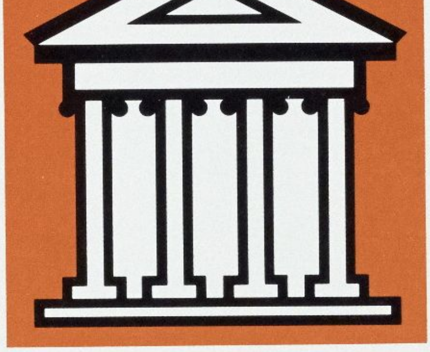
Economic Review

FEDERAL RESERVE BANK OF ATLANTA OCTOBER 1986

THE DOLLAR ABROAD Impact on Prices

NONBANK ACTIVITY Greater Risks for Banks?

U.S. TRADE Shifting Shares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Economic Review

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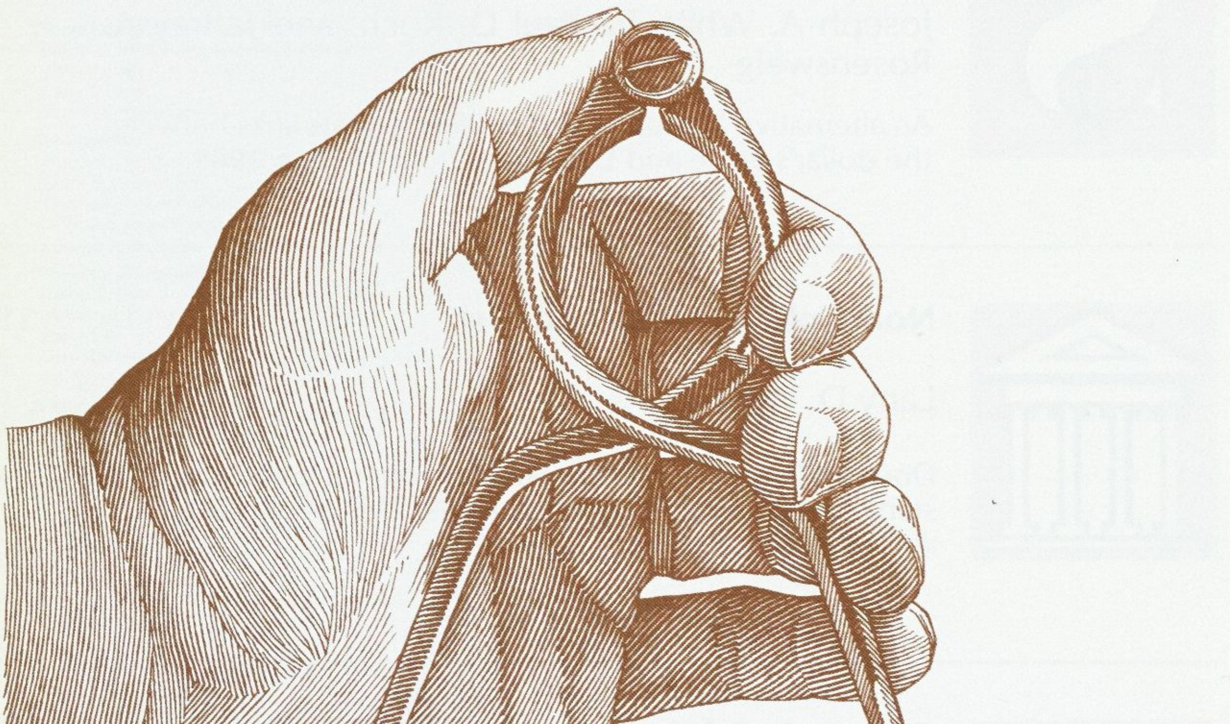
The Dollar and Prices: An Empirical Analysis



Joseph A. Whitt, Jr.,
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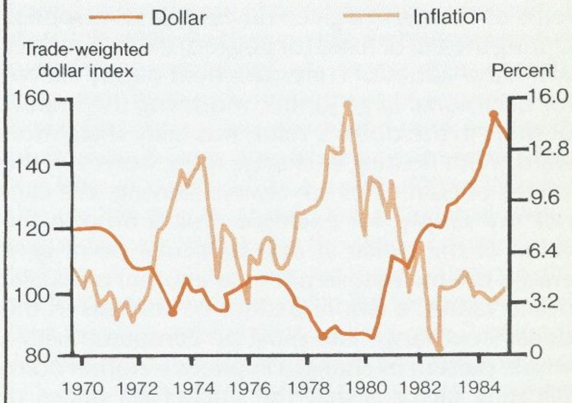
Do changes in the dollar's value on foreign exchange markets affect prices in the United States? This article, based on an Atlanta Fed working paper "The Dynamic Relationship Between the Dollar and U.S. Prices: An Intensive Empirical Investigation," suggests a significant connection between moves in the dollar and periods of inflation and disinflation.

When floating exchange rates were adopted in the early seventies, they brought wide fluctuations in the values of world currencies on foreign exchange markets. Economists have been trying ever since to determine how, and if, changes in the value of the dollar on foreign markets affect domestic prices. The interaction is complex. Like many macroeconomic relationships, the effect of the dollar's value on domestic price levels involves complicated lag patterns over time as well as possible feedback from prices to exchange rates.

Significant correlation between moves in the dollar's value and fluctuations in U.S. prices could have important policy implications, since it suggests that price stability will be hard to attain as long as exchange rates continue to fluctuate widely. Periods of unexpected dollar depreciation would be associated with worsening inflation, while unexpected appreciation would be associated with disinflation. Using a methodological approach especially suited to the complexities ushered in by floating exchange rates, our research confirms a group of previous studies that used other methods to discover a significant dollar-price level relationship and suggests that changes in the dollar's value may be associated with larger price changes than previous studies have indicated. Our results provide a stylized description of past relationships and are not suitable for direct or precise extrapolation into the future.

Most existing research, which uses different methodologies than ours, estimates that a permanent 10 percent drop in the dollar's value is associated with an eventual increase of 1 to 2 percent in the consumer price index. Two recent studies find essentially no impact. Our study finds a definite price response, with the increase being approximately 4 and 3/4 percent. All of these estimates are based on the limited data available on the past relationships between the dollar and prices. Up until a few years ago most Americans had little direct experience with exchange rate changes, though other countries have certainly experienced them. However, since the advent of floating exchange rates, the dollar's value has moved up or down several times by more than 10 percent within a 12-month period. For a variety of reasons, estimated relationships involving the dollar and prices based on past data may not necessarily remain unchanged in the future. Moreover, the dollar is not the only variable which affects inflation. Nevertheless, our finding of a strong past association between the dollar and subsequent inflation suggests that the dollar bears close watching to help gauge the outlook for inflation.

Chart 1.
Inflation and Value of the Dollar



Periods of marked decline in the dollar's value such as 1971-73 and 1977-78 appear to be followed by rises in inflation.

Source: Federal Reserve Board of Governors and U.S Bureau of Labor Statistics quarterly data from 1970:1 to 1985:2.

Perhaps the most well-known measure of the overall price level is the consumer price index (CPI), which measures the cost of living for an average household in the United States. It is not obvious that there should be an important link between the value of the dollar and the CPI. After all, U.S. merchandise imports, which are presumably the items directly affected by exchange rate changes, constituted less than 10 percent of the U.S. gross national product in recent years. Nevertheless, a casual look at the behavior of inflation (in terms of the consumer price index) compared with an index of the dollar's exchange value from 1970 to mid-1985 (as measured by the Federal Reserve Board's trade-weighted index) shows a relationship (Chart 1). During this period phases of dollar depreciation such as 1971-73 and 1977-78, indicated by declines in the dollar index, tended to be followed by increases in inflation,

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whereas the dollar's appreciation in 1981-84 is matched by subsequent disinflation.

To understand this relationship fully, a dynamic mathematical model that can account for patterns of change in a given time period is essential. During the era of fixed (or pegged) exchange rates when the values of currencies held steady except for occasional large jumps, modeling the impact of shifts in the dollar's value was fairly straightforward. With floating exchange rates, however, the values of currencies are always moving. We cannot say simply, for example, that a drop in the value of the dollar at one particular point generated the increase in prices at another particular point; rather, a whole pattern of changes in the dollar's exchange rate must be compared with a whole pattern of changes in prices. Another complicating factor is that the impact on prices of changes in the dollar's value is felt only incrementally over time. For example, the effects of a particular shift may be noticeable in three months, more acute in four months, peaking at six months, diminishing at eight months, and disappearing in twelve months. The aftermath of a change in the dollar's value moves through the rest of the economy like a wave rather than affecting it in a more easily discernible one cause, one effect pattern. To determine when and to what extent the effects of alterations in the dollar's value have emerged, when they have crested and when they have ebbed, we have used a group of statistical techniques, time series analysis, to develop mathematical models of the lag structure. They describe, as it were, the size and shape of the wave.

Other studies of the interplay between the dollar's value and domestic prices attempt to model the specific channels, such as import prices or wages, through which the dollar might affect domestic prices. In addition, these studies attempt to gauge the impact of the dollar in the absence of change in other factors, such as real gross national product and monetary policy. Our time series analysis enables us to create a model that will reflect the nature and extent of the price response to the dollar's movement regardless of how the dollar affects prices, whether through import prices, wages, or some other channel. Our approach differs from others in that it does not provide a detailed breakdown of the dollar's impact in terms of the specific channels through which the impact travels. In addition, while a few other studies attempt to provide an explanation of why the dollar moved (in terms of changes in foreign fiscal or monetary policy, for example), our approach does not; we focus solely on the observed interaction of prices and the dollar's value during the period of floating exchange rates.

Our results indicate that during the period we analyze, exchange rate movements were followed by substantial changes in the price level. If wide fluctuations in exchange rates continue and the linkage between the dollar and prices persists, then achieving price stability, which is one of the goals of monetary policy, may be difficult.

To reduce the volatility of the dollar, some economists advocate a return to greater fixity of exchange rates, perhaps through a system of "target zones" as in the European Monetary System, which links the currencies of a number of European countries. Other economists insist that the current floating rate system would exhibit less volatility if governments would follow more stable and predictable policies. While the debate between those advocating a return to fixed rates and those committed to floating rates is beyond the scope of this paper, our results indicate that there is an important link between the dollar and the future price level which bears consideration.

"The aftermath of a change in the dollar's value moves through the rest of the economy like a wave rather than affecting it in a more easily discernible one cause, one effect pattern."

Measuring the Impact of Exchange Rate Changes

Interest in the effect of exchange rate changes on U.S. prices has grown considerably since the breakdown of the Bretton Woods system of pegged exchange rates in the early 1970s. Near the end of

World War II, delegates from many nations met in the resort of Bretton Woods, New Hampshire, to plan an international monetary system that would promote economic growth and international trade in the post-war world. In the system which grew out of this meeting, governments intervened in the foreign exchange markets to maintain pegged exchange rates, often for years at a time. For example, the exchange rate between the dollar and the British pound was maintained at $2.80 per pound from 1949 to 1967. The breakdown of the Bretton Woods system introduced a period of floating exchange rates that has continued to the present day.

"If wide fluctuations in exchange rates continue and the linkage between the dollar and prices persists, then achieving price stability, which is one of the goals of monetary policy, may be difficult."

As shown in Chart 1, the years of floating exchange rates have been marked by large fluctuations in both the exchange value of the dollar and the U.S. inflation rate. Not surprisingly, economists have been drawn to investigate the apparent relationship between moves in the dollar's value and U.S. prices. Prior to the collapse of Bretton Woods, analyses of U.S. inflation tended to focus solely on domestic determinants. Monetarist literature concentrated on the U.S. money supply as the source of inflation, while Keynesian literature saw the rate of inflation as a result of excess demand, which is identified with the unemployment rate in the Phillips curve framework used in most of these studies.[1] This approach seemed to work well in explaining the modest inflation of the 1960s, but it has proved inadequate since then. A common tactic in more recent studies has been to add energy or food prices as additional factors to explain inflation, based on the rationale that these prices have been subject to large externally generated supply shocks caused by OPEC and weather conditions.[2] Other investigators have tried to determine the role of exchange rates as an influence on U.S. prices.

The idea that a connection exists between exchange rates and overall price levels can be traced to the theory of purchasing power parity. It states that the exchange rate between any two national currencies adjusts to maintain equality between the purchasing power of a currency at home (in terms of real goods and services) and its purchasing power abroad after conversion into the foreign currency. As a result, depreciation in the exchange rate should be associated with a proportionate increase in the ratio of domestic to foreign price levels. For example, suppose the exchange value of the dollar fell (or depreciated) by 5 percent, while foreign prices rose 2 percent. According to purchasing power parity, the ratio of U.S. to foreign prices should rise by the amount of the depreciation (5 percent). To obtain this result, the U.S. price level would have to rise by approximately $5+2=7$ percent.[3] However, empirical analysis suggests that purchasing power parity is not by itself sufficient to explain price movements in recent years.[4]

Another strategy to account for the last decade of price fluctuations has been to modify the descendants of Keynesian models of the 1960s to include exchange rates or import prices as additional explanatory variables. This approach has been mathematically specified in a number of ways, which are reviewed in the study by P. Hooper and B. Lowrey (1979).

In the single-equation method, the domestic price level is viewed as a function of labor costs (wages), demand pressure (unemployment), and import prices. The effect of exchange rate changes on the domestic price level is then inferred indirectly from statistical calculations that measure the impact of import prices, combined with analysis that considers the consequences of exchange rate changes for import prices. These studies, adjusted for comparability by Hooper and Lowrey, indicate that the long-run effect of a 10 percent depreciation of the dollar, with no change in labor costs or demand pressure, is a rise of 0.8 to 1.5 percent in consumer prices.[5]

This approach treats labor costs, demand pressure, and import prices as separate sources of inflationary pressure, so that exchange rates affect domestic price levels only through their direct effect on import prices. However, it is plausible that exchange rate changes might affect, perhaps after a lag, both labor costs and demand pressure. If this were the case, it would mean that the total impact of exchange rate changes on the domestic price level might be greater than their direct effect alone would indicate.

In attempting to account for some of these additional channels by which exchange rates could affect domestic prices, other studies have developed more complicated structural simultaneous equation models that incorporate exchange rate effects on labor costs and demand pressure. Studies using this approach, as adjusted for comparability by Hooper and Lowrey, estimate that a 10 percent dollar depreciation will eventually result in a 0.8 to 2.7 percent rise in consumer prices, with nearly all results below 2 percent.[6] More recently, R. Dornbusch and S. Fischer (1984) and J. D. Sachs (1985) obtain somewhat larger estimates, using different measures of exchange rates and prices.

In contrast, two recent studies suggest that exchange rates have little or no effect on U.S. prices. W. T. Woo (1984) analyzes the GNP consumption deflator, a broadly based measure of consumer prices, excluding food and energy, with quarterly data from the second quarter in 1975 to the first quarter in 1984. Employing the single-equation approach, he finds that neither import prices nor the exchange rate have a significant impact on the consumption deflator excluding food and energy, once wages and oil prices are incorporated. J. E. Glassman (1985) argues that earlier studies overstate the effect of exchange rates on domestic inflation because of the strong correlation between exchange rate movements and energy price shocks. In his view, relative energy prices (and perhaps food prices) should be treated as separate explanatory variables for overall inflation. The results of his analysis, using quarterly data that cover both fixed and flexible exchange rate regimes, suggest that exchange rates have no significant effect on U.S. inflation.

An Alternative Approach

In our opinion, the behavior of inflation and the dollar's value under the flexible exchange rate system have been substantially different than under the Bretton Woods arrangement. Both inflation and especially the dollar have shown dramatically greater volatility since the end of Bretton Woods. We have therefore based our estimates solely on data from the period of floating exchange rates.[7] Moreover, it is generally agreed that the relationship between the dollar and U.S. prices involves significant time lags, but theory provides little guidance as to the length of the lags or their pattern.[8] Therefore, time series analysis is a natural approach to analyzing the data, because it is especially designed to uncover the length and patterns of lagged effects.[9] A model of the interaction between the dollar and prices based on time series analysis accounts for the impact of the dollar on prices regardless of the channel, whether through import prices, labor costs, demand pressure, or some other factor. On the basis of our preliminary results, we allowed for longer and less restrictive lag structures than those imposed in most previous studies.

"Both inflation and especially the dollar have shown dramatically greater volatility since the end of Bretton Woods."

Time series analysis requires a sizable amount of information on the relevant variables. Now that the floating exchange rate regime has lasted more than a decade, it is feasible to apply these statistical methods using monthly data that allow us to extract the maximum amount of information available. The sample period begins in April 1973, after the floating exchange rate regime was fully in place, and ends in June 1985. For reasons consistent with the methodology, none of the data are seasonally adjusted.

In creating a mathematical model of the relationship between the dollar and prices, we tested to determine the validity of our assumption that domestic prices respond to changes in the value of the dollar. We also had to determine if feedback existed so that changes in prices also influenced the value of the dollar. To accomplish this, we considered the price level in any particular month as a function of its own past history plus a shock or innovation that had nothing to do with the price level's past history. In ascertaining whether or not the shock or innovation in the price level could be predicted at least in part using past values of the dollar, we found that changes in the dollar's value did anticipate changes in the price level. However, past values of the price level did not appear to help in predicting shifts in the exchange rate of the dollar.

To summarize movements in the value of the dollar (e_t), we use the Federal Reserve Board trade-weighted dollar index.[10] Several price measures are examined because economic theories which distinguish between traded and non-traded goods, or between export and import goods, suggest that exchange rates may not have a uniform link to all domestic prices. Traded goods prices are usually assumed to be highly responsive to exchange rates, while the prices of non-traded products, such as certain services and housing, are not. In the case of exports and imports, it is sometimes argued that because the United States is such a large factor in world markets, dollar prices of U.S. exports are determined by U.S. costs of production and are affected little by exchange rates, but that dollar prices of U.S. imports are somewhat more responsive to exchange rates. We investigate the dynamic relationships between the value of the dollar and the following three measures of U.S. domestic prices (p_{it}):

"A model of the interaction between the dollar and prices based on time series analysis accounts for the impact of the dollar on prices regardless of the channel, whether through import prices, labor costs, demand pressure, or some other factor."

p_{1t} = CPI, all items;

p_{2t} = CPI, services;

p_{3t} = PPI, all finished goods.

The "CPI, all items" is an overall index, while the "CPI, services" is one component of the overall CPI containing mostly nontraded items, and the "PPI, finished goods" is a proxy for traded goods prices. The natural logarithm of each variable is used throughout to normalize the wide range in values.[11]

Identifying the Dynamic Relationships Between the Dollar's Value and Prices

To investigate the distributed lag relationship between the dollar and U.S. prices, we start with the hypothesis that the price level in any month (p_t) is a weighted sum of current and past values of the exchange value of the dollar, plus a (possibly complicated) random error term, n_{1t}:[12]

$$(1)\quad p_t = a_o e_t + a_1 e_{t-1} + a_2 e_{t-2} + \ldots + n_{1t} = \sum_{k=0}^{\infty} a_k e_{t-k} + n_{1t}$$

for all t within the sample period, where the a_k's are coefficients (numbers that remain fixed throughout the sample period). The coefficients a_k represent the dynamic response of prices to current and past movements in the dollar. The random error term, n_{1t}, incorporates the variation in prices not attributable to exchange rate changes.

A hypothetical example may help clarify the meaning of equation (1). Suppose that $a_4 = -0.1$, $a_5 = -0.2$, $a_6 = -0.1$, and all the other a_k's were zero. In this case, the dynamic response of prices to dollar movements has a fairly simple form. Suppose that the exchange rate fell (depreciated) 5 percent in December. There would be no associated price movement during December (because $a_0 = 0$) or in the first three months afterward. In the fourth month (April), the price level would rise by (-0.1) x (-5 percent) = 0.5 percent. In May, the price level would rise by a further (-0.2) x (-5 percent) = 1.0 percent. In June, the price level would rise by a further (-0.1) x (-5 percent) = 0.5 percent; the price response would then be complete, and the total change in the price level would be approximately 2 percent.

Likewise, we consider the hypothesis that the exchange value of the dollar in any month (e_t) is a weighted sum of current and past values of the price level, plus its own random error term, n_{2t}:

$$(2)\quad e_t = b_o p_t + b_1 p_{t-1} + b_2 p_{t-2} + \ldots + n_{2t} = \sum_{k=0}^{\infty} b_k p_{it-k} + n_{2t}$$

where the b_k's are coefficients that remain fixed throughout the sample period.

Figure 1.
Cross-Correlation Function $[r_{vu}(k)]$ Between the Dollar's Value (e_t) and Prices (p_{1t})[a]

k Lag	$r_{vu}(k)$ Correlation	Plots -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-30	-0.01724	. | .
-29	0.11459	. |**.
-28	0.17314	. |***
-27	0.02221	. | .
-26	0.07157	. |* .
-25	0.11162	. |**.
-24	0.03111	. |* .
-23	0.14187	. |***
-22	0.06311	. |* .
-21	0.01808	. | .
-20	-0.02976	. *| .
-19	0.01994	. | .
-18	-0.04380	. *| .
-17	0.05195	. |* .
-16	0.04916	. |* .
-15	-0.03353	. *| .
-14	0.07853	. |**.
-13	0.05449	. |* .
-12	-0.06844	. *| .
-11	0.00113	. | .
-10	-0.05858	. *| .
-9	-0.05162	. *| .
-8	-0.02201	. | .
-7	-0.09904	.**| .
-6	-0.18163	****| .
-5	0.11752	. |**.
-4	-0.18686	****| .
-3	-0.03005	. *| .
-2	-0.13349	***| .
-1	-0.00768	. | .
0	0.06681	|*

```
 0   0.06681     .  |*  .
 1  -0.10105     .**|   .
 2   0.08960     .  |** .
 3   0.05591     .  |*  .
 4  -0.09598     .**|   .
 5  -0.07684     .**|   .
 6  -0.24460  *****|   .
 7   0.03512     .  |*  .
 8  -0.12776    ***|   .
 9  -0.11459     .**|   .
10   0.02794     .  |*  .
11  -0.05063     . *|   .
12  -0.01678     .  |   .
13  -0.01567     .  |   .
14  -0.11829     .**|   .
15   0.04237     .  |*  .
16  -0.03237     . *|   .
17  -0.03141     . *|   .
18  -0.05219     . *|   .
19  -0.07148     . *|   .
20  -0.04695     . *|   .
21  -0.02545     . *|   .
22   0.09644     .  |** .
23   0.05588     .  |*  .
24  -0.13809    ***|   .
25   0.01927     .  |   .
26   0.05630     .  |*  .
27   0.03816     .  |*  .
28  -0.03125     . *|   .
29   0.03976     .  |*  .
30   0.03378     .  |*  .
```

[a]The Fed Trade-Weighted Dollar Index is represented by e_t, and p_{1t} represents the CPI, all items. Ninety-five percent confidence intervals appear as "•" in the plots.

Table 1.
Granger Test Results[a]

H_1: the dollar (e_t) does not Granger-cause prices (p_{it})
H_2: prices (p_{it}) do not Granger-cause the dollar (e_t)

Price Measure	H_1: $e_t \not\rightarrow p_{it}$	H_2: $p_{it} \not\rightarrow e_t$
CPI, all items (p_{1t})	1.92 (.014)	1.18 (.283)
CPI, services (p_{2t})	2.05 (.008)	1.11 (.350)
PPI, all finished goods (p_{3t})	2.36 (.004)	1.06 (.410)

[a] The variable e_t represents the Federal Reserve trade-weighted dollar index. In all cases, 36 lags on the dependent variable are included. The numbers in each column are the F-statistics and (in parentheses) the marginal significance levels for the hypothesis being tested. For p_{1t} and p_{2t}, 30 lags on the right-hand-side variable are always included, while for p_{3t}, 18 lags on the right-hand-side variable are included. The longer lags were included for the consumer price measures because, a priori, we would expect consumer prices to respond less rapidly to exchange rate (or other) shocks than producer prices; in addition, the cross-correlation functions suggested longer lags for the consumer price measures.

To obtain preliminary information about these relationships, L. D. Haugh (1976) suggests scrutiny of the univariate residual cross-correlation function, which essentially shows when current movements in prices match past patterns of fluctuation in the dollar's value, and vice versa.[13]

If the price level (p_t) and the value of the dollar (e_t) were not related to one another, then all the coefficients a_k and b_k in equations (1) and (2) would be zero. In that case, the residual cross-correlations would be small in magnitude and randomly distributed about zero.

Figure 1 shows the univariate residual cross-correlation function using the overall CPI as a measure of prices. The first column gives the lag length, in months. Negative lag lengths involve the relationship of the dollar's exchange rate in any given month to previous fluctuations in prices, while positive lag lengths describe the price level versus previous exchange rates. The column labeled "Plots" represents the cross-correlation function; large cross-correlations which could indicate a relationship show up as several asterisks, while the smallest cross-correlations have no asterisks. The vertical line in the center of the "Plots" column represents the zero axis. When asterisks extend beyond the dots to the right and left of the center line (a confidence interval of 95 percent), we can say that we are "95 percent sure" that these correlations are different from zero.

The bottom half of Figure 1 (positive lags) gives the cross-correlations between price residuals and past exchange rate residuals; these cross-correlations are closely related to the a_k's in equation (1). Observe that while the cross-correlations at lags 2 and 3 are mildly positive, nearly all the cross-correlation at lags 4 to 24 are negative, with an especially large negative cross-correlation at a lag of six months. The negative sign of these cross-correlations suggests that depreciation of the dollar (a decline in e_t) tends to be followed by an opposite movement (an increase) in prices.

The top half of Figure 1 (negative lags) gives the cross-correlations between exchange rate residuals and past price residuals; these cross-correlations are closely related to the b_k's in equation (2). There is some indication of negative correlation for the early months (lags -2 to -7), with a fairly random pattern otherwise.[14] The cross-correlation functions involving the exchange rate and the

Table 2.
Cumulative Response of U.S. Prices Following a 10 Percent Change in the Dollar (e_t)

Through	CPI, all items	CPI, services	PPI, all finished goods
12 months	-.159	-.133	-.218
24 months	-.336	-.390	-.417
36 months	-.426	-.499	-.517
48 months	-.463	-.530	-.554
∞ months	-.485	-.542	-.571

other price series are not presented here to save space, but they show similar patterns.

Formal statistical tests can further help to determine how exchange rates and prices are related. As mentioned earlier, if p_t and e_t were not related to one another, then the estimated residual cross-correlations should be small in magnitude and randomly distributed about zero. P. D. Koch and S. S. Yang (1986) provide a test that checks for the existence of a lead/lag relationship in the entire set of cross-correlations. Their test is particularly useful because it can discern patterns in the cross-correlations. For example, suppose that none of the cross-correlations, taken individually, are significantly different from zero, but a group of cross-correlations for adjacent lags are all fairly strongly negative. Unlike some other tests, the Koch-Yang test is designed to detect such non-random patterns in the cross-correlations and to reject the hypothesis that the variables are unrelated if the non-random pattern is sufficiently strong.

When applied to our data, the Koch-Yang test indicates that the hypothesis which contends that the price level and the dollar are unrelated can be rejected for all three price series.[15] The test results, along with the residual cross-correlations, also suggest that the lag distributions in question are fairly long, extending over many months.

Having observed an apparent relationship between the dollar's value and domestic prices, further investigations were in order to determine whether shocks to the value of the dollar lead movements in prices, shocks to prices lead dollar movements, or both. Using the test proposed by C. W. J. Granger (1969), we examined statistically whether movement in each variable, dollar and prices, could be predicted more accurately using its own past history plus values of the other variable, or simply on the basis of its own past history alone (Table 1). In determining the direction of Granger causality, we test two hypotheses:

H_1: e_t does not Granger-cause p_{it};

H_2: p_{it} does not Granger-cause e_t.

The resulting F-statistics and marginal significance levels are presented in Table 1. Larger values of F (smaller marginal significance levels) point toward rejection of the hypothesis being tested. Using standard significance levels of either .10 or .05, observe that H_2 (p_t does not Granger-cause e_t) is not rejected for any price series. However, at those same significance levels, H_1 (e_t does not Granger-cause p_t) is rejected for all of these price series. Including past values of the dollar helped significantly to predict prices, but including past values of prices did not help to predict the dollar. The results of this test suggested that shocks to exchange rates lead price movements, but not vice versa.[16]

The Lag Between Dollar Movements and Price Fluctuations

As discussed in the Appendix, the results of the Koch-Yang and Granger tests indicate that it is appropriate to estimate the distributed lag going from exchange rate movements to prices, as modeled in equation (1). Our estimates imply that a permanent ten percent drop in the dollar would be associated with an increase in the CPI of

Table 3.
Selected Estimates of the
Cumulative Impact of 10 Percent Depreciation of the Dollar on U.S. CPI

Approach	Rise in CPI After One Year	Long-Run Rise in CPI
Time Series Model		
Koch, Rosensweig & Whitt	1.6	4.9
Single-Equation Regression		
Spitaeller	***	1.5
Modigliani-Papademos	0.4[a]	1.7
Dornbusch	0.6[a]	1.5
Dornbusch-Krugman	***	2.2
Simplified Structural Model		
Kwack	1.8	2.7
Full Structural Model		
Artus-McGuirk	***	1.8[b]
MPS (Thurman)	0.7[c]	1.5 - 2.0[c,d]
Berner and others	***	1.5
Structural Model with Endogenous Exchange Rate		
MCM (Hernandez-Cata and others)	0.26 - 0.92[a,d]	0.8 - 1.5[a,d]

[a]Estimate assumes no change in oil prices.

[b]Estimate assumes no change in oil prices, as well as policy responses which prevent any changes in the path of real GNP.

[c]Estimate is for the personal consumption expenditure deflator, rather than the CPI.

[d]A range, rather than a point estimate, is given because the size of the impact on consumer prices depends on the reason for the exchange-rate change or on the policy reaction to the exchange-rate change.

All estimates are based on depreciation of the dollar, as measured by the Federal Reserve Board trade-weighted dollar index; estimates for studies other than our own are as adjusted for comparability by Hooper and Lowrey (1979) or Glassman (1985).

approximately 1.6 percent after one year, 3.4 percent after two years, 4.3 percent after three years, and ultimately 4.85 percent. A rise in the dollar would have opposite effects (see Appendix).

The distributed lags shown in Table 2 between the dollar's value (e_t) and other price indexes (p_{it}) also indicate substantial responses following exchange rate changes. The results for services are particularly noteworthy. Since most of the services in the CPI are not traded internationally, it seems plausible that exchange rates would have little direct effect on the prices of services. The strong response for price indexes based on services may reflect indirect effects from exchange rate changes to wages, interest rates, or aggregate demand conditions.

Our results confirm that the lags in question are fairly long. For all three series, over half of the total cumulative change in prices comes more than a year following the exchange rate change, and sizable effects occur even beyond two years.

Table 3 presents our results for the overall CPI and compares them with results from other studies that attempt to estimate the narrower structural link between the dollar and U.S. prices. The other studies hold constant, depending on the study, such variables as real GNP, monetary policy, or wages. Our results show by far the largest long-run rise in the CPI following a depreciation of the dollar.

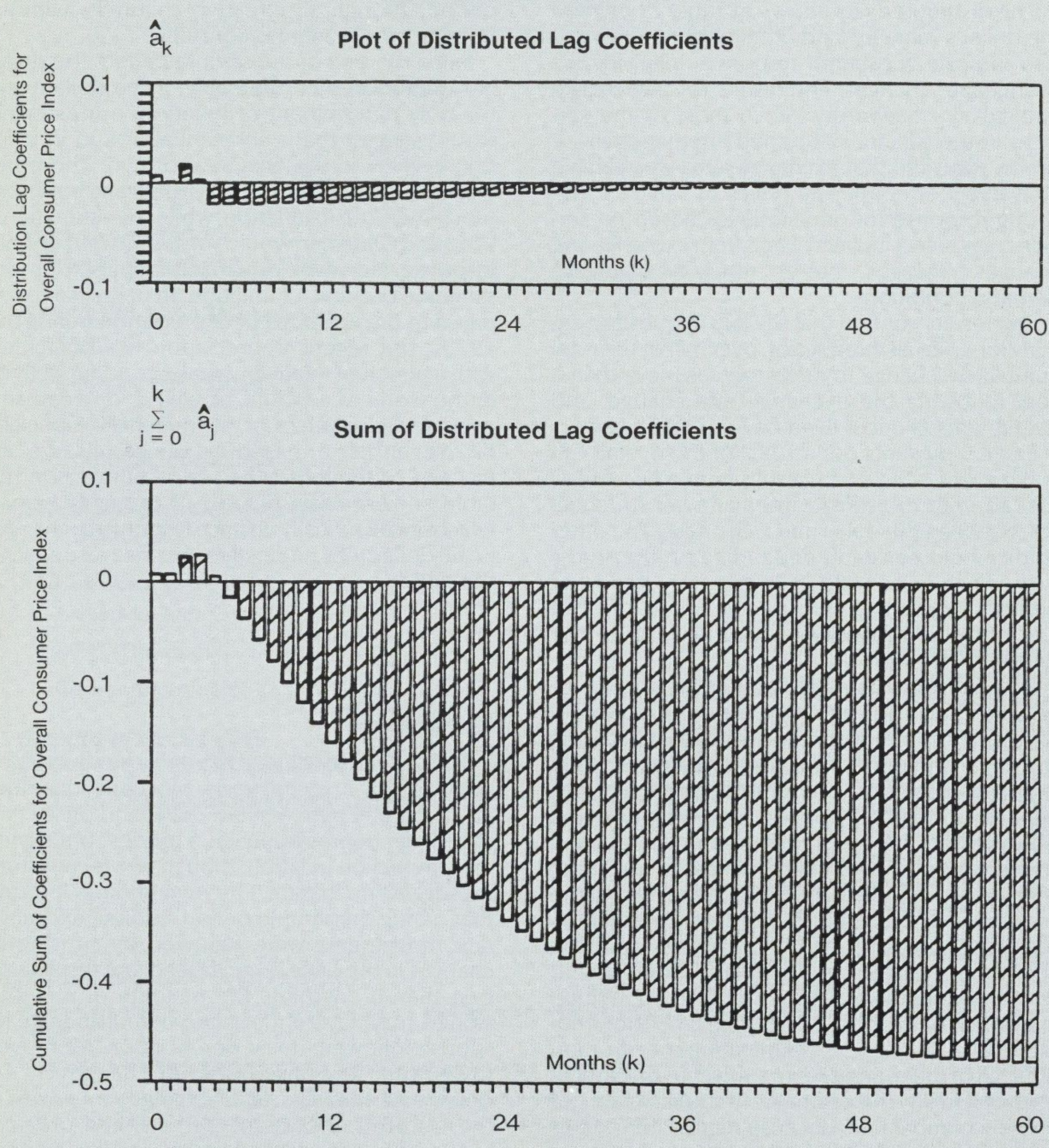
All of the estimates in Table 3 are subject to qualification. The various studies use data from different time periods; if the relationship between the dollar and prices changes through time, then estimates based on one time period might not apply to another time period. Secondly, all of the estimates are based on assumptions about the specification of the relationships in question, such as lag structure for included variables and the properties of the residual error term. In addition, the single equation regression models and the structural models require assumptions about which possible explanatory variables to include and which to exclude. Since there is no foolproof method of testing for or eliminating specification error, all of the estimates are subject to this source of error. Finally, the estimates in the table are not entirely comparable, because regression models and the structural models attempt to estimate the partial effect of the dollar on prices, holding constant other variables such as wages, monetary growth, or oil prices; moreover, different studies hold different variables constant. By contrast, our time series analysis attempts to estimate the price response to dollar movements during our sample period through all effective channels, without holding other variables constant.

Since the end of our sample period, the dollar has depreciated considerably. If the dollar were the only determinant of inflation, our estimate would suggest that a substantial pickup in inflation is likely in the next year or two. The other studies in Table 3 suggest a significant but more modest pickup in inflation, while the estimates of Woo and Glassman would suggest no perceptible response. However, other factors suggest a more sanguine outlook for inflation. In particular, compared to the episodes of depreciation during the 1970s, the recent depreciation has coincided with a period of relatively weak economic activity in the world as a whole, as well as of weak and even declining prices of raw materials, especially oil. Nevertheless, based on our results, we are inclined to think that the other estimates in the table, and especially those by Woo and Glassman which find essentially no price response to changes in the dollar, may understate the price response to the dollar.[17]

Conclusion

The exchange value of the dollar has fluctuated considerably in recent years. Most previous studies of the link between the dollar and prices find that dollar depreciation has a modest but significant impact on inflation, though two recent studies suggest no impact. Our own findings indicate that during the sample period studied, exchange rate movements were followed by substantial changes in the price level. Indeed, our results suggest that, if anything, the majority of previous studies may have understated the inflationary response following dollar depreciation. Moreover, there were long lags between changes in the dollar and the associated changes in prices. If these historical patterns persist, then progress toward a policy goal of price stability may be incompatible with a continuation of wide fluctuations in the value of the dollar.

Figure 2.
The Distributed Lag Relationship Between the Dollar (e_t) and Prices (p_{1t})



The top frame shows the particular price responses at various lags, while the bottom frame shows how the cumulative price response builds through time. The response is largely complete after four years.

Source: Federal Reserve Bank of Atlanta.

Estimating the Distributed Lag Relationships

Our results based on the univariate residual cross-correlation functions and Granger tests indicate substantive relationships in which the dollar leads prices over long distributed lags. The corresponding cross-correlation functions reveal that the first few coefficients in these distributed lags are often positive, while the next twelve to twenty-four coefficients are mostly negative. The Granger tests reveal no empirical support for the alternative hypothesis that movements in prices lead the dollar.

In terms of equations (1) and (2), these results indicate that all of the b_k's are approximately zero but that at least some of the a_k's are different from zero. Therefore, we confine our attention to estimating the coefficients in equation (1). Equation (1) was estimated using constraints suggested by the specification test results. Leaving the contemporaneous coefficient and the first three monthly lag coefficients unconstrained (because some of the first few cross-correlations were positive), we restricted the remaining coefficients to lie along a damped polynomial, the "modified Almon lag" proposed by P. Schmidt [Schmidt (1974), G. S. Maddala (1977) pp. 363-364]. This lag structure combines an Almon lag with a Koyck lag, allowing the polynomial portion implied by the Almon lag to dominate over the first several coefficients, while the Koyck lag eventually damps the coefficients toward zero. The noise model for n_{1t} is estimated simultaneously to enable consistent and asymptotically efficient estimation of equation (1); see Box and Jenkins (1976), pp. 388-395. For further details on the estimating procedures, see Koch, Rosensweig, and Whitt (1986).

The estimated distributed lag coefficients, a_k; k = 0, 1, 2, ..., for the overall CPI are plotted in the first frame of Figure 2. In the second frame, the cumulative sum of coefficients, $\sum_{j=o}^{k} a_j$, is plotted for k = 0, 1, 2, ... 60. This quantity represents the cumulative response after k months in the CPI following a sustained one percent increase in the value of the dollar. The contemporaneous and first three lagged coefficients are all positive, as suggested by the cross-correlation function, though only the coefficient at lag two months is statistically significant at the .05 level. The coefficients beyond lag three months are all negative. The cumulative sum of the coefficients turns negative beyond lag four months and grows toward an eventual sum of approximately -.485.

Table 2 gives the cumulative sum of the coefficients at various lags for all our price series. For the CPI, the sum through twelve monthly lags is -.16; through twenty-four lags, -.34; through thirty-six lags, -.43; and the infinite sum converges to approximately -.485.

NOTES

[1]See H. G. Johnson (1969) and R. J. Gordon (1970).

[2]See K. M. Carlson (1980), J. A. Tatom (1981), and A. S. Blinder (1979).

[3]For a review of the literature on purchasing power parity, see Officer (1976).

[4]See I. B. Kravis and R. E. Lipsey (1978), and J. A. Frenkel (1981).

[5]The original studies include R. Dornbusch (1978), F. Modigliani and L. Papademos (1975), and E. Spitaeller (1978). In other studies, R. Dornbusch and P. Krugman (1976) and R. J. Gordon (1982) obtain similar through larger estimates.

[6]These estimates typically assume no change in certain other variables which may affect the price level, such as the growth rate of the money supply or real gross national product. The original studies are J. L. Prakken (1979), S. Y. Kwack (1977), J. R. Artus and A. K. McGuirk (1981), S. S. Thurman (1977), R. Berner and others (1975), E. S. Urdang (1978), and E. Hernandez-Cata and others (1978).

[7]Most of the earlier studies discussed above included at least some data from the period before generalized floating began.

[8]Other studies have estimated the lagged effects of the dollar on prices, but they have usually imposed restrictive lag patterns without much justification.

[9]G. E. P. Box and G. M. Jenkins (1976) provide a useful introduction to time series analysis. The use of time series methods in macroeconomics is somewhat controversial; for a critical analysis see T. F. Cooley and S. F. LeRoy (1985).

[10]Depreciation of the dollar corresponds to a fall in this index. We have also employed the Morgan Guaranty dollar index in this analysis, with robust results. For more details on the construction and rationales for these and other indexes of the value of the dollar, see D. Deephouse (1985) and J. A. Rosensweig (1986).

[11]The data for e_t and p_t often display trends and systematic seasonal movements, implying nonstationarity. This problem is addressed by detrending and deseasonalizing each series with a time trend and eleven seasonal dummies in the regression models. The results may then be interpreted as the relationships between the dollar and prices, abstracting from systematic movements due to trend and seasonality.

We have also estimated the relationship between e_t and p_{1t} using two other common methods to account for the nonstationarity implied by trend and seasonality: (i) take the first log difference of each variable and include eleven seasonal dummies in the distributed lag model; (ii) take a first and a twelfth difference on the log of the data, before estimating the time series model.

We prefer to employ the levels of e_t and p_{it} rather than their first or twelfth differences, since it is the relationship between their levels that concerns us. Hence, the method outlined in the text is preferred to those listed here. The distributed lag relationships are found to be robust, regardless of the method used.

[12]In particular, the random error term is not restricted to be a white noise process. In the case of the estimated model for p_{1t}, the best model for the random error term is a fairly complicated MA process.

[13]To do this, univariate Box-Jenkins models are first estimated separately for p_t and e_t; the residuals from these models are then calculated; and finally, the cross-correlation function between the two sets of residuals is obtained.

[14]The line for lag zero in the middle of Figure 1 gives the contemporaneous correlation, which is not significantly different from zero.

[15]For a more detailed description of the Koch-Yang test and its results for these data, see P. Koch, J. A. Rosensweig, and J. Whitt (1986).

[16]Granger's definition of "causality" differs from the traditional philosophical concept in that it is purely predictive (Granger, 1969). Throughout this study, the term refers to Granger causality.

[17]Such understatement might arise in single-equation or structural models because significant channels through which the dollar affects prices are erroneously omitted from a model, or perhaps because of measurement error. For instance, if import prices are measured with error, then in a regression model using import prices as one of the variables explaining overall inflation, the estimated coefficient on import prices should be biased toward zero, leading to an understatement of the estimated impact of the dollar on overall inflation.

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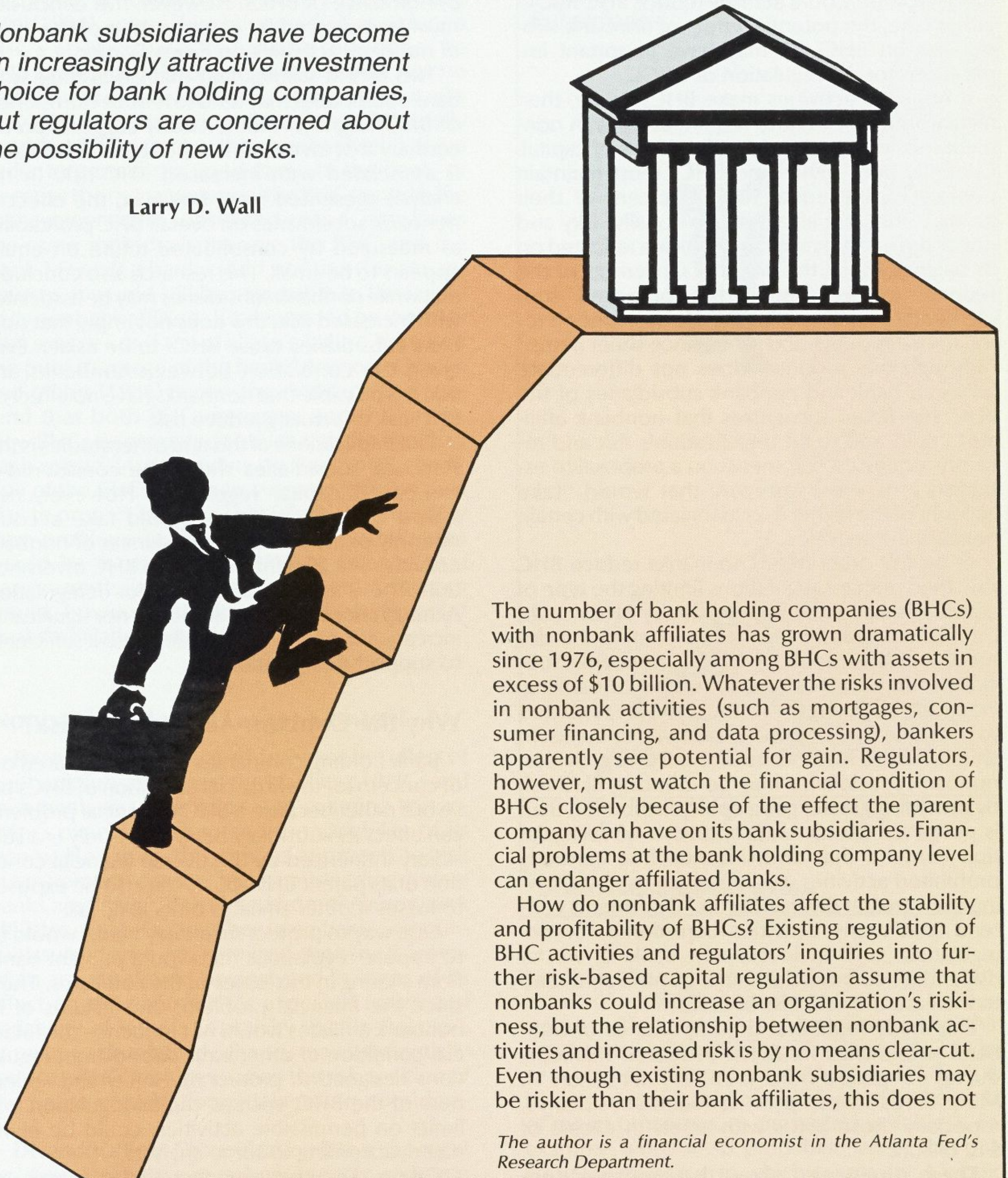
Nonbank Activities and Risk

Nonbank subsidiaries have become an increasingly attractive investment choice for bank holding companies, but regulators are concerned about the possibility of new risks.

Larry D. Wall



The number of bank holding companies (BHCs) with nonbank affiliates has grown dramatically since 1976, especially among BHCs with assets in excess of $10 billion. Whatever the risks involved in nonbank activities (such as mortgages, consumer financing, and data processing), bankers apparently see potential for gain. Regulators, however, must watch the financial condition of BHCs closely because of the effect the parent company can have on its bank subsidiaries. Financial problems at the bank holding company level can endanger affiliated banks.

How do nonbank affiliates affect the stability and profitability of BHCs? Existing regulation of BHC activities and regulators' inquiries into further risk-based capital regulation assume that nonbanks could increase an organization's riskiness, but the relationship between nonbank activities and increased risk is by no means clear-cut. Even though existing nonbank subsidiaries may be riskier than their bank affiliates, this does not

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necessarily imply that the nonbank subsidiaries increase the riskiness of the holding company. It is possible that gains from diversification of an organization's portfolio, especially geographic diversification, could actually reduce BHC risk. In either case, the potential effect of nonbank subsidiaries on BHC risk may have important implications for the regulation of BHCs.

If nonbank activities make BHCs riskier, then regulators might want to require BHCs with nonbank subsidiaries to hold higher levels of capital. Currently both banks and BHCs must maintain primary capital equal to 5.5 percent of their assets.[1] Since not all assets are equally risky and not all the risks taken by the bank are reflected on its balance sheet, the Board of Governors of the Federal Reserve System has proposed supplemental guidelines that include adjustments for the riskiness of on- and off-balance sheet items.[2] Although this proposal does not differentiate between bank and nonbank subsidiaries of the BHC, the Board recognizes that nonbank affiliates could add to an organization's risk and recently requested comments on a proposal to establish a new risk category that would "take account of the higher risks associated with certain nonbanking activities . . . ."[3]

If, on the other hand, nonbanks reduce BHC risk, then perhaps regulations limiting the type of activities that can be undertaken by BHCs could be relaxed. Current regulations confine the domestic involvement of BHCs' nonbank subsidiaries to activities closely related to banking. Practically speaking these nonbanks are restricted to the same kind of activities allowed to banks. In spite of these restrictions on nonbank activities, nonbank subsidiaries may be reducing BHC risk by providing greater geographic distribution than is permitted for banks. Proponents of deregulation contend that diversification into currently prohibited activities would reduce risk by allowing even greater diversification.[4] Opponents contend that many activities considered for deregulation, such as investment banking, are far riskier than commercial banking and would tend to increase the riskiness of BHCs.[5]

This study finds that the importance of nonbank subsidiaries for BHCs increased markedly during the period from 1976 to 1984 (Chart 1). More BHCs invested in nonbank subsidiaries, especially those BHCs with assets in excess of $10 billion.

These results also show that nonbank subsidiaries are generally less profitable than their banking affiliates. Indications of lower profitability combined with other studies' findings that nonbank subsidiaries are riskier may seem to suggest that nonbank subsidiaries weaken the performance of BHCs. However, this conclusion must be balanced by consideration of the effect of nonbank activities on diversification.

Two recent studies find that on average nonbank subsidiaries may tend to reduce the riskiness of BHCs slightly. Another study suggests on the contrary that investment in nonbank subsidiaries is associated with increased BHC risk. In the analysis presented here, however, the effect of nonbank subsidiaries on overall BHC profitability as measured by consolidated return on equity appears to be small. This research also concludes that while nonbank subsidiaries may be associated with increased risk, this does not imply that nonbank subsidiaries cause BHCs to be riskier. Even given the correlation between nonbanks and risk, it is possible that nonbanks have no effect on BHC risk or actually reduce risk.

The implications of this and other studies is that nonbank subsidiaries should be considered in risk-based capital regulation. However, risk-based capital regulation should take account not only of the stand-alone riskiness of nonbank activities but also their effect on BHC diversification. These findings are neutral for deregulation. Although nonbank subsidiaries do not significantly increase risk, neither do they decrease it sufficiently to support deregulation.

Why the Concern About BHC Risk?

Bank holding companies are not regulated out of concern for the financial condition of BHCs per se but rather because a BHC's financial problems can affect its subsidiary banks. Not only is a subsidiary influenced by the overall financial condition of its parent BHC, but it can also be exposed to losses if other affiliates of its BHC fail.

One way to protect subsidiary banks would be to impose regulations that would prevent banks from sharing in the losses of their affiliates. Then, since the financial problems and failures of its nonbank affiliates would not influence the financial condition of other bank subsidiaries, regulations designed to protect the safety and soundness of the BHC, such as capital regulation and limits on permissible activities, could be eliminated, according to some analysts.[6]

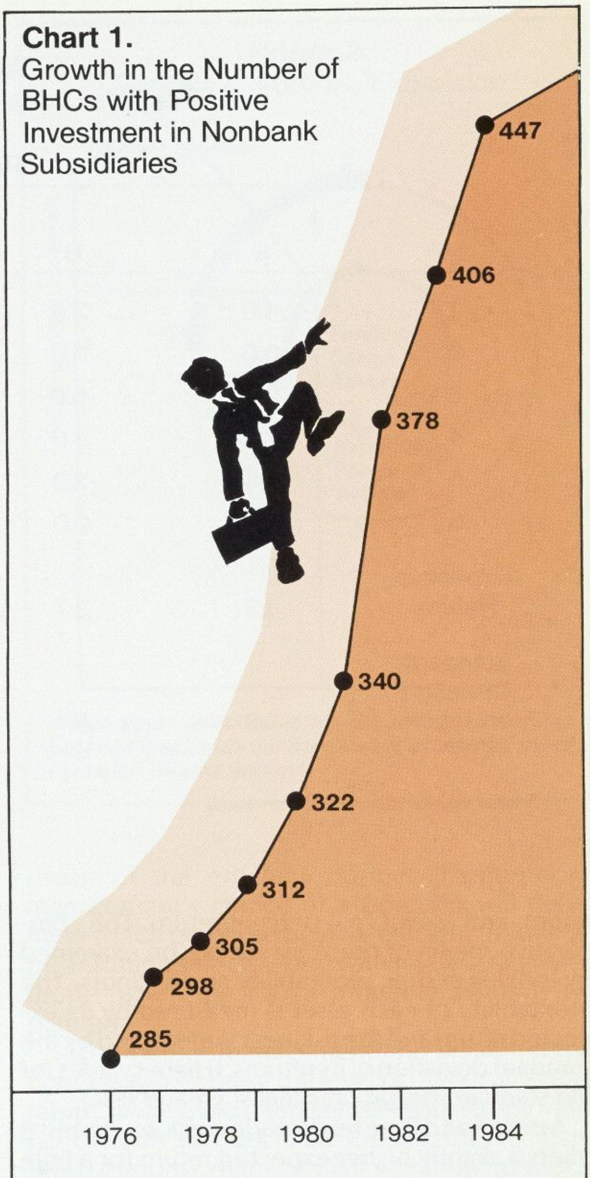
Others claim that even though the current system attempts to protect banks from problems in their nonbank affiliates through regulations that limit a bank's ability to transfer resources to BHC affiliates, including limits on dividends and loans to affiliates, additional restrictions may be needed. According to Robert Eisenbeis (1983) and Larry Wall (1984), although existing guidelines reduce a BHC's ability to use its banking subsidiaries to help nonbank affiliates, regulations may not be sufficient to prevent a transfer of resources. Banks may, for example, attempt to aid their financially troubled BHC parent or their nonbank affiliates in order to protect the good name of the bank, or because the management of the BHC controls the management of its subsidiary banks. (Often times the same individuals manage the BHC and the bank.) Even if a bank could not transfer any resources, it would still be vulnerable to the failure of its nonbank affiliates if it depended on them for vital services or if the affiliate's failure impaired the public's image of the bank.[7] Anthony Cornyn and others (1986) review the evidence and contend that both BHC managers and the public view BHCs as integrated entities with the health of each subsidiary depending on the overall condition of the BHC. Eisenbeis suggests that the only way to protect banking subsidiaries completely from problems in their nonbanking subsidiaries would be to require the BHC to operate as a passive portfolio manager. He notes that doing so would, however, eliminate the advantages of banks' affiliation with BHCs.[8]

Nonbank Risk in a Larger Context

The most obvious way of analyzing the effect of nonbank subsidiaries on the stability of BHCs and their banking subsidiaries is to examine the activity's expected return and the variability of its return. However, this simple approach to risk measurement can be highly misleading unless banks are financially isolated from their nonbank affiliates. If transactions between bank and nonbank subsidiaries are permitted, then the riskiness of an activity should be analyzed in terms of its effect on the entire BHC's expected return and variability of return. An activity that, in isolation, appears to be relatively chancy may substantially reduce a BHC's riskiness when the risk position of the entire organization is taken into consideration.

Diversification. Diversification into a variety of holdings or over a broad geographic area can defuse risk, even when some of the individual holdings themselves are risky. The misleading nature of activity-by-activity analysis can be illustrated with a simple example. Suppose that regulators are considering allowing a BHC to invest in three different assets: A, B, and C. Each of the assets could yield one of six equally likely rate of return outcomes, as presented in Table 1. For example, a one-in-six probability exists that outcome 2 will occur, in which case asset A would yield a return of 0 percent, asset B a 9 percent

Chart 1.
Growth in the Number of BHCs with Positive Investment in Nonbank Subsidiaries



Source: Federal Reserve Bank of Atlanta.

Table 1.
Possible Gains from Diversification

	Rate of Return on Assets				
	A	B	C	Portfolio of A and B	Portfolio of all 3
1	-4.0	2.0	14.0	-1.0	4.0
2	0.0	9.0	4.0	4.5	4.3
3	3.0	-5.0	14.0	-1.0	4.0
4	7.0	9.0	-6.0	8.0	3.3
5	7.0	-2.0	8.0	2.5	4.3
6	7.0	9.0	-8.0	8.0	2.7
Expected Return	3.3	3.7	4.3	3.5	3.8
Standard Deviation of Return	4.2	5.7	8.7	3.7	0.6

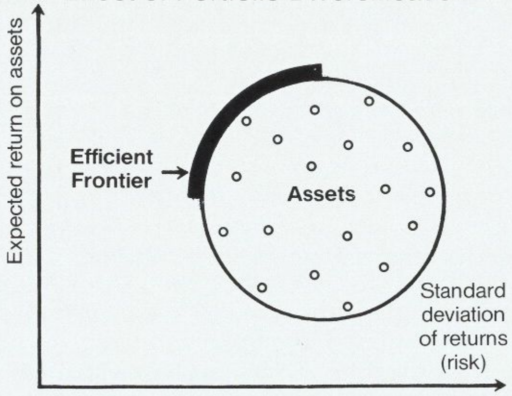
Source: Federal Reserve Bank of Atlanta.

return, and asset C a 4 percent return. The comparative merits of these assets can be examined by looking at their profitability and riskiness. The profitability of each asset is measured by its expected return and the riskiness is measured by the standard deviation of its returns. (Higher values for the standard deviation suggest greater risk.)

Assets A and B are relatively low risk assets, but B offers a slightly higher expected return for a little more risk. Asset C is substantially riskier and has a somewhat higher expected return than either asset A or B. If a banking organization were permitted to invest in only one asset, then asset C would be the least desirable since it has a much higher standard deviation and only a slightly larger expected return. However, asset C could be highly desirable if a BHC were investing in a portfolio of assets. The returns from a portfolio with equal combinations of assets A and B are presented in the fourth column. This limited portfolio results in expected returns that are midway between the returns of assets A and B and a standard deviation lower than either asset A or asset B taken singly. However, a portfolio of assets A, B, and C formed with equal weights on all three assets produces even better results. The expected return on the three-asset portfolio is slightly greater than on the two-asset portfolio, and the standard deviation of returns on the three-asset portfolio is substantially lower—0.6 percent versus 3.7 percent. Thus, if our hypothetical banking organization is allowed to invest in more than one asset, then C should probably be permitted.

The effect of diversification is demonstrated more generally in Figure 1.[9] The vertical axis on Figure 1 represents an asset's expected return, and the horizontal axis measures the standard deviation of the return. The dots in Figure 1 represent different assets, such as bank assets or the sort of stocks and bonds individuals might invest in. If an investor purchased only one asset, he could expect the risk and return associated with the individual dot he chooses. However, if the investor purchased a portfolio of several assets, then the potential combinations of risk and return would include all the combinations in the circle.

Figure 1.
Effect of Portfolio Diversification



Through diversification an investor expands the options for combinations of risk and returns from one dot (representing a single asset) to all the dots or combinations in the circle.

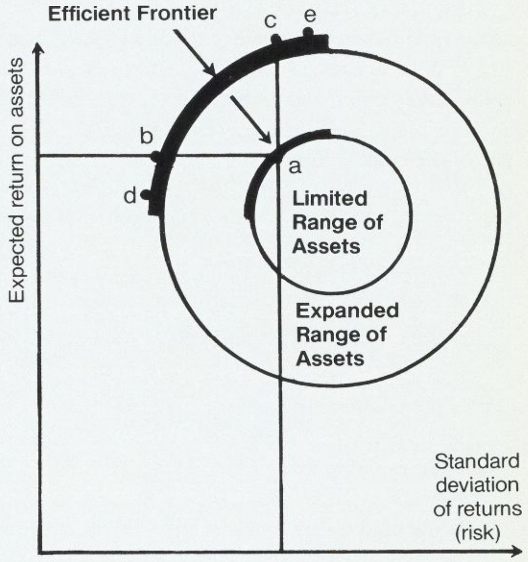
Investors seeking the maximum return for the minimum risk will select a point on the upper left-hand side of the circle, the efficient frontier, as these points are superior to other alternatives.

The effect of expanding the list of assets available to an investor can be seen in Figure 2. The inner circle represents the choices available when tight controls are placed on permissible assets; the outer circle represents the choices when the list of permissible assets is expanded. The exact placement of the two circles depends on the particular assets under consideration. However, expanding the list of permissible assets can never shrink the circle, because investors can always choose to ignore assets on the expanded list.

Figure 2 illustrates that wider asset selection is always preferable. Suppose for instance that an investor initially constrained to the inner circle chose his assets so that he would obtain the risk and return at point a. When the list of assets is expanded, the investor can choose to maintain the same return while reducing his risk through diversification (point b) or he can maintain the same risk and receive a higher return through diversification (point c).

Management Influences. Portfolio theory is inadequate by itself to determine the effect of BHCs, according to Stephen A. Rhoades (1985). The discussion of diversification implied that the efficient frontier is dictated solely by the restrictions on BHC assets, but in fact the way assets are managed significantly affects the location and

Figure 2.
Benefits of Portfolio Expansion



Wider asset selection is almost always preferable because it expands the permissible combinations of expected returns and risk.

shape of the efficient frontier. Furthermore, management's choice of a portfolio will determine which point on the new efficient frontier an organization selects—one with less risk or greater profit—when the list of potential assets is expanded.

Incompetent management and weak internal controls can increase the level of risk for any given return, while good management with strong internal controls can decrease the risk for any given level of returns. Management's strategy, as well as its quality, can influence the efficient frontier. Some managers may choose to run a tightly controlled organization to promote cooperation among its subsidiaries, while other BHCs may allow their subsidiaries to operate with relative independence so that they can respond to conditions in their individual markets. Which strategy will produce the most desirable efficient frontier is debatable; but, in any event, the location of the frontier is likely to change depending on management's strategy.

Figure 2 demonstrates how management can control the location of its organization on the efficient frontier. Suppose that a BHC is at point a prior to deregulation. After deregulation it could move to point b, which has lower risk for the same return, or to point c, which has the same risk with higher return, or to some point in between. However, there is no requirement that the BHC lie somewhere between points b and c on the new frontier. Management could choose a portfolio that lies at point d on the curve, a position with greater returns and greater risks, or point e, with lower returns and lower risks.

Whether or not management would use nonbank subsidiaries to increase a BHC's risk exposure is an empirical question. Regulators are concerned that because FDIC deposit insurance removes some of the negative incentives to increased risk-taking, management will use nonbank subsidiaries to increase risk exposure. However, nonbank subsidiaries are not the only way to increase risk; if managed properly (or improperly) traditional banking activities, too, can be extremely risky.[10] For example, banks can already make or lose substantial sums of money in commercial lending.

How Profitable are Nonbanks?

Before considering the impact of nonbanks on BHC risk, it is important to consider the profitability of nonbank subsidiaries and their effect on the financial condition of parent BHCs. A look at the data from 1976 to 1984 shows that investment in nonbanks has grown dramatically among BHCs with assets greater than $10 billion. Even though the percent invested in nonbanks has shrunk among smaller BHCs—those with assets of under $1 billion and those with assets between $1 billion and $10 billion—the number of BHCs with nonbank subsidiaries has increased across the board (Table 2).[11] This suggests that for whatever reason, BHCs find nonbanks attractive. The analysis in this study indicates that nonbank subsidiaries are more profitable for BHCs with assets over $10 billion.

Examining the extent of BHC investment in nonbanks and the profitability of bank and nonbank subsidiaries, as well as parent BHCs, may offer some insight into the role of nonbanks in BHC investment strategies. Extending previous studies, this research includes all BHCs with positive investments in nonbanks, examines time trends, and splits the sample into three subsamples based on BHC size.[12]

BHC involvement in nonbank activities is measured in two ways: first, the number of BHCs with positive investment in nonbanking subsidiaries and, second, median BHC investment in nonbanking subsidiaries as a percentage of total BHC investment in subsidiaries. The number of BHCs with positive investment in nonbank subsidiaries is increasing for all three size categories. BHCs with consolidated assets of less than $1 billion showed the largest increase in the number of BHCs with nonbank subsidiaries. The number of nonbank subsidiaries and BHCs with consolidated assets in excess of $10 billion doubled over the nine-year period of the study.

The numbers in Table 2 cannot be used to determine the number of BHCs starting nonbank activities in each of the three size categories. The change in the total number of BHCs with nonbank activities does not reflect the total number of BHCs starting nonbank subsidiaries, because the acquisition of one BHC with nonbank affiliates by another with nonbank subsidiaries reduces the number of BHCs reporting nonbank activities. In the smallest size category, the change in the number of BHCs with nonbank activities is also less than the number of small BHCs starting nonbank activities, because some BHCs with nonbank activities shifted size categories as a result of asset growth. Similarly, in the case of BHCs with assets in excess of $10 billion, the change may be greater than the number of BHCs starting nonbank operations because some of the increase reflects the fact that smaller BHCs have changed categories due to asset growth.

Median parent BHC investment in nonbank subsidiaries as a proportion of total parent investment in subsidiaries varies across the different size categories in recent years (Table 3).[13] Median proportion of investment in nonbank subsidiaries by all three size categories was small in 1976 with the largest BHCs having the smallest proportion. While the median proportion has fallen since 1976 for BHCs with assets below $10 billion, it has increased dramatically for the largest BHCs, jumping from 1.8 percent in 1976 to 12.2 percent in 1984.

The returns for nonbank subsidiaries, banking subsidiaries, and consolidated BHCs are provided for each of the nine years in Tables 4-6. Before examining the results, however, several points need to be made about the data. First, any study that uses accounting data from corporations owned by other corporations must implicitly assume that the reported income is an accurate reflection of economic values and that the parent company is not manipulating interaffiliate transfer

Table 2.
Number of BHCs with Positive Investment in Nonbank Subsidiaries

Year	Consolidated Assets: Below $1 Billion	$1 Billion-$10 Billion	Over $10 Billion
1976	153	117	15
1977	159	123	16
1978	155	130	20
1979	154	137	21
1980	158	139	25
1981	172	142	26
1982	197	154	27
1983	206	172	28
1984	244	172	31

Source: Federal Reserve Board of Governors.

Table 3.
BHC Parent Investment in Nonbanking Subsidiaries
as a Percentage of Total Parent Investment in Subsidiaries
for BHCs with Positive Investment in Nonbanks

Year	Consolidated Assets: Below $1 Billion	$1 Billion-$10 Billion	Over $10 Billion
1976	3.0	4.0	1.8
1977	2.4	3.4	2.5
1978	2.5	2.4	4.7
1979	2.7	2.9	5.7
1980	2.4	2.4	3.9
1981	2.6	2.1	3.2
1982	2.4	2.4	8.4
1983	2.3	2.2	11.1
1984	1.6	2.3	12.2

Source: Federal Reserve Board of Governors.

Tables 4-6.
Median Return on Equity for BHCs With Positive Investment in Nonbanking Subsidiaries

Table 4. For BHCs With Consolidated Assets Below $1 Billion

Year	Bank Subsidiaries	Nonbank Subsidiaries	Consolidated BHC
1976	11.0	8.0	11.2
1977	11.4	9.1	11.5
1978	12.6	10.0	12.6
1979	14.0	7.6	13.2
1980	13.3	9.3	12.7
1981	12.9	5.8	12.0
1982	12.8	4.9	11.6
1983	12.7	6.9	11.7
1984	12.0	5.2	11.5

Table 5. For BHCs with Consolidated Assets Between $1 Billion and $10 Billion

Year	Bank Subsidiaries	Nonbank Subsidiaries	Consolidated BHC
1976	11.4	7.0	11.2
1977	11.1	7.7	11.5
1978	12.4	9.7	12.2
1979	13.3	7.7	12.9
1980	13.6	8.4	13.5
1981	13.7	10.4	13.3
1982	13.5	13.7	13.0
1983	12.6	10.3	12.3
1984	13.5	11.0	13.1

Table 6. For BHCs with Consolidated Assets Over $10 Billion

Year	Bank Subsidiaries	Nonbank Subsidiaries	Consolidated BHC
1976	10.5	6.9	10.8
1977	11.0	11.2	11.8
1978	13.0	8.3	13.3
1979	13.6	9.3	14.4
1980	13.6	7.9	14.2
1981	13.0	12.8	13.8
1982	12.0	12.3	12.6
1983	12.0	11.1	12.3
1984	11.5	10.2	11.8

Source: Federal Reserve Board of Governors.

pricing to shift reported income from one subsidiary to another.[14] This assumption is not subject to direct testing, because the fair market value of interaffiliate transactions is not observable. If shifting does, however, bias the reported figures of BHC subsidiaries, it may be toward lower bank risk and higher nonbank risk, since bank regulators are more concerned about the safety of bank subsidiaries than that of nonbank ones.

Second, any study that uses consolidated BHC figures will reflect not only the results of operations among the bank and nonbank subsidiaries, but also those of the BHC parent. The profitability of services provided by the BHC parent must be considered as a relatively minor influence. BHC parents typically place most of the service functions in their subsidiaries so that the parent has few employees and minimal assets. A more significant influence is BHC double leverage practices: some parent BHCs have a greater investment in their subsidiaries' equity capital than they have equity capital of their own, and they fund the excess with debt issues. This double leverage results in both reduced net income and reduced equity for the consolidated BHC.

A third consideration is that a subsidiary and BHC parent may report different figures for income and equity in cases in which the subsidiary is accounted for by the BHC parent through the purchase method of accounting. Then the income will generally be lower and the equity greater on the books of the parent BHC than on the books of the subsidiary for several years after the acquisition. The purchase method of accounting is required when one company acquires another and the transaction is paid for primarily with cash or debt. This method is not used for de novo subsidiaries created by the BHC, nor is it allowed for acquisitions financed exclusively by stock of the acquiring organization. The direction and extent of this distortion is hard to measure since it depends on how many subsidiaries each BHC has acquired, how much they are worth, and on the method used to finance the acquisitions. This consideration is an important one for any study that calculates return on investment using data from the parent company.

Given these caveats, an examination of the data shows that the median return on parent investment in nonbank subsidiaries is consistently below that of the return on banking subsidiaries for the smallest BHCs (Table 4). In some cases, such as 1982, the return on the nonbank subsidiaries was less than half that of the banking subsidiaries. Furthermore, the lower median returns for nonbank subsidiaries are reflected in median returns that are lower for the consolidated BHCs than for BHCs investing in bank subsidiaries.

One possible explanation for the results in the category for the smallest BHCs is that nonbank subsidiaries are inherently less profitable. This explanation implies that the proportion of BHC investment in nonbanking activities is falling because small organizations are reducing their exposure to less profitable activities. However, the increase in the number of small BHCs with nonbank subsidiaries appears to contradict this hypothesis, suggesting that smaller BHCs find nonbank activities desirable (Table 2). An alternative reason for the low profitability could be that many small banking organizations are opening de novo nonbank subsidiaries. Then the low profitability of the de novo subsidiaries would be reducing the median profitability of all the subsidiaries, and the small size of the new subsidiaries would be reducing the median proportion of BHC investment in nonbanking subsidiaries. Another explanation is that many of the new nonbank subsidiaries may have been organized to provide services to their BHC affiliates. In this case the parent organization might not be concerned about the profitability of the nonbank activities, since the nonbank subsidiary's profits would be earned at the expense of the other subsidiaries.

For the intermediate size BHC (consolidated assets between $1 billion and $10 billion), median nonbank subsidiaries appear to be somewhat less profitable than the median banking subsidiaries. The gap is narrower in the 1980s, though, than it was in the 1970s (Table 5). Nonbank subsidiaries helped make the median return on equity of consolidated BHCs somewhat lower than the median return for the BHCs' banking subsidiaries.

The nonbank subsidiaries of the largest BHCs have been the most successful (Table 6). Although their median return is generally below that of the banking subsidiaries, the difference is less than in either of the two smaller size categories, and the return on equity for the consolidated BHC is above that of its banking subsidiaries. This result could, as previously mentioned, reflect double leveraging practices by the BHCs.

Nonbanking subsidiaries of BHCs with total assets below $1 billion, then, reported much lower returns than did their banking affiliates. The nonbank subsidiaries of BHCs with assets above $1 billion did better and the nonbank subsidiaries of BHCs with assets greater than $10 billion came closest to matching banking affiliates.

Determining Risk: Some Prior Studies

While the potential benefits of BHC diversification into currently permissible activities and impermissible activities has been demonstrated by several studies, the actual effect of existing nonbank subsidiaries has received less attention.[15] A look at some prior studies of risk helps put the research presented here into perspective. Examining bond market reactions to bank acquisitions of discount brokers, Wall and Eisenbeis (1984) found that bond returns were not significantly affected by BHC diversification into discount brokerage. BHC diversification into discount brokerage, then, does not significantly affect the market's perception of the riskiness of a BHC. However, the Wall and Eisenbeis study is limited in that it only considers BHC diversification into discount brokers and does not analyze performance after acquisition.

To analyze the effect of nonbank subsidiaries on the risk of capital impairment among BHCs (defined as the probability that cash flows from operations will be less than debt service costs), David R. Meinster and Rodney D. Johnson (1979) developed a special methodology and applied it to determine the impact of nonbank subsidiaries on First Pennsylvania Corporation and Philadelphia National Corporation over the period from the first quarter of 1973 to the third quarter of 1977. They found that nonbank subsidiaries reduced the riskiness of the BHCs they analyzed, but that the financial practices of BHCs caused the consolidated organizations to be slightly riskier than their banking subsidiaries.[16] Meinster and Johnson provide a comprehensive examination of the effect of nonbank subsidiaries on BHC risk, but it applies to only two BHCs. This study also depends on the assumption that BHCs do not shift income between bank and nonbank subsidiaries.

One study finds that BHCs are less risky than their subsidiary banks. Robert E. Litan (1985) examined the mean and coefficient of variation of after-tax earnings as a percentage of assets for 31 large banking organizations over the period from 1978 to 1983 to measure the riskiness of a firm's earnings.[17] He found that the bank holding companies had higher mean returns and lower coefficients of variation of returns—implying lower risk—than their banking subsidiaries. However, Litan notes that the bank holding companies are less risky than their bank subsidiaries for only 16 of the 31 banking organizations in his sample.

Litan worked with a larger sample than Meinster and Johnson, but his sample was still a relatively small proportion of the total number of BHCs with nonbank subsidiaries. (The sample does, however, include the holding companies that are likely to have the largest nonbank subsidiaries.) Litan shares with Meinster and Johnson the implicit assumption that the reported income of banking subsidiaries is an accurate reflection of economic income, and his results may also reflect BHC parent activities and double leverage practices.

In a study that examined the risk of failure (defined as losses in excess of capital) for banking subsidiaries, nonbanking subsidiaries, the combination of bank and nonbanking subsidiaries, and the consolidated BHC over the period from 1976 to 1984, Larry D. Wall (1986) found that nonbank subsidiaries did not increase the riskiness of BHCs and may have caused slight reductions in their riskiness. All BHCs that had nonbank subsidiaries at least six of the nine sample years were included in the analysis. Using data on BHC parent return on investment in subsidiaries for the BHC parent, the study found that nonbank subsidiaries by themselves are indeed much riskier than the banking subsidiaries. However, nonbank subsidiaries provided diversification benefits such that combining bank and nonbank subsidiaries caused a small, statistically insignificant, reduction in the risk of failure on average. Using a contingency table approach to provide statistically significant evidence that nonbank subsidiaries are risk-moderating, the study indicated that nonbank subsidiaries tended to decrease the riskiness of high-risk BHCs and increase the riskiness of low-risk organizations.[18]

Although it is more comprehensive than the other studies, the Wall (1986) study, like the previous two, assumes that reported income is not distorted by interaffiliate transactions. In the Wall study, however, interaffiliate transactions are assumed to bias the results towards nonbanks increasing risk, whereas all three studies using accounting data found evidence for a slight risk reduction. Wall's results may also be influenced by BHC parent activities and double leverage practices. The study uses subsidiary income and equity as reported by the BHC parent, and the figures could differ from those recorded on the subsidiaries' accounting records.

In a study that seems to contradict Wall's 1986 research, John H. Boyd and Stanley L. Graham (1986) show that the risk of failure for a BHC is significantly positively related to its involvement in nonbank activities over the period 1971 to 1977. Their sample consisted of all domestic BHCs with total assets exceeding $5 billion at the end of 1983, except for six deleted due to missing data or special Federal Deposit Insurance Corporation involvement during the sample period. The study obtains its results by gauging a BHC's z-score (the sum of expected return on assets and the capital-to-asset ratio divided by the standard deviation of return on assets) against two measures of nonbank activity, the BHC's debt-to-assets ratio and the log of its total assets. Neither measure of nonbank activity matched exactly with the percentage of BHC assets devoted to nonbank activities, but both are highly correlated with BHC investment in nonbank subsidiaries as a percentage of total investment in subsidiaries over the 1976 to 1983 period. Boyd and Graham also found that the proportion of nonbank activities does not have a statistically significant effect over the full sample period from 1971 to 1983 or the subperiod from 1978 to 1983. They note that the Federal Reserve phased in a "go-slow" policy towards new nonbank subsidiaries beginning in 1974, and they assert that this policy was the primary cause for the difference in results between the 1971 to 1977 subperiod and the 1978 to 1983 subperiod. Thus, they conclude that "when management was left more to its own devices, those BHCs with above-average nonbank activity also exhibited above-average risk."[19] This suggests that careful regulation of BHC expansion may be appropriate.

The results of the Boyd and Graham study may reflect BHC parent activities and double leverage, but unlike the other studies using accounting data, Boyd and Graham's results cannot be biased by interaffiliate transactions. However, the study's finding that nonbank activities are associated with greater BHC risk is consistent with several different interpretations that could reflect three very different explanations: nonbanks cause an overall increase in a BHC's risk of failure; nonbanks do not change the overall risk of failure of BHCs; and nonbank subsidiaries cause a decrease in the overall risk of failure of BHCs.

For example, the first explanation, that nonbank subsidiaries cause an increase in risk, could be interpreted as an indication that at least some BHCs cannot attain their desired risk level with their traditional banking subsidiaries. Nonbank subsidiaries enable BHCs to increase their risk because they allow expansion into the riskier aspects of banking and because nonbank subsidiaries are less tightly regulated than bank subsidiaries. This interpretation raises some concern about additional deregulation of activities, since BHCs could use expanded powers in nonbank activities to become riskier. The hypothesis that nonbank subsidiaries cause an increase in BHC risk is inconsistent with the findings of Litan and Wall showing that BHCs are slightly less risky than banking subsidiaries, and with Wall's finding that nonbank subsidiaries are risk-reducing.

An interpretation consistent with the risk neutrality explanation is that greater nonbank activity is a sign of lower BHC risk aversion, but that nonbank subsidiaries do not cause an increase in overall BHC risk of failure. In this case the bank affiliates are often riskier than the nonbank subsidiaries. Management may invest in nonbank subsidiaries because the long-run risk/return reward is more favorable. This interpretation is not favorable for deregulation, because it suggests that BHCs may not use expanded powers to reduce risk through diversification. However, it may not be as unfavorable for diversification as the first interpretation since it allows for the possibility that BHCs will be able to attain their desired risk level with traditional banking services, thus implying that further deregulation will not automatically result in BHCs becoming riskier. This interpretation of Boyd and Graham's results does not necessarily conflict with Litan's and Wall's evidence that BHCs are less risky than banks, because both of those studies found that the difference between the riskiness of banks and BHCs is small.

An interpretation consistent with the risk reduction explanation is that BHCs with the riskiest banks are investing in nonbank subsidiaries to reduce risk through diversification. For example, geographic restrictions on bank operations may not allow a BHC to obtain adequate geographic diversification. In this case the positive relationship between BHC risk and level of nonbank activities observed by Boyd and Graham occurs because existing nonbank subsidiaries are not sufficient to obviate the risk created by the banking subsidiaries. This interpretation of the risk reduction explanation suggests that deregulation of BHC activities could reduce the riskiness of banking organizations.

The risk reduction interpretation is not consistent with Boyd and Graham's suggestion that the differences in results between the two subperiods were due to changes in Federal Reserve policy. However, their study does not test the role of Federal Reserve BHC regulatory policy, and the possibility exists that the results could be traced to other factors such as disparities in the economic conditions between 1971-77 and 1978-83.[20]

Thus, even though Boyd and Graham's findings seem to suggest that deregulation could lead to increased risk-taking, their results can be interpreted in several ways and are not necessarily inconsistent with nonbanks' having a risk-reducing influence. The results of Litan and Wall could also be interpreted as supporting this finding.

While the evidence seems to indicate that existing nonbank subsidiaries can significantly affect the riskiness of individual BHCs, whether or not they have increased the overall riskiness of banking organizations is less clear. Correlating the results of the three major previous studies—Litan (1985), Wall (1986), and Boyd and Graham (1986)—suggests a likely hypothesis, however. Litan and Wall found that nonbank subsidiaries may have caused a small decline in average risk, but they note that nonbank subsidiaries may have increased the riskiness of some BHCs. Boyd and Graham find that BHC risk is positively associated with its investment in nonbank activities, and one interpretation of Boyd and Graham's results conflicts with Litan's and Wall's research, namely, that nonbank subsidiaries cause BHCs to become riskier. However, Litan's and Wall's findings are consistent with two other interpretations of Boyd and Graham's results: that nonbank subsidiaries have a neutral effect on BHC risk or that nonbanks cause a reduction in BHC risk. Litan's and Wall's results can be reconciled with those of Boyd and Graham if nonbanks have a neutral or risk-reducing effect on BHC risk.

Do Nonbank Activities Increase BHC Risk?

The hypothesis that nonbank activities have a neutral or risk-reducing effect can be tested empirically. If nonbank activities are indeed risk-reducing or neutral with regard to risk, then the relationship that Boyd and Graham observe between nonbank activity and BHC risk must exist because (1) differences in the riskiness of the banking subsidiaries cause differences in BHC risk and (2) nonbank activity is positively correlated with risk among banking subsidiaries. Both of these relationships can be subjected to empirical tests. If either condition does not exist, the risk neutrality and risk reduction explanations for Boyd and Graham's findings would be doubtful. Before going to the empirical analysis one note of caution is necessary. Failure to find significant relationships may suggest rejection of the risk neutrality and risk reduction hypothesis. The existence of significant relationships, however, is not by itself grounds for rejecting the interpretation that nonbank activities cause BHCs to be riskier. There is no logical inconsistency between nonbank subsidiaries causing greater BHC risk and, either (1) bank subsidiaries being associated with greater BHC risk or (2) nonbank activity being positively correlated with bank risk.

Empirical Analysis

The following empirical analysis uses Wall's sample of 267 BHCs reporting positive investment in nonbank subsidiaries for six of the nine years from 1976 to 1984. The data is from parent and consolidated BHC financial statements filed with the Federal Reserve (FRY-6 and FRY-9). The advantage of using FRY-6 and FRY-9 is that it makes possible the calculation of the risk of failure among bank subsidiaries, nonbank subsidiaries, and the consolidated BHC. It also provides information on BHC investment in nonbank subsidiaries. A potential problem with FRY-6 and FRY-9 is that reliable data begins only in 1976. However, Boyd and Graham did not find a significant relationship between the proportion of BHC investment in nonbank activities between 1978 and 1983. Their finding of a relationship between the proportion of BHC investment in nonbank activities and BHC risk must be replicated with Wall's sample before the explanations of Boyd and Graham's results can be considered. All three limitations of the FRY-6 and FRY-9 data noted in the discussion of nonbank profitability also apply to this analysis: (1) reported income of bank and nonbank subsidiaries will depend on the pricing of interaffiliate transactions; (2) BHC parent activities and double leverage policies will influence reported consolidated income and equity; and (3) the reported income and equity of subsidiaries acquired via the purchase method of accounting may not be the same on the parent BHC's books as it is on the subsidiaries' financial statements.[21]

The risk variable used is a measure of the possibility that losses will exceed expected income

Table 7.
Rank Order Correlations
(Significance level in parentheses)

	Nonbank Proportion	Leverage Ratio	Log of Total BHC Assets	g' of Bank Subsidiaries	g' of Nonbank Subsidiaries
g' of Consolidated BHC	-0.1493* (0.0150)	-0.1754* (0.0040)	0.1758* (0.0040)	0.6612* (0.0010)	0.1642* (0.0070)
Nonbank Proportion	1.0000	-0.0574 (0.3500)	0.0769 (0.2100)	-0.2082* (0.0010)	0.4477* (0.0010)
Leverage Ratio		1.0000	0.3295* (0.0010)	-0.0698 (0.2560)	-0.1202* (0.0500)
Log of Total BHC Assets			1.0000	0.1605* (0.0090)	0.0662 (0.2810)
g' of Bank Subsidiaries				1.0000	0.1956* (0.0010)

*Statistically significant at 5 percent.

Source: Calculated by Federal Reserve Bank of Atlanta from Federal Reserve Board of Governors data.

plus capital. The measure is defined as

$$g' = (1 + m) / s$$

where

g' = risk measure

m = mean return on equity over the period from 1976 to 1984[22]

s = standard deviation of return on equity over the period from 1976 to 1984.

This risk measure is similar to Boyd and Graham's z-score. The primary difference is that the z-score is based on return on assets rather than return on equity. The g' measure is inversely related to BHC risk, higher levels of g' implying lower risk. Following Boyd and Graham, leverage is defined as consolidated BHC debt divided by consolidated assets, and the size variable is the logarithm of consolidated BHC assets.

The empirical technique used to analyze the data is calculation of rank order correlations between the different variables. Regression analysis and commonly used correlation techniques assume a linear relationship between the variables of interest. However, it is highly unlikely that the risk measure used by this study is linearly related to the probability of failure. Rank order correlation eliminates the need to assume a linear relationship between the variables. The only assumption required for rank order correlation is that the risk measure be able to rank BHCs from the riskiest to the least risky. The principal disadvantage of this technique is that it does not allow risk to be regressed on three independent variables, so that only one pair of variables can be analyzed at a time.

The correlation coefficients measure the closeness of the relationship between two sets of rankings. The coefficients may range between -1 and +1. A coefficient of +1 indicates that the highest value in one ranking is associated with the highest value in the other ranking, second highest with second highest, third highest with third highest, and so forth. A value of -1 indicates a perfect inverse relationship between the rankings, and a value of zero implies no relationship between the rankings. The figure in parentheses gives the probability that the true rank order correlation coefficient is equal to zero, that is, the probability that no relationship exists between the variables. The closer the number in parentheses is to zero, then, the more significant the correlation. In Table 7 we see the strongest correlation, 0.6612 with a significance level of 0.0010, between the risk measure of consolidated BHCs and the risk measure of bank subsidiaries. Another strong correlation, 0.3295 with a significance level of 0.0010, exists between the leverage ratio and the log of total BHC assets.

The rank order correlations in Table 7 are similar to Boyd and Graham's regression results for the 1971 to 1977 subperiod. BHC risk is directly related to BHC nonbank activity and leverage, and inversely related to the logarithm of total BHC assets (recall that g' is inversely related to risk). Thus, these data may be able to offer evidence supporting or rejecting the risk neutrality and risk aversion explanations.

The results of these tests do not reject the risk neutrality and risk reduction interpretation of Boyd and Graham's results. The riskiness of the banking subsidiaries is positively correlated with the riskiness of the BHC, suggesting that the bank subsidiaries may be the primary determinant of BHC risk. Furthermore, BHC investment in nonbank activities is positively associated with the riskiness of the banking subsidiaries. This suggests that BHC investment in nonbank activities could be the result of either management risk preferences or an attempt by management to diversify.

None of the other empirical results (Table 7) can be used to reject the risk increasing, risk reducing, or risk neutrality interpretations. However, several results provide interesting information on the risk structure of BHCs. The positive relationship of nonbank subsidiary risk with consolidated BHC risk, BHC leverage, and banking subsidiary risk is consistent with the possibility that management preferences influence the riskiness of the BHC's subsidiaries and determine the use of consolidated leverage to influence overall risk. The negative relationship between percentage investment in nonbank subsidiaries and nonbank subsidiary risk suggests that nonbank performance becomes more stable as the size of the subsidiaries increase.

Conclusion

Analysis of the contribution of nonbanks to the financial performance of BHCs suggests that at least some BHCs can gain from nonbank activities. The number of BHCs with nonbank subsidiaries has grown over the period from 1976 to 1984. The proportion of BHC investment in nonbank subsidiaries has increased markedly for BHCs with assets in excess of $10 billion. While the return on investment has been low for BHCs with assets below $1 billion, the returns have improved over the sample period for those with assets between $1 and $10 billion and those with assets greater than $10 billion.

Nevertheless, the riskiness of BHCs remains an issue for regulators, who must be concerned not only with the health of the BHC but with the stability of subsidiary banks, which can be seriously affected by failures among their affiliates. Advocates of deregulation suggest that nonbank subsidiaries will reduce the riskiness of BHCs through diversification. The opponents of deregulation claim that nonbank subsidiaries will engage in high-risk activities that will increase the riskiness of the parent BHC.

This research concludes that while there is indeed a correlation between the proportion of nonbank activity and BHC risk, this correlation does not necessarily mean that nonbanks are the cause of the increased risk. This correlation could hold true even if nonbanks in fact decrease risk or have no impact upon BHC risk whatsoever. A composite of existing research, tested by empirical analysis, seems to support best the hypothesis that nonbanks either decrease BHC risk slightly or have little impact.

Caution is nonetheless implied by the results of these studies. Nonbank activities appear to increase the risk for some BHCs and decrease it for others, indicating that the riskiness of nonbank activities should be taken into consideration in risk-based capital standards. Keep in mind, however, that nonbank subsidiaries should be analyzed in a portfolio context rather than on a stand-alone basis, because activities that appear highly risky in isolation could actually reduce the overall risk of a BHC.

The indications for deregulation from studies of existing nonbank subsidiaries are, then, neutral to slightly unfavorable. Even though, according to this interpretation of the research, nonbanks are most likely to reduce BHC risk or leave it unaffected, the observed risk reductions are sufficiently small and the evidence is sufficiently ambiguous that we cannot count on deregulation to reduce significantly the riskiness of the banking system. Furthermore, the low profitability of some bank subsidiaries could mean that nonbank activities have an adverse affect on the profits of certain BHCs. Thus, any deregulation of activities should be accompanied by careful monitoring of new nonbank subsidiaries.

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NOTES

[1]See R. Alton Gilbert, Courtenay C. Stone, and Michael E. Trebing (1985).

[2]Bank activities that create risk for the bank but do not increase bank assets are often referred to as off-balance sheet activities. An example of an off-balance sheet activity is bank issuance of letters of credit to corporations. When the bank issues a letter of credit it promises to lend money to the corporation at the firm's discretion. However, both the time period for the corporation to exercise its rights and the maximum amount of the loan are limited. In return the corporation pays a fee to the bank. Banks are assuming some risk with a letter of credit. The corporation may request a loan when it is having financial problems and cannot obtain loans elsewhere. However, no asset has been created on the bank's books until the corporation actually borrows money and, therefore, the banking organization does not need to hold additional capital.

[3]Press release, Federal Reserve Board of Governors, January 24, 1986, p. 27.

[4]See Larry Wall (1984).

[5]Failure to deregulate BHC activities may also endanger the banking system by limiting its ability to compete with nonbank firms. Banks may lose market share and may even become obsolete if the selling of traditional banking services in the future requires that the seller be able to provide services traditionally prohibited to banks.

[6]See Samuel Chase (1971), Samuel Chase and John J. Mingo (1975), and Samuel Chase and Donn Wage (1983).

[7]See Larry Wall (1984) and Samuel Talley (1985).

[8]However, Robert J. Lawrence (1985) suggests that banks could be effectively insulated if they were in effect converted into mutual funds with sharp limits on permissible investments.

[9]This example is based on a theoretical study of portfolios by Harry Markowitz (1952).

[10]One reason for believing that deregulation will increase the riskiness of BHCs is that the regulators will be ineffective supervisors of nonbank activities. Regulators understand the risks inherent in traditional banking activities and can therefore properly supervise these activities. Some banks that would like to become riskier cannot because the regulators stop them. However, the regulators may not understand the risks inherent in some currently prohibited nonbanking activities (such as automobile manufacturing or retailing). BHCs could take excessive risks in nonbank affiliates without the regulators' recognizing the problem. Although this may be a legitimate concern, it does not necessarily imply that most nonbank activities must be prohibited. The problem could be solved in a variety of ways; for example, the regulators could hire experts in nonbanking fields and cover any additional costs by levying greater examination fees on to BHCs with selected nonbanking activities.

[11]See Adi Karna (1979) for a discussion of nonbank subsidiary profitability in 1976.

[12]The source of the data is the "Bank Holding Company Financial Supplement" (FRY-9) for the period from 1975 to 1977 and the "Annual Report of Domestic Bank Holding Companies" (FRY-6) for the 1978 to 1984 period.

[13]Median values are used rather than mean values to avoid distortions caused by unusual values of some variables for certain BHCs. In particular the proportion of investment figures are heavily skewed by a small number of BHCs with very substantial investment in nonbank subsidiaries. Also the return on investment figures for some nonbank subsidiaries have abnormally large absolute values, perhaps reflecting the fact that many of the nonbank affiliates are small in relation to their BHC and also the fact that many nonbank operations incurred significant start-up expenses.

[14]This consideration is not limited to analysis of BHC subsidiaries; it applies to analysis of all corporations that are owned by other corporations.

[15]For example, see Arnold A. Heggestad (1976), Johnson and Meinster (1974), John H. Boyd, Gerald A. Hanweck, and Pipat Pithyachariyakul (1980), Roger D. Strover (1982), Jeffrey Born, Robert A. Eisenbeis, and Robert S. Harris (1983), Robert A. Eisenbeis (1983), Larry D. Wall (1984), and Robert E. Litan (1984).

[16]BHCs increased risk by double-leverage. Double leverage exists when a BHC parent's equity investment in its subsidiaries exceeds the value of the parent's own stockholders equity.

[17]The coefficient of variation of after-tax earnings as a percentage of assets is a measure of the riskiness of a firm's earnings. Higher coefficients of variation imply greater risk.

[18]A contingency table is a way of indicating whether two different classifications are dependent on each other.

[19]John H. Boyd and Stanley Graham (1986), p. 16.

[20]Admittedly, there is no obvious test for the effect of Federal Reserve policies for approving nonbank subsidiaries on BHC risk.

[21]One possible way to avoid the problems created by purchase accounting would be to gather income and equity data from the individual subsidiaries. Unfortunately, the only comprehensive source of financial information about individual nonbank subsidiaries of BHCs and about BHC percentage ownership of bank subsidiaries is the "Annual Report of Domestic Bank Holding Companies" (FRY-6) and that data set cannot be used to aggregate partially owned subsidiaries. The ownership figures on the Y-6 file contain numerous errors (such as ownership percentages greater than 100 percent) and omissions. Furthermore, the interpretation of the ownership figures is questionable for tiered BHCs. If a BHC owns 60 percent of subsidiary A and subsidiary A owns 70 percent of subsidiary B, then the BHC's share of B's earnings is 42 percent (60 percent times 70 percent). The Y-6 file may show an ownership interest of 70 percent, however, to reflect the fact that the BHC controls over half of B's stock.

[22]Return on equity for the bank and nonbank subsidiaries is defined as the BHC parent's dividends from subsidiaries plus the parent's interest in the undistributed income of the subsidiaries divided by parent's investment in the subsidiaries. Consolidated return on equity is defined as the net income of the consolidated BHC divided by the equity of the consolidated BHC.

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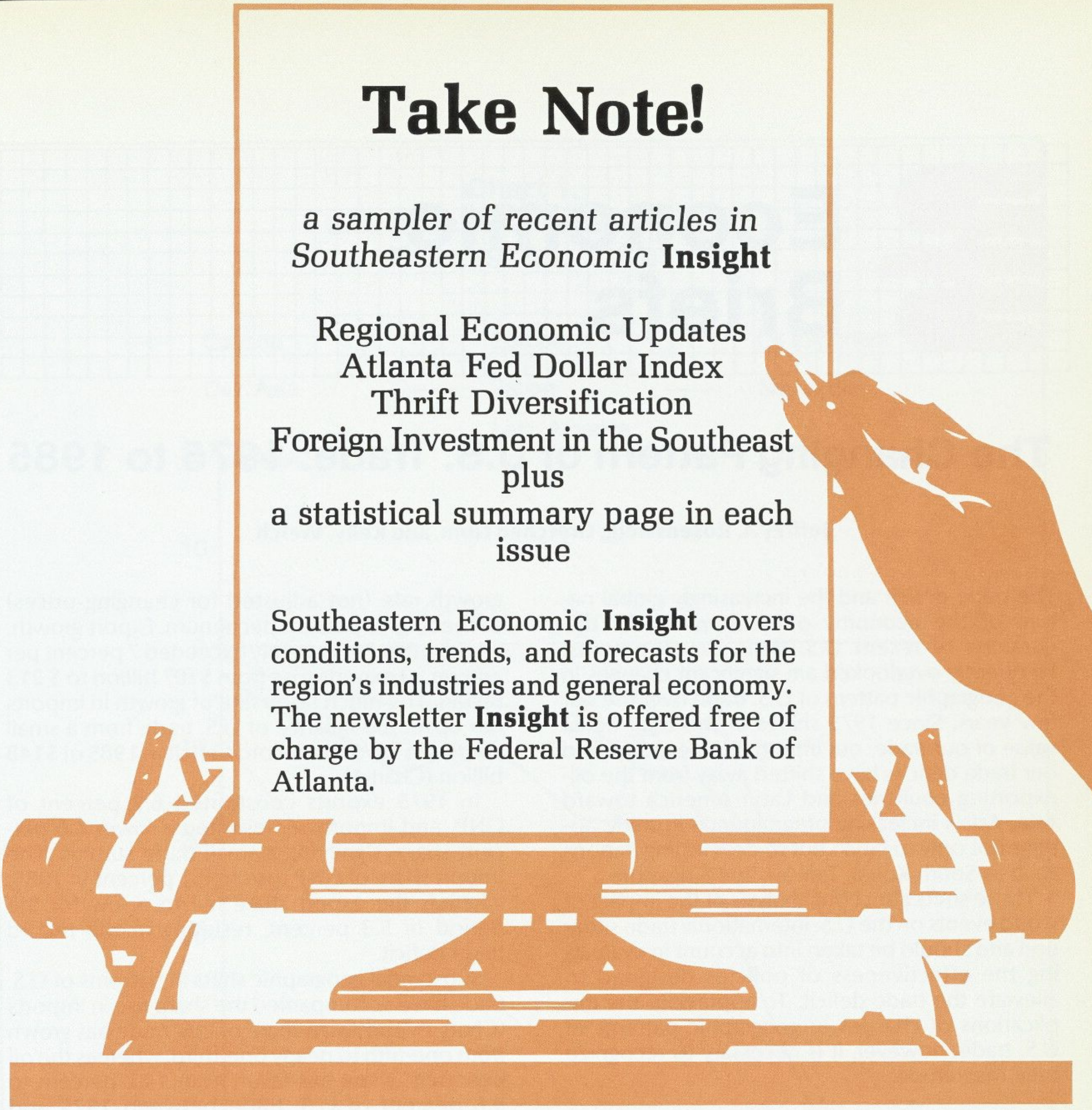

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Economic Briefs

The Changing Pattern of U.S. Trade: 1975 to 1985

Jeffrey A. Rosensweig, Gretchen Lium, and Kelly Welch

The trade deficit and the increasingly global nature of the economy often dominate in discussions of recent U.S. trade developments. Frequently overlooked are significant changes in the geographic pattern of U.S. trade over the last few years. Since 1975 shares in the total dollar value of our trade, our imports, our exports, and our trade deficits have shifted away from the oil-exporting countries and Latin America toward Asia. Asia's increasing preeminence in trade applies not only to Japan but to developing nations such as South Korea, Taiwan, and Singapore.

These shifts affect our analysis of the impact of world events on the U.S. international trade situation and should be taken into account in evaluating the effectiveness of policies designed to alleviate the trade deficit. To appreciate the implications of changes in geographic patterns of U.S. trade, however, it is necessary to recognize their magnitude.

Overall Trends in U.S. Trade

Despite talk about growing global economic integration, total U.S. trade has remained relatively constant as a proportion of GNP since 1974.[1] In current dollars, total trade more than doubled, growing from $207 billion in 1975 to $573 billion. Trade's share of GNP, however, increased only slightly between 1974 and 1980—from 14.2 percent to 17.5 percent. By 1985 it had declined to 14.4 percent.

Total trade figures, however, mask a drastic change in the import-export trade mix. U.S. imports rose from just over $100 billion in 1975 to over $360 billion in 1985, an average nominal growth rate (not adjusted for changing prices) exceeding 13 percent per annum. Export growth, on the other hand, barely exceeded 7 percent per annum, as exports rose from $107 billion to $ 213 billion. The much faster rate of growth in imports has upset the balance of U.S. trade from a small surplus in 1975 to a record deficit in 1985 of $148 billion (Chart 1).

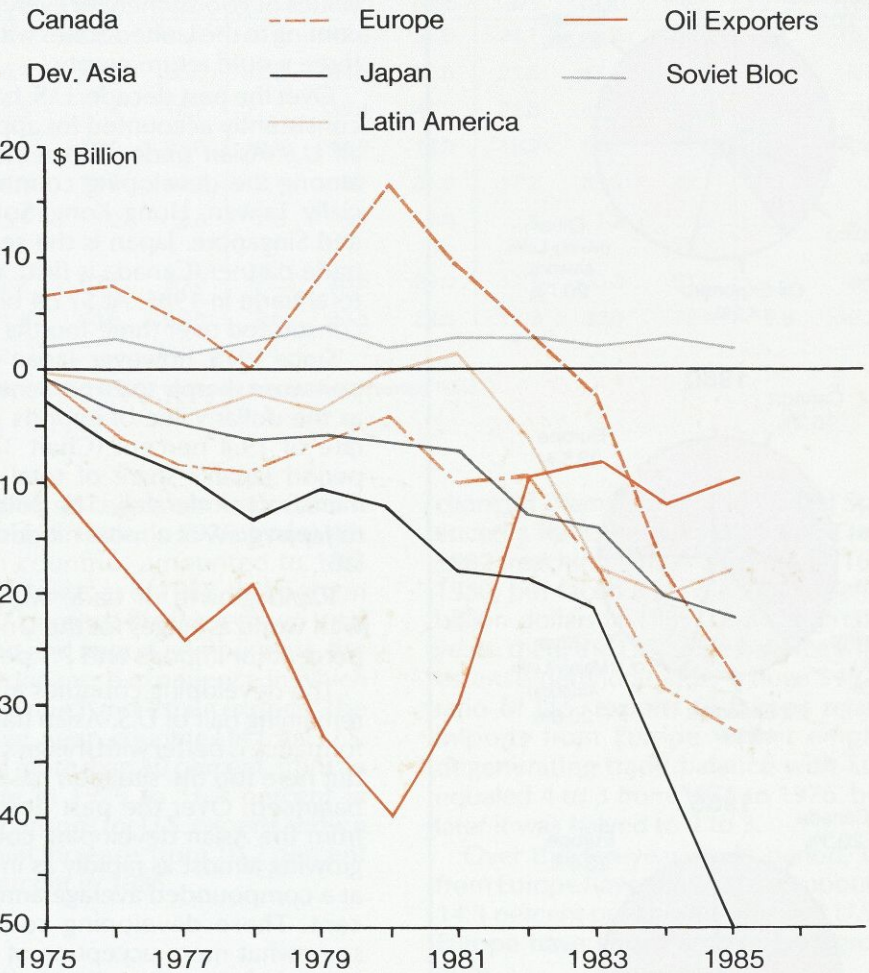
In 1975 exports constituted 6.7 percent of GNP, and imports represented a lower 6.6 percent share, signifying a small trade surplus. The import share of GNP rose to 9.1 percent in 1985, whereas the export share fell to a low for the period of 5.3 percent, resulting in the record trade deficit.

Substantial geographic shifts in patterns of U.S. trade have accompanied the sharp rise in imports (Chart 2). The Asian share of U.S. trade has grown from one-fifth to nearly one-third, whereas the oil exporters' share has fallen from 14.2 percent to 5.8 percent of U.S. trade between 1975 and 1985.[2] The share of U.S. trade accounted for by Latin America and by the Soviet bloc (Soviet Union and East European countries) declined significantly since 1975, as well. The shares with Canada, Europe, and Australia during the same ten-year period remained roughly constant.

Asia: A Rising Force in U.S. Trade

Trade with Asia (including the developing nations and Japan) as a percent of total U.S. trade rose moderately from 20.9 percent in 1975 to 24.2 percent in 1980. The Asian share then exploded

Chart 1.
U.S. Trade Balance by Region
(From 1975 to 1985)

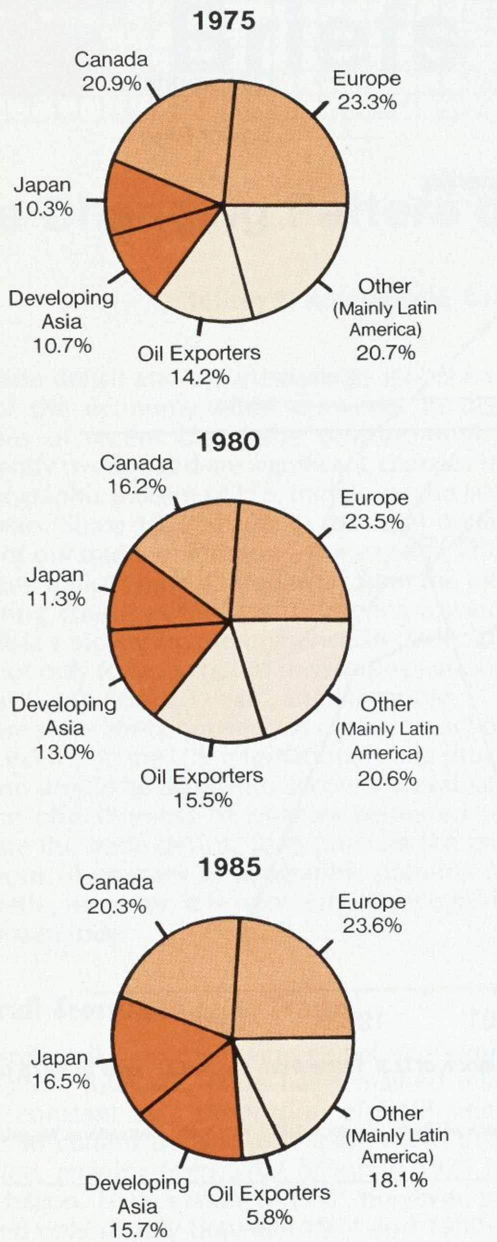


The relatively rapid rate of growth in imports has upset the balance of U.S. trade from a small surplus in 1975 to a record deficit in 1985.

Source: Calculated by Federal Reserve Bank of Atlanta from data in *Directions of Trade Statistics 1986 Yearbook*, International Monetary Fund.

to reach 32.2 percent of U.S. trade by 1985. In nominal dollar terms, trade with Asia has quadrupled from $44.7 billion in 1975 to $185.2 billion in 1985 (Table 1). The majority of this growth can be traced to rapid escalation of U.S. imports from Asia, and not to export growth. Imports from Asia have grown at a nominal rate almost twice that of our exports to Asia—18.7 percent and 9.6 percent, respectively. As a result, the U.S. trade deficit with Asian countries amounted to $82 billion in 1985, or 55 percent of our total deficit. The U.S. deficit with Asia was only $3.5 billion in 1975.

Chart 2.
U.S. Trade by Region as a Percentage of Total U.S. Trade



Since 1975 shares in the total value of our trade have shifted toward Asia and away from the oil-exporting countries and Latin America.

Source: Calculated by Federal Reserve Bank of Atlanta from data in *Directions of Trade Statistics 1986 Yearbook*, International Monetary Fund.

The ratio of U.S. exports to Asia relative to U.S. imports from Asia (X/M, where X/M equal to one indicates trade balance and less than one indicates a U.S. deficit) further emphasizes the deteriorating trade balance with Asia: it was about 6/7 in 1974-75 but fell to under two-fifths by 1985.[3] If ships all carried equal nominal dollar values of goods, then for every five full ships now coming to the United States with goods from Asia, three would return empty.

Over the past decade, U.S. trade with Japan has consistently accounted for approximately half of all U.S.-Asian trade. The remaining half is split among the developing countries of Asia, especially Taiwan, Hong Kong, South Korea, China, and Singapore. Japan is the second leading U.S. trade partner (Canada is first), with $95 billion in total trade in 1985. At $72.4 billion, U.S. imports constituted over three-fourths of this total.

Since 1975, however, Japan's share of U.S. imports rose sharply to 20 percent from 11.7 percent as the dollar value of imports grew at an annual rate of 19.4 percent (Chart 3). Over the same period Japan's share of total U.S. exports also increased moderately. The dollar value of exports to Japan grew at a more modest 9 percent annual rate.

Rapid growth of trade with Japan compares with world averages for the United States of 13.1 percent for imports and 7.1 percent for exports.

The developing countries in Asia make up the remaining half of U.S.-Asian trade. U.S. trade performance is better with this group than with Japan, but here too the situation has become quite unbalanced. Over the past decade, U.S. imports from the Asian developing countries have been growing almost as rapidly as imports from Japan, at a compounded average annual rate of 18 percent. These developing countries have been somewhat more accepting of U.S. exports than Japan. U.S. exports to developing Asian countries have grown at a compounded annual rate of 10.2 percent over the past decade, in comparison to Japan's record of 9 percent average annual growth (Chart 4).

The rapid growth in U.S. imports relative to exports within this group means that the X/M ratio has declined by half, from well over nine-tenths to under one-half, since 1975. In 1985, our $90.2 billion in total trade with this area resulted in a deficit of $32.2 billion. This exceeds our deficit with all of Europe but is only two-thirds of our deficit with Japan.

Table 1.
U.S. Foreign Trade by Region
($ Billions, nominal)

Region	Total Trade 1975	Total Trade 1980	Total Trade 1985	Exports 1975	Exports 1980	Exports 1985	Imports 1975	Imports 1980	Imports 1985	Deficit 1975	Deficit 1980	Deficit 1985
Asia w/Japan	44.7	115.8	185.2	20.6	49.6	51.6	24.1	66.2	133.6	-3.5	-16.7	-82.0
Europe	49.7	112.3	135.5	28.2	64.5	53.6	21.5	47.8	81.9	6.6	16.7	-28.3
Canada	44.5	77.4	116.7	21.7	35.4	47.3	22.8	42.0	69.4	-1.0	- 6.6	-22.2
Oil Exporters	30.3	74.0	33.6	10.4	16.9	12.0	19.9	57.1	21.6	-9.5	-40.2	-9.6
Latin America	34.3	77.7	80.1	17.1	38.7	31.0	17.2	38.9	49.1	-.1	-.2	-18.1
U.S.S.R. & East Europe	3.1	4.2	3.8	2.5	3.1	2.9	.6	1.1	.9	1.9	2.0	2.0
Developing Asia	22.7	62.1	90.2	11.0	28.8	29.0	11.7	33.3	61.2	-.7	-4.5	-32.2
Japan	21.9	53.8	95.0	9.6	20.8	22.6	12.3	33.0	72.4	-2.8	-12.2	-49.8

Source: *Directions of Trade Statistics 1986 Yearbook*, International Monetary Fund.

Clearly, developing Asia has come to claim a significant sector of U.S. trade. In 1975, trade with developing Asian countries amounted to 10.7 percent of total U.S. trade; as of 1985, that portion had grown to 15.7 percent. Breaking down total trade into its export and import components, the results parallel the Japanese experience in which imports have grown much more than exports. The share of developing Asian countries in total U.S. imports expanded more than 50 percent, from an 11.1 percent share in 1975 to 16.9 percent in 1985. Similar comparisons for U.S. exports show a 3.4 percentage point increase, from 10.2 percent in 1975 to 13.6 percent in 1985.

Europe: Share Remains Nearly One-Quarter, But the U.S. Balance Declines

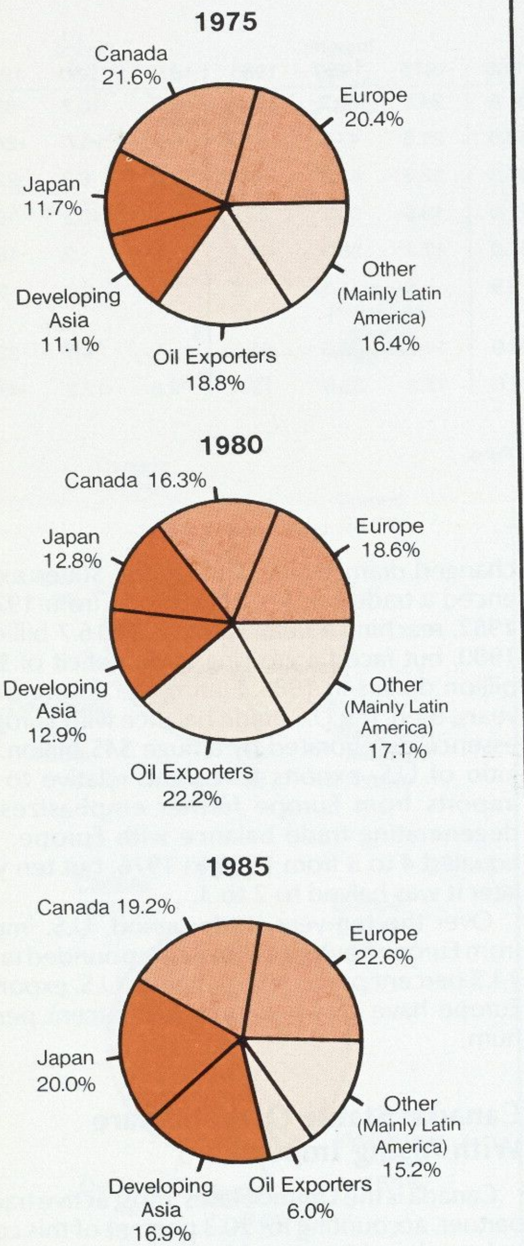
Europe has maintained a fairly stable position in the composition of total U.S. world trade. Over the ten years from 1975 to 1985, the percent of total U.S. trade with Europe has varied little, ranging from 21.9 percent to 23.7 percent. Europe's contribution to total U.S. trade in 1985 compared with 1975 shows an even smaller change, from 23.3 percent in 1975 to 23.6 percent. The export-import mix of European trade, however, has changed dramatically. The United States experienced a trade surplus with Europe from 1974 to 1982, reaching a peak surplus of $16.7 billion in 1980, but faced a growing trade deficit of $28.3 billion dollars in 1985. During the course of five years, then, the U.S. trade balance with Europe in essence deteriorated by a huge $45 billion. The ratio of U.S. exports to Europe relative to U.S. imports from Europe further emphasizes the degenerating trade balance with Europe: X/M equaled 4 to 3 from 1975 to 1976, but ten years later it was halved to 2 to 3.

Over the ten-year study period, U.S. imports from Europe have grown at a compounded rate of 14.3 percent per annum, whereas U.S. exports to Europe have grown at only 6.6 percent per annum.

Canada: Stable Overall Share With Rising Imports

Canada is the United States' most active trading partner, accounting for 20.3 percent of this country's total world trade, with a dollar value of nearly $120 billion. During the mid- to late-1970s Canada claimed 20 to 21 percent of U.S. total trade; however, Canada's share of U.S. trade declined from 20.9 percent in 1975 to 16.2 percent in 1980 before recovering to 20.3 percent in 1984 and

Chart 3.
U.S. Imports from Selected Regions as a Percentage of Total U.S. Imports



Substantial geographic shifts toward Asia have accompanied the sharp rise in imports.

Source: Calculated by Federal Reserve Bank of Atlanta from data in *Directions of Trade Statistics 1986 Yearbook*, International Monetary Fund.

1985. Canada's continuing importance as a major trade partner for the United States calls for special attention to growing deficits with Canada. In 1975 the United States had a relatively small trade deficit of $1.01 billion with Canada. By 1985 the deficit amounted to $22.2 billion, and it is still growing. The X/M ratio, another indicator of trade patterns, also reflects the size of the deficits; the nearly balanced ratio in 1975 had fallen to just more than two-thirds by 1985. Imports from Canada over the 1975 to 1985 period have grown at 11.8 percent per annum, compared to export growth of 8.1 percent yearly. Closer analysis of U.S. deficits with Canada provides additional insight into the present situation. In 1982, the deficit with Canada as a percent of the total U.S. deficit peaked at 30.7 percent before declining to 14.9 percent in 1985. Nevertheless, over the same period the dollar value of our deficits with our largest trading partner has continued to grow.

Latin America: Austerity Lowers Export Share

Latin American trade demonstrates that economic conditions abroad can have a significant impact on U.S. trade patterns. In 1981 the U.S. ran a trade surplus of $1.3 billion with Latin America.[4] Yet in 1982, the United States suddenly faced a deficit totaling $6 billion when austerity measures required Latin America to slash imports to service its foreign debt. Continued cutbacks were accompanied by a jump in the U.S. trade deficit with Latin America to $17.9 billion in 1983 and $20.4 billion in 1984, before it began to "level off" to $18.1 billion in 1985.[5] As a result, U.S. imports from Latin America have grown at 11 percent yearly over the ten-year period (1975 to 1985), but U.S. exports to Latin America have remained at low levels with a mere 6.1 percent per annum growth rate.

The key trend established with Latin America is clearly our export share decline (Chart 4). U.S. exports to this region rose from $17 billion in 1975 to $42 billion in 1981, then plummetted to a low of less than $26 billion in 1983, recovering to just $31 billion in 1985. Latin America absorbed about 16 percent of U.S. exports in 1974-75, and as much as 18 percent in 1981. This share is now 14.6 percent. Growth of U.S. imports from Latin America has also been slow, especially relative to growth of imports from Asia. Latin America now accounts for 13.6 percent of total U.S. imports versus 16.3 in 1975. Falling export and import shares have resulted in a decline in total U.S. trade with Latin America from 16 percent in 1975 to 14 percent in 1985.

Oil Exporters: Boom and Bust

U.S. imports from predominant oil exporters (the IMF defines these countries as OPEC minus Ecuador and Gabon, but with Oman added) peaked at $57.1 billion in 1980, then receded to $21.6 billion in 1985, nearing its level of $19.9 billion a decade before. Products imported from the oil exporting group, as a percentage of U.S. imports, showed a slight increase in the mid- to late-seventies from 18.8 percent in 1975 to 22.2 percent in 1980. However, a steady and pronounced decline since 1980 reduced their percentage share to a mere 6 percent in 1985.[6]

U.S. exports to the oil-exporting countries as a share of total U.S. exports have followed the general pattern of U.S. imports from these countries, but with a slightly lagged relationship and less variation. In 1975, U.S. exports to oil exporters accounted for 9.6 percent of total U.S. exports. This figure climbed to 11.1 percent in 1977-78, slid to 7.7 percent in 1980, and rebounded to 10.4 percent in 1982 before dropping steadily.

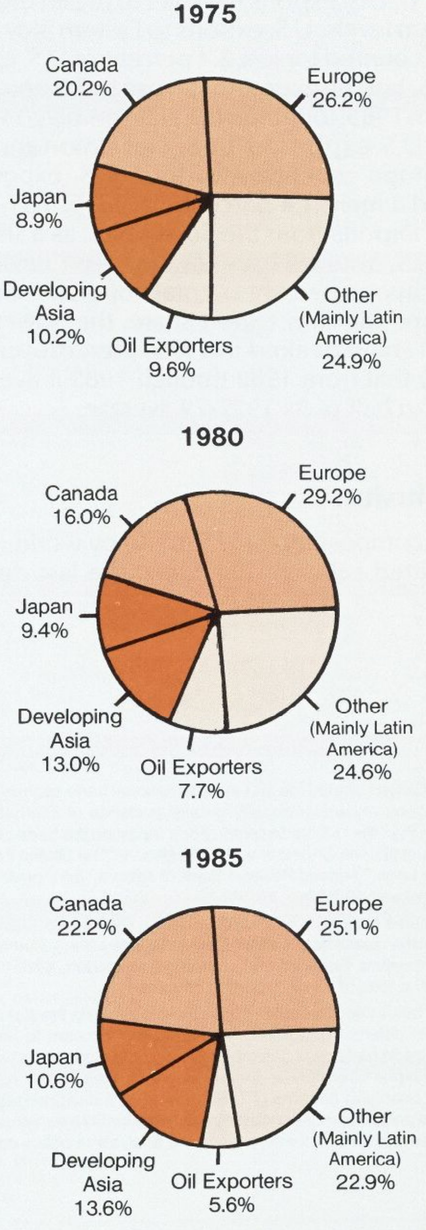
The ten-year growth rates of U.S. trade with the oil exporters is the exception to the general trend of moderate U.S. export growth and rapid growth of imports. Over the past decade, U.S. exports to the oil exporters have expanded at a rate of only 1.4 percent, while U.S. imports from them have increased on average at an even more meager 0.8 percent rate.

In 1980 the U.S. trade balance with all regions except this oil exporter group measured a surplus of $4.0 billion, but this surplus was swamped by the $40.2 billion deficit with the oil exporters. From 1982 onwards the trade deficit with oil exporters has diminished, nearly returning to its 1975 level of $9.5 billion. The ratio of U.S. exports to imports from oil exporters has risen from three-tenths in 1980 to nearly three-fifths in 1985.

Soviet Union and East Europe: U.S. Trade Small and Declining

U.S. trade with the Soviet Union and Eastern Europe has followed a pattern similar to that of oil exporters but on a much smaller scale. Our trade

Chart 4.
U.S. Exports to Selected Regions as a Percentage of Total U.S. Exports



The share of U.S. imports to developing Asian nations has grown faster than the share of U.S. exports to Japan.

Source: Calculated by Federal Reserve Bank of Atlanta from data in *Directions of Trade Statistics 1986 Yearbook*, International Monetary Fund.

with these countries climbed to a peak in 1979 of $5.1 billion in exports and $1.5 billion in imports. The grain embargo imposed by former President Jimmy Carter caused U.S. exports to these countries to tumble more than $2 billion by 1980 (Table 1). U.S. exports have yet to regain their pre-embargo levels. U.S. exports to Eastern Bloc countries accounted for just 2.4 percent of U.S. exports in 1975, but the export share rose to 2.8 percent in 1979. In 1985, long after the grain embargo's initial effect, U.S. exports to the Soviet Union and Eastern Europe as a share of total U.S. exports remained a mere 1.4 percent.

U.S. imports from the Soviet bloc as a share of total U.S. imports have always been negligible, less than one percent of total imports. Following the same trend as export share, the Soviet bloc import share peaked in 1979, then dropped so sharply that from 1982 through 1985 it averaged less than half of its 1977-79 average.

Conclusion

The composition of U.S. trade by world region has shifted substantially during the last decade. Asian countries have assumed a large and growing role in U.S. trade, particularly in the U.S. import market. Developing nations as well as Japan have contributed to the increase. The share of our imports supplied by Asia alone is nearing two-fifths, while our ratio of export to import trade with this region has declined below two-fifths. Explosive import growth combined with moderate export growth to Asia results in the expanding U.S. trade deficit with Asia, which has climbed to over $80 billion—more than half of our total deficit.

The Asian gain in U.S. trade share has not penalized our two other main trading partners, Canada and Western Europe. These two areas roughly maintain their respective shares of just over one-fifth and just under one-quarter of the U.S. market. The significant loss of share has been incurred by oil exporters (primarily in the Middle East), who saw their share of U.S. trade fall by over two-thirds from 1977 to 1985. Latin America and the Soviet bloc also lost U.S. trade share, but the absolute magnitude of decline was relatively small.

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NOTES

[1] Capital markets worldwide and the international trade sectors of many other nations show significantly greater evidence of international integration than the U.S. trade sector. For a report on the trade sectors of other countries see Christopher Paul Beshouri, "The Global Economy: A Closer Look," Federal Reserve Bank of Atlanta, *Economic Review*, vol. 70 (August 1985), pp. 49-51.

[2] These figures are calculated using the IMF's *Direction of Trade Statistics*. The IMF classification includes essentially the 13 members of OPEC; however, Ecuador and Gabon are excluded, while Oman is added for a total of 12 oil exporting countries.

[3] The X/M ratios used throughout this article to evaluate the status of U.S. trade with different geographic regions are not meant to imply that bilateral trade balance is desirable. Clearly, it is a country's total trade balance that is ultimately important. However, these ratios help demonstrate changing patterns of U.S. trade from a disaggregated, geographical perspective. As such they can help identify the main source of our current deficit and thereby guide the analysis of policy options.

[4] Latin America is broadly defined here as all western hemisphere developing nations. This includes Caribbean as well as Central and South American nations.

[5] The deficit with Latin America reached one-fourth of the total U.S. trade deficit in 1983, but by 1985 this share had fallen to one-eighth of the U.S. deficit. The trade deficit with Latin America has held steady in contrast to other regions where it has increased dramatically.

[6] These percentages, like those throughout this article, are based on nominal rather than real changes. In the present case of U.S. imports from oil-exporting countries, much of the nominal change reflects fluctuations in oil prices rather than volume changes. While it is useful for some purposes to look at real changes, the present, simpler approach is appropriate in light of the large size of the U.S. trade deficit measured in nominal terms.

FINANCE

$ millions

UNITED STATES	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.		SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Commercial Bank Deposits	1,622,380	1,615,298	1,471,404	+10	S&Ls Total Deposits	702,192	700,805	N.A.	
Demand	349,739	356,052	312,638	+12	NOW	29,732	29,705	N.A.	
NOW	127,906	126,032	101,863	+26	Savings	159,054	158,458	N.A.	
Savings	479,607	473,303	416,014	+15	Time	511,197	511,003	N.A.	
Time	703,674	701,765	675,031	+ 4	Credit Union Deposits	56,440	56,197	41,081	+37
					Share Drafts	7,623	7,793	5,822	+31
					Time	48,473	48,207	34,170	+42

SOUTHEAST	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.		SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Commercial Bank Deposits	189,264	189,151	170,699	+11	S&Ls Total Deposits	93,096	93,101	N.A.	
Demand	38,195	39,257	35,554	+ 7	NOW	4,878	4,921	N.A.	
NOW	17,344	17,034	13,585	+28	Savings	20,759	20,696	N.A.	
Savings	53,404	53,076	46,637	+15	Time	66,904	67,076	N.A.	
Time	84,396	84,254	78,827	+ 7	Credit Union Deposits	6,561	6,534	5,056	+30
					Share Drafts	745	779	528	+41
					Time	5,595	5,571	4,249	+32

ALABAMA	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.		SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Commercial Bank Deposits	19,184	19,191	16,887	+14	S&Ls Total Deposits	5,882	5,897	N.A.	
Demand	3,997	4,130	3,706	+ 8	NOW	303	304	N.A.	
NOW	1,682	1,664	1,316	+28	Savings	1,113	1,099	N.A.	
Savings	4,084	4,068	3,559	+15	Time	4,482	4,529	N.A.	
Time	9,912	9,843	8,698	+14	Credit Union Deposits	881	868	731	+21
					Share Drafts	147	162	110	+34
					Time	740	727	600	+23

FLORIDA	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.		SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Commercial Bank Deposits	71,161	70,986	62,533	+14	S&Ls Total Deposits	61,038	61,068	N.A.	
Demand	14,187	14,572	12,770	+11	NOW	3,147	3,202	N.A.	
NOW	7,393	7,332	5,692	+30	Savings	14,341	14,307	N.A.	
Savings	24,389	24,156	21,675	+13	Time	42,968	43,035	N.A.	
Time	26,680	26,622	23,874	+12	Credit Union Deposits	3,503	3,493	2,487	+41
					Share Drafts	381	398	260	+47
					Time	2,871	2,868	1,992	+44

GEORGIA	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.		SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Commercial Bank Deposits	29,894	30,158	26,633	+12	S&Ls Total Deposits	7,428	7,416	N.A.	
Demand	7,960	8,196	7,233	+10	NOW	647	634	N.A.	
NOW	2,472	2,385	1,854	+33	Savings	1,615	1,622	N.A.	
Savings	8,633	8,696	7,240	+19	Time	5,231	5,250	N.A.	
Time	12,211	12,303	11,570	+ 6	Credit Union Deposits	1,260	1,254	1,060	+19
					Share Drafts	124	125	84	+48
					Time	1,157	1,150	958	+21

LOUISIANA	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.		SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Commercial Bank Deposits	28,638	28,534	27,469	+ 4	S&Ls Total Deposits	10,163	10,197	N.A.	
Demand	5,107	5,167	5,095	+ 0	NOW	360	368	N.A.	
NOW	1,972	1,933	1,695	+16	Savings	2,161	2,167	N.A.	
Savings	7,859	7,749	6,547	+20	Time	7,660	7,713	N.A.	
Time	14,180	14,142	14,005	+ 1	Credit Union Deposits	*	*	*	
					Share Drafts	*	*	*	
					Time	*	*	*	

MISSISSIPPI	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.		SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Commercial Bank Deposits	13,490	13,445	12,698	+ 6	S&Ls Total Deposits	2,048	1,982	N.A.	
Demand	2,315	2,414	2,295	+ 1	NOW	120	112	N.A.	
NOW	1,211	1,153	932	+30	Savings	286	275	N.A.	
Savings	2,826	2,797	2,526	+12	Time	1,554	1,514	N.A.	
Time	7,360	7,380	7,115	+ 3	Credit Union Deposits	*	*	*	
					Share Drafts	*	*	*	
					Time	*	*	*	

TENNESSEE	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.		SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Commercial Bank Deposits	26,897	26,837	24,479	+10	S&Ls Total Deposits	6,537	6,541	N.A.	+19
Demand	4,629	4,778	4,260	+ 9	NOW	301	301	N.A.	
NOW	2,614	2,567	2,096	+25	Savings	1,243	1,226	N.A.	
Savings	5,613	5,610	5,090	+10	Time	5,009	5,035	N.A.	
Time	14,053	13,964	13,095	+ 7	Credit Union Deposits	917	919	778	+18
					Share Drafts	93	94	74	+26
					Time	827	826	699	+18

Notes: All deposit data are extracted from the Federal Reserve Report of Transaction Accounts, other Deposits and Vault Cash (FR2900), and are reported for the average of the week ending the 1st Monday of the month. This data, reported by institutions with over $26.8 million in deposits and $2.6 million of reserve requirements as of June 1986, represents 95% of deposits in the six state area. The annual rate of change is based on most recent data over comparable year ago data. The major differences between this report and the "call report" are size, the treatment of interbank deposits, and the treatment of float. The data generated from the Report of Transaction Accounts is for banks over $26.8 million in deposits as of June 1986. The total deposit data generated from the Report of Transaction Accounts eliminates interbank deposits by reporting the net of deposits "due to" and "due from" other depository institutions. The Report of Transaction Accounts subtracts cash in process of collection from demand deposits, while the call report does not. The Southeast data represent the total of the six states. Subcategories were chosen on a selective basis and do not add to total.
* = fewer than four institutions reporting.
N.A. = Not available at this time. Series being revised to reflect reporting changes.

CONSTRUCTION

(12-month cumulative rate)

UNITED STATES

	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	53,213	55,031	67,822	-22
Industrial Bldgs.	8,696	8,758	8,897	- 2
Offices	14,955	15,093	16,803	-11
Stores	11,939	11,952	10,671	+12
Hospitals	2,478	2,526	2,252	+10
Schools	1,171	1,181	1,210	- 3

	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Residential Building Permits Value - $ Mil.	92,398	91,586	79,881	+16
Residential Permits - Thous.				
Single-family units	1,052.0	1,040.3	930.5	+13
Multifamily units	711.6	744.3	758.1	- 6
Total Building Permits Value - $ Mil.	145,620	146,626	147,702	- 1

SOUTHEAST

	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	8,596	8,903	11,317	-24
Industrial Bldgs.	1,105	1,197	1,183	- 7
Offices	2,172	2,196	2,525	-14
Stores	2,304	2,328	2,207	+ 4
Hospitals	396	404	437	- 9
Schools	145	138	161	-10

	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Residential Building Permits Value - $ Mil.	15,823	15,917	14,286	+11
Residential Permits - Thous.				
Single-family units	205.8	204.6	192.9	+ 7
Multifamily units	150.4	157.4	161.2	- 7
Total Building Permits Value - $ Mil.	24,629	25,030	25,602	- 4

ALABAMA

	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	574	581	654	-12
Industrial Bldgs.	62	62	68	- 9
Offices	142	145	131	+ 8
Stores	158	162	152	+ 4
Hospitals	24	22	47	-49
Schools	19	12	13	+46

	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Residential Building Permits Value - $ Mil.	663	668	523	+27
Residential Permits - Thous.				
Single-family units	10.7	10.5	9.7	+10
Multifamily units	8.7	9.7	7.4	+18
Total Building Permits Value - $ Mil.	1,237	1,249	1,176	+ 5

FLORIDA

	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	4,314	4,397	5,817	-26
Industrial Bldgs.	453	454	565	-20
Offices	1,093	1,089	1,123	- 3
Stores	1,195	1,214	1,204	- 1
Hospitals	218	227	236	- 8
Schools	40	42	54	-26

	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Residential Building Permits Value - $ Mil.	8,687	8,806	8,105	+ 7
Residential Permits - Thous.				
Single-family units	106.0	105.2	101.7	+ 4
Multifamily units	93.4	97.8	98.1	- 5
Total Building Permits Value - $ Mil.	13,001	13,203	13,922	- 7

GEORGIA

	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	1,816	1,868	1,999	- 9
Industrial Bldgs.	355	362	296	+20
Offices	387	392	546	-29
Stores	455	446	318	+43
Hospitals	39	39	26	+50
Schools	37	36	20	+85

	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Residential Building Permits Value - $ Mil.	3,722	3,708	3,031	+23
Residential Permits - Thous.				
Single-family units	51.7	51.7	46.5	+11
Multifamily units	26.4	27.7	24.1	+10
Total Building Permits Value - $ Mil.	5,539	5,577	5,029	+10

LOUISIANA

	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	648	703	1,399	-54
Industrial Bldgs.	26	27	52	-50
Offices	210	233	410	-49
Stores	165	174	256	-36
Hospitals	41	42	65	-37
Schools	31	30	56	-45

	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Residential Building Permits Value - $ Mil.	623	626	805	-23
Residential Permits - Thous.				
Single-family units	9.4	9.6	11.9	-21
Multifamily units	3.2	3.0	7.9	-60
Total Building Permits Value - $ Mil.	1,271	1,330	2,205	-42

MISSISSIPPI

	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	258	266	293	-12
Industrial Bldgs.	25	26	23	+ 9
Offices	75	71	50	+50
Stores	79	83	59	+34
Hospitals	12	12	16	-25
Schools	6	7	8	-25

	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Residential Building Permits Value - $ Mil.	365	360	333	+10
Residential Permits - Thous.				
Single-family units	5.8	5.8	6.0	- 3
Multifamily units	3.0	2.9	2.1	+43
Total Building Permits Value - $ Mil.	624	626	626	- 0

TENNESSEE

	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Nonresidential Building Permits - $ Mil.				
Total Nonresidential	986	1,087	1,155	-15
Industrial Bldgs.	184	267	179	+ 3
Offices	264	265	265	- 0
Stores	252	248	219	+15
Hospitals	62	62	47	+32
Schools	11	11	11	0

	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG.
Residential Building Permits Value - $ Mil.	1,761	1,749	1,489	+18
Residential Permits - Thous.				
Single-family units	22.2	21.8	17.1	+29
Multifamily units	15.7	16.3	21.7	-28
Total Building Permits Value - $ Mil.	2,957	3,046	2,643	+12

NOTES: Data supplied by the U. S. Bureau of the Census, Housing Units Authorized By Building Permits and Public Contracts, C-40. Nonresidential data exclude the cost of construction for publicly owned buildings. The Southeast data represent the total of the six states.

GENERAL

UNITED STATES

	LATEST DATA	CURR. PERIOD	PREV. PERIOD	YEAR AGO	ANN. % CHG.
Personal Income ($ bil. - SAAR)	Q2	3,479.6	3,430.0	3,294.9	+ 6
Taxable Sales - $ bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. (thous.)		N.A.	N.A.	N.A.	
Petroleum Prod. (thous.)	SEP	8,594.2	8,653.1	8,978.1	- 4
Consumer Price Index 1967=100	SEP	330.2	328.6	324.5	+ 2
Kilowatt Hours - mils.	JUL	217.5	193.7	204.0	+ 7

Agriculture	SEPT. 1986	AUG. 1986	SEPT. 1985	ANN. % CHG.
Prices Rec'd by Farmers Index (1977=100)	122	125	120	+ 2
Broiler Placements (thous.)	80,839	81,200	77,561	+ 4
Calf Prices ($ per cwt.)	64.10	61.10	58.30	+10
Broiler Prices (¢ per lb.)	37.80	45.90	31.60	+20
Soybean Prices ($ per bu.)	4.74	4.98	4.99	- 5
Broiler Feed Cost ($ per ton)	(Q3)190	(Q2)189	(Q3)196	- 3

SOUTHEAST

	LATEST DATA	CURR. PERIOD	PREV. PERIOD	YEAR AGO	ANN. % CHG.
Personal Income ($ bil. - SAAR)	Q2	421.2	417.5	399.7	+ 5
Taxable Sales - $ bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. (thous.)	AUG	5,805.3	5,561.7	4,945.4	+17
Petroleum Prod. (thous.)	SEP	1,482.0	1,427.0	1,527.5	- 3
Consumer Price Index 1967=100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	JUL	37.3	32.8	28.5	+31

Agriculture	SEPT. 1986	AUG. 1986	SEPT. 1985	ANN. % CHG.
Prices Rec'd by Farmers Index (1977=100)	119	122	113	+ 5
Broiler Placements (thous.)	34,639	34,450	32,996	+ 5
Calf Prices ($ per cwt.)	60.88	59.04	55.24	+10
Broiler Prices (¢ per lb.)	36.78	45.13	28.50	+29
Soybean Prices ($ per bu.)	4.89	5.13	5.12	- 4
Broiler Feed Cost ($ per ton)	189	181	190	- 1

ALABAMA

	LATEST DATA	CURR. PERIOD	PREV. PERIOD	YEAR AGO	ANN. % CHG.
Personal Income ($ bil. - SAAR)	Q2	44.4	44.4	42.7	+ 4
Taxable Sales - $ bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. (thous.)	AUG	159.9	158.7	147.8	+ 8
Petroleum Prod. (thous.)	SEP	57.0	59.0	58.5	- 3
Consumer Price Index 1967=100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	JUL	5.0	4.3	4.5	+ 11

Agriculture	SEPT. 1986	AUG. 1986	SEPT. 1985	ANN. % CHG.
Farm Cash Receipts - $ mil. Dates: JUN., JUN.	824		903	- 9
Broiler Placements (thous.)	12,196	11,911	11,268	+ 8
Calf Prices ($ per cwt.)	59.90	57.70	53.90	+11
Broiler Prices (¢ per lb.)	35.00	43.00	29.00	+21
Soybean Prices ($ per bu.)	4.84	5.17	5.16	- 6
Broiler Feed Cost ($ per ton)	189	181	191	- 1

FLORIDA

	LATEST DATA	CURR. PERIOD	PREV. PERIOD	YEAR AGO	ANN. % CHG.
Personal Income ($ bil. - SAAR)	Q2	164.9	162.3	155.4	+ 6
Taxable Sales - $ bil.					
Plane Pass. Arr. (thous.)	AUG	2,806.4	2,677.6	2,270.6	+24
Petroleum Prod. (thous.)	SEP	28.0	29.0	35.0	-20
Consumer Price Index		**SEP**	**JUL**	**SEP**	
1977=100 MIAMI		174.3	171.2	173.5	+ 0
Kilowatt Hours - mils.	JUL	10.7	9.9	10.2	+ 5

Agriculture	SEPT. 1986	AUG. 1986	SEPT. 1985	ANN. % CHG.
Farm Cash Receipts - $ mil. Dates: JUN., JUN	2,582		3,087	-16
Broiler Placements (thous.)	2,041	2,139	1,982	+ 3
Calf Prices ($ per cwt.)	63.00	61.40	57.10	+10
Broiler Prices (¢ per lb.)	37.00	46.00	30.00	+23
Soybean Prices ($ per bu.)	4.84	5.17	5.16	- 6
Broiler Feed Cost ($ per ton)	189	181	230	-18

GEORGIA

	LATEST DATA	CURR. PERIOD	PREV. PERIOD	YEAR AGO	ANN. % CHG.
Personal Income ($ bil. - SAAR)	Q2	79.4	78.6	74.0	+ 7
Taxable Sales - $ bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. (thous.)	AUG	2,182.5	2,086.8	1,980.7	+10
Petroleum Prod. (thous.)		N.A.	N.A.	N.A.	
Consumer Price Index		**AUG**	**JUN**	**AUG**	
1967=100 ATLANTA		338.9	338.5	331.4	+ 2
Kilowatt Hours - mils.	JUL	6.9	6.1	5.8	+19

Agriculture	SEPT. 1986	AUG. 1986	SEPT. 1985	ANN. % CHG.
Farm Cash Receipts - $ mil. Dates: JUN., JUN.	1,165		1,228	- 5
Broiler Placements (thous.)	13,969	13,854	13,226	+ 6
Calf Prices ($ per cwt.)	60.40	57.20	51.50	+17
Broiler Prices (¢ per lb.)	36.00	46.00	29.50	+22
Soybean Prices ($ per bu.)	4.78	5.11	5.09	- 6
Broiler Feed Cost ($ per ton)	189	181	195	- 3

LOUISIANA

	LATEST DATA	CURR. PERIOD	PREV. PERIOD	YEAR AGO	ANN. % CHG.
Personal Income ($ bil. - SAAR)	Q2	50.5	51.2	50.5	+ 0
Taxable Sales - $ bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. (thous.)	AUG	304.0	309.1	301.7	+ 1
Petroleum Prod. (thous.)	SEP	1,315.0	1,255.0	1,349.0	- 3
Consumer Price Index 1967=100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	JUL	5.7	5.3	5.6	+ 2

Agriculture	SEPT. 1986	AUG. 1986	SEPT. 1985	ANN. % CHG.
Farm Cash Receipts - $ mil. Dates: JUN., JUN.	455		556	-18
Broiler Placements (thous.)	N.A.		N.A.	
Calf Prices ($ per cwt.)	63.00	61.40	57.00	+11
Broiler Prices (¢ per lb.)	37.00	47.00	31.50	+17
Soybean Prices ($ per bu.)	5.00	5.32	5.17	- 3
Broiler Feed Cost ($ per ton)	189	189	250	-24

MISSISSIPPI

	LATEST DATA	CURR. PERIOD	PREV. PERIOD	YEAR AGO	ANN. % CHG.
Personal Income ($ bil. - SAAR)	Q2	25.8	25.2	23.8	+ 8
Taxable Sales - $ bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. (thous.)	AUG	46.1	43.4	41.2	+12
Petroleum Prod. (thous.)	SEP	82.0	84.0	85.0	- 4
Consumer Price Index 1967=100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	JUL	2.7	2.2	2.4	+12

Agriculture	SEPT. 1986	AUG. 1986	SEPT. 1985	ANN. % CHG.
Farm Cash Receipts - $ mil. Dates: JUN., JUN.	690		831	-17
Broiler Placements (thous.)	6,433	6,547	6,519	- 1
Calf Prices ($ per cwt.)	60.40	60.40	56.70	+ 7
Broiler Prices (¢ per lb.)	41.30	46.30	31.50	+31
Soybean Prices ($ per bu.)	4.83	4.89	5.17	- 7
Broiler Feed Cost ($ per ton)	189	181	154	+23

TENNESSEE

	LATEST DATA	CURR. PERIOD	PREV. PERIOD	YEAR AGO	ANN. % CHG.
Personal Income ($ bil. - SAAR)	Q2	56.2	55.8	53.3	+ 5
Taxable Sales - $ bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. (thous.)	AUG	306.4	286.1	203.3	+51
Petroleum Prod. (thous.)		N.A.	N.A.	N.A.	
Consumer Price Index 1967=100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	JUL	6.5	5.1	6.1	+ 6

Agriculture	SEPT. 1986	AUG. 1986	SEPT. 1985	ANN. % CHG.
Farm Cash Receipts - $ mil. Dates: JUN., JUN.	756		860	-12
Broiler Placements (thous.)	N.A.		N.A.	
Calf Prices ($ per cwt.)	59.20	56.50	54.80	+ 8
Broiler Prices (¢ per lb.)	35.50	44.50	28.50	+25
Soybean Prices ($ per bu.)	4.97	5.24	5.05	- 2
Broiler Feed Cost ($ per ton)	189	189	173	+ 9

NOTES: Personal Income data supplied by U. S. Department of Commerce. Taxable Sales are reported as a 12-month cumulative total. Plane Passenger Arrivals are collected from 26 airports. Petroleum Production data supplied by U. S. Bureau of Mines. Consumer Price Index data supplied by Bureau of Labor Statistics. Agriculture data supplied by U. S. Department of Agriculture. Farm Cash Receipts data are reported as cumulative for the calendar year through the month shown. Broiler placements are an average weekly rate. The Southeast data represent the total of the six states. N. A. = not available. The annual percent change calculation is based on most recent data over prior year. R = revised.

EMPLOYMENT

SOUTHEAST REGIONAL ECONOMIC INDICATORS

	SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG		SEPT 1986	AUG 1986	SEPT 1985	ANN. % CHG
UNITED STATES									
Civilian Labor Force - thous.	118,244	119,471	115,850	+ 2	Nonfarm Employment - thous.	100,899	100,168	98,643	+ 2
Total Employed - thous.	110,229	111,515	107,867	+ 2	Manufacturing	19,280	19,236	19,402	- 1
Total Unemployed - thous.	8,015	7,955	7,984	+ 0	Construction	5,325	5,363	5,022	+ 6
Unemployment Rate - % SA	7.0	6.8	6.9		Trade	24,073	24,034	23,393	+ 3
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	16,354	15,687	16,260	+ 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	23,389	23,381	22,310	+ 5
Mfg. Avg. Wkly. Hours	41.0	40.7	40.8	+ 0	Fin., Ins. & Real Est.	6,396	6,439	6,024	+ 6
Mfg. Avg. Wkly. Earn. - $	400	394	391	+ 2	Trans., Com. & Pub. Util.	5,332	5,267	5,308	+ 0
SOUTHEAST									
Civilian Labor Force - thous.	16,064	16,091	15,491	+ 4	Nonfarm Employment - thous.	13,043	12,878	12,772	+ 2
Total Employed - thous.	14,808	14,847	14,357	+ 3	Manufacturing	2,318	2,304	2,318	0
Total Unemployed - thous.	1,256	1,279	1,185	+ 6	Construction	797	800	794	+ 3
Unemployment Rate - % SA	8.1	8.1	7.9		Trade	3,282	3,269	3,164	+ 4
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	2,268	2,157	2,230	+ 2
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	2,786	2,761	2,670	+ 4
Mfg. Avg. Wkly. Hours	41.4	41.0	41.3	+ 0	Fin., Ins. & Real Est.	763	765	740	+ 3
Mfg. Avg. Wkly. Earn. - $	357	351	348	+ 3	Trans., Com. & Pub. Util.	719	719	724	- 1
ALABAMA									
Civilian Labor Force - thous.	1,913	1,905	1,807	+ 6	Nonfarm Employment - thous.	1,442	1,437	1,423	+ 1
Total Employed - thous.	1,728	1,713	1,660	+ 4	Manufacturing	354	352	357	- 1
Total Unemployed - thous.	185	192	147	+26	Construction	74	74	74	0
Unemployment Rate - % SA	10.3	10.3	8.7		Trade	317	317	303	+ 5
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	294	291	290	+ 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	249	247	244	+ 2
Mfg. Avg. Wkly. Hours	41.7	41.2	41.2	+ 1	Fin., Ins. & Real Est.	70	70	66	+ 6
Mfg. Avg. Wkly. Earn. - $	361	351	351	+ 3	Trans., Com. & Pub. Util.	72	72	73	- 1
FLORIDA									
Civilian Labor Force - thous.	5,603	5,698	5,386	+ 4	Nonfarm Employment - thous.	4,578	4,508	4,415	+ 4
Total Employed - thous.	5,251	5,361	5,038	+ 4	Manufacturing	525	523	514	+ 2
Total Unemployed - thous.	352	337	348	+ 1	Construction	340	341	335	+ 1
Unemployment Rate - % SA	6.1	6.0	6.2		Trade	1,246	1,236	1,187	+ 5
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	695	640	672	+ 3
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	1,185	1,182	1,134	+ 4
Mfg. Avg. Wkly. Hours	40.8	40.7	41.8	- 2	Fin., Ins. & Real Est.	334	334	321	+ 4
Mfg. Avg. Wkly. Earn. - $	330	328	332	- 1	Trans., Com. & Pub. Util.	243	243	242	+ 0
GEORGIA									
Civilian Labor Force - thous.	3,037	3,058	2,914	+ 4	Nonfarm Employment - thous.	2,675	2,650	2,591	+ 3
Total Employed - thous.	2,862	2,875	2,726	+ 5	Manufacturing	560	553	558	+ 0
Total Unemployed - thous.	175	183	188	- 7	Construction	164	163	152	+ 8
Unemployment Rate - % SA	6.0	6.0	6.7		Trade	685	682	657	+ 4
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	450	443	442	+ 2
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	495	488	471	+ 5
Mfg. Avg. Wkly. Hours	41.5	41.0	40.7	+ 2	Fin., Ins. & Real Est.	146	146	140	+ 4
Mfg. Avg. Wkly. Earn. - $	342	334	328	+ 4	Trans., Com. & Pub. Util.	167	167	164	+ 2
LOUISIANA									
Civilian Labor Force - thous.	2,005	1,986	2,017	- 1	Nonfarm Employment - thous.	1,516	1,504	1,604	- 5
Total Employed - thous.	1,754	1,739	1,787	- 2	Manufacturing	167	166	177	- 6
Total Unemployed - thous.	251	247	230	+ 9	Construction	93	94	107	-13
Unemployment Rate - % SA	12.9	12.5	11.8		Trade	375	377	387	- 3
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	315	305	325	- 3
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	318	314	325	- 2
Mfg. Avg. Wkly. Hours	42.3	41.8	42.0	+ 1	Fin., Ins. & Real Est.	85	85	86	- 1
Mfg. Avg. Wkly. Earn. - $	446	441	440	+ 2	Trans., Com. & Pub. Util.	105	104	115	- 9
MISSISSIPPI									
Civilian Labor Force - thous.	1,183	1,164	1,145	+ 3	Nonfarm Employment - thous.	865	835	848	+ 2
Total Employed - thous.	1,051	1,017	1,036	+ 1	Manufacturing	222	221	222	0
Total Unemployed - thous.	132	147	109	+21	Construction	37	37	38	- 3
Unemployment Rate - % SA	12.2	12.7	10.4		Trade	185	184	180	+ 3
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	192	176	193	- 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	136	132	131	+ 4
Mfg. Avg. Wkly. Hours	41.0	40.2	40.8	+ 0	Fin., Ins. & Real Est.	37	37	36	+ 3
Mfg. Avg. Wkly. Earn. - $	310	300	296	+ 5	Trans., Com. & Pub. Util.	40	40	40	0
TENNESSEE									
Civilian Labor Force - thous.	2,323	2,314	2,274	+ 2	Nonfarm Employment - thous.	1,966	1,943	1,891	+ 4
Total Employed - thous.	2,161	2,142	2,110	+ 2	Manufacturing	490	488	490	0
Total Unemployed - thous.	162	172	164	- 1	Construction	89	90	87	+ 2
Unemployment Rate - % SA	7.9	7.9	7.9		Trade	474	473	449	+ 6
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	321	301	308	+ 8
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	402	399	365	+10
Mfg. Avg. Wkly. Hours	41.0	41.2	41.1	- 0	Fin., Ins. & Real Est.	91	92	90	+ 1
Mfg. Avg. Wkly. Earn. - $	352	352	339	+ 4	Trans., Com. & Pub. Util.	92	93	92	0

NOTES: All labor force data are from Bureau of Labor Statistics reports supplied by state agencies.
Only the unemployment rate data are seasonally adjusted.
The Southeast data represent the total of the six states.
N.A. = Not Available.

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