

Southwest Economy

Globalization and Monetary Policy

Globalization is one of the most debated and analyzed phenomena of our time. Declining trade barriers and advances in technology have made it possible for consumers in the United States and around the world to purchase a variety of goods and services that would have been impossible a generation ago.

Cheaper imports have contributed to higher standards of living, but the growth of trade has also been associated with job losses as production shifts toward lowest cost producers. Freer flows of capital have made it easier for investors to seek out high returns and diversify their portfolios. International capital flows have also made it easier for businesses to raise funds for investment projects by making them less dependent on domestic institutions. Inflows of foreign capital have helped raise living standards in emerging market economies and have also increased the pressure on these countries' governments to pursue sound fiscal and monetary policies.

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*INSIDE:
Natural Gas Pricing:
Do Oil Prices
Still Matter?*

*Foreign Exchange
Policy and Banking
Reform in China*

European Economic Integration: A Conflict of Visions

Economic integration is a key theme of the global era in which we live today. Perhaps the single most important example of such integration in recent decades is the European Union.

From the ashes of the wartime years, six core European nations forged a confederation that gradually grew to encompass 15 members and then 25. As the EU evolved into an economically freer and more integrated group of nations, the overall European economy has grown to the point where it rivals that of the United States (*Chart 1*).

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*A simple definition
of globalization: the
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These and many other aspects of globalization have been written about at great length. However, relatively little attention has been paid to the question of how a more integrated world economy might impact the conduct of monetary policy in the United States and around the world. In this article I explore some ideas about what globalization might mean for monetary policy.

I start by explaining what economists understand by globalization, offering a definition of the phenomenon and showing some measures of its extent. These measures also give us some historical perspective and show that in many ways globalization is not new.¹ I then highlight a key difference between the last era of globalization and the current one, namely, the monetary standard, and discuss some of the implications of this for monetary policy.

Defining Globalization

Globalization means different things to different people. Indeed, the term *globalization* is much overused. It is taken to refer to many things, from the spread of culture and ideas to the ease of communication and travel in the era of the Internet and jet aircraft. Supporters of globalization hail the greater ease and quality of life in a globalized world; critics claim that free trade simultaneously impoverishes workers in poor countries while desecrating the environment and promoting mass homogenization.

There are also many popular measures of globalization. For example, a recent issue of *Foreign Policy* magazine ranked countries in terms of a variety of criteria to come up with a list of the most globalized countries.² Singapore was ranked No. 1; the United States ranked fourth, behind Ireland and Switzerland. Among the factors that went into the ratings were international travel and tourism, membership in international organizations, contributions to United Nations peace-keeping missions, international telephone traffic, Internet hosts and so on.

I propose a simple *economic* definition of globalization as the increased interdependence of national economies as manifested in greater flows of goods, services and capital across national borders. In a fully globalized world, goods, labor and capital would move between

countries with the same ease with which they move within countries. Consumers in Texas could buy goods and services from producers in Taiwan as readily as they buy from producers in Tennessee. Workers in Germany would be free to move to Ireland or the United States in pursuit of employment opportunities. Investors in China could freely choose between putting their savings in domestic bank accounts or using them to purchase shares in U.S. and European firms.

Once we have defined what we mean by globalization, we can set about constructing some measures of its extent. If markets were completely integrated and there were no trade barriers, identical goods and services would be priced very similarly around the world. The only differences would be due to transportation costs. Likewise, wage differentials would be eliminated, and equally risky assets would yield the same return. However, it is difficult to obtain the data needed to make such comparisons, so I rely instead on less perfect measures based on flows of goods, services, labor and capital across national borders. One advantage of these indicators of globalization is that they allow comparison of trends over long periods. This is an important consideration if we are to bring some historical perspective to the issue and make inferences about globalization's impact on monetary policy.

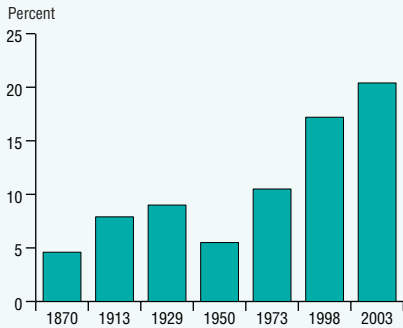
Measures of Globalization

Flows of Goods and Services. Perhaps the most basic measure of the extent of globalization as I have defined it is the volume of trade between countries. Chart 1 shows global exports as a share of global gross domestic product (GDP) for selected years back to the late 19th century.³ The years shown are major milestones in global economic history: the classical gold standard began in 1870 and effectively ended with the outbreak of war in 1914; the Great Depression began in 1929; the post–World War II era of rapid growth began in 1950 and ended in 1973.

The chart gives some idea of just how globalized the world was at the turn of the 20th century. Global trade peaked at 9 percent of global GDP in 1929, before collapsing as a result of the Depression and World War II. By 1950,

Chart 1

Growth of World Trade
(Merchandise exports as percent of GDP)



SOURCE: Angus Maddison, *The World Economy: A Millennial Perspective*, OECD, 2001, Table F-5, "Merchandise Exports as Per Cent of GDP in 1990 Prices."

exports were only 5.5 percent of global output. They recovered steadily, however, as the world economy expanded and trade restrictions imposed during the interwar years were lowered. By 2003, the last year for which we have data, global exports amounted to just over 20 percent of global GDP.

Flows of Capital. Another important dimension of globalization is flows of capital. Other things being equal, basic economic reasoning predicts that capital should tend to flow from countries where capital is abundant to countries where capital is scarce. And indeed this is what happened prior to World War I. Chart 2 shows foreign capital stock as a share of the GDP of developing countries (defined as Africa, non-Japan Asia and Latin America). On the eve of World War I, foreign investment amounted to almost one-third of developing countries' GDP. In the post-World War II period, the share of foreign investment has never approached this level, so along this dimension, the world is a lot less globalized than it used to be.

A more comprehensive view of global capital flows is obtained by taking into account the large flows of capital that now occur between developed countries in addition to the flows from rich to poor countries. One simple measure of this broader concept of capital mobility is the stock of foreign liabilities as a percentage of global GDP. As Chart 3 shows,

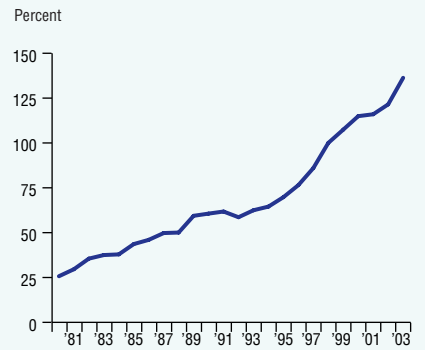
this ratio has increased steadily over time, from around 25 percent in 1980 to nearly 140 percent today. Much of this takes the form of rich countries borrowing from and lending to other rich countries. For example, the European Union remains the single most important destination of U.S. direct investment abroad and also the single most important source of direct investment in the United States.

Flows of Labor. It is more difficult to get comprehensive data on the movement of workers between countries over long periods. We all know there were mass movements of people from the Old World to the New World in the 19th century. Less well documented are the migrations that took place in other parts of the world and at other times. Here I focus just on migration to the United States.

Chart 4 shows the importance of immigration as measured by the share of the foreign-born in the total U.S. population. While the number of immigrants to the United States in recent years exceeds what we experienced in the 19th century, they make up a smaller share of the population. In the 2000 census, foreign-born residents made up 12.5 percent of the U.S. population—still somewhat below the near 15 percent that immigrants accounted for in the 19th century. Because of immigration restrictions and the rise of the welfare state, we are

Chart 3

Growth of Global Capital Markets
(Foreign liabilities as a percent of world output)



SOURCE: *International Financial Statistics*, International Monetary Fund.

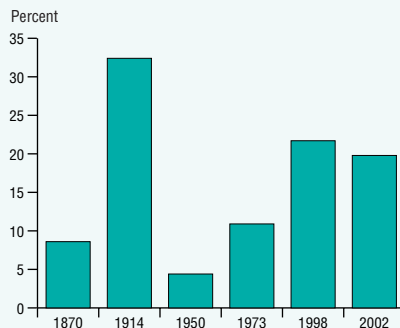
unlikely to ever again see movement of workers across national boundaries on a scale comparable with what we saw in the late 19th century. But it is also worth bearing in mind the rise of what some have referred to as virtual immigration (or offshore outsourcing), where new technologies make it easier to take jobs to workers rather than have the workers come to the jobs in the United States.

By the way, the United States is not unique in receiving large inflows of immigrants in recent years. Foreign-born nationals are a higher percentage of the populations of several other developed countries, including Australia (23 percent), Switzerland (22.4 percent) and Canada (19.3 percent). And immigrants account for about the same share of the populations of Germany and Austria as they do in the United States.⁴ According to the United Nations, in 2002 some 175 million people, or about 3 percent of the world's population, lived outside their country of birth.⁵

The extent of globalization on the eve of World War I was famously summarized by the great British economist John Maynard Keynes in his book critiquing the Treaty of Versailles, *The Economic Consequences of the Peace* (see box). This quote from Keynes is probably overused in the literature on globalization, but it is nevertheless an important warning not to take for granted the gains of recent decades. The liberal international economic order is under constant

Chart 2

Global Capital Flows
(Foreign capital stock as percent of developing countries' output*)



* Developing countries include Africa, Asia excluding Japan, and Latin America.
SOURCE: Angus Maddison, *The World Economy: A Millennial Perspective*, OECD, 2001, Table 3-3, "Gross Value of Foreign Capital Stock in Developing Countries, 1870-1998."

threat, and one can imagine scenarios in which much if not all of the progress we have made in the postwar period would be quickly reversed.

Commodity Money and Fiat Money

Given that the world has experienced globalization on a scale comparable with what we are witnessing today, it seems reasonable to look at how central bankers conducted monetary policy during the earlier era to see what lessons it may hold for contemporary monetary policy. Unfortunately, history offers relatively little guidance on this issue. Here's why.

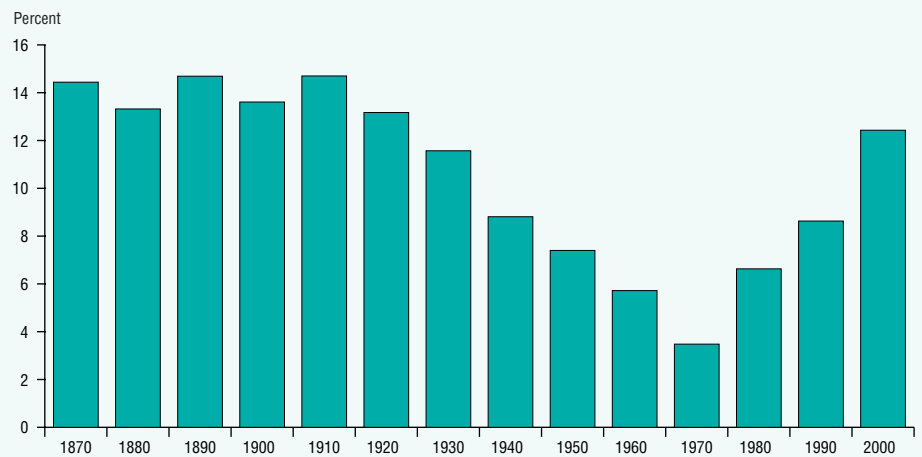
A major difference between the current era of globalization and the last era has to do with the monetary institutions. At the turn of the 20th century, most of the world was on a commodity standard; currencies were backed by precious metals, in almost all cases gold. The need to maintain convertibility into precious metals limited the ability of central banks to change interest rates at will; that is, central banks had very limited discretion when it came to monetary policy.

One of the great benefits of the commodity standards that prevailed in the previous era of globalization was that price levels were relatively stable. Periodic inflations were followed by deflations, with the result that over long periods the price level remained nearly constant. There is some debate about whether this greater price stability was accompanied by greater instability of the real economy. The idea of using monetary policy to smooth out the business cycle is very much a by-product of the Keynesian revolution during the interwar period.

To get a sense of just how much nominal stability the gold standard conferred, take a look at Chart 5, which shows the price level in the United States for the past two centuries. It is clear that the level was a lot more stable under the gold standard than it was after its abandonment. Between 1820, when the United States went on the gold standard, and 1932, when the gold standard was abandoned, the average annual inflation rate in the United States was essentially zero. Since 1932, the average annual inflation rate has been about 3.8 percent, although in recent years the rate has been lower than that. However, the greater

Chart 4

Stock of Immigrants in the United States (Foreign-born as percent of U.S. population)



SOURCES: *Historical Statistics of the United States, Colonial Times to 1970*, Census Bureau.

long-run stability of prices that prevailed when the United States was on the gold standard came at the cost of greater short- and medium-run volatility of inflation rates.⁶

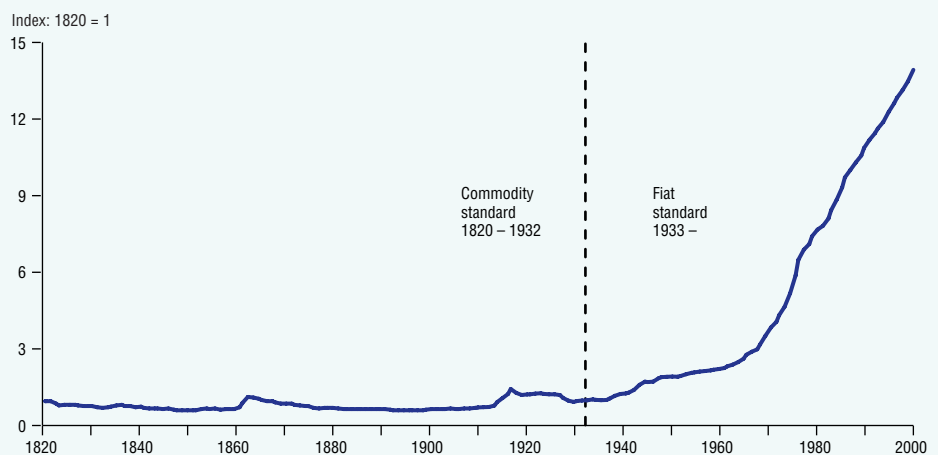
While the classical gold standard era ended essentially in the interwar period, the last vestiges did not really disappear until the early 1970s, when the so-called Bretton Woods system of fixed exchange rates collapsed. Since then, the world has been on what economists call a fiat monetary standard, in which national currencies

are no longer backed by precious metals or other commodities. They are no longer convertible into something other than themselves.

This in itself raises interesting problems for monetary theorists: Why are people willing to exchange valuable goods and services for objects that have no inherent value? This might seem like a rather esoteric question, but coming up with a satisfactory answer has proven quite difficult. While it might seem that spending time on such a question is an

Chart 5

Price Level in the United States



SOURCE: *Handbook of U.S. Labor Statistics*, Bureau of Labor Statistics, <http://woodrow.mpls.frb.fed.us/research/data/us/calc/hist1800.cfm>.

'The Economic Consequences of the Peace'

What an extraordinary episode in the economic progress of man that age was which came to an end in August, 1914! The greater part of the population, it is true, worked hard and lived at a low standard of comfort, yet were, to all appearances, reasonably contented with this lot. But escape was possible, for any man of capacity or character at all exceeding the average, into the middle and upper classes, for whom life offered, at a low cost and with the least trouble, conveniences, comforts, and amenities beyond the compass of the richest and most powerful monarchs of other ages. The inhabitant of London could order by telephone, sipping his morning tea in bed, the various products of the whole earth, in such quantity as he might see fit, and reasonably expect their early delivery upon his door-step; he could at the same moment and by the same means adventure his wealth in the natural resources and new enterprises of any quarter of the world, and share, without exertion or even trouble, in their prospective fruits and advantages; or he could decide to couple the security of his fortunes with the good faith of the townspeople of any substantial municipality in any continent that fancy or information might recommend. He could secure forthwith, if he wished it, cheap and comfort-

able means of transit to any country or climate without passport or other formality, could despatch his servant to the neighboring office of a bank for such supply of the precious metals as might seem convenient, and could then proceed abroad to foreign quarters, without knowledge of their religion, language, or customs, bearing coined wealth upon his person, and would consider himself greatly aggrieved and much surprised at the least interference. But, most important of all, he regarded this state of affairs as normal, certain, and permanent, except in the direction of further improvement, and any deviation from it as aberrant, scandalous, and avoidable. The projects and politics of militarism and imperialism, of racial and cultural rivalries, of monopolies, restrictions, and exclusion, which were to play the serpent to this paradise, were little more than the amusements of his daily newspaper, and appeared to exercise almost no influence at all on the ordinary course of social and economic life, the internationalization of which was nearly complete in practice.

—John Maynard Keynes, *The Economic Consequences of the Peace*,
New York: Harcourt, Brace and Howe,
1920, pp. 10–12.

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academic luxury, the answer matters because it has implications for many of the other more practical problems that monetary policymakers have to deal with on a regular basis.

Let's consider three important implications of fiat money standards for monetary policy.

The Size of the Money Stock. One of the key characteristics of fiat money is that it is for all intents and purposes costless to create.⁷ Yet fiat currency has a positive value to society as a whole because it facilitates economic activity. In a famous article, Milton Friedman first posed the question of how a central bank should determine the size of the money supply under such circumstances.⁸ Basic economic reasoning indicates that the optimal amount of any commodity is the amount that equates the marginal cost of producing it to the marginal cost of using it. The opportu-

nity cost of holding money is essentially the short-term interest rate, so Friedman concluded that the optimal quantity of money for society as a whole is the quantity that drives short-term interest rates to zero. With real interest rates determined by savings and investment opportunities and presumably positive, this would call for central banks to engineer steady deflations to maximize welfare.

The logic of Friedman's argument is compelling, yet it has never convinced central bankers. As recent U.S. and Japanese experience shows, central bankers are very adverse to deflation, arguably more so than they are to inflation. Part of the reason for this is that we do not fully understand how deflations work and whether there is a meaningful distinction between "good" and "bad" deflations.

Rules Versus Discretion. A second key feature of fiat monetary standards is

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that because the central bank is not required to maintain convertibility of the currency into some intrinsically valuable commodity, it has considerable discretion as to how rapidly it lets the money stock grow and prices increase. In 2004, Finn Kydland and Edward Prescott received the Nobel Prize in economics for (among other things) work they did pointing out how central banks may be tempted to create too much inflation in such circumstances, even if they are acting in the best interests of society as a whole.⁹

Largely as a result of the work of Kydland and Prescott, economists have spent the past decade thinking about optimal rules for monetary policy. There is general agreement among economists and central bankers alike that monetary policy should be rule based, although there is less agreement as to what form desirable rules should take. One of the most popular rules for central bank behavior is one devised by John Taylor of Stanford University, relating the setting of interest rates to measures of the deviation of output from potential (the output gap) and the deviation of inflation from target.¹⁰ As economies become more open and exposed to global trade, it is worth asking whether the optimal specification of such rules needs to change to take account of broader measures of slack and inflation pressures.

Exchange Rates. A third feature of fiat money is that in the absence of any restrictions on what currencies households and businesses may use, the exchange rate between them is indeterminate.¹¹ That is, in a fully integrated world where governments did not intervene in foreign exchange markets, the exchange rate between any two currencies will be whatever holders of the currencies expect it to be. Thus, under a floating exchange rate regime, exchange rates will be unpredictable and will impose unnecessary costs on households and businesses seeking to do business with foreign countries. Arguably a better state of affairs would be a system of fixed exchange rates, with central banks agreeing to convert each others' liabilities on demand and in any amount and sharing the seigniorage revenue from money creation according to a preset formula. This is something like what the Europeans have agreed to do with economic and monetary union (EMU).

Globalization and Disinflation

A more practical question might be to ask how globalization has impacted inflation. For about a quarter century following the end of World War II, the Bretton Woods system of fixed exchange rates anchored inflation rates around the world. As Chart 6 shows, for about 10 years following the end of World War II not a single country experienced high inflation, which I define as an annual rate in excess of 25 percent. From the late 1950s until the early 1970s, episodes of high inflation were still rather rare. With the collapse of the Bretton Woods system in 1971 and the oil shocks that followed, episodes of high inflation became a lot more common, with no fewer than 49 countries experiencing high inflation in 1994. But note that since then, the number of countries experiencing high inflation has declined to nearly zero. The average inflation rate has also declined, from a peak of more than 35 percent in the early 1990s to less than 5 percent today.

This decline has taken place at the same time that world trade has continued to grow, prompting some analysts to claim that there is a causal link between the two. Cruder versions of this story routinely confuse relative price changes and price level changes. More sophisticated versions look at the political economy of monetary policy and examine how globalization has altered the incentives of central banks to engineer inflation.

One basic story that builds on the insights of Kydland and Prescott goes as follows.¹² In the presence of taxes, tariffs and other regulations that cause economic activity to be lower than it would be otherwise, central banks that are not bound by rules will have an incentive to try to engineer surprise inflations to boost economic activity. Households and businesses understand the incentive of central banks to behave this way and come to expect the higher inflation. The net result is higher inflation with no gain in real economic activity. However, as the taxes, tariffs and regulations that depress economic activity are removed, the incentive of central banks to engineer higher inflation will fall and so, too, will the actual inflation rate. Thus, we might expect to see declining inflation as the world becomes more integrated as a result of deregulation and freer trade.

Chart 6

The Rise and Fall of Inflation
(Countries experiencing high inflation)



Appealing as this story might be, it is not the only one we can tell to interpret what we have seen over the past couple of years. An alternative and equally plausible explanation is that central banks have simply learned the limits of their ability to fine-tune the economy after the experiences of the 1970s in the industrialized countries and of the 1980s and 1990s in the emerging market economies. Many central banks now have formal inflation targets and have been granted independence to pursue price stability as a primary goal. Under this reading of the data, the simultaneous decline of inflation and growth of globalization are simply coincidence. An important research question is the relative importance of the two explanations in accounting for what has been going on.

A cursory examination of the data shows that it is far from clear what the answer will be. As you can see in Chart 7, there was indeed a significant decline in the prevalence of inflation around the world during the past decade, during which the share of exports in global GDP increased from around one-fifth to around one-quarter. However, note that an even larger increase in the importance of trade occurred during the 1970s and 1980s as inflation was accelerating. If growth in world trade acted as a restraint on inflation in recent years, why wasn't it equally successful at restraining inflation in the earlier period?

Conclusions

This article has shown that in many ways, there is nothing new about globalization. In the years prior to World War I, goods, capital and labor flowed across national borders with the same ease as they do today and, in some cases, with greater ease. However, the monetary standard under which globalization took place in the late 19th and early 20th centuries was very different from the monetary standard under which globalization is occurring today. And therein lies the challenge for monetary policymakers.

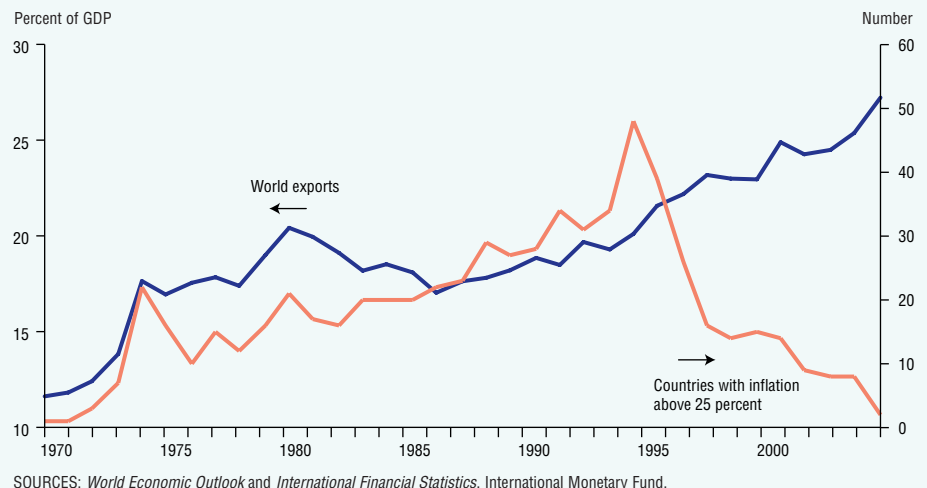
This article has scratched the surface of what the greater integration of the world economy might mean for monetary policy in the United States and around the world. I reviewed a small subset of the issues that globalization raises for monetary policymakers. There are many more that need to be addressed.

For example, how exactly should we define and measure the phenomenon of globalization? I presented some simple measures of globalization based on export data, capital flows and migration. A more economically meaningful measure of globalization would probably look at consumption volatility as well and the co-movement of consumption in different countries.

How does globalization affect strategy and tactics of monetary policy? Does globalization make the case for an explicit numerical price objective for monetary policy (an inflation target) more or less compelling? How does globalization affect the so-called Phillips curve, that is, the relationship between inflation and unemployment (or something similar) that forms such an important part of many central bankers' analytical apparatus? There are grounds for thinking that in economies that are more open to trade and capital flows, a decline in the unemployment rate, other things being equal, is associated with a smaller increase in inflation.¹³ Of course, there is also a body of thought that argues that even in

Chart 7

Globalization and Disinflation?
(World trade and prevalence of high inflation)



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closed economies the Phillips curve is essentially useless as a guide for setting interest rates, and it is arguably just as useless in an open economy.

I discussed how under a fiat money standard, fixed exchange rates may be preferable to floating exchange rates. Would the United States really be better off if we were to participate in a new system of fixed exchange rates with the dollar, the euro and the yen pegged at 1–1–100, as some have suggested? Should there be more coordination of monetary and fiscal policies between the major economies, or is conversation preferable to formal coordination, as Federal Reserve Board Vice Chairman Roger Ferguson recently suggested?¹⁴

Has globalization had a strong effect on global inflation, or is the improved inflation performance of the past decade or so due to better policy on the part of central banks around the world? Is China having a restraining influence on U.S. inflation, as some have suggested? Or is it still too small to account for more than a few tenths of a percent of the lower inflation in the United States in recent years, as Federal Reserve Board research seems to suggest?¹⁵

These and many other questions will be addressed in subsequent articles in this and other Federal Reserve Bank of Dallas publications in coming years.

—Mark A. Wynne

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Notes

¹ For an excellent review of the first era of globalization, see *Globalization and History: The Evolution of a Nineteenth-Century Atlantic Economy*, by Kevin H. O'Rourke and Jeffrey G. Williamson, Cambridge, Mass.: MIT Press, 1999.

² "Measuring Globalization: The Global Top 20," *Foreign Policy*, May/June 2005, pp. 52–60.

³ Note that the chart refers to merchandise exports only. Exports of services are now a significant share of total exports, but we do not have reliable estimates of global exports of services prior to World War II.

⁴ "Counting Immigrants and Expatriates in OECD Countries: A New Perspective," by Jean-Christophe Dumont and Georges Lemaître, Paris: OECD, Directorate for Employment Labor and Social Affairs, 2005.

⁵ *International Migration Report 2002*, New York: United Nations, 2002.

⁶ There is also some debate about whether the greater nominal stability the United States experienced under the gold standard came at the cost of greater instability of real economic activity—that is, more frequent and severe recessions.

⁷ According to the Bureau of Engraving and Printing, it costs about 6 cents per note to print U.S. currency.

⁸ "The Optimum Quantity of Money," in Milton Friedman, *The Optimum Quantity of Money and Other Essays*, Chicago: Aldine, 1969.

⁹ "Rules Rather Than Discretion: The Inconsistency of Optimal Plans," by Finn E. Kydland and Edward C. Prescott, *Journal of Political Economy*, vol. 85, June 1977, pp. 473–91.

¹⁰ "Discretion Versus Policy Rules in Practice," by John B. Taylor, *Carnegie-Rochester Conference Series on Public Policy*, vol. 39, December 1993, pp. 195–214.

¹¹ This argument was first developed by Neil Wallace in his paper "Why Markets in Foreign Exchange Are Different from Other Markets," Federal Reserve Bank of Minneapolis *Quarterly Review*, Fall 1979, pp. 1–7. A very good exposition of Wallace's argument is in *Modeling Monetary Economies*, by Bruce Champ and Scott Freeman, New York: John Wiley and Sons, 1994 (second ed., Cambridge: Cambridge University Press, 2001). See also "A Case for Fixing Exchange Rates," by Arthur J. Rolnick and Warren E. Weber, Federal Reserve Bank of Minneapolis Annual Report, 1989, pp. 3–14.

¹² This argument was first expressed by Kenneth Rogoff in "Globalization and Global Disinflation," Federal Reserve Bank of Kansas City *Economic Review*, Fourth Quarter 2003, pp. 45–78.

¹³ See, for example, "The 'New Keynesian' Phillips Curve: Closed Economy Versus Open Economy," by Assaf Razin and Chi-Wa Yuen, *Economics Letters*, vol. 75, March 2002, pp. 1–9; "Globalization and Disinflation: A Note," by Assaf Razin, NBER Working Paper No. 10954, December 2004; and "Capital Mobility and the Output–Inflation Trade-off," by Prakash Loungani, Assaf Razin and Chi-Wa Yuen, *Journal of Development Economics*, vol. 64, February 2001, pp. 255–74.

¹⁴ "Globalization: Evidence and Policy Implications," by Roger Ferguson, remarks to the Association for Financial Professionals Global Corporate Treasurers Forum, San Francisco, May 12, 2005, www.federalreserve.gov/boarddocs/speeches/2005/20050512/default.htm.

¹⁵ "Is China 'Exporting Deflation?'" by Steven B. Kamin, Mario Marazzi and John W. Schindler, Federal Reserve Board International Finance Discussion Papers No. 791, January 2004. The authors find that the impact of Chinese exports on inflation in the United States is of the order of magnitude of a quarter of a percentage point or so.