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FEDERAL RESERVE BANK OF DALLAS

Durable Goods and the Collapse of Global Trade

by Jian Wang

Due to the financial crisis, worldwide demand for durable goods dropped substantially. The decline inevitably caused a plunge in global trade.

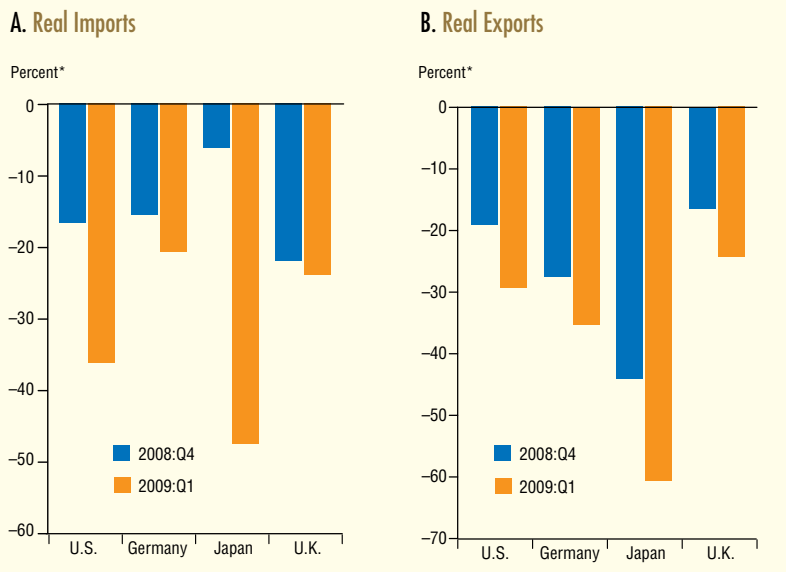
Global trade has experienced a stunning collapse in the current recession, with the World Trade Organization estimating a decrease of roughly 9 percent in 2009—the biggest contraction since the Second World War.[1] Both imports and exports plunged in major trading countries (*Chart 1*).

The swift decline caused substantial damage to the global economy, hitting Japan and other countries with large trade sectors especially hard. It also raised concerns that the trade collapse would worsen the global recession and delay recovery.

Several factors contributed to the global trade collapse. However, the ultimate causes are tied to the global financial crisis that started in mid-2007. Financial markets deteriorated over the next year, and the global economy's growth prospects shifted suddenly in September 2008. In the final

Chart 1

Import and Export Growth Rates Fall as Recession Deepens

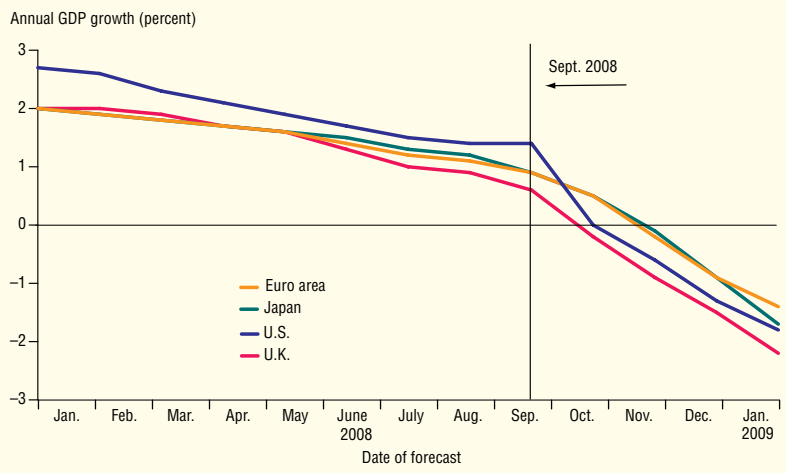


*Quarter/quarter, annualized.

SOURCE: Organization for Economic Cooperation and Development.

Chart 2

2009 GDP Growth Forecasts Turn Gloomy During 2008



SOURCE: Consensus Economics' *Consensus Forecasts.*

months of the year, the forecast for 2009 gross domestic product (GDP) growth went from a moderate slowdown to a sharp contraction (*Chart 2*).

Consumers and investors worldwide started to realize that the financial crisis' impact on real economies may be longer and more severe than they had expected. They pulled back significantly, leading to declines in total consumption and investment that spilled over into global trade. Particularly hard hit were consumer and producer purchases of long-lasting goods. We will see that demand for these durable goods played an important role in the recent global trade collapse.

Trade Volatility and GDP

The last quarter of 2008 saw GDP plunge in much of the world, including key countries such as the U.S., Germany, Japan and the U.K. (*Chart 3*). Understanding how such declines in economic activity impact international trade starts with a look at two persistent patterns in the trade data.

First, imports and exports are much more volatile than GDP. Second, they generally move in the same direction as GDP. The upshot is that a steep drop in a country's GDP usually results in an even steeper drop in imports and exports.

Using the U.S. as an example, we look at annualized quarter-to-quarter changes in imports, exports and GDP since 1980. Over this period, both imports and exports show much bigger variations than GDP (*Chart 4*). The wide fluctuations obscure the fact that imports and exports are also positively correlated with GDP—particularly in the early 1990s, the first few years of the 2000s and the most recent period of economic turmoil.[2]

Trade volatility and a positive comovement with GDP aren't limited to U.S. data. Measured by their standard deviations, imports and exports are about three times as volatile as GDP in most Organization for Economic Cooperation and Development (OECD) countries.[3]

Imports and exports are also positively correlated with GDP in nearly all of these countries.[4]

Like the U.S., most industrial countries experienced sharp declines in their GDPs in the recent global financial crisis. It's not surprising that their imports and exports fell even more sharply.

The fact that imports and exports have greater volatility than GDP explains why international trade plunges in deep recessions. But why is trade so much more volatile than GDP? The answer is that durable goods make up a large fraction of international trade—and demand for them is usually very volatile.

Trade in Durable Goods

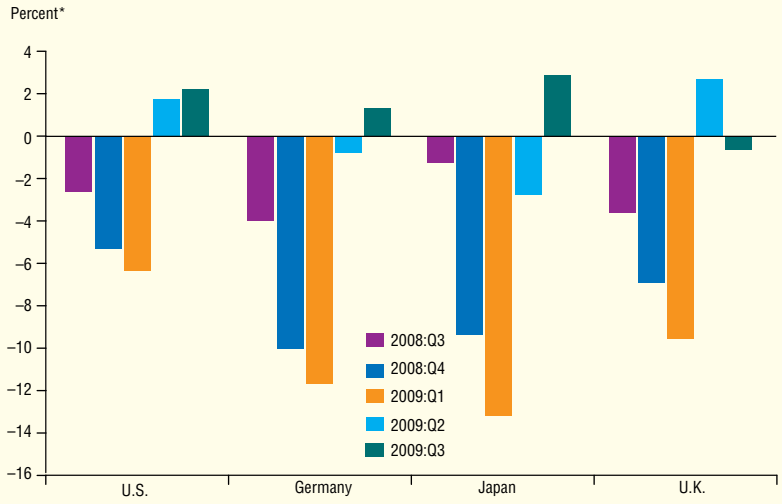
Durable consumption goods and private capital investment factor into durables trade. Durable goods yield service or utility over time. Examples include such capital goods as machinery and such consumer goods as automobiles, appliances and big-screen TVs.

When the economy is expected to turn sour, households can put off purchases of consumer durables but can't easily delay purchases of food and other goods for quick consumption. When inventories start to grow, firms don't expand capacity, and they cancel or postpone new investments. Thus, demand is generally much more volatile for durable consumer goods and investment than for nondurable goods.

Once again, the U.S. provides a good example. We look at annualized, quarter-to-quarter percent changes in the output of both durable goods and nondurable goods and services. The data show that durables are more volatile than nondurables (*Chart 5*).

Durable goods represent a moderate share of the economy in most industrial countries—in the U.S., for example, they accounted for 23.6 percent of real GDP in 2008. However, durable goods make up a large share of international trade. In the U.S., they accounted for more than 60 percent of trade in goods (excluding energy

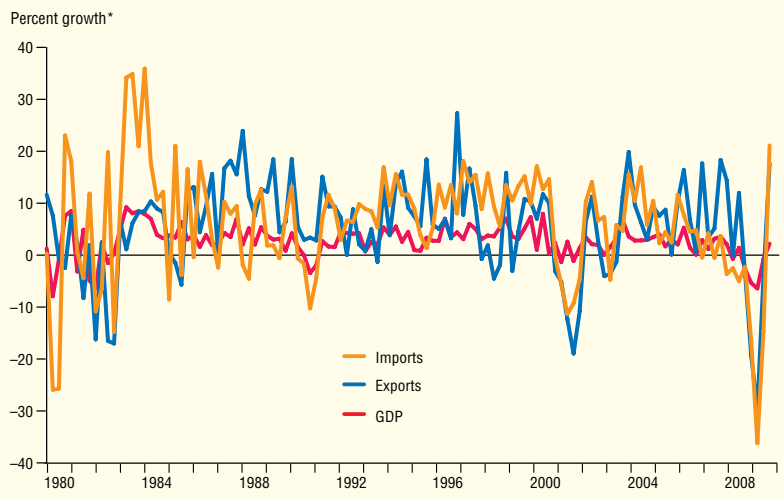
Chart 3
Real GDP Declines in Some Major Economies in 2008–09



*Quarter/quarter, annualized.

SOURCES: National statistical offices; Organization for Economic Cooperation and Development.

Chart 4
U.S. Imports and Exports Vary More than GDP



*Quarter/quarter, annualized.

SOURCE: Organization for Economic Cooperation and Development.

products) in 2008. The figure is 70 percent on average for the OECD countries, according to several studies.[5]

Due to the global financial crisis, worldwide demand for durable goods dropped substantially. In the first quarter of 2009, for instance, demand fell about 20 percent in the U.S, Canada, Japan and the U.K., adding to the weakness of the previous two quarters (*Chart 6*). The decline inevitably caused a plunge in global trade.

Worse than Before?

We know that trade declines faster than GDP in hard times. But how do the declines this time compare with those in the previous downturn in 2001?

In absolute terms, the fall of U.S. imports and exports has been more severe than it was in the previous recession. However, GDP has also declined much more this time. We need to take this into account in comparing trade flows in the current and previous recessions.

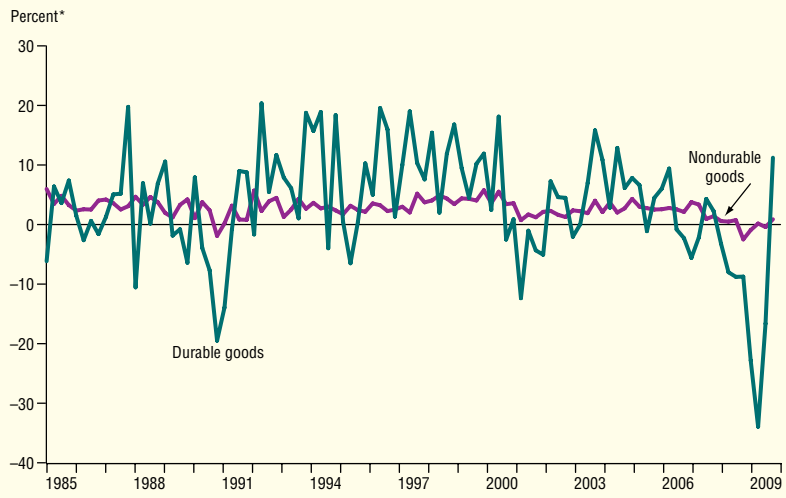
U.S. exports relative to GDP fell about 16 percent from the second quarter of 2008 to the second quarter of 2009—the same as they did from peak to trough in 2000–01. However, the decline in imports has been much deeper this time. As a share of GDP, they fell 18.3 percent—more than twice as much as they did in the previous downturn.

The decline of durable goods contributed heavily to the fall of U.S. exports and imports in both recessions, led by big drops in capital goods sales (*see red section of bars, Chart 7A*).

In the current recession, export losses have been large in automotive vehicles, engines and parts (*green*); the category held up much better in the less-severe downturn in 2001. Automobiles and consumer goods account for a large fraction of the decline of U.S. imports this time, while capital goods less autos led the fall of imports in 2001 (*Chart 7B*).

Chart 5

Growth Rates More Volatile for Durable than Nondurable Goods in U.S.

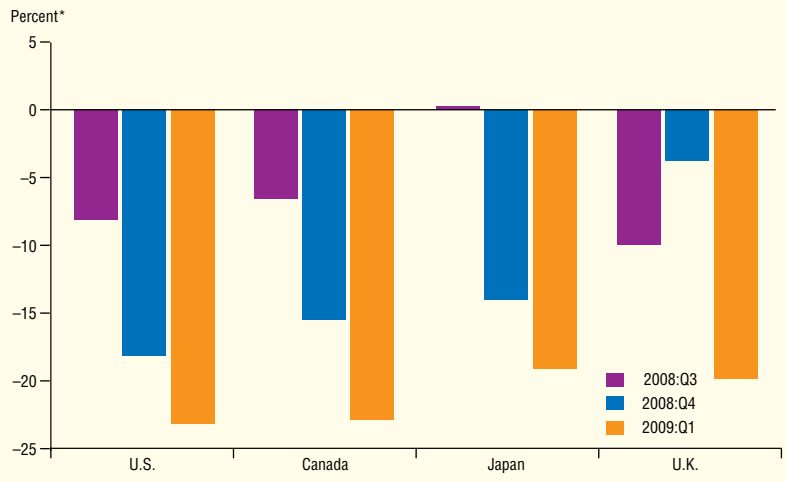


*Quarter/quarter, annualized.

SOURCE: Bureau of Economic Analysis.

Chart 6

Demand for Durable Goods Falls Off Globally



*Quarter/quarter, annualized.

NOTE: Canada is used due to insufficient data from Germany.

SOURCE: Bureau of Economic Analysis.

These findings are consistent with the observation that U.S. households have substantially cut back durable goods consumption the past two years—in contrast to the previous recession, when durables purchases increased (*Chart 7C*). This difference helps explain why U.S. imports have declined much more in the current recession than they did in 2001.

Other Mechanisms

The complexities of modern international trade factor into the demand for goods. Globally intertwined mechanisms such as financial markets, trade credit and vertical specialization likely exacerbated the plunge in worldwide demand for durable goods and the associated collapse of global trade.

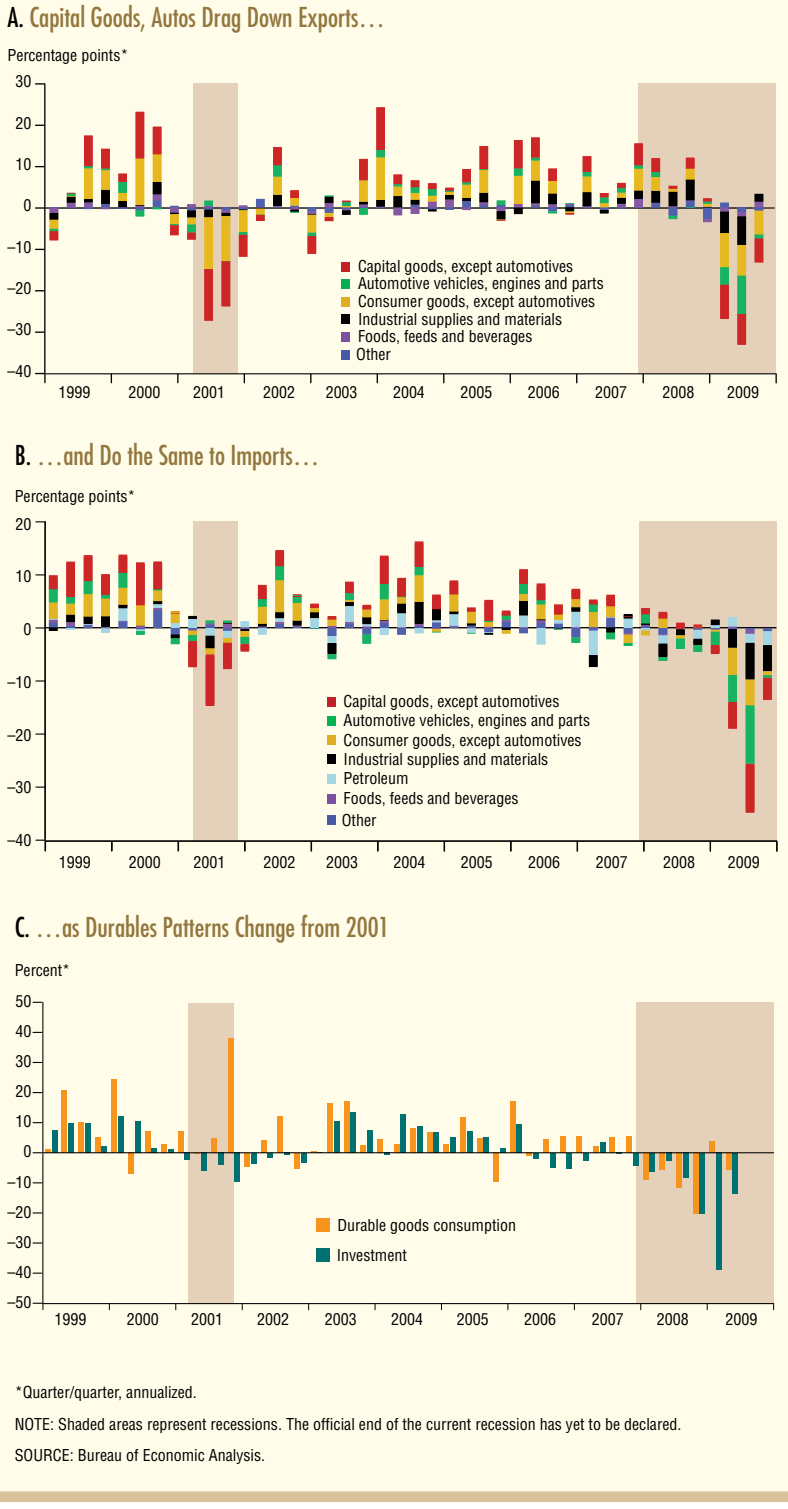
The rapid deterioration of the global economy after September 2008 suggests financial markets played an important role in the most recent trade decline. Since the beginning of the financial crisis, banks around the world have substantially raised their lending standards. Banks usually finance the purchases of durable goods by households and businesses, so tighter lending practices have restricted spending, particularly on durable goods.

Another often-cited mechanism is the collapse in trade credit—loans provided to importers and exporters to facilitate global trade. A striking feature of the financial crisis is the drop in international capital flows. Private capital inflows and outflows as percentage of GDP in the U.S. fell significantly from 2007 to 2009 (*Chart 8*). Similar patterns exist in other countries.

Without steady capital flows, the financing that firms depend on for imports and exports dried up, adding to weakening global demand. Trade finance data are generally unavailable, but some evidence of the trade credit collapse comes from Brazil, where trade credit flows from foreign investors fell from more than $20 billion in 2007 into negative territory at the start of 2009 (*Chart 9*).

Chart 7

Factors in the Fall of U.S. Real Exports and Imports



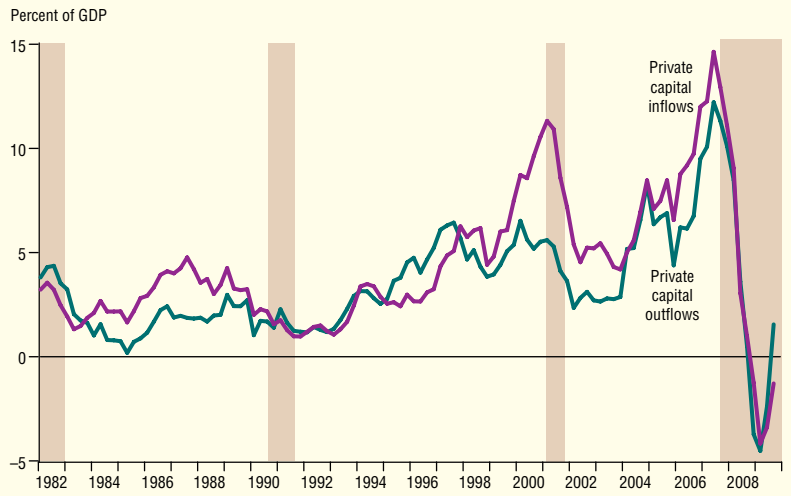
*Quarter/quarter, annualized.

NOTE: Shaded areas represent recessions. The official end of the current recession has yet to be declared.

SOURCE: Bureau of Economic Analysis.

Chart 8

U. S. Capital Flows Plunge

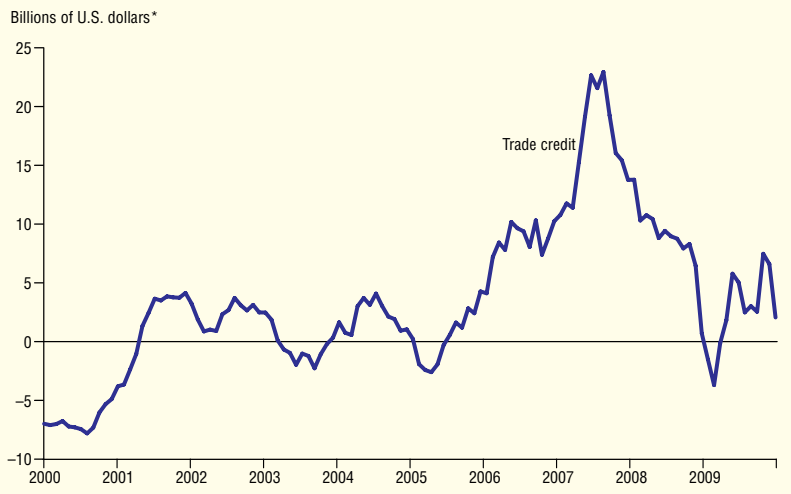


NOTE: Shaded areas represent recessions. The official end of the current recession has yet to be declared.

SOURCE: Bureau of Economic Analysis.

Chart 9

Brazil's Trade Credit Flows Sink



*12-month moving total.

NOTE: Trade credit flow is net of the concession and payment of credits linked to trade in goods and services. In Brazil, it mainly includes short-term trade financing (up to 260 days) that foreign investors granted to Brazilian firms.

SOURCE: Central Bank of Brazil.

Major trade finance providers such as Citigroup and HSBC Holdings also confirm that the trade-finance business is under significant stress globally.[6]

Changing production strategies is another important factor behind the synchronized collapse of international trade. Companies increasingly make products in sequential stages in several countries to exploit the comparative advantages of each country at different production stages. This internationalization of production—often called vertical specialization—has been increasing over time and helps explain the increase in world trade over the past two decades.[7]

Greater vertical specialization can amplify the decline of international trade during recessions.[8] Consider two cases—one without and one with vertical specialization.

Without vertical specialization, country A imports $100 of goods from country B. If country A's demand for imports disappears in a recession, total world exports decline $100.

With vertical specialization, goods are made in two stages. In the first stage, country A produces intermediate goods and exports them to country B for production of final goods. Then country B exports the final goods back to country A. We further assume that the value of intermediate goods is $50 and the value of final goods is still $100. When country A's demand disappears, the loss of total world exports is $150 ($50 from country A to B, plus $100 from country B to A).

The amplification effect can become even bigger when the vertical specialization involves more than two countries. So, the percentage declines in real-world trade can grow much larger than the recessions that spawn them.

More Trade Restraints?

Growing job losses during a recession usually create the environment for another damper on international trade—protectionism. There's little evidence that it has played a role in the latest trade collapse, but protectionist pressures are rising around the world.

One sign is the increased filing of trade disputes to the World Trade Organization (WTO), the international body that governs global trade. Newly initiated import restrictions by WTO members have steadily risen since the third quarter of 2007 as member countries seek ways to protect domestic industries from international competition. During the first half of 2009, WTO members initiated 71 product-level investigations requesting import restrictions, an increase of more than 20 percent from the first half of 2008 and 86.8 percent from the first half of 2007 (*Chart 10A*).

Today's protectionism is frequently in the guise of nontariff barriers such as antidumping actions. The most recent global peak came during the 2001 recession (*Chart 10B*). So far, this recession hasn't seen a similar surge. While still at relatively low levels, antidumping measures initiated and imposed began rising in 2008.

The uptick in trade-protection measures since 2008 is worth watching. A lag exists between initiation and imposition of import restrictions. In the previous recession, total initiations peaked in 2001, and total imposed antidumping measures jumped the next two years. Higher initiations in 2008 and 2009 are likely to result in increased import restrictions in 2010 and perhaps beyond.

In the second half of 2009, the global economy stabilized and started showing signs of recovery. The return of confidence in global growth has boosted demand for durable goods and, therefore, global trade. With economic conditions expected to continue improving in 2010, international trade is likely to recover in the coming months.

However, trade-protection measures expected to be imposed in 2010 could create more trade frictions and become a drag on the trade rebound. And questions remain about how robust consumption will be.

The expansion of global trade was fueled by strong U.S. demand the past two decades. The country's close-to-zero household saving rate wasn't sustainable in the long run. During the current recession, the U.S. savings rate has increased, and the current account deficit has narrowed. If U.S. households' frugality endures, demand may remain relatively soft in the near future. A quick global trade rebound may depend on trade-surplus countries boosting domestic consumption.

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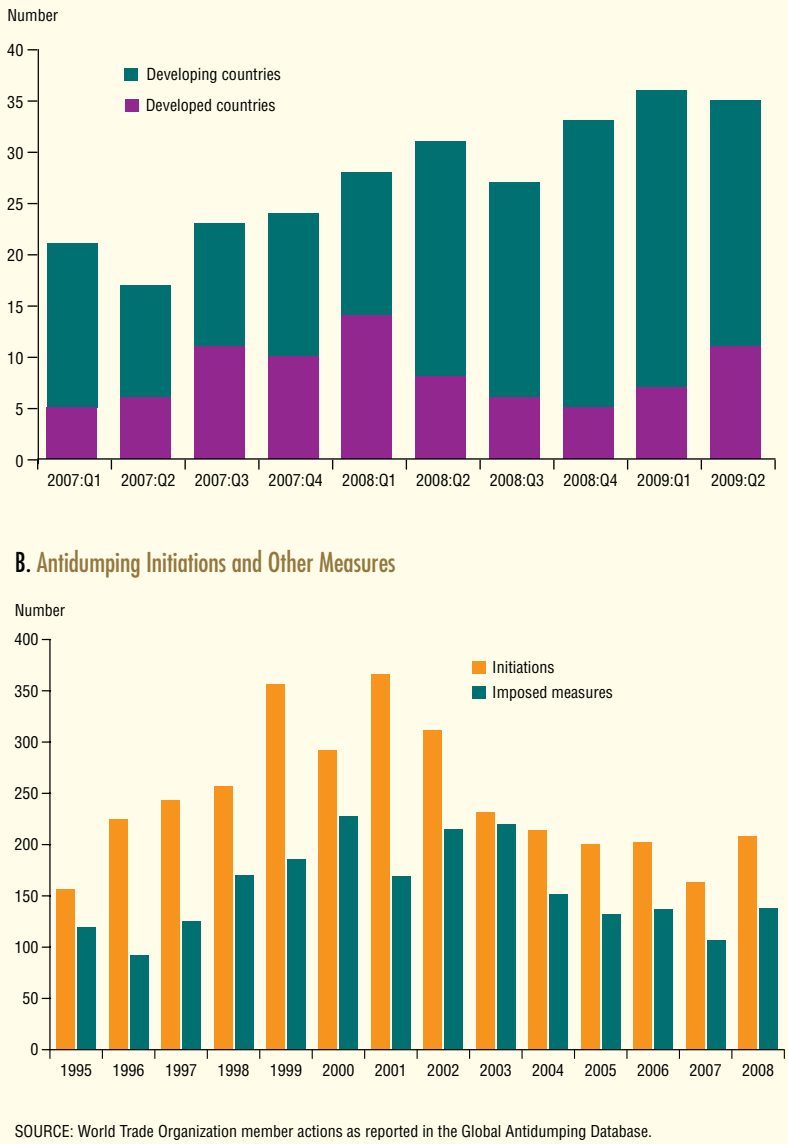
Chart 10
Protectionist Activity Begins to Stir



SOURCE: World Trade Organization member actions as reported in the Global Antidumping Database.

Notes

The author thanks Janet Koech for her research assistance.

[1] See World Trade Organization press releases, March 23, 2009, www.wto.org/english/news_e/pres09_e/pr554_e.htm#fnt1.

[2] The correlation with gross domestic product (GDP) since 1980 is 0.62 for imports and 0.47 for exports.

[3] See "International Trade in Durable Goods: Understanding Volatility, Cyclicality, and Elasticities," by Charles Engel and Jian Wang, NBER Working Paper no. 13814, National Bureau of Economic Research, February 2008.

[4] The average correlation is 0.63 between imports and GDP and 0.39 between exports and GDP in our dataset of 25 Organization for Economic Cooperation and Development countries.

[5] See note 3. Also see "International Trade and Business Cycles," by Marianne Baxter, in *Handbook of International Economics Vol. 3*, Gene M. Grossman and Kenneth Rogoff, ed., Amsterdam: North–Holland, 1995, pp. 1801–64, and "Trade Adjustment and the Composition of Trade," by Christopher J. Erceg, Luca Guerrieri and Christopher Gust, *Journal of Economic Dynamics and Control*, vol. 32, no. 8, 2008, pp. 2622–50.

[6] For a more extensive discussion on the issue of trade finance, see "Trade, Globalization and the Financial Crisis," by Mark A. Wynne and Erasmus K. Kersting, Federal Reserve Bank of Dallas *Economic Letter*, vol. 4, no. 8, 2009.

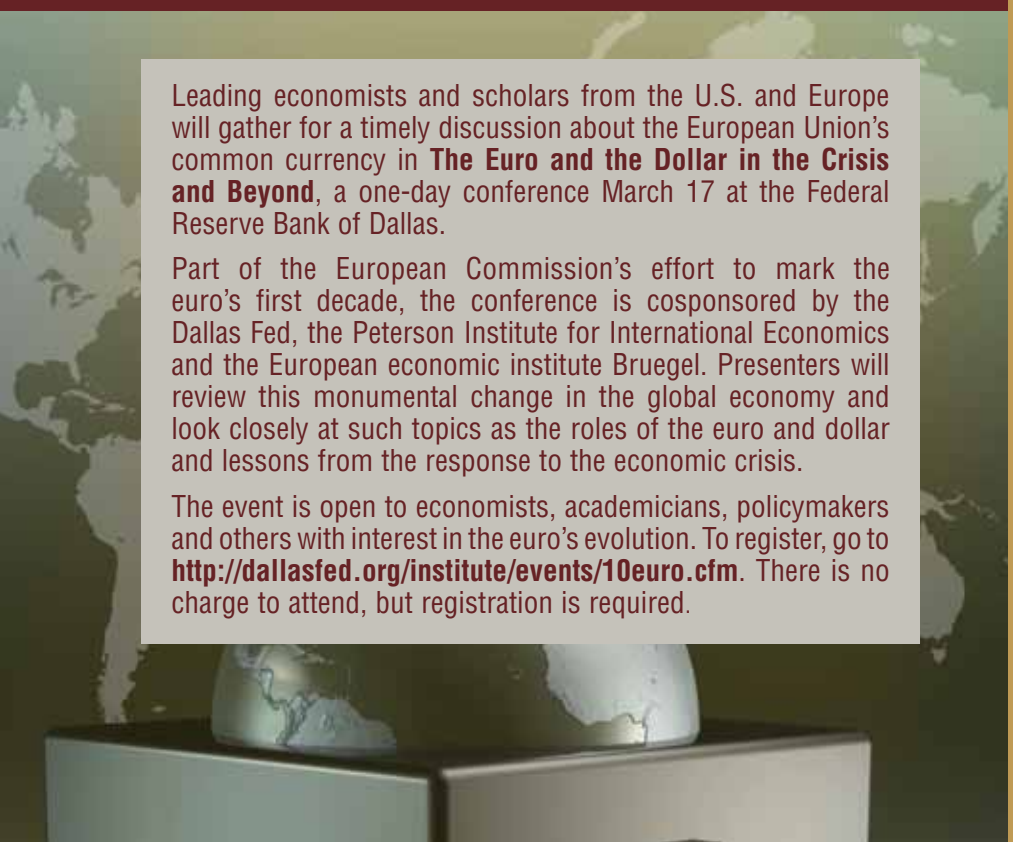
[7] For instance, see "The Nature and Growth of Vertical Specialization in World Trade," by David Hummels, Jun Ishii and Kei-Mu Yi, *Journal of International Economics*, vol. 54, no. 1, 2001, pp. 75–96, and "Can Vertical Specialization Explain the Growth of World Trade?" by Kei-Mu Yi, *Journal of Political Economy*, vol. 111, no. 1, 2003, pp. 52–102.

[8] Andrei Levchenko, Logan Lewis and Linda Tesar find empirical evidence that durable goods and vertical specialization played an important role in the recent trade collapse. See "The Collapse of International Trade During the 2008–2009 Crisis: In Search of the Smoking Gun," University of Michigan, Research Seminar in International Economics Discussion Paper no. 592, October 2009.

The Euro and the Dollar

in the Crisis and Beyond

Wednesday, March 17, 2010
Federal Reserve Bank of Dallas



Leading economists and scholars from the U.S. and Europe will gather for a timely discussion about the European Union's common currency in **The Euro and the Dollar in the Crisis and Beyond**, a one-day conference March 17 at the Federal Reserve Bank of Dallas.

Part of the European Commission's effort to mark the euro's first decade, the conference is cosponsored by the Dallas Fed, the Peterson Institute for International Economics and the European economic institute Bruegel. Presenters will review this monumental change in the global economy and look closely at such topics as the roles of the euro and dollar and lessons from the response to the economic crisis.

The event is open to economists, academicians, policymakers and others with interest in the euro's evolution. To register, go to **http://dallasfed.org/institute/events/10euro.cfm**. There is no charge to attend, but registration is required.

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