

In recent years, this country's import and export activity has shifted substantially. The U.S. trade deficit has grown, not only with European nations and Japan but with developing East Asian countries and Canada as well. Imports have increased at an annual compounded rate of 13 percent over the last decade, whereas exports have risen at only 7 percent. In 1975, the United States recorded a trade surplus of \$2 billion; but by 1985 the balance had deteriorated to show a deficit of over \$148 billion. Asian nations have consistently accounted for a notable portion of U.S. trade; in the past decade, however, Asia's share of total U.S. trade has risen by 11 percentage points, from 21 percent in the mid-1970s to over 32 percent in 1985. Although Japan accounts for fully half of all U.S. trade with Asia, other Asian nations such as South Korea, Hong Kong, Singapore, China, and Taiwan now claim a significant 15.7 percent share.

Many people in the United States now look to the decline of the dollar to ease some of the country's trade problems. The dollar's depreciation, however, is gauged by indexes based largely on European and Japanese currencies. Its value has in fact fallen little in relation to the currencies of some important U.S. trading partners, including Canada and East Asian nations other than Japan. The U.S. dollar has actually risen compared with the Canadian dollar. Standard dollar indexes may not, then, provide a full picture of the U.S. trade situation.

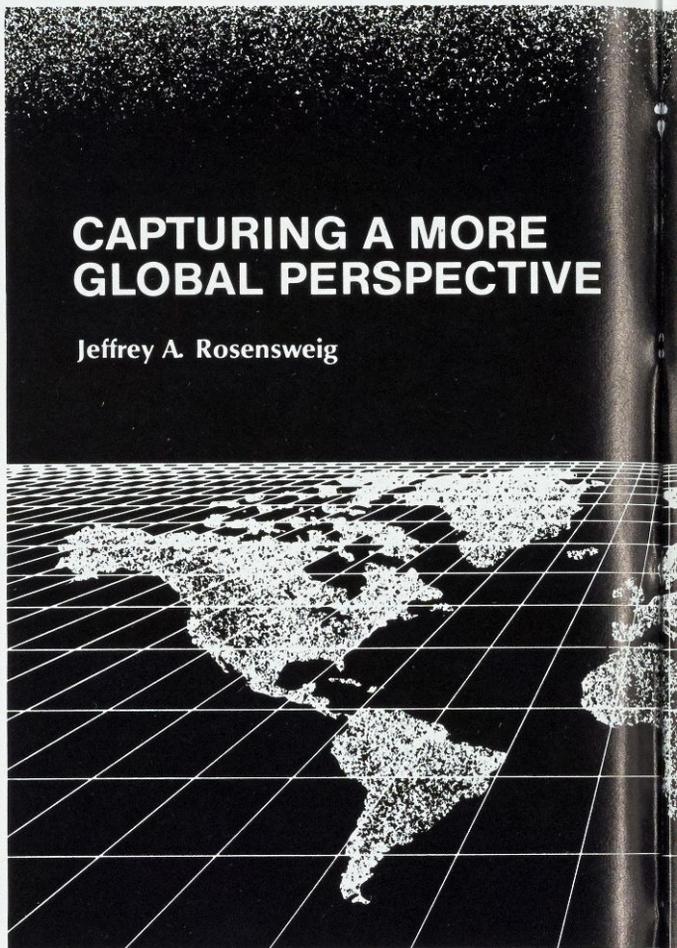
For U.S. lumber and paper industries vying with Canada, textile and apparel manufacturers competing with the Far East, and vegetable producers contending with Mexican imports, the rapid decline of the dollar's value according to standard dollar indexes may not result in a larger portion of the market. Domestic companies with rivals in areas other than Europe and Japan will probably continue facing weak international demand for their products and substantial competitive pressure within the United States.

A new index of the dollar's value developed at the Atlanta Fed accounts for changing patterns of trade by incorporating the important influence of Canada and Asia. Our methods weight these key trading regions to reflect

A NEW DOLLAR

CAPTURING A MORE GLOBAL PERSPECTIVE

Jeffrey A. Rosensweig



more fully current U.S. trade patterns. We have also added regional sub-indexes to monitor the dollar's divergent moves in various crucial trading regions of the world. Monitoring a few sub-indexes can provide a more comprehensive view than looking at only one index, yet offers more synthesis than following the dollar's 225 exchange rates, which include multiple rates for many countries. The overall dollar index averages regional sub-indexes, which are weighted according to their shares of trade, import plus export, with the United States in 1984.

Despite their growing role in U.S. trade, Asian nations with the exception of Japan are omitted in other commonly used indexes.

The author is an international economist in the Atlanta Fed's Research Department.

DOLLAR INDEX:

The value of the dollar according to standard indexes does not fully reflect the growing importance of U.S. trade with Canada and Asia. The "Atlanta Fed Dollar Index" offers a more encompassing view.



Moreover, relative to many of its other trading partners, the United States ran large bilateral trade deficits with these countries in 1985: Taiwan placed third, Hong Kong fifth, and South Korea ninth in size of trade deficit (Table 1). Of course, trade deficits do not necessarily follow the same pattern as trade flows, upon which currency indexes are based, as a comparison of the ranks in Tables 1 and 2 reveals. Nonetheless, a dollar index that does not include the persistently weak currencies of these nations may lead to overly sanguine expectations about the potential for improvement in the U.S. trade balance and overly pessimistic expectations about the inflationary

impact of the falling dollar. By updating the weights to reflect more recent trade patterns and including more Asian nations, the Atlanta Fed index portrays an average value of the dollar based on our current trade. For example, the Atlanta Fed index places the greatest weight on Canada, which claims the largest total share of U.S. trade.

In a comparison of the Atlanta Fed index with those developed by the Federal Reserve Board staff (the Board index) and Morgan Guaranty Trust (the Morgan index), the Atlanta Fed dollar shows less variation than the dollar as measured by other indexes, moves differently in various world regions, and has declined far less, even after correcting for its lower variability, than the others since its early 1985 peak.¹

Constructing the Atlanta Fed Index

The Atlanta Fed dollar index was constructed to portray the dollar's current trade-weighted value. Sub-indexes were also developed to track the divergent movements of the dollar in various regions of the world. These are reported for Europe, Canada, the Asian Pacific plus Australia, and Asia excluding Japan. A cursory look at Chart 1 reveals that the various sub-indexes and the overall Atlanta Fed index behave differently from the Board index in the 1980s. Of paramount interest is the lack of a downturn in the Canadian and Asian-excluding-Japan (Asian-nj) sub-indexes.

The Board index parallels the European sub-index closely, whereas the Atlanta Fed overall index blends the patterns that appear in the Asian, Canadian, and European sub-indexes. A look at the composition of the Atlanta Fed index contrasting its weights to those of the indexes developed by the Federal Reserve Board staff and Morgan Guaranty Trust explains the disparity.²

The Board index includes the nine countries that join the United States in the "G10" group of ten advanced nations, plus Switzerland. The Morgan index is based on 15 of the Organization for Economic Cooperation and Development (OECD) nations. The Board index, then, represents eight European countries plus Canada and Japan. Morgan Guaranty encompasses the same ten, plus Australia and four additional European nations. Both these indexes include only advanced industrial nations, and thus omit some major U.S. trading partners.

Table 1. U.S. Bilateral Trade Deficits[†]
(\$ Billions)

Country	1984	1985
Japan*	36.80	49.75
Canada*	20.39	22.18
Taiwan**	11.08	13.06
Germany, W.*	8.73	12.18
Hong Kong**	5.84	6.21
Mexico	6.28	5.76
Italy*	4.13	5.76
Brazil	5.63	5.01
South Korea**	4.04	4.76
United Kingdom*	2.83	4.30
France*	2.48	3.86
Venezuela	3.44	3.43
All others	11.61	12.21
Total U.S. Trade Deficit	123.28	148.47

[†] Deficit is U.S. imports including cost, insurance, and freight minus U.S. exports free on board.

*Country included in the Atlanta Fed Index and in prominent indexes.

**Country included in the Atlanta Fed Index but not in most prominent indexes.

Source: International Monetary Fund, *Direction of Trade Statistics*; U.S. Department of Commerce, *Survey of Current Business*.

The Atlanta Fed dollar index was constructed to comprise about twenty of the largest U.S. trading partners. It could not, however, include countries with severe inflation rates or those heavily reliant on "black" or "parallel" foreign exchange markets, since their rates would distort a nominal dollar index.³ On this basis, Mexico, Brazil, Venezuela, and Indonesia were excluded from the nominal index reported here.⁴ Eighteen countries were finally selected: nine European, six Asian, plus Australia, Canada, and a Mideast representative—Saudi Arabia.

Weights used in the Atlanta Fed index reflect total trade in 1984, substantially updating weights in the other two indexes (Morgan 1980, Board 1972 to 1976). Choosing weights

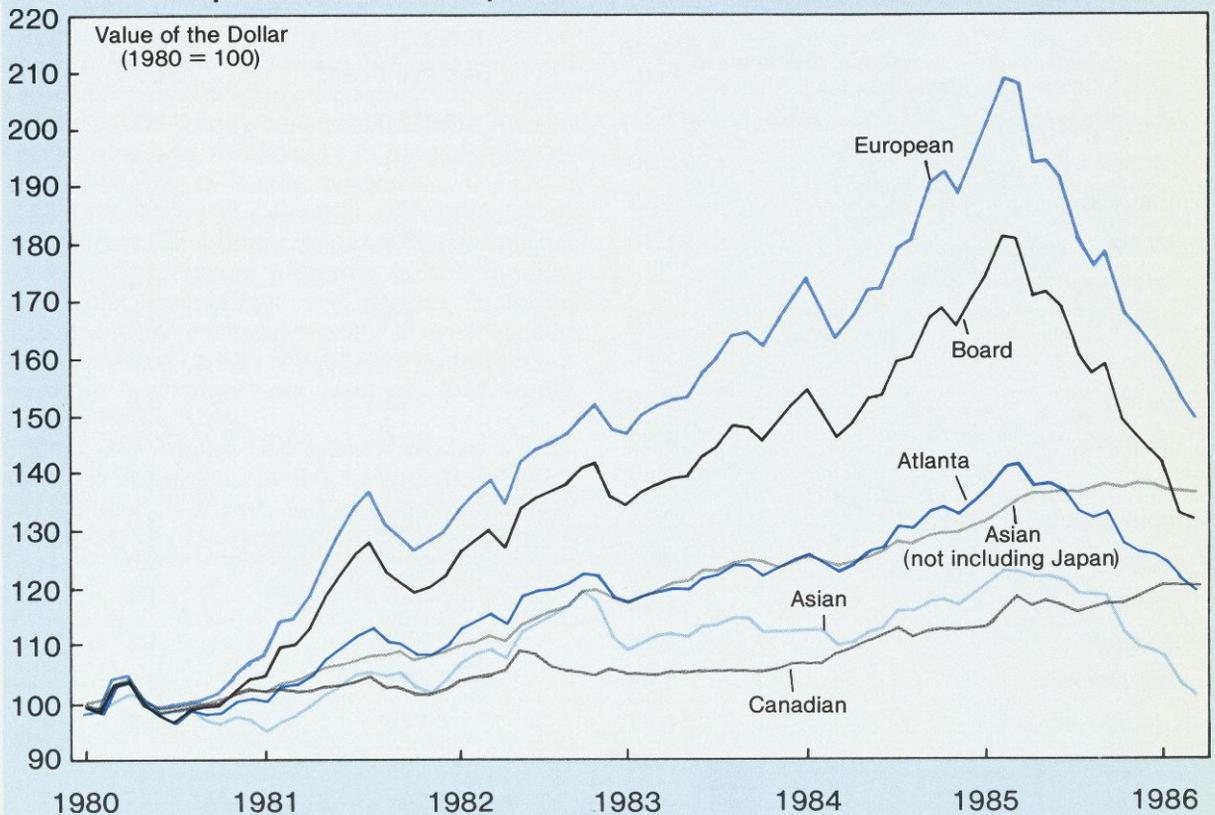
from only one year is reliable if that year was not distorted by large transitory shocks to trade patterns, and 1984 is not considered an unusual year. The updates also capture the shift in U.S. trade from the Atlantic toward the Pacific.

Like Morgan, but unlike the Board, the Atlanta Fed index is based on a bilateral weighting scheme. A country's weight in a bilateral index is the share of its total trade (sum of exports and imports) with the United States in relation to the total trade of the United States with the 18 included countries. Table 2 reports the countries included and the weights assigned to their currencies in the three dollar indexes studied here. Our weights are similar to Morgan's but markedly different from those in the Board index.

The Board index is an example of a multilateral trade-weighted index. Multilateral weights are based on a country's share of total world trade rather than its share of U.S. trade only. This method allows for third country effects, which bilateral weights ignore. For example, suppose Belgium does not trade with the United States, but is a major exporter to a third market in which the United States also competes. In a bilateral index, Belgium's currency would not be weighted, and Belgium's importance as a competitive force would be lost. Belgium's currency would be included in a multilateral index—a desirable property of the multilateral approach. However, multilateral indexes also have some significant undesirable properties that led us to select bilateral weights for the Atlanta Fed index.

Morgan Guaranty offers a compelling critique of multilateral indexes, pointing out that multilateral weights can place undue emphasis on countries that happen to trade primarily with each other. This means that multilateral indexes can be significantly but arbitrarily influenced by national boundaries. If a country is divided into two parts, the share of world trade comprised by the sum of the two parts will be greater than the initial share of the whole because all the commerce between the parts now becomes "international trade."⁵ If Georgia, for example, were split off from the United States, but no barriers were erected against goods flows between Georgia and the other states, the extensive trade between Georgia and the other 49 states would become international trade. Georgia would then have a significant portion of total world trade and would

Chart 1. Movement of the Dollar on Board and Atlanta Fed Indexes, Compared With European, Asian, and Canadian Sub-indexes*



*Weights derived from the Atlanta Fed's aggregate index.

Source: Constructed with data from the Board of Governors and the International Monetary Fund.

figure prominently in a multilateral index for Austria—even if Austria and Georgia did not trade directly.

The problem of divisible national boundaries is not merely a theoretical one. Even carefully constructed multilateral indexes can lead to weights that barely reflect U.S. trade patterns. Belgium and the Netherlands, for example, are separate countries that have a sizable trading relationship. This feature leads to large totals in international trade and subsequently to large weights in multilateral indexes for each of these countries. If the political division were not made and the two were considered part of the Benelux Economic Union of Belgium, the Netherlands, and Luxembourg, then the Benelux weight would be much smaller, because

trade between Belgium and the Netherlands would be internal to Benelux. The present political division, which affects the entire European Common Market, leads to unfortunate anomalies in multilateral indexes. For example, in the Board index the Benelux countries receive a total weight greater than Japan's and over 60 percent greater than the weight assigned to our largest trade partner, Canada.⁶

Multilateral and bilateral schemes both have advantages then; we chose bilateral weights, however, because of their particular capacity to reflect U.S. trade patterns. Further, the main advantage claimed for multilateral weights, that they account for third-country divergence or substitution possibilities, may be a largely theoretical one that does not apply in practice.

Table 2. Weights of Nation's Currencies in Various Dollar Indexes (Percent)

Country	Atlanta Fed	Federal Reserve Board	Morgan/OECD
(Weighting Year)	(1984)	(1972-76)	(1980)
Canada	28.80	9.1	30.3
Australia	1.95	—	2.4
Japan	21.30	13.6	23.2
Austria	—	—	0.4
Belgium	2.18	6.4	3.5
Denmark	—	—	0.6
France	3.69	13.1	5.9
Germany, W.	6.82	20.8	10.9
Italy	3.27	9.0	4.1
Netherlands	3.01	8.3	3.0
Norway	—	—	0.6
Spain	1.32	—	1.4
Sweden	1.26	4.2	1.7
Switzerland	1.46	3.6	2.8
United Kingdom	6.91	11.9	9.2
Saudi Arabia	2.43	—	—
Taiwan	4.96	—	—
Hong Kong	3.03	—	—
South Korea	4.06	—	—
Singapore	1.98	—	—
China	1.62	—	—

Sources: Federal Reserve Board, *Federal Reserve Bulletin*; Morgan Guaranty Trust Company, *World Financial Markets*; U.S. Department of Commerce, *Survey of Current Business*; International Monetary Fund, *Direction of Trade Statistics*.

The present political fragmentation of Europe coupled with the economic integration achieved by the European Economic Community (EEC) leads to commerce which, though it is essentially internal, is measured as international trade. This leads to large multilateral weights on Europe. A multilateral index can be improved if intra-EEC trade, especially agricultural trade, is considered as not fully open to wider international competition and thus subtracted from trade totals. Otherwise, the heavy weights a multilateral scheme places on Europe arise

from the combination of political fragmentation and economic integration in Europe rather than indicating true United States and third-country substitution possibilities.⁷

Weights in the Atlanta Fed index are generally close to Morgan's, since both are bilateral indexes. Differences stem from an update of the weights from 1980 to 1984 and from our use of total trade rather than the shares of trade in manufactured goods used by Morgan. Finally, the individual countries in the Morgan index receive greater weight because fewer countries

are used in constructing it. Morgan excludes non-Japan Asia, and thus necessarily allocates greater weight to Japan, Canada, and Europe. Since Morgan includes some small European countries such as Austria that are not in the Board index or in the Atlanta Fed index, it gives especially heavy weight to Europe. The Morgan index then is somewhere between the Atlanta Fed's index and the Board's in its weighting of Europe relative to Pacific nations.

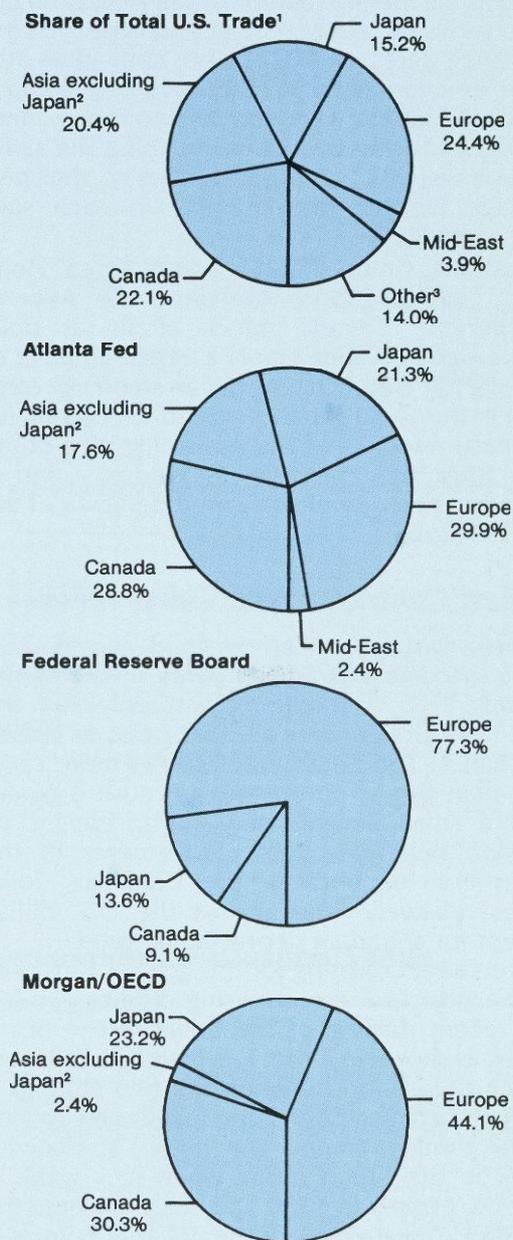
Chart 2 shows the weights each index gives to world regions and compares those weights to recent U.S. trade patterns. All the indexes somewhat overweight the regions included because they exclude regions like Africa and Latin America due to inflationary conditions or multiple exchange rate practices that would distort the indexes.

Only the Atlanta Fed index includes a Mid-east representative, in this case, Saudi Arabia. Oil is priced in dollars, and so exchange rates in oil exporting nations may not greatly influence their exports. This means that the exchange rate of an oil-exporting country should be included in a dollar index only if the country imports significant amounts from the United States. Since Saudi Arabia is a substantial importer of U.S. goods, this trade may be influenced by the Saudi Arabian bilateral exchange rate against the dollar.⁸

The major difference among the three indexes, as portrayed in Chart 2, is the weighting of Asia and Asia-nj as opposed to the weighting of Europe. The Board index places over three-fourths of its weight on Europe, even though Europe accounts for less than one-fourth of total U.S. trade. On the other hand, the Board index places low weights on Asia and Canada relative to their importance in U.S. trade. Although the Morgan index allots substantial weight to Canada and Japan, it does not weight Asia-excluding-Japan (though it weights Australia). Thus it places significantly more weight on Europe than indicated by current U.S. trade flows. The Atlanta Fed dollar index, then, most closely matches U.S. trade patterns by world regions.

The Atlanta Fed index uses year-average 1980 values as its base period so that numbers over 100 reflect dollar appreciation since 1980. Weights are based on shares of total U.S. trade with the 18 countries as reported by the International Monetary Fund in *Direction of Trade Statistics* and supplemented by U.S. Commerce

Chart 2. Weights of Major World Regions in Dollar Indexes and U.S. Trade



¹Exports plus imports in 1984. Source: *Survey of Current Business*, U.S. Commerce Department, December 1985, pp. 366-67.

²Actually Pacific Region, since it includes Australia. Morgan's weight on this region is based solely on Australia.

³Mainly Latin America and Africa.

Source: Same as Table 2.

Department data where needed (for Taiwan). Like the Morgan and Board indexes, the Atlanta index uses a geometric averaging technique. Monthly data on the new index and the sub-indexes has been created for the period beginning with the advent of generalized floating exchange rates in 1973, and daily data has been developed for recent years. The component sub-indexes were constructed in a manner analogous to the overall index, using the same relative weights but renormalizing so that percentage weights on countries in each sub-index total 100.

Australia, China, Taiwan, South Korea, Hong Kong, and Singapore constitute the Asian-nj component; Canada stands alone, as does Saudi Arabia. (Saudi Arabia is representative of the slightly depreciating dollar standard common in the Gulf.) Japan is added to Asian-nj for the Asian index, and the remaining nine countries form the European sub-index. Chart 1 provides a picture of the varied behavior of the sub-indexes.

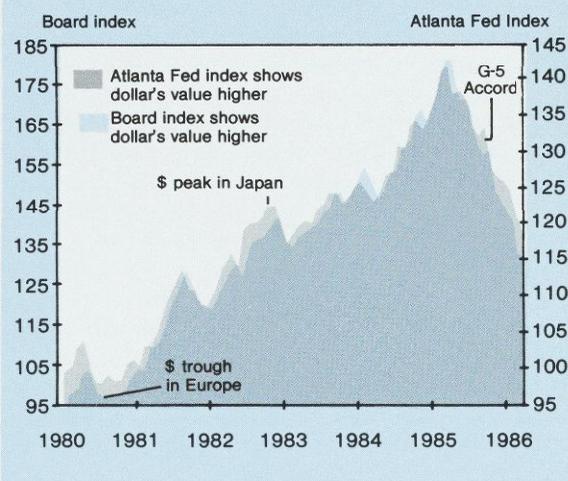
Critical Contrasts With Other Indexes

The Board index has declined considerably more than the Atlanta Fed index since its peak in early 1985, and rose more steeply from the mid-1980 trough to reach that peak, as shown in Chart 1. The Board index shows more variation than the other indexes because it places only a small weight on Canada. Weight on Canada dampens dollar movements in the other indexes because the Canadian dollar varies relatively little against the U.S. dollar, except for a gradual depreciating trend.

Even after adjusting for this greater variability in the Board's index by using different scales, the recent decline of the dollar in the Board index, as shown in Chart 3, is dramatic. Although a high correlation between the two indexes is evident, behavior does differ, particularly around major turning points. The dollar is relatively weak in the Board index when it is weak in Europe, namely in 1980 and since the summer of 1985. The strength of the dollar in Europe in early 1985 moved the Board index relatively higher, but the strength of the dollar in Japan in the second half of 1982 generated a relatively higher Atlanta Fed index.

After adjusting for the greater variability in the Board index, the overall fit between the two indexes is fairly close. However, Chart 1

Chart 3. Comparison of Atlanta Fed and Board Indexes (1980 = 100)



shows that the Board index essentially reflects the dollar's performance in Europe, but not in Canada or Asia. Table 3 tests this observation by listing correlation coefficients between percent changes in the various indexes and the Atlanta Fed sub-indexes. Table 3 also shows that each index contains different information, since correlations between any two are less than perfect. Data used are monthly averages for May 1973 through February 1986.⁹

The changes in the Morgan and Atlanta Fed indexes correlate highly, not a surprising result since they both use bilateral weights derived from more recent trade flows. The main difference between these two indexes is that the Atlanta Fed index includes Asian nations other than Japan, causing it to correlate more closely with the Asian and Asian-nj sub-indexes. The Morgan index matches better than the Board's with these sub-indexes because it places more weight on Japan and includes Australia. No index correlates well with Canada (the coefficients lack significance and are low), but the Atlanta Fed index fits it best. In addition, relatively low correlations between the overall indexes and the Asian-nj and Canadian sub-indexes indicate that sub-indexes provide useful additional information.

Overall, the Atlanta Fed index correlates highly with the Board index; however, it differs enough to add some useful insights, as succeeding sections will demonstrate. The poor fit

June 1986

Erratum in Table 3, p. 19

**Ratio of correlation with Europe to correlation with Asia for Atlanta
Fed should read:**

1.0390

Table 3. Correlation Coefficients Between Percent Changes of Various Dollar Indexes (Monthly averages, May 1973-February 1986)

	Morgan Guaranty	Atlanta Fed	European*	Asian*	Asian excluding Japan*	Canadian*
Board	.960	.952	.987	.756	.603	.204 (.0112)
Morgan		.986	.923	.834	.623	.342
Atlanta Fed			.908	.874	.679	.351
European*				.663	.563	.181 (.3217)
Asian excluding Japan*						.180 (.0254)

*Atlanta Fed sub-indexes of the dollar. Asian includes Australia.

All correlations are significant at the .0001 level except for those with significance levels noted in parentheses below the correlation.

Summary Statistics

	Board	Morgan	Atlanta Fed
Average of correlation with Europe, Asia, and Canada	.6490	.6996	.7107
Ratio of correlation with Europe to correlation with Asia	1.3060	1.1070	1.3090

of the Board index with the non-European sub-indexes shows, as has been pointed out, that one index cannot provide a clear view of the dollar's value in various world regions. Confirming previous observations, summary statistics at the bottom of Table 3 indicate that the Board index correlates much more highly with Europe than with the other crucial region—Asia. The summary statistics also show the high mean correlation of the Atlanta Fed index with sub-indexes for major regions, and its more nearly equal correlations with Asian or European sub-indexes. Finally, the highest correlation in all of Table 3 is between the Board index and the European sub-index, which suggests that the Board index virtually acts as a proxy for the dollar's value in Europe.

Econometric Evaluation Shows Divergences

Econometric evaluation best reveals the relationships among the three overall indexes considered here. It also details those points at which the indexes diverge. Chart 1 suggests that the Board index is more variable than the Atlanta Fed index, but Chart 3 shows a fairly close fit after some adjustments for the dollar's greater movements in the Board index. This feature of the Board index, that it shows more variability in the dollar than do other indexes, is clear from an ordinary least squares regression of the Board index on the Atlanta Fed index. The residuals (errors in predicting the Board

index using the Atlanta index) are highly serially correlated, indicating persistent divergences from the average relationship. These divergences suggest that additional information is provided by the Atlanta Fed index.

Table 4 summarizes the regressions of both the Morgan and the Board indexes onto a constant index as well as the Atlanta Fed index. Natural logarithms of monthly average data are used, so that the coefficients on the Atlanta Fed index represent the elasticity of the prominent indexes with respect to the new one. The results substantiate the greater dollar swings in the major existing indexes—a result of the heavy weighting of volatile European currencies. In contrast, the Atlanta Fed index incorporates the relative stability of the dollar in the Pacific nations, Saudi Arabia, and Canada, and thus does not result in such large dollar movements. The large (bilateral) weights on Canada tend to dampen variability in the Morgan and Atlanta Fed indexes, a feature missing from the Board index with its small (multilateral) weight on Canada.

The greater variation of the dollar in the Board index compared with the Atlanta Fed index is a full 54 percent (elasticity is 1.54). The high weight on Canada's currency, the value of which closely follows the U.S. dollar, gives the Morgan index a magnification of only 9.5 percent relative to the Atlanta Fed index. The overall fits, as measured by the R-square statistic, are quite close, reflecting the high correlation between any indexes measuring a trade-weighted level of the dollar. The miniscule Durbin-Watson statistics in Table 4 point to the high degree of serial correlation, or persistent deviations from an average relationship between indexes.

Analysis of the residuals sheds further light on the information provided by the new index. Periods of continuously large residuals, either all positive or negative, indicate phases when the new index provides significantly different signals of the dollar's value. Large positive residuals show that the existing index portrays relatively more dollar strength than does the Atlanta Fed index—even after correcting for the differences in variability discussed above. Consistently large negative residuals suggest that the existing index provides a relatively low estimate of the dollar's value. Examining the sub-indexes helps explain why overall indexes diverge. For example, since the Atlanta Fed index gives more weight to Asia and less to

Europe than do the other indexes, the dollar will be relatively strong in the Atlanta Fed index when it is strong in the Asian relative to the European sub-index.

Turning first to the Board index, a few periods of residuals around five percent (+ or -) appear. In April and May of 1973, when the floating rate era began, the Board index reported the dollar's value over 5 percent higher than implied by an average relation to the Atlanta Fed index, as the dollar depreciated faster in Asia and Canada than in Europe. The greater strength of the dollar in Europe versus Asia or Canada also meant the Board index exceeded its average relation to the Atlanta Fed index by over 5 percent every month in the first half of 1974. Conversely, when the dollar became extremely weak in Europe from late 1979 until the fourth quarter in 1980, negative residuals varied from 5 to 7 percent. The dollar had reached a trough in October 1978 in Japan, and after that fell sharply only in Europe, not in Canada or Asia. The relatively weak dollar value in the Board index during early 1980 confirms the picture in Chart 3: basically, the dollar moves in the Board index relative to other indexes as the dollar moves in Europe.

The strong rise of the dollar in Europe to a peak in early 1985 is reflected in the Board index, which took on a slightly higher value relative to the Atlanta Fed index in winter 1984 to 1985. However, the sharp decline of the dollar in Europe from March 1985 onward reversed the relation between the Board and the Atlanta Fed indexes. The Board index reports a relatively steep decline of the dollar since February 1985 and currently measures the dollar's value at almost 5 percent below the value implied by its average relation to the Atlanta Fed index.

The residuals from a regression of the Morgan index on the Atlanta Fed index are similar to those for the regression using the Board index, because the Morgan index also weights Europe heavily at the expense of Asia-excluding-Japan. However, the residuals are smaller, because Morgan's weights are bilateral and thus similar to the Atlanta Fed weights. Hence, these two indexes diverge by less when the dollar moves differently in Japan or Canada than in Europe. Persistent differences of only about 2 percent occur, and they are explained solely by European versus Asian, and not by Canadian, values of the dollar.

Table 4. Econometric Relation Between Dollar Indexes

Dependent Variable	Constant	Atlanta Fed Index	R ²	D-W
Board Index	-2.43 (-23.1)	1.540 (68.9)	.9688	.06
Morgan Index	-0.42 (-11.3)	1.095 (140.1)	.9923	.10

Ordinary least squares regressions are used, as are natural logarithms of all indexes.

t-statistics are in parentheses. All are significant at the .01 level.

D-W is the Durbin-Watson statistic.

Sample: April 1973 to February 1986, monthly averages, 155 observations.

Due to the relative strength of the dollar in Europe versus its strength in Asia in early 1974, the Morgan index stated the dollar's value at about 2 percent above its average relationship with the Atlanta Fed index. This pattern was not repeated until early 1985, and even then the residual stayed under 2 percent. In only two major periods does the Morgan index place the dollar's value firmly below that predicted by the Atlanta Fed index. First, in 1980, the weak dollar in Europe, (as opposed to its strengthening value in South Korea and Hong Kong, for instance) caused the Morgan index to report a relatively low global dollar value. The residuals were negative, with a magnitude exceeding 1.5 percent in almost every month during 1980. After reaching -2.1 percent in August (the dollar trough in Europe) they remained near -2 percent until the end of 1980.

Heavy emphasis on European currencies, against which the dollar has declined rapidly since March 1985, leads the Morgan index, like the Board index, to report a steeper dollar decline than the Atlanta Fed index since that time. This was most apparent after March and September of 1985, when the dollar changed little against the Asian-nj group but fell substantially against the European and Japanese currencies. The result of the analysis showed that the Morgan index states a dollar value at least 2 percent below its average implied value

relative to the Atlanta Fed index since the latter part of 1985.

Further econometric work, which details dynamic relationships between indexes, showed that certain Atlanta Fed sub-indexes had power in leading or predicting the Board index. The most surprising result was the significant predictive power our Asian sub-index had for the Board index. This seems to be related to major turning points of the Japanese yen against the dollar, since Japan is a major component of the Asian sub-index. The dollar bottomed out against the yen in October 1978 as compared with July 1980 according to the Board index; the dollar peaked in Japan in October 1982 versus February 1985 on the Board index.¹⁰ However, this is somewhat of an anomaly that calls for further research.

Summary and Implications

The new Atlanta Fed dollar index and its component sub-indexes help to provide a more comprehensive global portrayal of the dollar's value by updating weights and considering countries that reflect shifts in U.S. trade toward industrializing Asian nations.

This study merely introduces and documents the new Atlanta Fed dollar index and sub-indexes. Further work is called for, including a real exchange rate index that accounts for

highly inflationary major U.S. trade partners like Brazil and Mexico and an analysis of the predictive effect of the new indexes on various trade balances.¹¹ Nevertheless, the Atlanta Fed index's unique characteristics may make it a useful tool for many types of analysis.

The new research reported here provides an index with less variability globally than in prominent indexes. Furthermore, although the dollar moves somewhat disparately around the world,

existing indexes are more sensitive to its value in Europe. Finally, the Atlanta Fed index suggests that the dollar has declined less since early 1985 than is commonly reported. Negative implications for the U.S. trade balance emerge, especially since the United States has large and growing deficits in regions like Canada and Asia-excluding-Japan where the Atlanta Fed sub-indexes show virtually no dollar depreciation.

NOTES

¹A third leading index developed by the IMF uses a structural, model-based approach. While it is useful, it is too complex for ready understanding and calculation, and depends on several critical assumptions. Furthermore, its coverage is similar to that of the Morgan index. Thus, the new index and sub-indexes are contrasted only to the Morgan and Board indexes.

²See David Deephouse (1985) or Michael T. Belongia (1986) for more detailed descriptions of existing currency indexes and the theory behind various weighting schemes.

³Despite its black market, we provisionally include China in our index. We believe its floating effective rate adequately reflects its currency's value. Any distortion introduced is slight, since the weight on China is only .0162; to omit China, on the other hand, is to overlook a growing influence on U.S. trade. China, with its continuing currency depreciation, is especially crucial to the U.S. textile and apparel industries.

⁴We are incorporating them in the Atlanta Fed real (differential inflation adjusted) effective dollar index which is currently being developed.

⁵See Morgan Guaranty, *World Financial Markets*, August 1983.

⁶Bilateral weights may have a further advantage over multilateral in short-run policy analysis, in that they probably capture the short-run effects of changes in the dollar on U.S. trade and inflation. The reason for this is that immediate effects depend on whether we trade with the country. The potential third-country effects which multilateral weights attempt to reflect are a longer-run issue. However, the practical

problems with multilateral weights mentioned here imply that bilateral weights might also better capture the long-run effects. (Craig Hakkio, an economist at the Kansas City Fed, and Frank King, Associate Director of Research for the Atlanta Fed, contributed these insights.)

⁷One could make the same argument with regard to Canadian-U.S. trade, particularly in the area of automobiles, the trade and production of which are governed largely by formal agreements. In this sense Canada and the United States are operating partially as an economic unit even though they are independent politically. Thus, the Canadian weight in the Atlanta Fed index may be overstated. However, we believe any distortion here is small relative to that induced by Europe's weight in a multilateral index because the number of political units is small and the scope of formal economic integration is far less wide.

⁸These trade flows may also be influenced by third-country effects. That is, Saudi imports from the United States may be determined by the dollar's value relative to third countries such as Japan and Europe as well as its value in Saudi Arabia.

⁹An updated sample through May 1986 yields almost identical results.

¹⁰Econometric and other technical details can be found in Atlanta Fed Working Paper 86-7 on this subject by the present author. (Working papers can be obtained upon request of the Research Department.)

¹¹This work is currently in progress.

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