Board of Governors
of the
Federal Reserve System

O F F I C E C O R R E S P O N D E N C E

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To [redacted]

Subject: The "Net Foreign Sales Balance" of DeAnne Julius

From Guy V.G. Stevens

I. Introduction and Summary

I have been asked to examine the construction of the ownership-based "net foreign sales balance" introduced by DeAnne Julius in her Journal of Commerce article (7/10/90) and her book Global Companies & Public Policy.[1] After reading the book and article and having a number of helpful conversations and communications with the author, I am now able to reproduce her calculations. This effort is the subject of section III. In brief, although Ms. Julius has revised her calculations as a result of our conversations, she has not felt it necessary to change her basic conclusion that the United States shows a surplus on the "net foreign sales balance." However, my calculations lead me to conclude that we still have a significant deficit on that basis, approximately equal to the sum of the merchandise trade balance, other services, net, and direct investment income, net.[2] In 1986 that deficit was equal to -$113 billion.

As discussed in the next section, I think there is some ambiguity as to what concept of competitiveness Julius is trying to measure and how her empirical calculations relate to that concept. It is clear that she wants a measure of competitiveness that includes the sales of foreign subsidiares as well as exports; I argue below that the best measure of this sort is a market share measure. However, the measure she

1. Published for the Royal Institute of Economic Affairs by the Council on Foreign Relations Press, New York (1990).
2. "Other services, net" to a large extent represent net foreign sales by business: e.g., finanacial and insurance services, telecommunications services, royalties and license fees, and travel services. Originally, Julius did not include these services, but, as explained below, now she does.

proposes is a generalized trade-balance concept. I believe such an indicator can be useful in showing the net contribution of business to the current account; but I tentatively think that this concept is best measured by the already available sum of the merchandise trade balance, other services, net, and direct investment income, net.

II. Measures of Competitiveness

For a number of years, following the lead of Irving Kravis and Robert Lipsey, the profession has distinguished at least two quite different definitions of international competitiveness: the competitiveness of the United States as a production location and the competitiveness of U.S. firms [Lipsey and Kravis (1985, 1987)].[3] The trade balance is a reasonable measure of the former, but the latter must take account of the production of U.S. firms from all facilities, foreign as well as domestic. Kravis and Lipsey suggest that the ideal measure of U.S. firm competitiveness, either overall or by industry, should be an indicator of the market share controlled by U.S.-owned firms: the ratio of sales or production by U.S.-owned firms (wherever located) to a measure of worldwide sales or production. Because they have found total world measures of production deficient or non-existent, in their articles Kravis and Lipsey have used a second-best measure, the ratio of U.S.-owned exports, from the United States and foreign affiliates, to world exports. The conclusion at which Kravis-Lipsey have arrived in all their articles is that, in contrast to the decline in the competitiveness of

3. Lipsey, Robert E., and Irving B. Kravis, "The Competitive Position of U.S. Manufacturing Firms," **Banca Nazionale del Lavoro**, No. 153 (June 1985), pp. 127-154. Lipsey, Robert E., and Irving B. Kravis, "The Competitiveness and Comparative Advantage of U.S. Multinationals 1957-1984," **Banca Nazionale del Lavoro**, No. 161 (June 1987), pp. 148-165.

the United States as a location of production, the competitiveness of U.S. firms has remained approximately constant. They use this finding to reject hypotheses that attribute the U.S. trade deficit to the managerial or technical failings of U.S. firms.

Julius seems to be aiming at an alternative measure of Kravis and Lipsey's concept of the competitiveness of U.S. firms. Thus, in her Journal of Commerce article (attached), she notes: "A good measure of competitiveness needs to include both ways of reaching foreign markets -- through exports and through local sales of foreign-owned companies." However, depending on the precise definition of the flows entering her measure, the concept that she actually measures may be more closely related to a third definition of competitiveness, one I would call "the competitiveness of U.S.-owned factors of production."

This third measure of competitiveness is suggested by, but not treated in, the Kravis-Lipsey discussion. It would be measured by the net contribution of U.S. and foreign business activity to the current account balance: captured by the sum of the traditionally defined trade balance (probably including "other services, net") and net direct investment income. This concept, unlike the trade balance, takes into account that foreign affiliates generate net claims on foreigners, thus contributing to the current account; but it also recognizes that the contribution of foreign affiliates to the current account is less than -- typically much less than -- the total value of foreign affiliate sales.

III. Julius' Calculations

DeAnne Julius eschews a market-share approach like Kravis-Lipsey, choosing, instead, a generalized trade-balance measure based on "nationality of ownership, rather than residence." She states that her

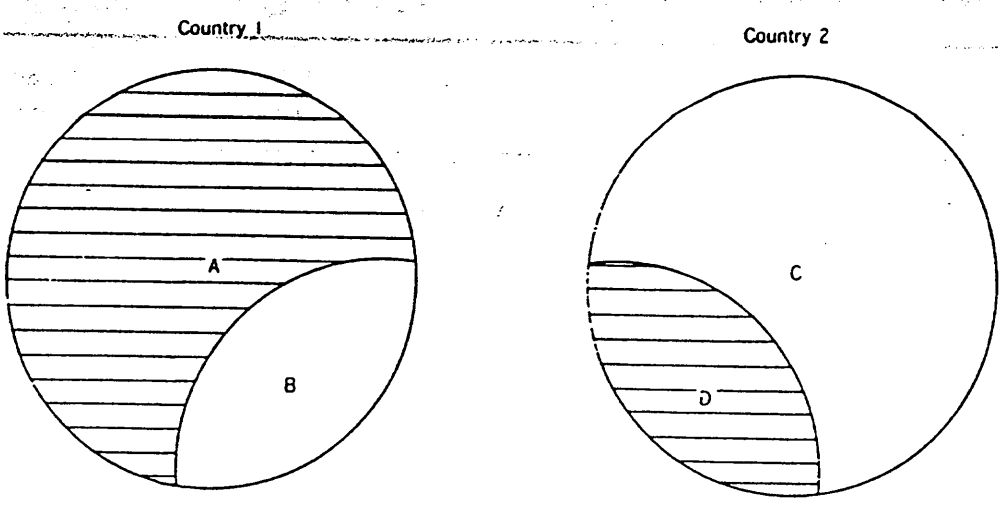
measure can be calculated by "subtracting foreign investment-related trade from the traditional trade measures -- to avoid double-counting -- and then adding the local sales and purchases of foreign-owned companies."

The flows she estimates in Table 1, below, attempt to measure the value of the flows between four "regions" defined in her figure 4.1, following Table 1. Thus, line 2 of Table 1, U.S. exports to U.S. foreign affiliates abroad, is the flow from region A to D. With two minor exceptions, all possible bilateral flows are measured in the table.[4] Last week, I was able to verify all but four of her figures, those on lines 4, 5, 10 and 11, using BEA's data from various issues of U.S. Direct Investment Abroad and Foreign Direct Investment in the Unites States. After further communication with Ms. Julius, I have now been able to resolve all the ambiguities concerning definitions and sources, but a number of differences in our calculations remain; the most crucial turns out to a difference of $145 billion between our revised estimates of line 5, the local sales by U.S. direct investors abroad. (See the entry for line 5 in columns 2 and 4 of Table 1.)

Despite the Julius' revisions (which agree with two of my four proposed corrections), it will be helpful to note my problems with her original entries in these four lines (column 1). Let us ignore for the moment her admittedly rough estimate for line 4: local (U.S.) sales to local FOFs (foreign-owned firms in the United States). Line 5 should be

4. The two flows not measured are BD and DB, flows between foreign-owned firms in the United States and U.S. foreign affiliates abroad. Such flows cannot be broken out from U.S. statistics. I agree with Julius that any error introduced by their neglect is small.

Figure 4.1 A two-country world with foreign-owned firms



Key: A = Domestically owned firms and consumers in Country 1.
B = Foreign-owned firms in Country 1.
C = Domestically owned firms and consumers in Country 2.
D = Foreign-owned firms in Country 2.

defined in terms of flows between the lettered areas. For Country 1, FDI-related exports are AD and BC. If Country 1 is the US, then AD represents shipments from US firms to US-owned firms abroad, and BC represents sales by FOFs in the US back to their home countries. FDI-related imports include DA, purchases by US companies from US-owned firms abroad, and CB, purchases by FOFs in the US from their home countries.*

The extent to which a country's trade is FDI-related will depend on the size and propensity to trade of its own MNEs abroad and on those it hosts. The US and Japan are quite different in these respects, making their comparison particularly instructive. The US has a larger overseas network of FOFs and, at the same time, smaller export flows relative to GNP than does Japan. The two countries have similar ratios of imports to GNP, but the US is a host to many more FOFs than is Japan.

*In the empirical sections that follow, the data used to estimate FDI-related trade also include transactions that would be labelled BD and DB. This is because the data from the host country on FOFs do not distinguish between foreign- and domestically owned firms in the home country with which its FOFs transact business. While this may introduce some bias into the estimates, both BD and DB are likely to be small, and they are subtracted from each other in the net figures. An example would be a purchase by IBM in Japan from a US-based Hitachi plant.

Table 1: Ownership-based trade measures for the U.S. in 1986
(U.S. $ bn)

		Julius (book)	Julius (7/23)	Stevens (7/16)	Stevens (7/23)
Foreign sales					
1.	Exports (X_R)	224.0	304.0	223.4	304.0
	less: FDI-related exports				
2.	to FOFs abroad (AD)	71.7	68.0	71.1	68.0
3.	by local FOFs (BC)	51.5	50.7	50.7	50.7
	plus: Local sales				
4.	to local FOFs (AB)*	267.0	400.4	400.4	400.4
5.	by FOFs abroad (DC)	777.0	873.6	728.8	728.8
6.	Total foreign sales (X_o)	1,144.8	1,459.3	1,230.8	1,314.5
	Foreign purchases				
7.	Imports (M_R)	368.4	439.4	368.4	439.4
	less: FDI-related imports				
8.	by FOFs abroad (DA)	66.3	57.2	65.5	57.2
9.	to local FOFs (DB)	125.2	124.5	124.5	124.5
	plus: local purchases				
10.	from local FOFs (BA)	445.0	616.5	616.5	616.5
11.	by FOFs abroad (CD)	446.2	558.5	674.5	558.5
12.	Total foreign purchases (M_o)	1,088.1	1,432.7	1,469.4	1,432.7
13.	Net foreign sales ($X_o - M_o$)	+56.7	26.6	-238.6	-118.2
14.	Net exports ($X_R^o - M_R^o$)	-144.4	-135.4	-145.0	-135.4

*Estimated from the local content figures discussed in the text: 5% for FOFs in Japan, 60% for FOFs in the U.S. and 60% for both U.S. and Japanese firms in all other markets.

total sales by U.S. foreign subs ($928.9 billion, Table 6),[5] minus exports by these subs to the United States ($65.4 billion, Table 18), minus a correction for sales among U.S. foreign subsidiaries ($134.7 billion);[6] the total is $728.8 billion, almost $50 billion smaller than the original Julius estimate in column 1. She explains that the original number is incorrect because 1985 data were used. Her present figure in column 2 would be very close to mine if she had subtracted the correction for sales among U.S. foreign subsidiaries.

Consider the original discrepancies in the local purchase rows (lines 10 and 11 for columns 1 and 3). Line 10, flows from location B to A, equals sales of foreign-owned firms (FOFs) in the United States. An approximate measure for 1986 would seem to be total sales of these FOFs ($667.2 billion, Table E-5), minus exports abroad ($50.7 billion, Table G-3), minus a correction to eliminate sales among FOFs in the United States. Although there is no precise data for this last flow, since most foreign FOFs in the United States consolidate all subsidiaries for reporting purposes, I will assume these flows to be zero. This leads to an estimate for line 10 of $616.5 billion -- $171 billion more than

5. The table references in the text are to: (1) for data on U.S. direct investment abroad, U.S. Direct Investment Abroad (Preliminary 1986 Estimates), (U.S. Department of Commerce, Bureau of Economic Analysis, June 1988); (2) for data on foreign direct investment operations in the United States, Foreign Direct Investment in the United States (Preliminary 1986 Estimates), (U.S. Department of Commerce, Bureau of Economic Analysis, June 1988). These data are available annually from 1982 through 1987; data for 1988 should be available in August.

Preliminary estimates were used because they seemed to correspond better to Julius' original calculations; in fact, it turns out that some of her calculations were inadvertently based on 1985 data.

6. Sales from one U.S. foreign affiliate to another are available only for majority-owned foreign subsidiares; the ratio of 14.5 percent derived from this source has been applied to the sales of all nonbank foreign affiliates to calculate the figure of $134.7 billion for inter-affiliate sales. One can show that, to calculate a figure for sales of U.S. foreign affiliates to the local economy, inter-affiliate sales should be eliminated.

Julius' original. Her revised number in column 2 accepts the above calculation.

Line 11 is the purchases of U.S. subsidiaries abroad from foreign economies. One measure of this concept would be total sales ($928.9, Table 6), minus the previous correction for sales among these subsidiaries ($134.7 billion), minus imports from the United States (mainly inputs) ($71.1, Table 17), minus profits ($48.6, Table 8); this total, $674.5 billion, should equal costs paid to local factors. Once again there is a large discrepancy between Julius's original estimate and my calculation. It turns out that her revised entry for line 11 (and line 4) is calculated by applying an admittedly rough 60 percent local content rule to a measure of total sales; her revised number is close to 60 percent of the total sales number, above, from Table 6; however, this revised number, $558.5 billion (column 2), is more than $100 billion more than the original. Although I think my original estimate is probably closer to the truth (as I explain below), I accept her number provisionally in column 4.

Finally, consider her estimate for line 4, purchases by FOFs in the United States from the local economy (AB). This is calculated in parallel fashion to the entry in line 11, by applying the 60 percent local content rule to the level of total sales by FOFs in the United States. Her original estimate inadvertently used 1985 sales; when the 1986 level is used our estimates are identical at $400.4 billion. However, I discuss below why even this revised figure is probably too low. Fortunately, the underestimates for lines 4 and 11 probably roughly cancel, so the bottom line, the "net foreign sales balance," is not affected.

IV. Further Analysis

Further analysis that I carry out in the appendix shows why my original bottom line, a net foreign sales deficit of -$238.6 billion in column 3, is much too large; it turns out that the major reason is the use of Julius' 60 percent local content percentage to calculate the figure of $400.4 billion on line 4. (A similar objection applies to the use of the 60 percent rule in line 11.)

The analysis in the appendix implies the surprising result that Julius' methodology, if implemented in a way that includes all payments to the local economy, should lead to a net balance equal to the sum of the trade balance, other services, net, and net direct investment income (exclusive of capital gains).[7] For 1986 that would be -$145.0 plus $9.6, plus $22.5, a deficit of -$112.9. If this is correct, her measure of competitiveness, rather than approximating the Kravis-Lipsey measure, actually reduces to a measure of the competitiveness of U.S. factors of production, wherever they may be located -- the third conceptual measure I noted above.

To discover the source of error in the third column of the table, the appendix suggests regrouping the entries in Table 1 to correspond to the definitions of the trade balance (including other service payments and receipts), direct investment receipts, and direct

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7. This assumes that she includes payments to labor in her estimates of payments to the local economy, which she suggests in her book and which she has recently confirmed.

It might be noted that the exclusion of labor payments from payments to the local economy -- in an attempt to get closer to a figure of payments to business firms only -- leads to the following conceptual ambiguity. A labor payment can very easily be shifted from a direct payment to hired employees to a payment to a firm; if labor payments were excluded from her measure, then every time a U.S. foreign affiliate decided to contract out a service that was formerly rendered by in-house employees, it would appear that the United States had lost competitiveness.

investment payments. This last concept suggests that the figure in row 4 is much too low. Direct investment payments, roughly equal to the profits of FOFs in the United States, should equal: line 10 plus line 3 (together equalling total sales), minus line 9 (imports of the FOFs from abroad), minus line 4 (payments to factors in the local economy, which should include taxes in addition to wages, intermediate inputs, etc.); the result should roughly approximate the balance-of-payments figure for direct investment payments, which for 1986 was $7.4 billion. Instead, using the estimates from column 3, the sum equals $142.3 billion, implying a huge discrepancy between the receipts of direct investors in the United States and their costs. If line 4 is adjusted upward by the difference between these numbers, the balance for "net foreign sales" drops from -$238 billion to -$103 billion, which is much closer to the theoretically expected result. [8]

In the revised calculations by Julius and myself in columns 2 and 4, the application of the 60 percent rule probably does not bias the net balance much, because the substantial errors in lines 4 and 11 are offsetting. For this reason my calculation of the net foreign sales balance in column 4 of -$118.2 billion is close to the sum of the trade balance, other services, net, and net direct investment income (-$113 billion). Julius' revised calculations show a much more positive balance ($26.6 billion), because she made no correction in line 5 for sales among U.S. foreign subsidiaries.

8. It turns out that direct investment receipts are overestimated somewhat in the table; it this is adjusted downward, the overall balance gets quite close to -$113 billion.

V. A Series for the Net Contribution of Business Activity to the Current Account

Julius' estimate of her "net foreign sales balance," is only available for 1986. My discussion, above, and her recent revisions indicate that it would be premature to attempt to create a time-series using her methodology. However, if my manipulations of Julius' concept in the appendix are correct, then her "net foreign sales balance" is equivalent to what I have called the "net contribution of business activity to the current account." This latter concept can be measureed easily by currently available data on international transactions: the sum of the merchandise trade balance, other services, net, and net direct investment income. Table 2 presents the series for the last decade (along with the sum of the first two components for comparison purposes).

Table 2: Calculated Series for "Net Contribution of Business Activity to the Current Account"

(U.S. $ bn)

	Trade Balance plus Other Services, Net	Net Contribution Of Business Activity
1980	-17.6	+14.2
81	-15.3	+9.9
82	-24.5	-2.8
83	-57.5	-35.8
84	-107.6	-87.0
1985	-118.9	-98.6
86	-135.5	-113.0
87	-149.5	-120.9
88	-110.0	-76.3
89	-88.1	-47.8

Source: Bureau of Economic Analysis, Revised Current Account Data (June 1990).

Appendix

An Interpretation of Julius's Measure as Equal to the Net Effect of Business Activity (U.S. and Foreign) on the Current Account.

I will try to show below that a properly defined expression for the trade balance plus net direct investment receipts -- a measure of the competitiveness of U.S.-owned factors of production or the net effect of business activity on the current account -- can be transformed into Julius's measure of "net foreign sales" (the summary element in Table 1). This shows, incidentally, that the sales from foreign affiliates are embedded in measures of the current account balance.

The calculation will be done from the point of view of the United States: X equals U.S. exports in value terms; M, our imports. The entry for direct investment receipts is essentially equal to the profits of U.S.-owned business operations abroad (not counting taxes on dividends and minority interests in profits): for any firm, this can be represented as the value of sales (S) minus inputs exported from the United States ($X_{DI,A}$), minus all other costs paid to factors in foreign countries ($OC_{DI,A}$). The subscript DI,A denotes flows associated with U.S. direct investors abroad; DI,US refers to direct investors (or FOFs) in the United States; when import and export flows are divided into those going to direct investors and all other recipients, the latter are denoted by 0.

Thus, the sum of the trade balance plus net direct investment receipts can be represented as:

$$X_O + X_{DI,A} - M_O - M_{DI,US} + [S_{DI,A} - X_{DI,A} - OC_{DI,A}] - [S_{DI,US} - M_{DI,US} - OC_{DI,US}]$$

Since exports and imports to direct investors cancel, the expression reduces to:

$$X_O - M_O + [S_{DI,A} - OC_{DI,A}] - [S_{DI,US} - OC_{DI,US}] .$$

In terms of Julius's flow notation, the above equals (where X_R and M_R are, as defined in Table 1, total exports and imports):

$$(X_R - AD) - (M_R - CB) + [(DC + DA) - CD] - [(BA + BC) - AB].$$

This expression, in turn, can be rearranged to yield the appropriate sum of the entries 1 through 11 in Julius's table:

$$X_R - AD - BC + AB + DC - [M_R - DA - CB + BA + CD].$$

We have shown, therefore, that Julius's net foreign sales measure is identical to the sum of the trade balance and net direct investment receipts. This derivation is based, of course, on specific definitions of Julius's individual entries, definitions that in at least four cases are still subject to ambiguity.

EDITORIAL/OPINION

Trade 'Deficit' Is a Surplus

By DeANNE JULIUS

A national obsession is growing over the loss of American competitiveness in the world economy, one that is fanned by the rising trend of foreign takeovers of U.S. companies.

This preoccupation has led to the bizarre Structural Impediments Initiative talks with Japan over ways to reduce the bilateral trade deficit, in which Japanese negotiators pressed the United States to increase its savings rate and adopt the metric system in order to improve its competitiveness.

All this reveals deep confusion about the meaning of national competitiveness and how it relates to trade balances and foreign investment. New analytical tools are needed to measure and understand the linkages among advanced economies.

The wave of foreign direct investment during the 1980s greatly expanded the role of global companies operating inside each others' home markets. Conventional trade measures exclude the sales and purchases of these foreign-owned companies, which makes the figures increasingly misleading as indicators of national competitiveness.

Table One: Trade Related to Foreign Direct Investment
(As Percentage of Total Exports or Imports)

	U.S. (1986)	Japan (1983)
Exports		
Exports to affiliates abroad	32%	38%
Exports by foreign-owned firms	23%	3%
Total FDI-related exports	55%	41%
Imports		
Imports from affiliates abroad	18%	40%
Imports to country by foreign-owned firms	34%	17%
Total FDI-related imports	52%	57%

SOURCE: Author's calculation.

There are two dimensions to the link between trade and foreign direct investment. First, much of what is counted as trade between countries actually represents "internal" transactions between foreign-owned companies and their country of ownership.

For example, as shown in Table One, 32% of U.S. exports go to American-owned companies abroad. Another 23% of U.S. exports are by foreign-owned companies in the United States shipping goods back to their home countries.

> A good measure of competitiveness needs to include both ways of reaching foreign markets — through exports and through local sales of foreign-owned companies.

More than half of U.S. trade is related to foreign direct investment. The same is true for Japan. Foreign direct investment is even more dominant in determining trade patterns in some developing countries.

The second dimension is the importance of local sales as a factor in U.S. competitiveness. Sales by foreign affiliates in some cases are even more important to companies than exports as a way to reach foreign consumers. Table Two shows that sales by U.S.-owned companies abroad are larger than U.S. exports to nearly all of our major trading partners.

On the import side, sales by foreign-owned companies in the United States were 150% of total U.S. imports in 1985. Local sales by foreign-owned companies in Germany equaled 139% of that country's imports in 1987. Even in Japan, where there are relatively few foreign-owned companies, local sales are over 40% as large as imports.

To ignore these sales and purchases by foreign-owned companies in their host markets, as conventional trade measures do, is to invite gross error.

A good measure of competitiveness needs to include both ways of reaching foreign markets — through exports and through local sales of foreign-owned companies. However, it must not double-count the investment-related trade that could show up as both.

For example, if Honda's Ohio plant imports parts from Japan to assemble cars and then sells the vehicles locally, those parts are included both in Japan's exports to the United States and in the local sales of Japanese-owned companies in the United States.

Competitiveness can be assessed by converting traditional import and export figures into measures of "foreign purchases" and "foreign sales" that assign transactions according to nationality of ownership, rather than residence. This can be done by subtracting foreign investment-related trade from the traditional trade measures — to avoid double-counting — and then adding the local sales and purchases of foreign-owned companies.

By this measure, the 1986 U.S. trade balance is transformed from a deficit of $144 billion, based on the location of the exporting companies, to a surplus of $57 billion based on the net foreign sales of American-owned companies. While this figure is imprecise, it still may be considered indicative.

Trade is still important, and comparative advantage remains a valid idea. But comparative advantage is a territorial concept that coincides with national boundaries only as long as labor, capital and entrepreneurship stay within those boundaries, while the outputs they combine to produce are traded across borders.

Today, a range of non-geographic factors, including technology, management techniques and marketing strategy, are increasingly important to competitiveness. The services from those intangible, firm-specific assets cannot be traded well at arms length. That is why multinational companies develop.

Table Two: Local Sales by U.S.-Owned Companies
(As Percentage of U.S. Exports to Each Country - 1986)

Canada	199%
Japan	111%
Mexico	51%
United Kingdom	676%
West Germany	497%
Netherlands	175%
France	491%
World Average	115%

SOURCE: Author's calculation.

The changing structure of global industry has created a widening gap between the territorial notion of comparative advantage and the national policy focus on competitiveness. Competitiveness now has more to do with the ability of national enterprises, including their foreign affiliates, to make their way in global markets with their own products, processes and managerial skills.

Measures based on ownership do a better job of reflecting this than traditional trade measures. But the concept of national competitiveness is a slippery one, without a firm grounding in economic theory or statistics. *Caveat emptor* is the best attitude when confronted with policy proposals to improve U.S. competitiveness.

DeAnne Julius, chief economist of Shell International Petroleum Co. in London, is the author of "Global Companies and Public Policy" (Council on Foreign Relations).