an episode in which national governments briefly held the high ground in their struggle to control money.

For a thousand years before that, the large denomination coins of many nations circulated in international trade and substituted freely for the local money of all jurisdictions. The same can be said for the bills of exchange issued by well-known banking houses from northern Italy to northwest Europe. A local authority that might have wished to make money dear or plentiful was thwarted by direct and effective financial openness.[9]

Individual states were able to achieve independent influence despite the collective weakness of states. A country that supplied a great deal of other nations' imports as producer, carrier or entrepot and that simultaneously provided a large market for their exports might be in a strong position to insist on being paid as well as paying in its own coin. An issuer with great military power and a disposition to use it, would also achieve enhanced acceptance.[10]

However even such countries did not and presumably could not confine legal tender within or across their boundaries to their

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9. Cipolla, 1956/1967, pp. 13-26.
10. Cipolla, 1956/1967, pp. 23-26; Hicks, 1969, pp. 65-68, 89-90. Bankers located in such a powerful country would also be in a position to win superior acceptance for their notes and bills.

own issue. Carlo Cipolla (1956/1967, p.14) says "As late as the nineteenth century no western state enjoyed a complete monetary sovereignty." National monies were close substitutes. Why should they have been otherwise? The important thing about a coin was that it contained so many grams of gold. Whether the gold was stamped with the picture of King Louis or King Henry could have mattered only if one or the other picture was a better guarantee of the gold content, or if superstition at the periphery of the market economy granted one or the other some special acceptance.[11]

We shall see below that compared to the high gold standard in the late nineteenth and early twentieth centuries, today's world may be less integrated. First we shall glance at the scanty data available for the few hundred years before the gold standard system. We do know that the international network of financial markets in the late seventeenth and early eighteenth centuries, especially the Amsterdam-London-Paris triangle, was efficient as I have used the word.[12]

Substantial international capital movements relative to wealth and income constitute additional indirect evidence of cross-country integration of financial markets. Raymond Goldsmith (1985) provides information about the ratios of net

11. Cipolla, 1956/1967, pp. 14-15, describes several instances of superstitious misperception of the images on coins.
12. Neal, 1985, 1987a. A standard test for efficiency is to observe whether or not presumed substitutes in two different markets trade at the same or nearly the same price. If, for example, the rates on three month eurodollar deposits in London and three month certificates of deposit at the home office of the same bank in New York are identical up to a constant difference for taxes or reserve requirements, we may conclude that the London and New York money markets are efficiently integrated. Neal finds a degree of efficiency on this measure for Amsterdam, London and Paris in the eighteenth century that is identical to that found for international markets of the 1970's and 1980's (Frankel, 1986, pp. 47-49, and Obstfeld, 1986, pp. 63-64).

foreign debt to total domestic assets and GNP for several
countries that developed early. In 1760, long after Britain's
greatest indebtedness to Dutch and other foreign investors, her
net foreign debt was still 23% of GNP. By 1800, Britain's net
foreign investment position had improved to a modest plus 5% of
GNP; and by 1830 and 1850 to the high positive levels of plus 32%
and plus 38% of GNP.[13.]

Considering the size of the British economy in the world,
these percentages represent substantial flows of capital from the
Netherlands to Eighteenth Century Britain and from early and mid-
Nineteenth Century Britain to many parts of the world. France
too was a net international creditor, by 4% of GNP in 1815 and 6%
in 1850. Among other destinations investments flowed to the
United States which owed 13% of GNP in 1805 and 8% in 1850; and
to India, owing 8% and Italy, owing 3%, around 1860.[14.]

These ratios of net foreign debts to GNP grew substantially
larger during the high gold standard. In the last quarter of the
nineteenth century, India, Italy and Japan all owed foreigners
amounts between 20% and 30% of GNP. In 1913 Japan and Russia
owed more than 20%; India and Denmark more than 30%.[15.] These
numbers are close to the ratios for the largest debtor LDC's
today. Subsequently, India owing 43.5% of GNP in 1939 and Canada

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13. Goldsmith, 1985, p. 232. For an account of the enormous
magnitude of British borrowing from the Netherlands during the
half century after the Glorious Revolution, see Elyse Rotella,
unpublished Ph.D. dissertation, Massachusetts Institute of
Technology, Department of Economics, 1988.
14. Goldsmith, 1985, pp. 216, 242, 250 and 297.
15. Goldsmith, 1985, passim. See Gerald Epstein and Herbert
Gintis, "An Asset Balance Model of International Capital Market
Equilibrium," this volume, Chapter 4, Table 1B.

owing 37.5% in 1955 were about the same on this score as contemporary Argentina, Brazil, Korea or Turkey.[16]

Creditor country positions also expanded relative to GNP during the high gold standard to 153% of British GNP and 97% of French GNP in 1913-14. These creditor ratios have declined quite continuously over the past 75 years. Today, no creditor nation comes close to these pre-World War I heights.[17] Moreover today's ratios of foreign asset and liability positions to GNP are considerably less than those that apparently prevailed 150 to 300 years ago.[18]

In the seventeenth and eighteenth centuries specie and bullion still served as ready means of exchange in all countries regardless of origin. Private or publicly issued bills and notes typically served the same purpose but less reliably and often with limited application to a particular bilateral or other narrow trade pattern.[19]

Eagly and Smith (1976) studied the dependence of London money market interest rates for most of the eighteenth century on other London market rates and on Amsterdam rates. They found equally large effects for the domestic and foreign rates, concluding that their results demonstrate the efficiency of the London money market and the dominance of Amsterdam in the determination of London interest rates.

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16. See Epstein and Gintis, loc.cit.
17. Ibid.
18. The course of net foreign debts or assets relative to various measures of domestic wealth is similar. See Goldsmith, 1985, and Epstein and Gintis, Table 1A, for calculations of the ratios of foreign claims to total assets and reproducible capital for a number of countries.
19. Cole, 1929, pp. 385-389. As most Americans learn early in school, our still common name of "two-bits" for a quarter of a dollar is a heritage of the circulation of Spanish pesos and similar coins in the United States well into the 1800's. The peso was divided into eight reals or "bits".

The process of securitization discussed by Cosh, Hughes and Singh in the next chapter of this volume was also very much underway from the early 1600's. The beautiful stock exchange, visible through the window at the back of so many seventeenth-century Dutch portraits and duplicated in so many other European cities with the patronage of monarchs is a clear enough record of the process.

This evidence provides a strong, albeit circumstantial case for believing that financial markets were strongly integrated across northwest Europe by the early eighteenth century if not sooner. Money itself of different national origins was certainly fungible. Holdings of foreign loans or debts were very large compared to total wealth or income by contemporary standards.

Speculative money moved swiftly from one country to another as early as 1720.[20] Prices and interest rates moved together internationally according to all standard accounts of the period. Markets behaved efficiently. A growing multinational class of portfolio investors perceived securities of different national origin but similar characteristics as close substitutes because of comparable transaction costs, low information costs and the absence of serious currency exchange impediments.

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20. Neal, 1987b.

## 2.2 The Gold Standard

Historians of the gold standard disagree about much including whether it was in fact a gold standard, a gold exchange standard or a sterling standard. The salient characteristic of the international gold standard regime about which there is no disagreement is that it "succeeded, to a unique degree, in preserving exchange-rate stability" among "the more advanced countries" without restrictions on the movement of capital or goods.[21]

This suggests that we should expect to find a large degree of financial market integration in the gold standard period. Unrestricted capital mobility fulfills an important set of conditions for inter-market efficiency and exchange rate stability does the same for substitutability.[22]

Panel A, on top of Table 1, provides a condensation of various indices of financial market integration and real integration calculated by Oskar Morgenstern (1959) for the high gold standard and for the interwar period. Panel B in the same table displays similar calculations that I have performed on data starting in 1960.

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21. Triffin, 1968, p. 13. For additional views of the gold standard see Bloomfield, 1959, Lindert, 1969, and [Nurkse], 1944.
22. See sub-section 3.5 below.

## TABLE 1
## MEASURES OF INTERNATIONAL FINANCIAL INTEGRATION

### A: FRANCE, GERMANY, GB, USA

|  | 1876-1914 | 1925-1938 |
|---|---|---|
| 1) Nominal Short Rates[a] | .54*** | .56*** |
| 2) First Differences[b] | .11** | .15* |
| 3) Central Bank Disc. Rates[a] | .56*** | .56*** |
| 4) Nominal Long Rates[c] | .65 | NA |
| 5) Yield Curve[c] | .71** | .53 |
| 6) Stock Price First Differences[b] | .17*** | .12 |

Real Variable:

| 7) Phase of Business Cycle[c] | .76*** | .64 |
|---|---|---|

### B: WEST GERMANY, JAPAN, UK, USA

|  | 1960-1970 | 1971-1980 | 1981-1987 |
|---|---|---|---|
| 8) Nominal Short Rates | .15 | .59* | .78** |
| 9) First Differences | .01 | .66** | .05 |
| 10) Real Short Rates | -.04 | .34 | -.10 |
| 11) First Differences | .06 | .18 | .22 |
| 12) Nominal Long Govt. | .19 | .41 | .91*** |
| 13) First Differences | .25 | .63* | .58 |
| 14) Yield Curve | -.10 | .53 | .03 |
| 15) Stock Market Change | .35 | .44 | .39 |
| Average of Eight Financial Correlations | .11 | .47 | .36 |

Real Variables:

| 16) Change in GDP | .15 | .75*** | .49 |
|---|---|---|---|
| 17) Industrial Production | .21 | .80*** | .72* |

## NOTES TO TABLE 1:

***, ** and *  a value of the statistic that would be significant
at the 1%, 5% and 10% levels respectively for a single
application with this many degrees of freedom.
NA: Data are not available in Morgenstern.

### Panel A:

    All data are from Morgenstern, 1959, and so are all the
references below.  The data Morgenstern uses are monthly.  The
length of the series varies.  I have indicated immediately after
the page reference for each line the number of months, or the
range of months, included in the pre- and post-war samples
respectively.  The Table presents averages of all unique pairs of
the statistics of correspondence described in more detail below.
a.  In these rows Morgenstern has calculated simple correlation
coefficients.
b.  Morgenstern has computed a "sign correlation" statistic that
he developed for this purpose with Abraham Wald (pp. 106-109) for
which he supplies measures of significance.  The statistic
depends on whether pairs of serial first differences have the
same or different signs.  It is most comparable to the first
difference measures reported in Panel B.
c.  Here Morgenstern has calculated the percentage of months for
which a pair of series were in the same "phase", based on NBER
methods for determining cyclical turning points in time series.
The same phase represents the same position between peak and
trough.  Significance levels for these statistics have been
estimated from a randomly-generated standard reported by
Morgenstern on pp. 53-60.

1) Page 105  (463,168).  Private discount rates for prime paper
in Berlin, London and Paris and the prime commercial paper rate
in New York.
2) Page 106 (462-511, 167-8).  The same data as in (1).
3) Page 395 (463,168).  Central bank discount rates.  The pre
World War I figure does not include the USA and is thus an
average of only three correlations.
4) Page 456 (426).  Nominal long-term bond rates selected by
Morgenstern to be as comparable as possible.  They are discussed
by him on pp. 448-451.
5) Page 505.  (4) minus (1)
6) Page 536 (515-527, 120-168).  The data are percentage changes
in stock price indices for Britain, Germany and the USA only
before the war and all four countries after.  Morgenstern also
uses a stock index for France beginning in 1899 and reports
percentages of phase overlap for all three samples on page 535.
Using the shorter pre-war period that includes French data or the
phase overlap measure does not change the general pattern of a
small, irregular decline in stock market correspondence from pre-
to post-World War I and a general absence of significance for the
post-war correspondences.
7) Page 49 (419,157).

## Panel B:

For all but row (17), the panel presents averages of the six unique correlations among the four country time series.

8) Annual averages from (International Financial Statistics,1987) and Morgan Guaranty Trust Company, <u>World Financial Markets</u>, June, 1987, and January, 1988. "Money market" rates for Germany and Japan, three month Treasury Bills for the UK, and Federal Funds for the USA.

10)   (8) converted to real rates with the consumer price index reported in IFS for all four countries.  1987 data from Economic Report of the President, 1988, p.372 and <u>Datadisk</u>.

12)   Annual averages from IFS.

14)   (12) minus (8)

15)   A moving one-year price change in the calendar-quarter average level of a comprehensive, market-weighted equity price index.  From <u>Datadisk</u>.

16)   Annual change in real Gross Domestic Product from IFS.

17)   Percentage changes from one year earlier of quarterly average Industrial Production indices for the EC, Japan and US. Quarterly averages of monthly levels from <u>Datadisk</u>.  The numbers reported are averages of three correlations.

Entries in Panels A and B cannot be directly compared because A uses monthly and B annual data; Panel A covers substantially larger samples; and Panel A mixes two unusual indicators of synchronization with the more conventional correlations used throughout Panel B. The data in Panel A that average percentages of correspondence for phases (marked "c") are most directly comparable to the data in Panel B that correlate year-over-year rates of change: that is nominal long rates, the yield curve and real activity -- (4) and (12), (5) and (14), (7) and (16) or (17).

Each of these entries for the gold standard period tend to be larger and of equal or greater significance than their counterparts in the next column or in Panel B. The sole exception is the large and significant average correlation of long-term government bond yields in the 1980's.[23.]

The comparison can be extended by looking only at the significance of the statistics as tests of the hypothesis that the national series are independent. We can then compare the levels and changes in short-term rates and changes in stock prices -- (1) and (8), (2) and (9), (6) and (15). Again, the

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23. The entries in both panels are averages, usually of six separate statistics; while I have used a conservative significance hurdle applicable to each of the components.

three gold standard entries are equally or more significant than
all comparisons.[24.]

The data confirm the high degree of international capital
market integration that we expected to find for the gold standard
era. We have already seen that Raymond Goldsmith's (1985) data
on international assets and liabilities relative to domestic
assets and income tell a similar story: higher in the mid-
nineteenth century than today, highest by far in the gold
standard era.

Morgenstern (1959) provides an additional data set
reflecting the extent to which securities were listed, traded and
owned transnationally before 1914. By one estimate the total
value of foreign securities traded in London in 1874 was L3.6
billion exceeding the L2.2 billion value of British and colonial
government securities listed in London (p. 524). At the end of
the nineteenth century this 62% foreign share had fallen slightly
to 59%, L4.7 billion out of L8 billion total (p. 514). At the
same time, in France an estimated 53% of all domestically traded
securities were non-colonial foreign issues (p. 514).[25.]

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24. Dornbusch and Fisher, 1986, pp. 471-2, report additional
calculations with similar data for own currency interest rate
behavior between only the U.S. and the U.K. They report the
largest and most volatile short-term interest rate differential
in the period 1974-1983, the next largest in the gold standard
years, considerably less during 1964-1971 and the least
difference during 1925-1938. This pattern differs from what is
reported for nominal short rates in Table 1, because of different
time periods compared to Panel B and because they consider only
one of the six bilateral comparisons in the Table. Cooper (1986,
p. 17) reproduces these results along with quite incomparable
data on closed interest rate parity.
25. Similar observations for many other countries are available
in Morgenstern, 1959, pp. 512-528.

Morgenstern also presents data on the numbers of foreign and domestic securities listed for trading in various principal cities.[26] In Amsterdam the proportion of all issues that was neither Dutch nor Dutch colonial was a staggering 82% in 1855, and 77% in 1875. This ratio declined steadily to 53% in 1900. In 1987, the comparable Amsterdam number for equities was 54%.[27] In the principal German financial centers of the 1880's, Berlin, Frankfurt and Hamburg, 27% of all bonds and 8% of all stocks actually traded were of foreign issue. The comparable number for stocks in 1987 was 43%.[28]

Finally, the Salomon Brothers source gives data on the relative number of foreign common stocks traded in the U.K. and France (1987, pp. 108, 84) at 20% and 29% respectively, well below the value proportions given above, 59% and 53%, for the same two countries respectively at end of the nineteenth century.

All of these measures of transnational securities trading and ownership are substantially greater in the years before World War I than they are at present. More generally every available descriptor of financial markets in the late nineteenth and early twentieth centuries suggests that they were more fully integrated than they were before or have been since.

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26. The proportion of foreign stocks traded in a country will generally understate the total market capitalization of such issues relative to all domestic issues, since internationally traded issues tend to be larger capitalization issues. On the other hand only the smaller part of the trading in a transnationally listed issue will be overseas and some portion of an expatriate new issue will be purchased in the home country.
27. Morgenstern, 1959, p.514; Neal, 1985, p.226; Salomon Brothers, 1987, p.95.
28. Morgenstern, 1959, p. 513; Salomon Brothers, 1987, p. 112.

## 2.3   The Role of Technology

We have not found much evidence of increased financial openness compared to a century ago.   Therefore I shall not spend much time considering whether what I have not found is caused by improved techniques for the transfer and exchange of monetary assets.

Computers and related paraphernalia have made it possible to convert a large balance of funds in one currency and location into a different currency in a different place all in a moment. Many think these new devices have forced the opening of financial markets.   Such thinking credits the cart for the arrival of the horse.   The essence of money is that it is an idea.   It exists within and between human minds.   "You cannot ride on a claim to a horse," wrote Schumpeter, "but you can pay with a claim to money."   As long as there has been money and longer, it has been possible to create any amount of it as fast as one could preface the amount with, "I owe you ... ."

It did not take a Renaissance prince much longer to say these three magic words than it does an IBM mainframe.   Nor is there anything about the computer, or the motley collection of entities that speak through it, to make its promises any more valid than the prince's.   Money being an immaterial idea, those who developed and dealt with it have always shown a keen interest in the most rapid possible communication of ideas.   The mail packets and express riders of the eighteenth century who bound Amsterdam to London, Philadelphia to New York, carried cargoes of words.   The words were orders, bills of exchange, promises, demands -- that is the money or conveyors of money.

It is doubtful if the computer has created a class of transactions and orders that are conceptually more complex than those invented by the Dutch in the seventeenth century. It is more the case that the computer has increased the volume of transactions that can be processed or data that can be analyzed. It represents a massive substitution of capital for labor. A merchant's counting house was full of people collectively processing as many transactions in a year as a computer might handle in minutes. These are only questions of scale and cost. These questions had been sufficiently resolved before the eighteenth century to establish the reach and dominance of money institutions and merchant activities.[29.]

If integration means, however abstractly, one market with one price, then the critical constraint is not processing capacity but communication velocity. People in two different places can be part of the same market only if they have the same information at the same time. The international transfer and exchange of money is a very old reality. The speed of such transfers has always depended only on the speed of communication. Since money is essentially immaterial, only the idea of a debit, credit or exchange need be transported.

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29. Reductions in the cost of transmitting information and executing trades will obviously contribute to increased efficiency and clearly have done so throughout the periods considered here. Cooper, 1986b, pp. 10-14 provides a number of specific examples.

Eighteenth century Amsterdam, London and Paris were nearly the same market in this sense, if we interpret "the same time" to mean the same week or couple of days. After the trans-Atlantic telegraph in 1866, "the same time" between New York and London financial markets became a matter of minutes. The spread of telephone and telegraph communication a hundred years ago was the decisive event in unifying financial markets. The essential ideas of finance were well established before and are little changed since.[30.31.]

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30. The still skeptical reader may find that I have argued my case more convincingly in Zevin, 1983, pp. 71-107.
31. The reverse image of the argument that technology has not created openness is that technology does not prevent controls. See the Epstein and Schor chapter in this volume.

## 2.4  Recent Times

If international financial openness has declined since the eve of World War I, it has nevertheless increased since the end of World War II.

Panel B in Table 1 contrasts the three periods 1960-1970, 1971-1980, and 1981-1987.[32] Before 1971, there were surprisingly low levels of cohesion among all manner of financial (and real) variables in four of the world's most developed, large nations. In the next ten years (1971-1980) average correlation increased for each of the ten financial and real series analyzed, and in every case but stock prices, the increases were quite dramatic. In the 1980's, seven of the ten series have exhibited less congruence than in the 1970's. However, all but one still evidenced more international correlation than in the 1960's.

A substantial literature on international capital markets provides confirmation for these findings and illuminates their decomposition into changes in efficiency and changes in substitutability. Assets traded in different markets that are otherwise essentially the same and therefore strong substitutes will be more or less perfectly correlated as the respective markets are more or less integrated in the efficiency sense of having available, inexpensive information, low transaction costs, and low institutional barriers.

The extent of these international efficiencies can be tested by measuring levels or movements of interest rates on domestic and eurocurrency instruments of identical maturity and issuer; or

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32.  These periods were chosen in part because they served to maximize the inter-period differences in correlations, suggesting "natural" divisions around Nixon's new economic policy in 1971 and Reagan's new fiscal policy in 1981.

the coherence of rates fully hedged for exchange rate changes on intrinsically similar instruments in different countries and currencies.[33]

Such tests of what Jeffrey Frankel (1986) calls closed and covered interest parity, respectively, confirm a reasonably steady path toward increasingly efficient links between major country capital markets from the 1960's through the 1980's, and especially from before 1974 to the subsequent period.[34] Most of the increase and most of the remaining inefficiencies are due to dismantling or retaining controls and taxes on international capital movements, rather than changes in technology.[35]

If efficiency has increased while the conformity of asset prices and yields has not, it follows that international financial-asset substitutability has declined in the 1980's or that ubiquitous, exogenous impacts have diminished.[36] It is not too difficult to understand how broadly fluctuating exchange

33. The historical results cited above from Neal, 1985 and 1987a, are tests of this character.
34. Frankel, 1986, pp. 47-49, contains an excellent review of the major literature up to that time. Kasman and Pigott, 1988, perform a number of calculations, some quite similar to mine, on various kinds of interest rate coherence among Canada, the FRG, Japan, the UK and the US. They find that the mean, quarterly, absolute difference of fully covered, three month money market rates from the mean for these five countries averaged 89 basis points in 1974-79, 60 basis points in 1980-82, and 26 basis points from 1983 through the middle of 1988 (p.35). See also Obstfeld, 1986, pp. 58-65, for another review of the literature with identical conclusions.
35. See all three citations in the previous footnote and especially Kasman and Pigott, 1988, pp. 42-44.
36. Kasman and Pigott, 1988, display correlations for the 1960's, 1970's and 1980's, which tell the same story as Panel B in Table 1 for nominal short and long rates and for real short rates (p. 34). However, they express a preference for measuring dispersion by the average absolute deviation from the mean. This measure shows a very large increase (decline in integration) from 1961-72 to 1973-79 and another much smaller increase to 1980 through mid-1988 (p.32). The authors conclude that substitutability has steadily diminished because of increased exchange rate flexibility and volatility.

rates have diminished substitutability among assets denominated in different currencies.[37] This would perhaps account for the small decline in apparent cohesion from the 1970's to the 1980's. However, the more dramatic increase in exchange-rate volatility from the 1960's to the 1970's corresponds to an equally strong increase in cohesion. The only surviving explanation is an increased influence of common shocks in the 1970's..

I shall argue that the two oil price shocks and the simultaneity in the developed nations of the problems of high inflation and unemployment followed by successful disinflation provided just such a set of common forces to distinguish the 1970's (strongly) and the 1980's (less vividly) from the 1960's.

On the whole economists have been bedazzled by the visible progress toward less political interference and more efficiency at the expense of seeing what was really happening to financial

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37. One measure of multilateral, exchange-rate variability more than tripled from 1960-69 to 1973-84, De Grauwe and de Bellefroid, 1987, p. 211. For evidence of increased exchange-rate volatility in the 1980's compared to the 1970's see Figure 2 and Table 4 below.

openness and why.[38.] Table 1 suggests a rank order of international financial market cohesion as follows: 1) the forty years before World War I, 2) followed closely by the 1970's, 3) then the interwar period, 4) again followed closely by the 1980's, and 5) the 1960's far behind. A progression toward more financial interdependence is hard to find in this record.

Stanley Fischer (1988, p. 14) writes that "Capital flows .... are a major and extraordinarily rapid mechanism for transmitting shocks in the international economy." A footnote (p. 39) acknowledges that capital flows played "this role too in

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38. Richard Cooper (1986b), a respected analyst of international economics strains to demonstrate the financial openness of the United States in the mid-1980's. He notes (p.8) that a seemingly modest 4.5% of U.S. equities and 7.9% of U.S. corporate bonds were owned by foreigners in 1983. "That appearance is deceptive, however, ... ." Why? Because the Federal Republic of Germany, "thought to be very open" and with "exports over 30 percent of German GNP", nevertheless displays similarly small percentages of foreign ownership of its domestically issued financial assets. (pp. 9-10)

The syllogism implicit in this reasoning is: Countries that are open with respect to goods and services must be open financially. The FRG is open with respect to goods and services. The FRG has similar measures of financial openness as the United States. Therefore, the United States must be financially open.

In comments on Cooper's paper in the same volume (pp.24-31), Peter Kenen observes that Cooper has sung the same tune before. Indeed Cooper (1971/1986), looks back at the 1960's, the decade we have found to show the least capital market integration, under the title "Towards An International Capital Market?". He answers his question in the affirmative:

"A comparison of interest rates ... reveals a marked tendency towards convergence following the move to currency convertibility by the major European countries in late 1958." (p.143). The reader is referred to a table on the same page showing that the mean short- and long-term government issue yields in eight Atlantic community countries increased by 150 to 200 basis points between 1958 and 1968 while the sample standard deviation of short rates also increased to a high for the decade in 1968 and the standard deviation for long rates fell from .94% to .81%. The reader is shown coefficients of variation which do reach a 1968 low for long- but not for short-rates as a result of the secular increase in rates not any international convergence. A graph on the next page dramatically reaffirms that interest rates ended the 1960's as disparate as they began, with the maximum cohesion achieved in the middle.

the heyday of the gold standard."   Fischer argues convincingly
(pp. 14-15) that floating exchange rates, and interest rates in a
world of capital mobility, transmit effects internationally
because they adjust more rapidly than prices and wages.[39]

Fischer (1988, p.15) also argues that world economic
recovery "in 1984 and 1985 under the impetus of an expansionary
U.S. fiscal policy despite restrictive European and Japanese
fiscal and monetary policies" constitutes "commonsense evidence"
that interdependence is important.  Isn't this pursuit of
opposite policies equally commonsense evidence for the increased
independence that the current international regime affords for
national economic policies?

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39.  For "econometric" evidence, Fischer, 1988, p.16, presents a
table of macroeconomic impacts on the US and the rest of the OECD
resulting from fiscal and monetary expansions initiated in the
other region.  From the table we learn only that there are
foreign as well as domestic policy effects and that the foreign
effects are usually much smaller.  We do not learn how these
coefficients or their relative sizes have changed over time.
Table 3 in the next Section addresses that question.

### 3. Have Policy Options Closed?

#### 3.1 What Has Changed?

How can we best measure the degree of constraint on the freedom of domestic economic policy? The principal targets of a national economic policy include the level and growth of output and employment, the proportion of product invested, the composition of investment and production, the distribution of income and the rate of inflation. In this section I will look directly at how the ability of nations to achieve their targets has been impaired by financial openness.

I will also consider the effects of the current regime of floating exchange rates on national autonomy. As we have seen, exchange-rate volatility is the principal source of disintegration in the world economy; and it has emerged in step with the increased similitude of financial prices that can be and are fully insured against exchange-rate risk.

In theory financial openness in general and floating exchange rates in particular could enhance economic independence:

1) by making domestic saving and investment independent of each other; or

2) by disjoining both domestic inflation and real growth from their international counterparts; or

3) by introducing manipulation of a country's own exchange rate as a new policy instrument.

Independence could be diminished for the following reasons:

1) If the domestic interest rate becomes essentially the world interest rate, or equivalently if domestic money and liquid assets become perfect substitutes for their international

counterparts, control over a policy instrument, the domestic interest rate or money supply, has been lost.

2) To the extent that exchange-rate risk, or political-policy risk differentiates a country's financial assets so they are not perfect substitutes for their external equivalents, then the possibility exists that policy deviations from prevailing international standards will be "punished" by more severe and precipitous flights of capital, increases in own-currency interest rates or depreciations of exchange rates than would have occurred with fixed or pegged exchange rates.

3) As in (2), a country's exchange rate itself and financial assets denominated in its currency become new dimensions of speculative activity. Financial markets may be subjected to increased buffeting by speculative bubbles or irrational expectations with both domestic and external origins.

The rest of this section considers these potential enhancements and reductions of independence.

## 3.2  The Independence of National Investment from Saving

The large, recent literature on this subject finds that, far from going their separate ways, national saving and investment have been strongly linked from 1960 to 1985.[40] And, if anything, the link has been growing stronger over time.[41]

Table 2 offers some additional calculations of the Feldstein-Horioka (1980) type which cover the gold standard era and the aftermath of World War I.  Summary statistics for the 1960's and 1970's, from Feldstein (1983), are added for comparison.

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40.  In writing this subsection I have relied heavily on Gintis, 1986.  Epstein and Gintis in this volume consider the relation between national saving and investment in more detail.
41.  See Epstein and Gintis in this volume; Gintis, 1986, p.26; Feldstein and Horioka, 1980; Feldstein, 1983; Frankel, 1986, pp. 40-47.  Frankel offers some strong evidence of an increasing saving/investment link for the US from 1929 to the 1980's; while a look back to 1870 offers no such indication.  Feldstein's (1983) evidence on an increasing link is ambiguous, since the regression coefficient of savings ratios against investment ratios rises while the coefficient of determination falls.

## TABLE 2
## REGRESSIONS OF INVESTMENT RATIOS AGAINST
## SAVINGS RATIOS: 1870-1920

| Time Span | Constant | Savings Ratio | Adjusted $R^2$ |
|-----------|----------|---------------|----------------|
| 1870 | .013 | .836 | .23 |
|      | (.064) | (.50) | |
| 1880 | -.027 | 1.179 | .65 |
|      | (.048) | (.34) | |
| 1890 | .045 | .668 | .26 |
|      | (.052) | (.36) | |
| 1900 | .049 | .603 | .35 |
|      | (.045) | (.28) | |
| 1910 | .051 | .625 | .00 |
|      | (.109) | (.64) | |
| 1920 | .043 | .767 | .60 |
|      | (.040) | (.26) | |
| | | | |
| 1960-69 | .059 | .779 | .82 |
|         | (.022) | (.19) | |
| 1970-79 | .047 | .843 | .67 |
|         | (.036) | (.19) | |

## NOTES TO TABLE 2

The dependent and independent variables throughout are the ratios of gross saving and gross investment, respectively, to gross domestic or national product. Standard errors are in parentheses.

The data labeled 1870 through 1920 are from Green and Urquhart, 1976, pp. 239, 241: gross capital formation and gross saving as a percentage of gross national product for Great Britain, Canada, France, Italy, Sweden, the United States and Australia. For Germany only net saving data was available and this was matched with net domestic capital formation. Both the saving and investment data are centered averages of periods ranging from one to ten years. The data are incomplete for France in 1870, Canada in 1880, France and Germany in 1920. Otherwise, there are eight observations for each regression.

The last two lines are from Feldstein, 1983.

If regressions of this type are measures of effective capital market integration, then the results in Table 2 can be interpreted as confirmation of our finding that the gold-standard era was one of particularly effective capital mobility facilitated by financial openness. Coefficients of the savings ratio are not significantly different from zero in 1870, 1890 and 1910. The adjusted $R^2$s, plausible alternative measures of investment/saving autarchy, are uniformly lower in the gold-standard years than in the 1960's and 1970's.[42]

This regression specification provides a powerful test of the hypothesis that openness makes domestic savings irrelevant to domestic investment. That hypothesis is decisively rejected by the contemporary results and also rejected for the gold standard years.[43] However, regressions of the type reported in Table 2 are a meaningless test of the hypothesis that international capital flows are also relevant to domestic investment which cannot be rejected as an explanation of the remaining differences between investment and saving in many countries.

Epstein and Gintis provide and test a model of the agency considerations that would cause creditor and debtor nations to

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42. In the three years centered on 1870, 1890 and 1910, Great Britain exported capital at rates between 5.5% and 7.5% of GNP, while Canada was importing capital at between 7% and 12% of its GNP, Green and Urquhart, 1976, p. 244. Any statistical measure that makes sense and is properly interpreted would have to tell us that capital movements were larger then than now.
43. If the constant term is suppressed in the specification of the 1870-1920 regressions, all of the savings ratio coefficients cluster between .89 and 1.02, and are 7 to 10 times their standard errors. The hypothesis that investment ratios are independent of saving ratios is strongly rejected. As discussed in the previous footnote, there were large and opposite international movements of capital. A constant-term specification is burdened with the task of averaging them.

act to balance current accounts, at least of the debtor nations.
Their model explains quite well why we observe limits on the
extent to which international capital movements drive a wedge
between national investment and saving rates.  There are plenty
of reasons why saving and investment rates might tend to
equality, thus reducing the demand for and supply of equalizing
international capital flows.[44.]

Capital movements that remain after the pull of external
accounts toward balance and of internal saving and investment
toward each other, might be small relative to saving and
investment in the receiving and sending countries.  Their
fluctuation as a share of investment will be due to changes in
the mobility of capital, including, in the Epstein-Gintis
framework, possible shifts in global rules and attitudes about
international debt.  Notwithstanding theoretical and econometric
results, capital movements are substantial today and have
apparently grown modestly since the 1960's and 1970's.[45.]

The United States has used flexible exchange rates and
international capital movements to finance a very substantial
excess of investment over saving in the 1980's.  Even so the
United States, Canada and Australia, as well as Argentina, Brazil
and South Africa, all financed comparable or larger excesses in
the nineteenth century under fixed exchange rates.[46.]

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44.  Obstfeld, 1986, pp. 65-74, argues that both saving and
investment ratios will vary positively with the ratio of working
age to retired members of the population.
45.  In addition to the results already cited, it is noteworthy
that the mean absolute value of net capital flows as a percentage
of GNP for the FRG, Japan, UK and US tripled from .85% in 1967
and 1977 to 2.75% in 1987 (International Monetary Fund, 1988,
respective country pages).  Obstfeld, 1986, pp. 86-95, also finds
time series evidence of increasing capital flows.  However,
recent experience is dominated by the emergence of the US as a
perverse capital importer from Japan and Germany as well as the
developing countries (sub-section 3.5 below).
46.  See also the material in sub-section 2.1 above.

## 3.3  Inflation and Real Growth

The observed degree of cohesion among international growth and inflation rates may reflect a similar degree of policy cohesion.  Alternatively, it may reflect the common effects of global events on growth and inflation or the common appearance of similar domestic causes.  My primary concern in this section is to identify the degree of cohesion and how it has changed.

To the extent that exchange rates under Bretton Woods were firmly pegged they should have imposed tight constraints on national economic policies.  While there might have been some room for variations with respect to the micro-economic or social aspects of policy and for different mixes of policy instruments, the aggregate effect of the small number of fiscal and monetary policy instruments available to a government should have been closely harmonized with the external norm.[47]

How was the norm established?  Partly by the leadership of multinational bodies such as the IMF and OECD; partly by the equilibrating effects on the system of individual country responses to balance-of-payments or capital-market disturbances; and mostly through the hegemony of the United States.  The United States exercised dominant influence over the multi-national institutions.  The United States sought to enforce the rules of the fixed exchange rate system.  And the United States used trade, aid, military power, covert activity and overt persuasion

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47.  The international "norm" should be understood tautologically as those growth and inflation outcomes that would preserve stable exchange rates.  These might differ in their levels among countries and also might require different policy choices for their realization in different countries.

to influence the composition of governments and the choices made by governments in the whole domain of its world influence.

The dollar crisis of 1971 and the advent of floating exchange rates in 1973 were symptomatic of a decline in U.S. hegemony; and were perceived as such at the time. In addition the principal argument made for floating exchange rates was and has remained that they would increase national economic autonomy by removing a rigid constraint on policy. In theory, under floating exchange rates, each country has the option of departing from the international policy norm. A country could choose, for example, to deliberately experience higher inflation than the rest of the world with an offsetting currency depreciation.

However, as we have already seen in Table 1, the reality is that growth rates of major country domestic product and industrial production have been much more synchronous since 1971 than they were before.[48] Figure 1A illustrates a similar phenomenon for year-over-year CPI's. The US rate is compared with a simple arithmetic average for Germany, Japan and the UK. The lower part of the figure shows US inflation minus "Rest of World" inflation, the difference between the two upper lines in the figure.

From the first quarter of 1953 through the end of 1970, the correlation between US and ROW inflation was only .47. US inflation averaged about 1.15% a year less than ROW inflation.

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48. Whitman, 1979, pp. 169-72, reviews a number of additional studies that find a sharp increase in business cycle coherence after 1971.

# FIGURE 1A

## CPI INFLATION: US VERSUS ROW

## QUARTERLY AT ANNUAL RATES, 1953-1987

INFUSA = US INFLATION
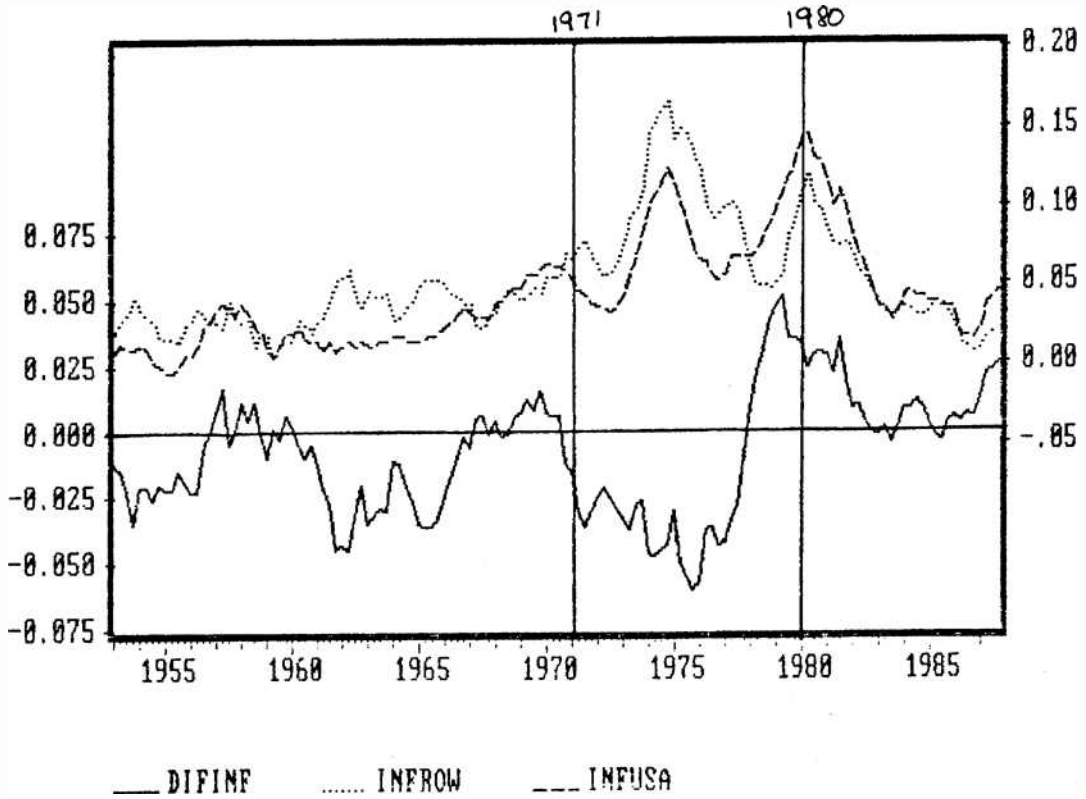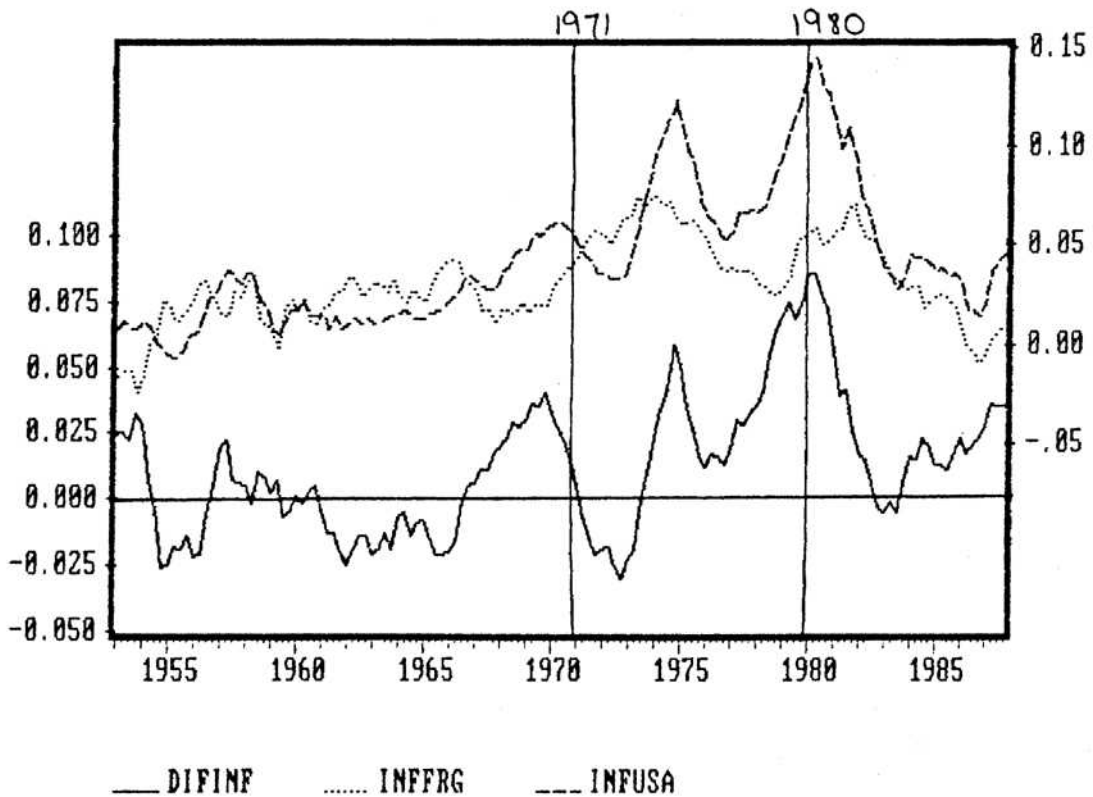INFROW = REST OF WORLD INFLATION
DIFINF = INFUSA - INFROW

# FIGURE 1B

## CPI INFLATION: US VERSUS FRG

## QUARTERLY AT ANNUAL RATES, 1953-1987

INFUSA = US INFLATION
INFFRG = WEST GERMAN INFLATION
DIFINF = INFUSA - INFFRG

In 1971-1980, the correlation between US and ROW inflation was little changed at .49 and US inflation averaged 1.50% a year less. In 1981-87 the inflation correlation increased substantially to .94 while US inflation averaged 1.05% more than the ROW. After the dollar floated US inflation remained low relative to the ROW and ROW inflation remained semi-independent of US inflation. After 1980, actually after 1978, US inflation became distinctly higher than ROW inflation and the two rates were much more correlated.

There were no dramatic signs to distinguish US relative inflation before President Nixon ended the convertibility of the dollar into gold in 1971. In fact during the first phase of floating rates, dollar depreciation, US temporary import surcharges and price controls, the US achieves its most dramatic improvement in relative inflation performance -- the declining line in the lower half of Figure 1A from 1970 to 1976.

This evidence that US inflation was relatively low before floating and lower thereafter, and that inflation rates were relatively independent under Bretton Woods, does not support the common belief that floating rates in the 70's and 80's, as in the 20's are due to fundamental differences in willingness or ability to combat inflation.[49]

With respect to the individual ROW countries, US inflation was consistently less than UK inflation throughout the thirty-five years from 1953 through 1987, while the correlation increased gradually after 1970 and dramatically after 1980 (.42,

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49. The standard deviation of inflation rates for four major countries ranged between 6.8% and 12.6% in 1914-18, while for seven major countries it ranged between 1.3% and 1.8% in 1968-72, Aliber, 1980, p.91.

.53 and .95 respectively). The US-Japan comparison is almost identical to the US-ROW comparison.

West Germany is the exceptional case. Its inflation rate was already an average .2% lower than the US in 1953-70, with a low correlation of .31. By 1971-80 the average German inflation advantage had increased to 2.75%. And German inflation was independent of US inflation with an average correlation of only .11. This can be seen in Figure 1B which compares inflation rates of the United States and West Germany only. The sharp increase in US relative inflation under President Carter that is visible at the bottom of Figure 1A is anticipated by a sharp relative increase in 1973-75. Both episodes are at least partly accounted for by German restraint as well as American excess.

Then in 1981-87, the German inflation advantage narrows to a still large 1.95%, and German inflation becomes highly synchronous with American inflation (.85). It is arguable that the Bundesbank was freed to pursue stricter anti-inflation policies after the end of Bretton Woods, and that German policy took good advantage of this opportunity.[50.]

Although the possibility of divergent inflation rates has increased, the actual divergence, at least in the 1980's, has diminished. We have found in Table 1 that the real growth rates of developed countries in the 1980's have been less divergent than they were in the 1960's; more diverse than in the 1970's or under the high Gold standard; and about the same as during floating exchange rates in the inter-war years.

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50. Informed analysts have said that the US had a special responsibility as the reserve currency country to maintain price stability, while other countries were obliged to defend their exchange rates (Wallich, 1985, pp. 34-35; [Nurkse], 1944, p. 45). A good case could be made that the U.S. abandoned its anti-inflation obligations in the late 1960's in a way that it had not done in the late 1950's or in the Korean War.

In the late 1960's US inflation and lack of resolve to combat it were symptoms of domestic strains on the welfare state and international strains on the warfare state. In the 1970's worldwide inflation was partly a continuing hangover from the success of postwar Keynesianism; but primarily a consequence of the two oil price shocks.[51] Inflation, real growth and policies that affected both, all responded in common to the oil shocks and their consequences.[52] For most of the 1980's inflation and interest rates have generally declined because of common political and private responses to the previous inflation experiences.[53]

51. I have tried to disentangle the strands of postwar inflation in Zevin, 1983, pp. 3 - 68.
52. See Section 4.2 below.
53. Epstein and Schor, 1989, find a pattern of policy convergence in the 1970's and the post 1972 period generally. They attribute some of the observed convergence to the oil shock and post Keynesian success phenomena. They also argue that floating rates relieved the US and UK from special reserve currency considerations that had previously distinguished their policy conduct from other developed nations.

## 3.4  Domestic Policies and the International Economy

Cohesion of financial asset prices is evidence of financial market integration in the sense of efficiency, substitution or both.  If cohesion were caused by common responses of efficient markets to internationally significant events, such as the OPEC price increases, then further investigation should yield no additional evidence of international interdependence in direct measures of the responsiveness of one country's economic instruments or targets to the values of similar variables in another country.  This suggests ways of distinguishing between substitutability and efficiency as causes when high transnational financial market correlations are observed.

The size of the coefficients of foreign variables relative to domestic variables in the explanation of domestic outcomes is a general test of the degree of interdependence.[54]  This measure might be strengthened by increased trade or political integration as well as financial market integration.  Table 3 reports some regression results designed to test the strength of international impacts on domestic policy and the extent to which they have changed since 1971.

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54. Bryant, 1980, pp. 135-183.  Bryant, 1987, p. 92, contains a simple, formal statement of the relationship between international constraints on policy and structural or reduced form model coefficients.

## Table 3

### FOREIGN AND DOMESTIC RESPONSE COEFFICIENTS
### FOR THE USA AND ROW VIEWED AS A TWO COUNTRY WORLD

| Dependent Variable | Sample | Independent Variables | Adj. $|R^2|$ | $|\%F|$ |
|---|---|---|---|---|
| 1) $Di$ | 60-70 | $+ .636\ DP2^{***}$ (4.08)  $- .583\ DU^{**}$ (-2.28) | .73 | 0 |
| 2) $Di$ | 71-87 | $-.082\ US\$(-1)^{***}$ (-3.49)  $+ .537\ DP2^{***}$ (3.55)  $-1.90\ DU^{***}$ (-6.10) | .75 | 26 |
| 3) $Di^W$ | 60-70 | $.288\ Dii^W(-1)^{***}$ (5.79)  $-1.82\ DU^{W***}$ (-8.00) | .93 | 45 |
| 4) $Di^W$ | 71-87 | $.271\ Dii^W(-1)^{*}$ (1.97)  $+ .176\ DP2^{W**}$ (2.33)  $-2.17\ DU^{W***}$ (-4.25) | .62 | 23 |
| 5) $D\$R$ | 60-70 | $.384\ Dii^W(-1)$ (1.32)  $- .292\ CA/W(-1)$ (-1.09) | .52 | 100 |
| 6) $D\$R$ | 71-87 | $3.00\ Dii^W(-1)^{***}$ (3.68)  $+2.09\ CA/W(-1)^{***}$ (3.29) | .52 | 100 |
| 7) $DGDP$ | 60-70 | $-.722\ DPP^W(-1)^{***}$ (-3.80)  $-.770\ Di(-1)^{**}$ (-2.72) | .77 | 58 |
| 8) $DGDP$ | 71-87 | $+.417\ DGDP^W(-1)^{**}$ (2.22)  $-.782\ Di(-1)^{***}$ (-5.12) | .61 | 30 |
| 9) $DGDP^W$ | 60-70 | $+.451\ DGDP(-1)$ (1.40)  $- 1.410\ DP^W(-1)^{***}$ (-3.58) | .54 | 28 |
| 10) $DGDP^W$ | 71-87 | $+.149\ DGDP(-1)$ (-1.33)  $+.263\ CAP^W(-1)$ (1.74)  $-.778\ Di^W(-1)^{***}$ (-5.02) | .60 | 16 |
| 11) $DP$ | 60-70 | $+ .860\ DP(-1)^{***}$ (6.27)  $+.161\ CAP(-1)^{**}$ (2.78) | .96 | 0 |
| 12) $DP$ | 71-87 | $+ .418\ DP(-1)^{***}$ (3.92)  $+.746\ CAP(-1)^{***}$ (5.92) | .86 | 0 |
| 13) $DP^W$ | 60-70 | $.366\ DPM(-1)^{**}$ (2.75)  $+1.77\ CAP^W(-1)$ (1.72) | .41 | 62 |
| 14) $DP^W$ | 71-87 | $+.440\ DP^W(-1)^{**}$ (2.42)  $+1.05\ CAP^W(-1)^{***}$ (3.17) | .71 | 0 |

<u>Notes to Table 3:</u>

This table considers the relationship between the US economy and the Rest of the World (ROW), defined as an arithmetic, equal-weighted average of West Germany, Japan and the UK.  Averaging is the first operator in each multi-step process.  So, for example, ratios are ratios of averages not averages of ratios.
All data are from IMF, 1988, or <u>Datadisk</u>, January, 1989.  All data are initially annual averages or year-over-year changes.
(-n) indicates a variable lagged n years.
t-statistics are in parentheses under coefficients.
***, ** and * indicate coefficients significantly different from zero (two-tailed test) at 10%, 5%, and 1% significance levels, respectively.

CA/W = the US current account balance divided by the current dollar value of world exports.
CAP = the ratio of US real GNP to capacity real  GNP.  Capacity real GNP is taken equal to actual real GNP/.999 in 1953 and 1968.  Passing through these two points, it is assumed to grow at 3.38715% from 1952 through 1968, 3.0% until 1973, and 2.75% thereafter.
$CAP^W$ = 1 - ROW average labor unemployment rate.
D$R = change in the average annual real dollar exchange rate, computed from the average annual nominal price of the dollar in each of the three ROW currencies and average CPI inflation in ROW and the US.
DGDP ($DGDP^W$) = the growth rate of real US (ROW) GDP.
$Di = i - i(-1)$
$Di^W = i^W - i^W(-1)$
$Dii^W = i - i^W$
       Where $i$ = U.S. federal funds rate
       and   $i^W$ = ROW money market rate (Table 1).
DP ($DP^W$) = change in average annual US (ROW) CPI.
DP2 ($DP2^W$) = the two year change in the rate of US (ROW) CPI inflation: $DP - DP(-2)$ OR $DP^W - DP^W(-2)$
$DPM = \{(1+DP)/(1+DP(-1))\} * (1+change in US/ROW exchange) -1$
$DPP^W = DP - DP^W$
DU ($DU^W$)   = the first difference of annual average US (ROW) labor unemployment rate.
US$ = The Federal Reserve 12-nation, trade weighted dollar index.
$\%F = - c_f*s_f/(- c_f*s_f + - c_d*s_d)$, where the c's are regression coefficients, the s's are the sample standard deviations of the associated regressors, f ranges over all international variables and d over all domestic variables.

All but equations (1),(4),(5) and (6) were estimated with constant terms which are not shown.
 Equations (3),(4),(5),(11) and (12) were estimated with corrections for first order moving average error terms.  The error terms in all fourteen equations are not significantly serially correlated on the basis of Durbin-Watson statistics for (1) - (10) and Durbin's h, for (11) - (14).

The first four regressions estimate central bank reaction functions in setting short-term rates, which are viewed as policy instruments. The dependent variables are $Di$, the annual change in the US Federal Funds rate, and $Di^W$, the annual change in the average short-term interest rate in Germany, Japan and the UK (hereafter the Rest Of the World, or ROW). Central banks were modeled to vary interest rates positively with inflation and negatively with changes in the labor unemployment rate. These are the two domestic variables which throughout the table have been kept to the right-hand side of the independent variables.

The first independent variable in equations (2) - (4) captures international effects. The Federal Reserve varies interest rates to achieve target levels for the exchange value of the dollar. ROW central banks close differences from US interest rates. All of the coefficients are significant.[55]

The last column in the table, %F, is a measure of the proportion of the variance explained by the international independent variables.[56] For the US, the exchange value of the dollar plays a role only after 1971, raising the importance of foreign influences from zero to about 26%. In the ROW, the tendency to close about 28% of any gap with US rates was persistent from the 1960's through the 1980's. However its relative importance is only half as great after 1971 as before, accounting for about 23% of explained variance.

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55. In Table 3 when a variable is omitted, as is the case for the international term in equation (1) and the inflation term in equation (3), the meaning is that none of the terms used in the same column for that block of equations, nor any other tested substitute, such as the current account relative to GDP, the level and change of the real exchange rate and cross-country growth or inflation differentials in the current example, was able to reduce the s.e.e. of the regression.
56. See the notes to Table 3 for a definition of %F.

This convergence of the international sensitivity of the US and ROW is consistent with the view that the ROW was obliged to pay more attention to pegging exchange rates before 1971 and consequently yielded the determination of interest and inflation rates to the US. Conversely, the US was free to set interest and inflation rates without great concern for international repercussions. In a floating-rate, multi-centered world, international considerations are equally important to the US and ROW and in both cases much less important than domestic determinants of interest rate policy. On this evidence, we should attribute the increases from the 1960's to the 1970's and 1980's that are shown in Table 1 for lines (8) and (9) and generally for the other six financial variables to reflect increased transnational market efficiencies or increased significant common shocks, not increased substitutability which would by definition be ovserved as increased inter-dependence.[57.,58.]

57. Once again, by efficiency I mean those changes in the transmission of information, the execution of transactions, and other rules and conditions of markets that enable them to reflect either the perfect substitutability of assets or the common effects of an event. By substitutability I mean the set of conditions in addition to efficiency that make assets in different countries fungible, destroying the possibility of purely domestic control over purely domestic asset supplies or interest rates. See pp.3-6 and footnote 5, above.
58. The focus of these particular regressions on the US versus Germany, Japan and the UK considered as a unit, precludes measuring consequences of the integration that has proceeded in the European Community over the entire post-World War II epoch. Basevi and Calzolari, 1983, utilize a specification similar to equations (1) - (4) for a number of EC countries during the period of the currency "snake" and obtain results similar to mine.

Equations (5) and (6) describe movements in the real exchange rate. They are included here for completeness, since exchange rates are potentially important consequences and causes of the interest rates, inflation rates and real growth rates considered in the rest of Table 3. In fact the real exchange rate proved fruitless as an explanation of growth or inflation.

Again I look only at the US compared to the ROW. The dependent variable, D$R, is the change in the arithmetic average of the three pairs of real dollar exchange rates using CPI's. D$R, which is plotted in Figure 2, is generally congruent with broader measures of the movement of the real dollar exchange rate.

FIGURE 2

CHANGES IN D$R, THE REAL DOLLAR EXCHANGE RATE

VERSUS GERMANY, JAPAN AND THE UNITED KINGDOM

1960-1987
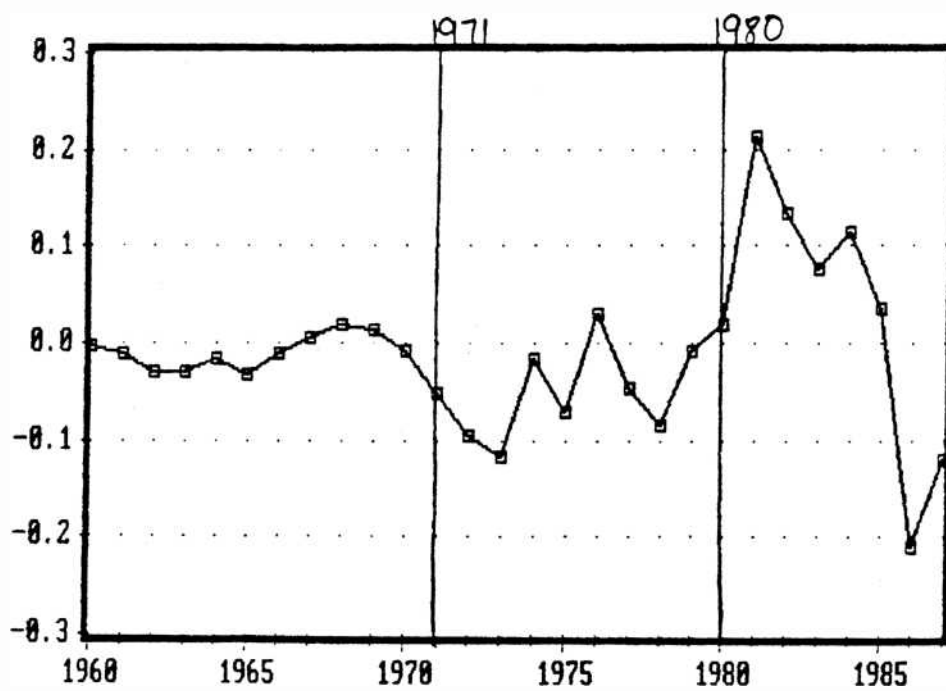
D$R is modeled in the regressions as responding to the previous year's average difference between US and ROW short-term, nominal rates, **DFi**, and a measure of the previous year's increase in the relative supply of US liabilities in the world financial asset portfolio, **CA/W**, the ratio of the US balance of payments on current account to the value of world exports both in current dollars.  When **CA/W** is positive, dollar denominated assets are becoming relatively scarce.[59]  Real exchange rates are intrinsically international and are here explained with two international variables.  Accordingly, **%F** is 100 by definition.

In equations (5) and (6) each coefficient has the anticipated sign.  While each equation explains about the same fraction of real exchange rate variance there is a dramatic shift between the two time periods in the amount of variance to be explained.

For the eleven years ending in 1970, nominal exchange rates were relatively fixed.  The variation in real exchange rates is due almost entirely to differences in US and ROW inflation rates.  The standard deviation of **D$R** is only 1.75% a year.  It is not surprising that relatively high US inflation (which means an appreciating real dollar with fixed nominal exchange) is associated with relatively high US interest rates and relatively

59.  Four caveats:  Perhaps what matters is the total supply of dollar liabilities in the world supply of all liabilities whether or not they are held cross-nationally (Frankel, 1979).  There is also no particular justification for supposing that either of the two regressors should act with a lag, let alone a one year lag.  Since both independent series are highly autocorrelated, it is possibly the case that these apparent reduced form specifications are actually wearing only thin disguises over their simultaneous-equation biases.  Finally, the observed correlation between interest rate differentials and exchange rate appreciation could reflect accurate interest rate forecasts of, rather than influences on exchange markets.  However, Frankel, 1986, p. 36, and Krugman, 1989, pp. 84-96, show that interest rates are weak exchange market forecasters.

poor US current account performance. While these variables account for half of the small variance, they do so quite imprecisely.

For the post-1971 floating rate period, the standard deviation of **D\$R** increased to 10.6% a year. Again, interest differentials and **CA/W** explain about half of this much larger variation; and do so with precision.[60] The very large amount of real exchange rate fluctuation that is left unexplained can be attributed to the seemingly inexplicable speculative component of foreign exchange markets.[61]

Equations (7) through (10) account for the growth of real GDP in the US and the ROW. Real GDP growth was originally regressed against two lagged international effects, **D\$R** ; and the change in the foreign country (US or ROW) real GDP (**DGDP** or **DGDP$^W$**). Domestic monetary policy is measured by the previous year's change in short-term interest rates, **Di** or **Di$^W$**. The real exchange rate variable was surprisingly weak and has been

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60. Amano, 1983, also reports the successful use of nominal interest rates to account for real exchange rates in the Japanese Economic Planning Agency World Model.
61. From Kenen, 1987:
"With all due respect, it must be said that we, economists as well as ministers of finance, simply do not know enough to say what the 'proper' or 'equilibrium' exchange rate is. The modern ... approach to the problem of exchange-rate determination under floating rates has taught us to be modest." -- Gottfried Haberler, p. 25.
"[Economists have] not been able to provide us with even a remotely satisfactory understanding of how exchange rates are determined - and in particular, of how floating exchange rates would behave in the absence of official intervention. The collapse of purchasing-power parity has not been fully understood." -- Alexandre Lamfalussy, p. 36.
"[The determinants of floating exchange rates] make up a complex system of dynamic interdependence that econometricians have not been able to estimate. I doubt that traders in the markets can do so either. I doubt they even try." -- James Tobin, p. 64.
Krugman, 1989, pp. 84-96, attempts to prove that exchange rates are irrational. As might be expected he is not altogether successful.

replaced by the difference between US and ROW inflation ($DPP^W$) in equation (7), nothing in equation (8), ROW inflation ($DP^W$) in equation (9) and ROW capacity utilization ($CAP^W$) in equation (10). The middle regressor thus has an international dimension in equation (7) and is domestic in both ROW equations.

Each coefficient has the expected sign in equations (7) - (10). Overseas growth has a positive impact through net exports; high absolute or relative inflation depresses real growth; low interest rates and high capacity utilization increase real growth via autonomous private spending. Each equation explains a good deal of real growth. A substantial part of that explanation is due to domestic rather than international effects.

Moreover, the importance of international effects declines after 1971 in both the US and the ROW. For the US this decline may be overstated or even wrongly stated.[62] This result suggests again that the higher correlations in lines (16) and (17) of Table 1 for the post-1971 years are due to the greater global importance of efficiently transmitted events, rather than the increased transnational substitutability of assets or goods.

Equations (11) through (14) regress inflation rates against lagged measures of effective foreign inflation, DPM, domestic inflation, and capacity utilization (CAP or $CAP^W$). DPM is the US inflation rate compounded with the appreciation of the US dollar against ROW currencies. In the US equations, (11) and (12), the equivalent term for ROW effective inflation, and numerous

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62. Before 1971 changes in $DPP^W$, the real exchange value of the dollar and US inflation are highly colinear. $DPP^W$, the inflation differential was clearly the most effective regressor of these three choices. To the extent that it has embedded in it the influence of innovations in domestic inflation, %F is overstated for the US.

substitutes, added no explanatory power. Foreign influences on US inflation were approximately nil before and after 1971.[63]. For the ROW, effective US inflation was the dominant determinant of inflation before 1971; but had no significant role thereafter.[64].

From the evidence in Table 3 we can conclude that there was no general increase in sensitivity to international variables after 1971 in central bank reaction functions, real income multipliers or the determinants of inflation.

Loss of control over domestic monetary policy instruments was the first of three potential losses of independence from openness that I listed at the start of this section. For the four major countries considered in this analysis no such loss is apparent. The post-1971 loss of autonomy suffered by the US is offset by increased independence for the FRG, Japan and the UK. Although short-term interest rates differ less among countries than at many times in the past; they are still changed in response to plausible domestic concerns. This result reinforces the idea that the recent correlation of international interest rates is more a result of responses to common factors than an indicator of increased interdependence.

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63. Among the other foreign influences tested were: the real exchange rate, nominal exchange rate and ROW inflation rate.
64. After specifying and estimating these equations I came across virtually identical specifications for the domestic regressors and virtually identical results in Duck et al., 1976. Their period is 1956-1971, their data for the entire Group of Ten and their interpretation, as well as their title, suggests that this specification and aggregation are appropriate only because of fixed exchange rates. Yet, my result is that this specification and result are robust after floating rates.

Moreover, in the contemporary developed world the growth of domestic real product is highly sensitive to these autonomously determined changes in domestic interest rates. At the same time, domestic inflation appears insulated from all but domestic price expectations and domestic real constraints. If floating rates were provoked by the desire of the ROW countries and others to insulate themselves from US inflation, the evidence presented here indicates that they were successful. In the previous section I have argued that this success was not robustly utilized because of strong, common, external influences.

## 3.5 "Small" and Developing Countries

The other two reasons that I listed for potential loss of independence had to do with floating rates, rather than any other characteristics of openness. While the advent of floating rates may have implied only a redistribution of autonomy among four of the major economic and political powers of the capitalist world, it may have entailed a systematic loss of independence for weaker countries, either through exchange rate crises as mechanisms for disciplining countries, or through exchange rate volatility as a new barrier to achieving desired trade and investment flows.

If, as is apparently the case, potential transnational investors attach specific country risks to investments -- exchange-rate risks, political risks, or geographic/technological risks -- then this very differentiation that prevents the loss of control to a world interest rate, inflation rate and growth rate may promote another type of loss of independence. Especially in conjunction with floating exchange rates, countries may have become more subject to ill effects of international capital flows or the judgments of investors.

Under a perfect fixed-rate standard, the only reasons to invest in the bonds or stocks of one country rather than those of another would be identical to the sorts of reasons one might invest in one stock or bond rather than another within a single country. Under floating rates an investor must add exchange rate risk (and prospective return) to his or her usual list of default risk, potential profit, labor "conditions", raw material availability and the like.

Two investments might appear to be identically priced and might subsequently appear to produce identical results and yet actually offer very different yields to an international investor because one or the other is denominated in an appreciating or depreciating currency. The lowliest of risk-free investments in bank deposits or treasury bills is exalted to a promising speculative vehicle by the prospect of fluctuations in the exchange rate of the underlying currency. Intrinsically riskier assets have the same degree of additional risk added by the advent of floating exchange rates.[65.] If a new market appears in which a variety of exquisitely liquid objects, namely currencies themselves, are traded with all the price volatility that liquid and efficient markets produce, then speculators will be attracted until the capacity of that market to entertain, enrich and impoverish has been fully utilized.

Floating exchange rates have made it clear once more that the aspect of "liquidity" of interest to the speculator is not in fact proximity to cash but fluidity of price. In the words of Keynes (1936/1964, p. 155):

"Thus the professional investor is forced to concern
himself with the anticipation of impending changes

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65. Returns on bonds, stocks and cash instruments from the multiple perspectives of investors starting and returning to various currencies are regular features in many publications. From Global Finance (December,1988,p. 13) we learn that the investor who bought a world stock market index with yen on November 1, 1987 earned less than 10% over the next year; the investor who used and returned to marks earned nearly 25%, while the weighted return to stock investors in local market currencies was just over 15%. For the year ending March 1, 1989, the best local currency return among six major government bond markets was 7.4% in France. For a dollar investor the same market returned -3.4%, among the worst of the six (The Wall Street Journal, March 2, 1989, p. C16).

[by which] the mass psychology of the market is most
influenced. This is the inevitable result of
investment markets organized with a view to so-
called 'liquidity'. ... The actual private object of
the most skilled investment today is to 'beat the
gun', as the Americans so well express it, to outwit
the crowd, and to pass the bad, or depreciating,
half crown to the other fellow."

So, in the language of the 1980's, when a nation's currency
floats it is subject to violent fluctuations due to speculative
bubbles -- what Keynes aptly described as a game of snap or
musical chairs. There is some suggestive, almost anecdotal
evidence of increased speculation in foreign exchange. Dornbusch
and Frankel (1987, p.1)

"conclude that the foreign exchange market is
characterized by high transactions-volume, short-term
horizons, and an absence of stabilizing speculation.
As a result, the exchange rate at times strays from the
equilibrium level dictated by fundamentals, contrary to
theory."[66]

They estimate the 1986 volume of foreign exchange trading at
$50 billion a day in New York, $48 billion in Tokyo and $90
billion in London. These are very large numbers. Daily volume
on the New York Stock exchange was approximately $8 billion in
1986. Over 90% of currency trading is among banks and
speculators. Neither party has an interest in acquiring exchange
for a capital or current account transaction.[67] Stanley Fischer

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66. See footnote 58 above.
67. Dornbusch and Frankel, 1987, p. 22.

(1988, p. 31) shows that exchange rates have been generally more volatile than commodity prices since 1973, although somewhat less variable than equity prices.

All this in turn can have untoward consequences for foreign trade and capital flows. Real exchange rates fluctuate substantially around purchasing power parity.[68.] There is a large literature which purports to have found some substantial effects of this volatility on trade.[69.]

There is also the more sinister possibility that public policy departing from the norm of the speculating public (banks) will provoke a bubble or irrational expectation in the form of a flight from the currency of the deviant regime. Floating rates, and increased capital mobility of all kinds, create the prospect that speculators or investors can "punish" an offending regime with depreciating currency or capital flight, perhaps more effectively than may have been the case under pegged rates and more hierarchical relations among nations. Such private flights may also be encouraged by public officials.

The flight of capital from France after the Socialist victory in 1981 is the example most frequently cited. After the fact, at least, this would seem to be a clear example of irrational expectations, primarily on the part of French citizens who now populate the upper east side of Manhattan. This episode

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68. Figure 2 in text; De Grauwe and de Bellefroid, 1987, pp. 199-204; IMF, 1984, pp. 39-52, and for the inter-war period as well as the 1970's, Aliber, 1980, pp. 88-95.
69. De Grauwe and de Bellefroid, 1987, is a particularly elegant contribution to this literature with a succinct bibliography. The problem with their results, as with all of this literature and all of the literature on openness itself, is that increased volatility of exchange rates occurs simultaneously with other aspects of reduced US dominance, including the two oil shocks.

of weakness in the franc resembles the American experience of the late 1970's. Fiscal and monetary policies may have been no more important than a political reading with respect to the security of private capital. Certainly neither Mitterand nor Carter are revolutionaries; but we live in conservative times.

More to the point, the French and US exchange-rate crises of 1982-83 and 1978-79, respectively, each succeeded in provoking large changes in the direction of domestic economic policy. In France there were deficit reduction measures along with the third devaluation in three years and a return to the European Monetary System. The US crisis evoked Paul Volcker's seemingly monetarist anti-inflation policy. The French moves were politically difficult, the change in American policy contributed to the change in presidents from Carter to Reagan.

An OECD (1988) study of Why Economic Policies Change Course considers eleven episodes, between 1975 and 1985, in eleven different countries, including the two just mentioned. In ten of these eleven episodes of policy change dramatic foreign exchange movements were (p.16) an "important", "major" or "the crucial" cause of the change. However, since eight of the eleven examples concern countries that were members, or in the case of France, sometime members of the EMS, it could be argued that these are more examples of exchange rate discipline under a fixed-rate system.

An adequate answer to the question of the relative severity of policy discipline administered by the market under fixed and floating rates requires a case by case catalog and narrative comparison that is beyond the scope of this essay. However, it

certainly appears true that the sterling crises of 1949 and 1964-67 were at least as grave in their policy-disciplining consequences as any runs on the pound, lira, franc or dollar since 1971.[70.]

Thus far we have considered the policy independence of a handful of developed countries. Can we say anything about openness, floating exchange rates and the LDC's?

The developing countries of the nineteenth century were "opened" as the century progressed if they were not already open at the outset.[71.] For LDC's it is nothing new to be exposed to the consequences of international capital movements. The innovation has always been for a revolutionary Mexico or Peronist Argentina to restrict the free movement of capital.

The notion of policy autonomy has limited relevance for LDC's. Currencies that are not acceptable in international trade have always left domestic monetary policy independent but ineffective. "Excessive" domestic monetary expansion, inflation and exchange rate depreciation resolve the mismatch between limited domestic capacity to mobilize savings and urgent investment, social overhead and redistributive projects.

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70. On the 1949 "Sterling-Dollar Oil Problem" which involved one of many postwar struggles for control of oil resources and succession to European colonial dominance see Keohane, 1984, pp. 159-167. On the 1960's sterling crises and their implications for the maintenance of Britain's military power east of Suez, reserve currency status and other imperial aspirations in the world, see Joan Robinson, 1966/1967. For the floating-rate counterparts see OECD, 1988, pp.25-35, 56-83.
71. Lipson, 1985, pp. 1-62.

Exchange depreciation was common under pegged rates as is illustrated in Table 4. The accelerating declines in the 1980's have more to do with the debt crisis and world disinflation than with floating rates. The consequences of the debt crisis for developing countries are deadly serious as illustrated in Jaime Ros' chapter in this volume. From the perspective of the present discussion the debt crisis is not a direct consequence of international financial openness. It is a natural sequel to the lending binge of the 1970's which in turn may have been a consequence of financial openness.[72.]

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72. Gerald Epstein and Herb Gintis in this volume construct a model that accounts for the curtailment of the 1980's as a consequence of the large international lending of the 1970's.

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Table 4

EXCHANGE RATE DEPRECIATION
FOR TWELVE LDC'S
1950-1987

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|          | 1950-55 | 55-60 | 60-65 | 65-70 | 70-75 | 75-80 | 80-87 |
|----------|---------|-------|-------|-------|-------|-------|-------|
| Total    | -20.6%  | -20.2 | -18.9 | -13.4 | -19.0 | -24.4 | -52.7 |
| Per Year | -4.5%   | -4.4  | -4.1  | -2.8  | -4.1  | -5.5  | -10.1 |

Notes: All data are from IMF, 1988. The twelve countries are
Algeria, Columbia, Egypt, India, Iran, Korea, Mexico, Nigeria,
the Phillipines, Turkey, Zaire and Zambia. They were selected
for availability of data, geographical, political and historical
diversity. They accounted for about 20% of LDC exports and GDP
in 1970. Exchange rate data is the SDR (or before 1969 US
dollar) value of the domestic currency from IFS. The first line
is the arithmetic average of the twelve exchange-rate changes
over the period. The second line is computed directly from the
first.

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Certainly the debt crisis is also another result of the
errant course of US fiscal policy. In 1987, LDC's produced an
extraordinary aggregate surplus on current account and developed
countries other than the US also experienced an aggregate surplus
at unusually high levels. Some 15% of this total was offset by
unrecorded transactions; the other 85% by America's anachronistic
gluttony for capital imports.[73]

When contrasted with the large and persistent capital
exports of France and Britain in the nineteenth century and
American policy at the time of the Marshall Plan, or even the
Dawes Plan, the debt crisis appears also as the symptom of a lack
of leadership, hegemonic or otherwise.

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73. International Monetary Fund, 1988, p. 142. Estimating world
GNP in trillions of current dollars at: 4.5 in 1972, 13 in 1982,
and 18 in 1987, the respective percentages of non-US developed
country capital exports are .05, -.1 and .6.

## 3.6 Recapitulation

With respect to the three ways in which financial openness might increase national economic autonomy, we have seen:

1) Savings and investment ratios were more independent of each other in the 1970's than they were in the 1960's but less so than under the gold standard. They are again less independent in the 1980's for most countries, especially LDC's; but the US current account deficits and the German and Japanese surpluses are extraordinarily large.

2) Real growth rates in the 1980's are correlated to an average extent and inflation rates to an extraordinary extent. However, if we measure interdependence directly through reduced form equations, real growth interdependence appears weak and non-increasing.

3) There is no support from the econometric estimates; but some from a casual understanding of recent American experience, for the belief that a floating exchange rate gives domestic policy makers an effective new instrument.

With respect to the three ways in which openness may restrict independence, we have found:

1) Despite increased correlations of interest rates, four major developed countries have not lost control over interest rates and monetary policy by comparison with the past.

2) Although exchange rate movements can and have acted to constrain deviant national economic behavior in the 1970's and 1980's, there is no convincing evidence that the policy/political "discipline" of the capital markets is greater than it ever was.

3)   The spectacular volatility and speculative ferment in foreign exchange markets may have negatively impacted real growth for all countries.   The LDC's remain open to foreign capital and are deprived of it to their detriment for reasons not directly related to floating rates or openness.

## 4. Conclusion: The Political Economy of Openness

### 4.1 Shocks

The striking conformity of real growth, interest rates and inflation in the 1970's was not, according to all of the econometric results in Table 3, caused by a sudden strengthening of international interdependence. Rather than looking for increased international cross elasticities in goods or financial markets, we must search for "shocks" with strong and ubiquitous consequences.

Two shocks that clearly fit the bill are the oil price shocks of 1974 and 1979. The relative price of energy changed dramatically; and it changed everywhere because petroleum was a major commodity in world trade. Capital utilization was reduced to conserve expensive energy causing capital and labor productivity to slacken or fall and unemployment to rise at the same time.[74] Higher energy prices, existing wage momentum and reduced productivity combined to accelerate inflation. Faced with these unpleasant, unexpected and poorly understood problems, developed countries responded with policies that had little effect on GNP, unemployment or inflation, but did allow interest rates to rise dramatically.

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74. Whitman, 1979, pp. 168-72; Zevin, 1983, pp. 38-51; Tatom, 1987. The latter has a good bibliography. Higher fuel costs cause both labor and capital to be used less intensively and therefore less productively; profits, profit-maximizing output, productivity and real wages fall, while prices rise. Hence the oil price increases were a direct cause of the combination of high inflation and unemployment that bedeviled policy-makers in the 1970's.

So, at least after 1973, the international cohesion we observe is best explained by common effects of external shocks. The differences between US inflation and inflation in each of the three ROW countries grow larger and more volatile. In late 1979 US monetary policy swings sharply back toward ROW and specifically German policies. Consequently, much of the observed international financial market cohesion in the 1980's reflects a genuine convergence of policies.[75] I believe this convergence can be explained by common responses to the inflation and perceived policy errors of the 1970's.

75. Support for these conclusions can be found in Kasman and Pigott, 1988, as well as my analysis (not shown) of the data used in Table 1.

## 4.2  Hegemony Lost

A number of commentators have suggested that the "final breakdown of the fixed-parity system nearly three decades after its inception at Bretton Woods" was caused in large part by "the growing mass of potentially destabilizing funds flowing through virtually uncontrolled 'Eurocurrency markets'."[76]

Eurocurrency markets developed in response to capital controls, particularly the US Interest Equalization Tax and Foreign Credit Restriction Program in the early 1960's. At that time American multinationals sought to maintain growth by investing overseas. Bank credit was required to finance new plants or often new customers for the same reason they were sought; because profits were lagging.[77]

These events gave the appearance of conflict between the United States government and major US banks and multinationals. The conflict was not too intense. The bank regulators did, and still have done, almost nothing to prevent the creation of a huge, unregulated, offshore monetary system. The less ambiguous conflict was between the banks, who would have been happier to stay home, and their influential corporate customers who insisted that they go international.

An additional stimulus to the spread of the current international banking system came from the oil price shocks. Private banks in the Eurocurrency system were available to extend balance-of-payments-adjustment loans that were larger and more

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76.   Leonhard Gleske in Kenen, 1987, p. 16. Gleske is a director of the Bundesbank.  The same volume contains similar thoughts from Gottfried Haberler and from James Tobin who particularly emphasizes the technological arguments I have rejected.
77.   Zevin, 1983, pp. 29-37, 101-105.

prompt than government or multilateral institutions could or would provide. They also recycled the tremendous new flow of dollars that went to OPEC countries in payment for oil, returned to the banks as deposits and was lent to the importing countries for additional purchases. These activities substantially cushioned the price shocks.

The emergence of a powerful OPEC was itself symptomatic of intensifying fissures between governments and oil companies in major capitalist countries. In particular the US government, which had labored valiantly to establish the world position of the Seven Sisters, lost touch with its oil industry alliance and began instead to compete with the companies for control of the world oil market.[78]

The coalition of private and state interests that had constructed the era of American hegemony was pulling apart. In part for this reason, in part because of its defeat in Vietnam, American dominance was being eroded. As a matter of logic, developed nations in the non-socialist world should have experienced increased autonomy since the early 1970's. This is the consistent finding for Germany, Japan and the UK in Table 3.

Why don't these countries proclaim their new independence as loudly as the US complains about its increased openness to foreign influences? First, subservience to the US has been replaced with perceived impotence in the face of new, intractable problems such as the LDC debt crisis. Second, in Europe subservience to the US has been replaced by subservience to the EC.

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78. Forbes, April 15, 1976, pp. 69-83; Keohane, 1984, pp. 202-206. The Seven Sisters, five of them American, are British Petroleum, Exxon, Gulf, Mobil, Royal Dutch/Shell, Standard Oil of California and Texaco.

Third, American deficits in the 1980's present these countries with a choice between accommodating to their own benefit, or resisting and causing potential harm to the world economy. Naturally they see this choice as coercive. Fourth, these countries know that America is still a giant economy compared to any one of them, and an awesome military power.

If the 1920's and 1930's are united with the 1970's and 1980's by a common theme, it is less a divergence of national economic objectives than something like Charles Kindleberger's analysis of the absence of leadership.[79] Kindleberger argues that will and imagination are the heart of international economic leadership as of any other kind. I agree. The belief that capitalists act to defend and promote their class interests does not imply that they cannot sometimes do so with skill and daring while at other times not. Moreover, except in some ex post tautology, there is no necessary proportionality between the stakes of the game and the finesse with which capitalists play it.

Henry Wallich, former Governor of the Federal Reserve as well as an economist, put it this way (1985, p. 38): "The importance [of US foreign trade] having risen in recent years, one might assume that the United States would be increasingly concerned with its impact on the world. ... By and large, the United States was more concerned about the state of the world when the feedback was smaller but it was an unchallenged leader

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79. Kindleberger, 1973, passim. and especially the conclusion, pp. 291-308; and Kindleberger, 1978. Kindleberger's notion of leadership is less dependent on a preponderance of resources and the use of coercion than is Robert Keohane's (1984) concept of hegemony. Aliber, 1980, contains a useful analysis of floating rates and inflation in the 1920's and 1970's.

and felt strong responsibilities.  Leadership has been diluted;
responsibility, or so it seems to me, has tended to yield to
expediency.  ... if this has been the trend, it has been going
against our own self-interest."

Having made this distinction between hegemony and
leadership, I will revert to hegemony for convenience although I
really mean leadership.  The prime relevant observation is that
"One of the most important features of American hegemony was its
brevity." (Keohane, 1984, p.139)  Floating exchange rates and
OPEC shocks are symptoms of this loss of power.  Lost hegemony is
the common thread in our tale of oil price shocks, floating
exchange rates and LDC debt crises.  The historical relation
between hegemony and exchange rate regimes is straightforward.
The world has experienced stable exchange regimes under British
hegemony in the gold standard period and American hegemony in the
Bretton Woods period.  Floating rates have characterized the
polycentric distributions of power after World War I and after
Vietnam.

However, the record does not indicate nearly as clear a
connection between this dual description of regimes and the
resulting degree of autonomy for nations (other than the
hegemon).  Based on our analysis, the two polycentric, floating-
rate eras, post World War I and post Vietnam, were both periods
of greater economic autonomy for developed countries than Bretton
Woods and less autonomy than under the gold standard.

More directly, the dilemma is that the two periods of
hegemonic domination and stable exchange rate systems appear to
have been opposite in their implications for national autonomy.

The gold standard and Pax Britannica were structures within which many nations achieved rapid, relatively autonomous economic development. Trade and financial flows were very large relative to national incomes. Persistent current account surpluses and deficits enabled many advanced countries to invest unprecedented proportions of their wealth and income in developing countries, while the latter succeeded in sustaining levels of investment above domestic saving in proportions unequaled before or since. High financial market cohesion was symptomatic of the enabling conditions.

The Pax Americana began, at the time of the Marshall Plan, with a similar, brief episode of capital transfer from the United States to nations in strong need of dollars, consumer and capital goods. Japan and the ravished countries of Europe were redeveloped and in some cases went on to new heights of relative economic standing.

By the 1960's the Bretton Woods system should have been in full bloom. Major country currencies were convertible; and many post-war capital controls had been removed. Yet we observe a system with less financial market cohesion than either of the floating rate periods and far less than the gold standard (Table 1). International capital flows were apparently quite constrained (Table 2). Outside of the US, comparing the 1960's with subsequent decades, monetary policy decisions were more influenced by the US, income multipliers on trade with the US were larger, and the US influence on domestic inflation rates was much larger (Table 3).

The lower cohesion is partly because there was altogether less variation in inflation, interest and real growth rates in the 1950's and 1960's than there has been since. When there is no common tide, small waves make all the difference. Other measures of uniformity, based on the average size and variability of national differences, show more cohesion in the stable 1960's than the turbulent 1970's (subsection 3.3 above).

US influence on Germany, Japan and the UK is of course exactly what we would have expected to find in the 1960's. When exchange rates were relatively fixed, financial assets were closer international substitutes than they are today. In the 1960's the US economy was larger relative to at least Germany and Japan than it is today. When nations were committed to pegging their currencies to the dollar they were pinned to US interest and inflation rates as well. The US was a full-fledged hegemonic power; but, the exercise of its power had very different consequences than would be expected from the history of the high gold standard.

Since the early 1970's the dollar has remained the principal currency in international transactions. Powerful, global events have pushed financial and economic variables on common paths in many countries. If we examine only the differences among variables, the 1980's are about the same as the 1960's for cohesion. On balance the high and rising volatility of real exchange rates which has characterized the post-1971 world economy, has been a disintegrating force.

High international correlation under the gold standard may have represented the consequences of British hegemony. Today it charts the course of dissociated countries driven by common winds.

BIBLIOGRAPHY

Amano, Akihiro, 1983, Exchange-Rate Modelling in the EPA World Economic Model," in De Grauwe and Peeters, pp. 139-171.

Aliber, Robert Z., 1980, "Floating Exchange Rates: The Twenties and the Seventies" in Chipman and Kindleberger, pp. 81-98.

Allen, Polly Reynolds and Peter B. Kenen, 1980, Asset Markets, Exchange Rates and Economic Integration: A Synthesis, (New York, Cambridge University Press).

Arndt, Sven W. and J. David Richardson, 1987, Real-Financial Linkages among Open Economies, (Cambridge, MIT Press).

Basevi, Giorgio and Michele Calzolari, 1983, "Monetary Authorities' Reaction Functions in a Model of Exchange-Rate Determination for the European Monetary System," in De Grauwe and Peeters, pp. 267-282.

Bloomfield, Arthur, 1959, Monetary Policy Under the International Gold Standard, (New York, New York Federal Reserve Bank).

Bryant, Ralph C., 1980, Money and Monetary Policy in Interdependent Nations, (Washington, Brookings Institution).

-----------, 1987, International Financial Intermediation, (Washington, Brookings Institution).

Chandler, Alfred, 1977, The Visible Hand, (Cambridge, Harvard University Press).

Chipman, J. S. and C. P. Kindleberger, eds., 1980, Flexible Exchange Rates and the Balance of Payments: Essays in Memory of Egon Sohmen (Amsterdam, North-Holland Publishing).

Cipolla, Carlo M., 1956/1967, Money, Prices, and Civilization in the Mediterranean World: Fifth to Seventeenth Century, (New York, Gordian Press).

Cole, Arthur H., 1929, "Evolution of the Foreign-Exchange Market of the United States", Journal of Economic and Business History, V. I, 3, pp. 384-421.

Cooper, Richard N., 1971/1986, "Towards an International Capital Market?", in Economic Policy in an Interdependent World, (Cambridge, MIT Press), pp. 155-178.

-----------, 1986a, "Economic Interdependence and Coordination of Economic Policies", in Economic Policy in an Interdependent World, (Cambridge, MIT Press), pp. 289-331.

-----------, 1986b, "The United States as an Open Economy", in Hafer, 1986, pp. 3-24.

Datadisk, 1989, January, (Cambridge, Cambridge Planning and Analytics, Inc.)

De Grauwe, Paul and Bernard de Bellefroid, 1987, "Long Run Exchange Rate Variability and International Trade", in Arndt and Richardson, 1987, pp. 193-212.

De Grauwe, Paul and Theo Peeters, 1983, <u>Exchange Rates in Multicountry Econometric Models</u>, (New York, St. Martin's Press). Dornbusch, Rudiger and Jeffrey Frankel, 1987, "The Flexible Exchange Rate System: Experience and Alternatives", (Cambridge, NBER, Working Paper No. 2464).

Dornbusch, Rudiger and Stanley Fischer, 1986, "The Open Economy: Implications for Monetary and Fiscal Policy", in R. Gordon (ed.), <u>The American Business Cycle: Continuity and Change</u>, (Chicago, University of Chicago Press), pp.459-516.

Dornbusch, Rudiger and Jeffrey Frankel, 1987, "The Flexible Exchange Rate System: Experience and Alternatives", (Cambridge, NBER Working Paper No. 2464)

Duck, Nigel, Michael Parkin, David Rose and George Zis, 1976, "The Determination of the Rate of Change of Wages and Prices in the Fixed Exchange Rate World Economy, 1956-1971", in Parkin and Zis, eds., <u>Inflation in the World Economy,</u> (Manchester,         ).

Eagly, Robert V. and V. Kerry Smith, 1976, "Domestic and International Integration of the London Money Market, 1731-1789," <u>Journal of Economic History</u>, V. 36, 1, pp. 198-212.

Epstein, Gerald and Juliet Schor, 1989, "Macropolicy in the Rise and Fall of the Golden Age," in <u>The Golden Age of Capitalism: Lessons for the 1990's</u>, (London, Oxford University Press).

Ethier, Wilfred J. and Richard C. Marston, eds., 1985, <u>International Financial Markets and Capital Movements: A Symposium in Honor of Arthur I. Bloomfield</u>, (Princeton, Princeton University International Finance Section, Essays in International Finance No. 157).

Feldstein, Martin, 1983, "Domestic Saving and International Capital Movements in the Long Run and the Short Run", <u>European Economic Review</u>, V. 21, pp. 129-51.

----------, ed., 1988, <u>International Economic Cooperation</u>, (Chicago, University of Chicago Press).

---------- and Charles Horioka, 1980, "Domestic Saving and International Capital Flows", <u>Economic Journal</u>, V. 90, pp. 314-29.

Fischer, Stanley, 1988, "International Macroeconomic Policy Coordination", in Feldstein, 1988, pp. 11-43.

<u>Forbes</u>, 1976, "Don't Blame the Oil Companies: Blame the State Department" and "How the West Was Won", April 15, pp. 69-83.

Frankel, Jeffrey A., 1979, "The Diversifiability of Exchange Risk", Journal of International Economics (Aug), pp. 379-393.

----------------, 1986, "International Capital Mobility and Crowding-out in the U.S. Economy: Imperfect Integration of Financial Markets or of Goods Markets?", in Hafer, 1986, pp. 33-67.

Frenkel, Jacob A., 1986, "International Interdependence and the Constraints on Macroeconomic Policies," in Hafer, 1986, pp. 171-205.

Gintis, Herbert, 1986, "International Capital Markets and the Validity of National Marcroeconomic Models", (Amherst, University of Massachusetts, unpub.)

Green, Alex, and M.C. Urquhart, 1976, "Factor and Commodity Flows in the International Economy of 1870-1914: A Multi-Country View, Journal of Economic History (March), pp. 215-222.

Goldsmith, Raymond W., 1985, Comparative National Balance Sheets: A Study of Twenty Countries, 1688-1978, (Chicago, University of Chicago Press).

Hafer, R.W., ed, 1986, How Open Is the U.S. Economy? (Lexington, Mass., D.C. Heath & Co.).

Hicks, John, 1969, A Theory of Economic History, (Oxford, Oxford University Press).

International Monetary Fund, 1984, Exchange Rate Volatility and World Trade, (Washington, IMF, Occasional Paper No. 28).

-------------------------, 1988, International Financial Statistics, (Washington, IMF).

Kasman, Bruce and Charles Pigott, 1988, "Interest Rate Divergences among the Major Industrial Nations," Quarterly Review (Autumn), (New York, Federal Reserve Bank of New York), pp.28-44.

Kenen, Peter B., 1976, Capital Mobility and Financial Integration: A Survey, (Princeton, Princeton University Department of Economics, Essays in International Finance No. 39).

--------------, ed., 1987, International Monetary Cooperation: Essays in Honor of Henry C. Wallich, (Princeton, Princeton University Department of Economics, Essays in International Finance, No. 169).

Keohane, Robert O., 1984, After Hegemony: Cooperation and Discord in the World Political Economy (Princeton, Princeton University Press).

Keynes, John Maynard, 1936/1964, The General Theory of Employment, Interest and Money, (New York, Harcourt, Brace & World).

Kindleberger, Charles P., 1973, <u>The World in Depression, 1929-1939</u>, (Berkeley, University of California Press).

---------, 1978, <u>Manias, Panics and Crashes</u>, (New York, Basic Books).

---------, 1987, <u>International Capital Movements</u>, (Cambridge, Cambridge University Press).

Krugman, Paul, 1989, <u>Exchange Rate Instability</u>, (Cambridge, MIT Press).

Lindert, Peter H., 1969, <u>Key Currencies and Gold: 1900-1913</u>, Princeton, Princeton University Department of Economics, Studies in International Finance No. 24).

Lipson, Charles, 1985, <u>Standing Guard: Protecting Foreign Capital in the Nineteenth and Twentieth Centuries</u>, (Berkeley, University of California Press).

McKinnon, Ronald I., 1982, "Currency Substitution and Instability in the World Dollar Standard," <u>American Economic Review</u> (June), pp. 320-333.

Morgenstern, Oskar, 1959, <u>International Financial Transactions and Business Cycles</u>, (Princeton, Princeton University Press).

Neal, Larry, 1985, "Integration of International Capital Markets: Quantitative Evidence from the Eighteenth to Twentieth Centuries", <u>Journal of Economic History</u> (June), pp. 219-226.

-----------, 1987a, "The Integration and Efficiency of the London and Amsterdam Stock Markets in the Eighteenth Century," <u>Journal of Economic History</u> (March), pp. 97-115.

-----------, 1987b, "Was the South Sea Bubble Rational?", (Urbana, unpublished manuscript).

[Nurkse, Ragnar], 1944, <u>International Currency Experience, Lessons of the Inter-War Period</u>, (Princeton, League of Nations).

Organization for Economic Co-operation and Development, 1988, <u>Why Economic Policies Change Course</u>, (Paris, OECD).

Obstfeld, Maurice, 1986, "Capital Mobility in the World Economy: Theory and Measurement," in Brunner, Karl, and Allan H. Meltzer, eds., <u>The National Bureau Method, International Capital Mobility and Other Essays</u>, Carnegie-Rochester Conference Series on Public Policy, V. 24 (Amsterdam, North-Holland), pp. 55-103.

Robinson, Joan, 1966/1967, <u>Economics: An Awkward Corner</u>, (New York, Random House).

Ross, Stephen A., 1976, "The Arbitrage Theory of Capital Asset Pricing," <u>Journal of Economic Theory</u>, (December), pp. 258-276.

Salomon Brothers (Laszlo Birinyi, Jr. et al.), 1987, <u>Global Equity Market Review and Outlook -- 1987-88</u>, ([New York], Salomon Brothers Inc.).

Tatom, John A., 1987, "The Macroeconomic Effects of the Recent Fall in Oil Prices", <u>Federal Reserve Bank of St. Louis Review</u>, V.69, 6 (June/July), pp. 34-45.

Triffin, Robert, 1968, <u>Our International Monetary System: Yesterday, Today and Tomorrow</u>, (New York, Random House).

Wallich, Henry C., 1985, "U.S. Monetary Policy in an Interdependent World", in Ethier and Marston, 1985, pp. 33-44.

Whitman, Marina von Neumann, 1979, <u>Reflections of Interdependence</u>, (Pittsburgh, University of Pittsburgh Press).

Zevin, Robert B., 1983, <u>A Greater Good</u>, (Boston, Houghton Mifflin & Co.)