
Do International Capital Markets Determine a Country's Trade Balance?

The market is fueled and foiled by deregulated capital transactions, with over a trillion dollars a day changing hands in foreign exchange markets, many times that needed to finance trade or real investment.

—John J. Sweeney, President of the AFL-CIO, remarks at the Council on Foreign Relations (1 April 1998)

The new international financial system . . . has been, despite recent setbacks, a major factor in the marked increase in living standards for those economies that have chosen to participate in it. It has done so by facilitating cross-border trade in goods and services that has enhanced competition and expanded the benefits of the international division of labor.

—Alan Greenspan, chairman of the Federal Reserve Board, remarks at the annual meeting of the Securities Industry Association, Boca Raton, Florida (5 November 1998)

During the 1990s there has been one international financial-market crisis after another: the breakdown of the European Exchange Rate Mechanism (ERM) in 1992-93, the Mexican peso crisis of 1994-95, the Asian financial turbulence that started in 1997, the Russian financial collapse in 1998. In each case, the outflow of international capital required a complementary move of the trade account toward or into surplus. Do these episodes imply that international capital flows are the real driver of the external accounts? Are the models of external balance based on national savings and investment (chapter 2) or of trade flows based on income and relative

prices (chapter 8) obsolete for determining a country's current account? Is it the desire for portfolio diversification and then the fickleness of expectations for risk and return that really matter?

Technological change in the finance industry has combined with the post-Bretton Woods flexible exchange rate regime to affect the relationship between international capital flows and international trade flows. The dramatic increase in the range of financial instruments made available by financial technology contributes to the huge gross flows of financial capital that can move very rapidly into and out of currencies and investments. However, the capital account and the current account must balance: changes in net capital flows must be reflected in changes in the trade account (plus net investment payments on the net international investment position). So the real question is, How do the forces of global capital affect the economic channels that equilibrate the current and capital accounts?

While the current and capital accounts respond to the same underlying economic forces associated with income growth and relative price changes, they do so in different time frames. These forces are reflected in asset prices such as interest rates and exchange rates nearly immediately, but they work to change real flows of trade in goods and services much more slowly because of the different speed of adjustment of financial flows compared to real flows. In addition, *expectations* for a country's profile of risk and return (which is another way of describing income and relative prices) are particularly important in the quick-response market of financial capital. When real or expected performance changes, a tension develops between the very rapid response of financial flows and the slower response of trade flows. This tension invariably will be reflected in the prices that can adjust most quickly and freely, that is, asset prices, particularly market-driven exchange rates.

There is no surefire recipe for keeping expectations and activity stable and avoiding the consequences of the mismatch between the rapid responsiveness of financial capital and the slower responsiveness of real resources. However, an appropriate mix of fiscal and monetary policy keeps the macroeconomy on the right track. A transparent and sound financial system with sufficient prudential reserves and an adequate range of financial instruments helps to avoid surprises, prevent destabilizing financial flows, and improve the allocation and diversification of domestic and international capital to the benefit of real growth.

Trade, Finance, and External Crises: Common Features from the Gold Standard, to Bretton Woods, to the 1990s

Under the theory of the gold standard of international exchange, international trade and capital flows were tightly related through the *price-specie*

flow mechanism. If the value of exports from a particular country exceeded the value of imports from that country, gold (the medium of financial transactions) would flow from the net importer to the net exporter. More gold would increase the money supply (under the rules of the gold standard), prices and income would rise in the net exporting country, and imports would increase until trade was rebalanced. The reverse flows and forces would be at work in the net importing country. Trade imbalances in both countries would adjust, and flows of gold reserves would be the financial transaction in the capital account. In this simple world, trade imbalances generated financial flows that changed economic activity so as to rebalance the external sector.

The principles of international trade and finance under the gold standard from about 1880 to 1913 were not dissimilar from the theory, but the operation was quite different. In fact, very little gold flowed from one country to another.¹

The theory of how the Bretton Woods gold-exchange system would operate was similar, except that international reserves of a convertible currency took the place of gold. The currencies' value in terms of gold was also fixed (although it could be adjusted), and hence the Bretton Woods system has also been called the fixed-but-adjustable exchange rate system.²

Trade imbalances driven by income and relative prices tended to dominate financial flows. In theory, a trade deficit would lead to the outflow of international reserves, which reduced the money supply, income, and wealth. Imports would fall, and the trade gap would close.³ For the net exporter, the inflows of international reserves might lead to an economic expansion and more imports, but not necessarily. The net exporter could choose to stockpile the inflow of foreign assets and insulate the domestic economy from the increased money supply. Unlike the net importer, the net exporter did not face a constraint on its ability to hold reserves—although it might decide that it no longer wanted to hold the additional assets issued by the net importing country. Indeed, the proximate cause of the breakdown of the Bretton Woods system of fixed exchange rates based on dollar parities was the combination of US unwillingness to adjust domestic policies and other countries' unwillingness to increase their holdings of US financial assets.

In the early postwar period the United States assisted in the reconstruction of Europe with the Marshall Plan and of Japan with the Dodge

1. For more on the period of the gold standard, see Cooper (1982).

2. For a discussion of the origin and operation of the Bretton Woods system, see Levich (1998, 22-31).

3. For a time, the central bank in the net importer could insulate the money supply and the economy from the fall in reserves by augmenting domestic credit and short-circuiting the adjustment mechanisms. But ultimately international reserves would be used up, and the country would have to undergo the contraction necessary to bring the trade account back into balance.

Plan. A relatively more open US market encouraged trade flows. On the monetary side, as part of the underpinnings of Bretton Woods, the United States committed both to maintain a stable price level and to exchange dollars into gold at \$35 per ounce.⁴ Robert Triffin (1960) noted the inevitable clash between these objectives early on (figure 9.1).

While the US policies generally were good for the world and for the United States, they were not sustainable. On the one hand, US policy was achieving international price stability, and global growth was higher on average. But on the other hand, the domestic imbalance from fiscal spending, first on the Korean conflict and then on the Vietnam War and the Great Society programs, ultimately was reflected in an external trade imbalance. Foreign holdings of US assets clearly were on a trajectory to exceed the value of US gold reserves, which undermined the commitment to exchange those liabilities into gold at the fixed-dollar price. As long as the external obligations were willingly held, the United States did not have to change its policy. But the one-way bet against the dollar-gold parity escalated after 1968 as foreign holdings of US assets exploded. Ultimately the conflict between US domestic policy and foreign countries' financial portfolio preferences caused the Bretton Woods system to collapse in 1973.

Changes in the 1990s: Flexible Exchange Rates and Computer Technology Enhance Capital Flows

The lessons of the Triffin Dilemma are as salient now as they were in the 1960s: Internal imbalances are reflected in trade deficits and an increase in net assets held by foreigners. At some point, investors may not want to buy additional assets. A reduced ability to borrow from abroad leads to the changes in income and relative prices (and investment and savings) necessary to rectify the trade imbalance and bring supply and demand for financial assets back into equilibrium.

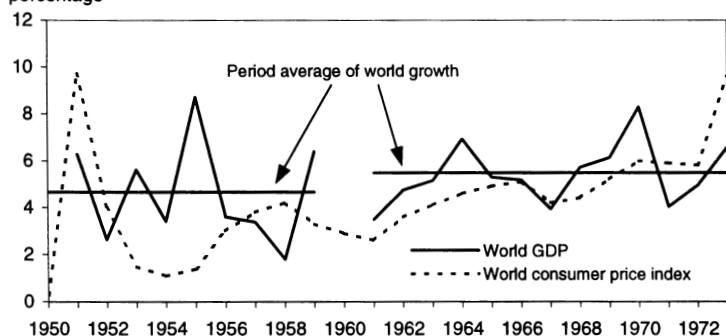
What is different in today's environment? Most fundamentally, exchange rates are no longer fixed. Consequently, the channels of transmission of economic forces to income, relative prices, and the trade balance are somewhat different from those of the fixed-exchange-rate regimes. Second, trade and financial transactions are more independent of each other than in the Bretton Woods or the gold standard periods. One consequence of this independence is that the magnitude of financial flows dwarfs that of trade flows. Moreover, financial flows can move very rap-

4. The commitment to \$35 per ounce was a way of pinning down the value of the dollar, against which all the other dollar parities would then be priced. A fixed-dollar price of gold became the nominal anchor to the international price level.

Figure 9.1 The Triffin Dilemma and the breakdown of Bretton Woods

A. Global growth and inflation

percentage

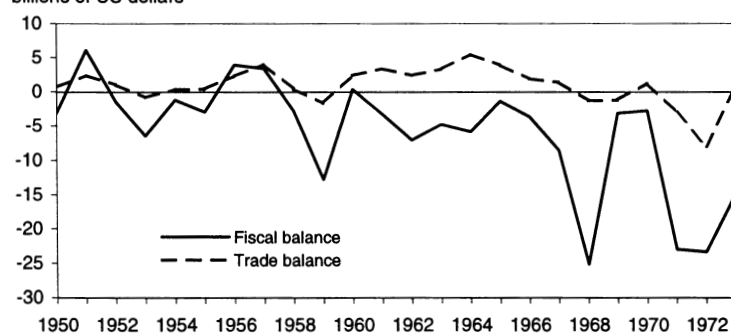


Note: Growth rate for 1960 is out of range because of the data inconsistency.

Sources: National Bureau of Economic Research (after Summers and Heston 1991) <<http://www.nber.org/pwt56.html>> (30 December 1998); IMF, *International Financial Statistics Yearbook* (1979).

B. US fiscal and trade imbalances

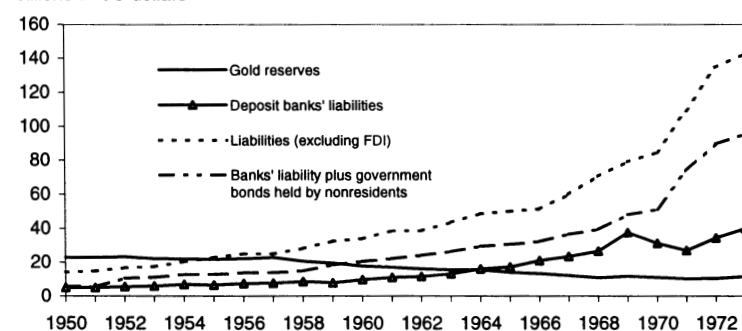
billions of US dollars



Sources: US Department of Commerce, *International Transactions Tables*; Council of Economic Advisers, *Economic Report of the President*.

C. US gold reserves and US liabilities to foreigners

billions of US dollars



Sources: IMF, *International Financial Statistics*; Kurian (1994).

idly now, which puts a premium on stable policy and stable expectations. Offering one-way bets in the foreign exchange markets for an extended period (as was the case in Triffin's time) is no longer feasible.⁵

Flexible exchange rates alter the transmission from external shock or imbalances to the domestic economy by adding another equilibrating mechanism. In the simple world of an economic model, a trade deficit leads to a global excess supply of that country's currency. With everything else equal, the exchange rate (representing the relative prices of two currencies) should undergo pressure to depreciate because of this excess supply; with freely floating rates, it can do so. Then the exchange rate change passes through to affect the relative prices of imports and exports (as shown in the stylized example in table 7.1 and with data in chapter 8). Purchasers respond to these relative price changes; imports fall, exports rise, and the trade balance returns to equilibrium. This channel differs from that of the fixed-exchange-rate system in that a change in the exchange rate is the fulcrum for changing relative prices; in the earlier systems, the flows of gold or reserves changed the money supply, which then generated a change in domestic prices and thus in relative prices of traded goods. A simple distinction between the world of flexible exchange rates and that of fixed exchange rates is that with flexible rates relative prices can change more quickly.

Computer technology has further enhanced the role for exchange rates and capital-market flows. Flexible exchange rates create incentives for financial transactions that are completely divorced from trade transactions. Computer technology combined with analytical models (such as the options price formula) gives financial intermediaries the ability to create new financial instruments to meet the new demand. Some of these instruments remove the unwanted exchange risk (swaps) or insure against it (options and future-dated contracts). Others meet the business demand to take on more exchange risk than would be created by any underlying real transactions.

In addition, as financial wealth has increased in many countries, so has the desire for international portfolio diversification. Consequently, there is a greater demand for international financial instruments as well as a greater ability and willingness to supply them.⁶ When played out in the many different markets for financial assets (such as currencies, bonds, equities, and derivatives), the gross value of financial transactions is enormous and increasing every year (table 9.1). From the standpoint of exchange rate movement, the increase in transactions based on financial demand adds to the real-trade-based demand for currency. To the extent

5. A good review of the literature on "speculative attacks" can be found in Garber and Svensson (1995).

6. See Frankel and Mann (1986) for a discussion of how financial institutions can remake themselves to meet new market demands.

Table 9.1 Dimensions of international capital markets in the 1990s
(billions of US dollars)

	1989	1992	1995	1996	1997
Foreign exchange market (daily turnover)*	718	1,076	1,572	n.a.	1,971 ^b
International bond net new issuance	171.6	116.1	311.5	543.4	595.8
Equity market turnover ratio (percentage)*	63.8	43.8	57.5	66.7	82.8
Currency swaps outstanding	449.1	860.4	1,197.4	1,559.6	n.a.

n.a. = not available

a. Total reported turnover net of local double-counting (from Bank for International Settlements, *Central Bank Survey of Foreign Exchange and Derivatives Market Activity in April 1998*, table 2).

b. 1998 data.

c. Annual trading value/market capitalization (International Finance Corporation, *Emerging Stock Markets Factbook*, 1998).

Sources: Bank for International Settlements; International Finance Corporation.

that investors change their portfolios of assets more frequently than traders in real goods change their use of a particular currency, exchange rates and therefore relative prices will become more volatile.

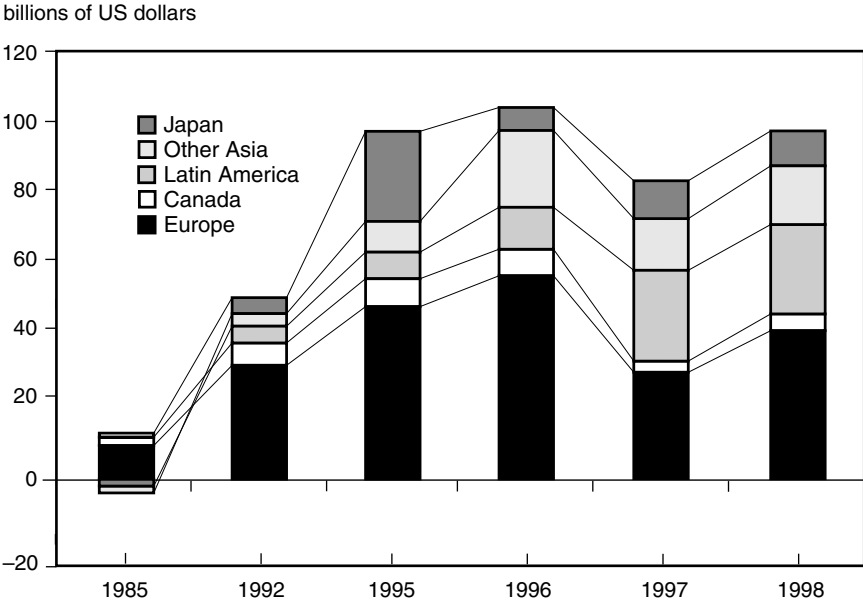
Sophisticated financial intermediation implies that investors can target quite specifically the types of risk they wish to undertake. The returns on assets of different countries, in different currencies, and at different maturities are imperfectly correlated with each other and with the returns on financial assets of the home country and currency. The investor who holds a diversified portfolio can achieve a higher return for lower risk than would be possible with domestic financial assets alone. Consequently the “gains from trade” are no longer measured simply in the “real” domain of product price and variety; the gains from trade can also be measured along the “financial” domain of the risk-return frontier of the international capital assets pricing model.⁷

Indeed, in recent years, the deregulation of foreign financial markets and the desire to diversify portfolios have supported both greater demand by US residents for foreign stocks and bonds and foreign demand for US stocks and bonds. The regional decomposition of US net purchases of long-term securities reveals continued diversification of the securities portfolio in line with risk and return. The share of the US portfolio accounted for by investments in Europe is still large, but has shrunk as investors increasingly have purchased long-term investments in Asia (excluding Japan) and Latin America, where the gains from diversification are greater (figure 9.2).

Despite the rapid growth of international investments by US holders of wealth, the share of foreign assets in US wealth remains relatively small,

7. See the discussion of the gains from trade in financial assets in chapter 3. For a more comprehensive discussion, see Levich (1998, chaps. 11-16).

Figure 9.2 Net purchase of long-term foreign securities by US residents, by region, 1985-98



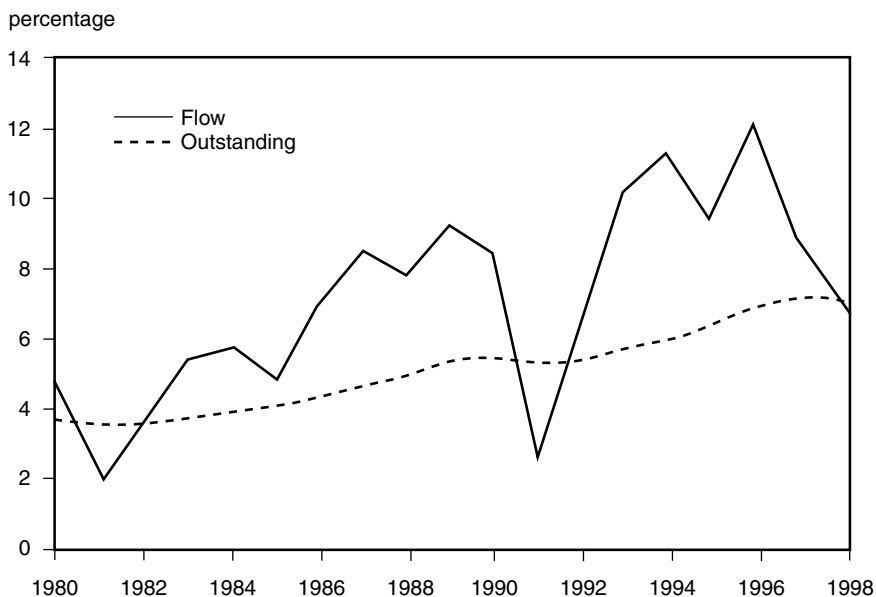
Note: Data do not necessarily reflect the domicile of the ultimate issuers of securities.

Source: US Treasury Department, *Treasury Bulletin*; <<http://www.treas.gov/tic/ticsec.shtml>> (14 July 1998).

about 7 percent (figure 9.3). Moreover, even when diversification is measured as the flow of net purchases of foreign assets as a share of the increase in total financial wealth of US residents, the exposure of US wealth to foreign financial instruments is small, though increasing. This “home bias,” the preference for residents to hold wealth in assets issued by their own governments, firms, and banks, is well known and not unique to the United States (Lewis 1995).

The two sides of the balance of payments remain linked, however. In the end, any external trade deficit is financed by *net* capital inflows. Data measuring the current account and net flows of capital should be equal; the current account builds up the need for external financing from the trade side, and the capital account builds up the net capital flows from transactions in different types of financial assets. The two measures generally track each other, although net private capital flows are more volatile from quarter to quarter. The difference between these two measures of net financial resource flows from abroad, referred to as the external statistical discrepancy, has been quite large in some recent periods (figure 9.4). Indeed, in

Figure 9.3 Purchases and holdings of foreign financial assets as share of US total financial assets, 1980-98



Source: Board of Governors of the Federal Reserve System, *Flow of Funds Accounts of the United States*.

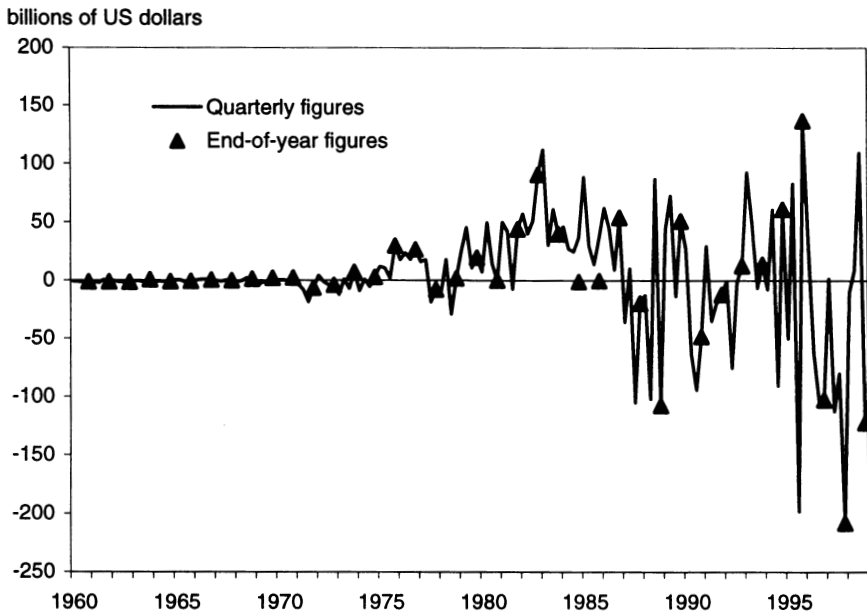
recent years, the capital account measure as a share of GDP shows a more pronounced downward trend than the current account measure shows.⁸

An Illustration: Transmitting the Asian Financial Crises to US Capital Markets

Examining the impact of the Asian financial crises on the United States offers a good illustration of how capital flows are transmitted to exchange

8. A negative statistical discrepancy (meaning that net capital inflows exceed the current account deficit), such as has been the case for the past several years, represents some combination of unrecorded net capital outflows and net current account payments. On the trade side, illegal imports or unrecorded exports of goods or services would contribute to a negative statistical discrepancy. On the financial side, unrecorded US purchases of foreign financial instruments or overstated foreign purchases of US financial investments would also yield a negative statistical discrepancy. While individual episodes can be tied, on an ad hoc basis, to certain events (such as the large discrepancy in 1997, attributable to the financial turmoil in Asia), in general the behavior of the external statistical discrepancy is not well understood.

Figure 9.4 External statistical discrepancy: Difference between current account and net capital flows, 1960-98



Source: US Department of Commerce, *International Transactions Tables*.

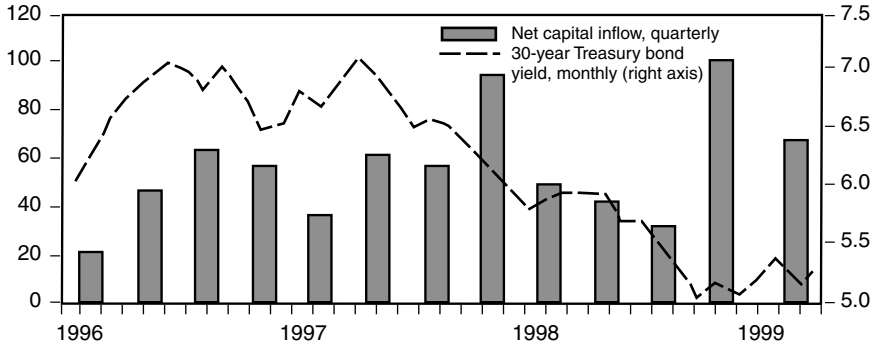
rates and interest rates to affect the trade account (figure 9.5). The series of crises started in Thailand in mid-1997 and culminated in Russia's default on its external debt in August 1998. Foreign private investors' "flight to quality assets" led them to purchase US government securities (which increased the inflow of capital to the United States) and also shifted the US domestic investor's portfolio toward US government securities. Interest rates fell on US government securities (figure 9.5a). The dollar continued to appreciate as investors bought dollars to purchase US assets (figure 9.5b). The appreciation of the dollar lowered import prices further and raised export prices in the currencies of the destination markets (figure 9.5c). Moreover, lower interest rates bolstered US economic activity, which boosted imports, while slack demand abroad hampered exports. Both the changes in relative prices and the differences in relative income induced by the crises widened the trade deficit. Hence the increased demand for US assets by foreigners worked through both interest rates and exchange rates to yield a wider trade deficit and a matching higher capital account.

Until investor sentiment toward US financial assets changes, these dynamics of foreign capital investment, an appreciated dollar, and a large trade deficit likely will continue. At some point, though, foreign investors will seek higher returns elsewhere, the capital inflows will slow, the dollar will depreciate, and the trade and current account deficits will narrow.

A. International capital flows and bond yields

billions of US dollars

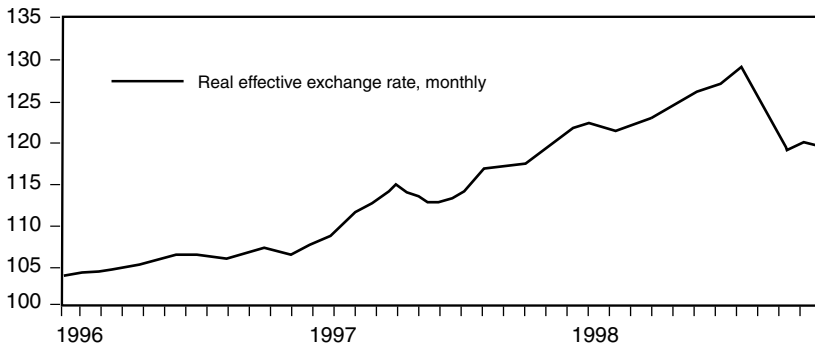
percentage



Sources: US Treasury Department, *Treasury Bulletin*; Federal Reserve Board.

B. Value of the dollar

1995 = 100

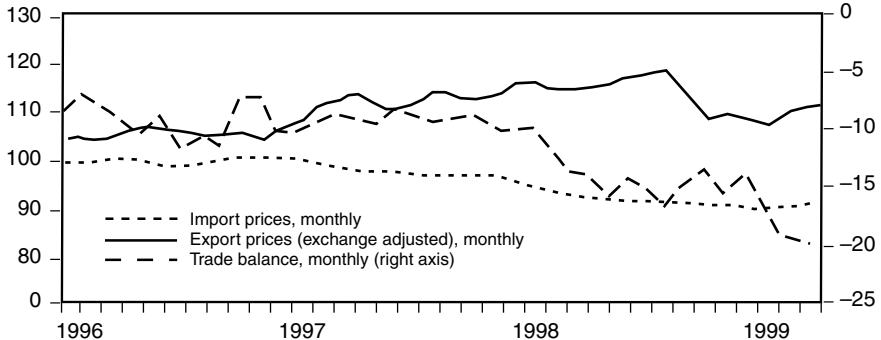


Source: IMF, *International Financial Statistics*.

C. Import and export prices and trade balance

1995 = 100

billions of US dollars



Note: Export price is adjusted to the currency of the importer by multiplying by the trade-weighted exchange rate.

Sources: US Bureau of Labor Statistics, *Export and Import Price Index*; US Department of Commerce, *International Trade Goods and Services*.

The question of when investors might make such a decision is addressed in chapter 10. Whether the process will be precipitous or smooth depends in large part on how rapidly financial markets adjust to changes that are taking place in consumption and investment here and abroad.

Differences in Response and Adjustment: The J-Curve and Financial Market Overshooting

Investors, producers, and consumers all respond to economic stimuli, such as asset price, production cost, product price, demand situation, and expectations for all of these. In principle, each of these actors can perceive changes in these variables equally quickly, since they all have access to the same information through newspapers, radio, television, and the Internet. However, not all of them can or would want to act on that information, in part because the relevance of a particular piece of information for an economic decision differs from one person or business to another.

One difference in reaction time is clear: financial flows respond more quickly to economic news and forces than do production and consumption. The mismatch in the underlying speed of adjustment of financial capital versus of real trade during periods of rapid movements in financial capital can precipitate excessive movements in the asset prices (exchange rate and interest rate), as these must overshoot their long-run change so as to generate enough movement in income and wealth, which determine trade flows.⁹

How quickly can capital move? In just a few years, computer technology has allowed real-time pricing of complex financial instruments—effectively creating markets for financial instruments that previously did not exist. In 1992 a foreign exchange trader completed a transaction about every 67 seconds (Lyons 1995). Electronic trading captured 5 percent of trading on foreign exchanges just two years after it was introduced in 1995 (Levich 1998, 89; Bank for International Settlements 1998, 19-20). Internet trading has exploded, recently reaching a volume of one in every six shares traded (*Economist*, 8 May 1999).

On the other hand, adjustment of demand and production to an exchange rate change occurs slowly, with a time lag. This characteristic pattern of the balance-of-payments adjustment to an exchange rate depreciation has been given the descriptive name “J-curve”—indicating that the

9. Changes in interest rates and exchange rates—in particular, expectations for these variables—affect rates of return on financial assets immediately, so adjustment in financial flows is rapid. Changes in interest rates and exchange rates affect trade and the flows of real resources more slowly, because real flows respond to income and wealth (not directly to the interest rate) and to relative prices (not just to the exchange rate).

trade balance worsens before it improves—and the process plays out over quarters and years, not minutes.¹⁰

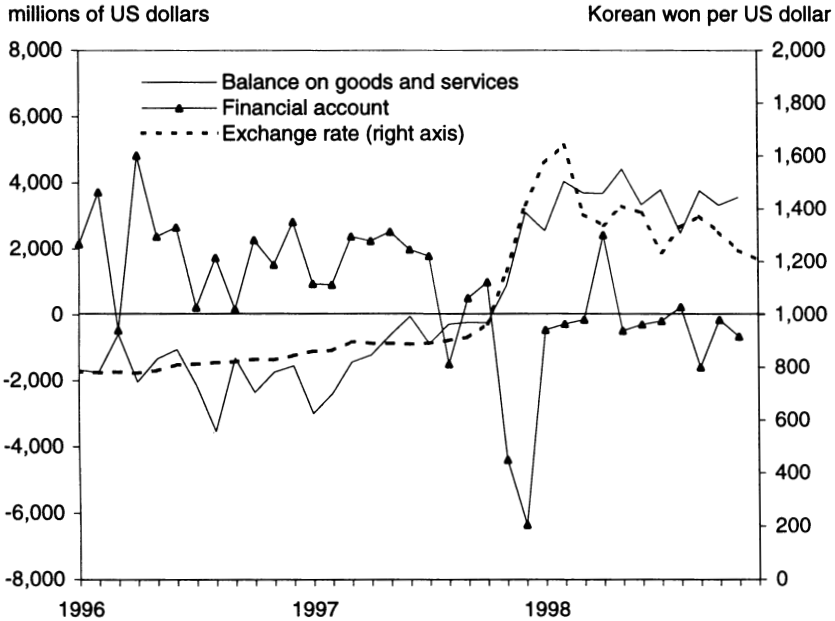
The mismatch in these paces of response and adjustment is most apparent when investor sentiment changes swiftly and financial flows move much more rapidly than real flows can respond. For example, investor sentiment toward investing in South Korea changed radically near the end of 1997 as information on the state of local banking systems and international reserve holdings became apparent. Capital flows reversed dramatically from an inflow of some \$5 billion per quarter in the first half of 1997 to an outflow of \$20 billion in November. The collapse of foreign credit as well as domestic credit constrained economic activity. The exchange rate responded to this dramatic reduction in demand for won and increase in demand for US dollars, and the won's exchange value was cut in half (figure 9.6). The exchange rate moved so dramatically in order to force adjustment in growth and trade. When trade began to respond (not just to the relative prices, but also to the collapse of domestic demand as well as other institutional factors), the depreciation of the won was arrested and subsequently was partially reversed.

The Financial Turmoil of the 1990s: A Preview for the United States?

The recent volatility of international capital flows has rekindled the question of whether or not economic activity is best served by the current environment of relatively unfettered global financial markets. In today's global environment, national economic well-being increasingly relies on global production, distribution, consumption, and the web of international financial transactions that binds them all together. The real question, then, is how to make the financial markets work better. The recipe has certain definite ingredients. First, participants who have full information are more likely to assess and price risk appropriately, and thus they will be better prepared to respond to shocks. Second, if market participants are heterogeneous in their desires for risk and return and can employ a full set of financial instruments that spans the spectrum of risks, then there is less likely to be "herding" among investors.

10. Suppose the dollar depreciates. In the first quarter, about 40 percent of the change in the dollar's value will be reflected in the import and export prices. It will take about two years, however, for the change in relative prices induced by the exchange rate movement to complete its effect on demand for imports and exports. Consequently, soon after the depreciation, import prices are higher but demand has not yet responded, so the value of imports rises. At the same time, whereas prices in their own currency are lower, foreigners have not yet responded by buying more, so the value of exports does not rise immediately. The value of imports increases, but the value of exports does not, and the trade deficit initially widens until the change in relative prices induces the change in demand. When the real adjustment takes place, the trade account turns and moves toward surplus, thus completing the J shape.

Figure 9.6 Exchange rate overshooting: The case of South Korea



Note: Financial account is a part of capital account and represents financial transactions only.

Source: Bank of Korea <http://www.bok.or.kr/kb/index_e.html> (February 1999).

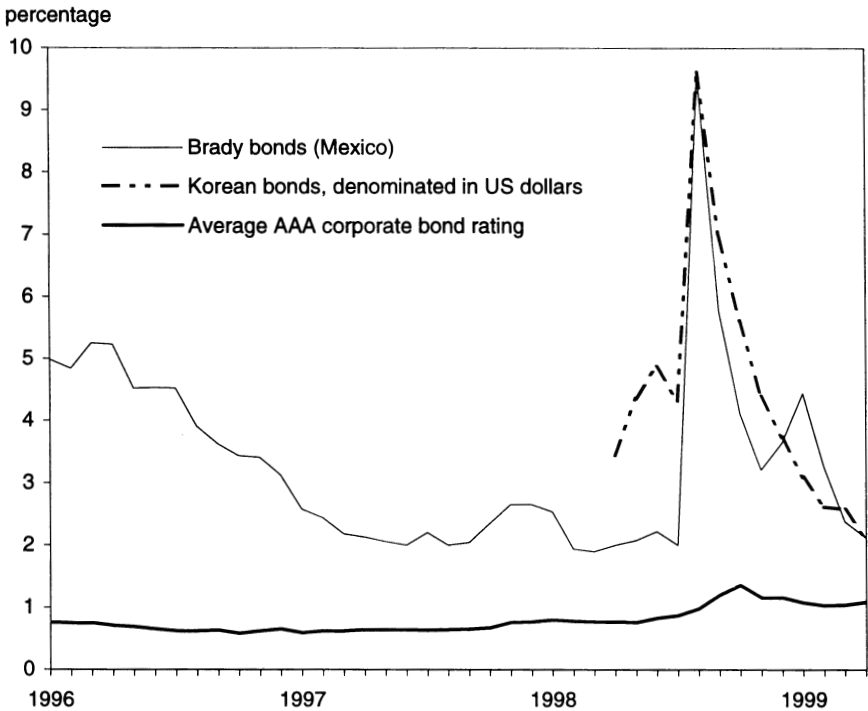
What was missing to cause the recent turmoil? Differentiation among recipients of international capital flows was made more difficult by incomplete or incorrect information, revealed only very slowly by certain borrowers. In addition, banks in the recipient countries did not adequately provision against the potentially volatile nature of the foreign currency deposit base.¹¹

At the same time, investors behaved like a herd. The very narrow risk spreads on emerging market debt in early 1997 and the huge risk spreads on even the best corporate borrowers after the Russian default point to a lack of differentiation as well a swing in collective sentiment completely out of line with changes in the underlying economic prospects of many of the countries (and companies) caught in the financial maelstrom (figure 9.7).

Moreover, the market for financial instruments is also incomplete. It lacks financial insurance against the rare events of credit downgrade or restructuring (e.g., delay in payment or rollover) of short-term obligations in particular. Similarly, bond contracts do not address how the obligation

11. For a comprehensive discussion of the Asian financial crises and the role of the domestic banking systems, see Goldstein (1998).

Figure 9.7 Herding in financial markets: Risk spreads in three bond markets



Note: The risk spread is calculated using the 30-year US Treasury bond rate.

Sources: Federal Reserve System <<http://www.bog.frb.fed.us/releases/G13/>>; Bloomberg <<http://www.bloomberg.com>>.

should be treated in the case of restructuring.¹² Financial insurance instruments, such as credit risk insurance or restructuring insurance, or augmented bond contracts could help to stabilize the international financial system (Mann 1999).

Does the large US trade deficit make the United States vulnerable to herding, capital flight, and a dollar crash? The US economy is not immune from herding—indeed, the impact of the crises on US Treasury bond rates and dollar appreciation shows how financial herding during the Asian crises affected US asset prices. And US monetary authorities did take aggressive action to reduce interest rates in the fall of 1998 after the Russian default. On the whole, however, the United States is different in its ability to absorb herding behavior, and is special in that it both borrows

12. For more discussion of changes to bond contracts, see Eichengreen (1999, esp. chap. 5).

and lends principally in its own currency. While a depreciation of the dollar could happen—and, indeed, is likely—a crash is unlikely, because the dollar and US investments are so important to global finance and in global portfolios. The implications of these and other issues for sustainability are addressed in the next chapter.

Conclusion

Summary

- The underlying economic forces that drive trade flows and capital flows are the same as they were under the gold standard and the Bretton Woods system: income, relative prices, savings, and investment.
- However, the environment of flexible exchange rates and sophisticated financial intermediaries has made capital transactions largely independent of trade transactions. Gross volumes of capital transactions far exceed trade transactions. *Annual* volume of global trade about doubled during the 1990s; *daily* financial transactions increased threefold.
- With the globalization of financial wealth, the “gains from trade” should no longer be seen only in the familiar terms of product price and variety of goods and services. The gains from globalization also include the superior risk-return profile of the allocation of financial wealth allowed by international diversification.

Policy Discussion

- Because capital flows are much larger and more rapidly mobile than before, stable policies, and particularly stable expectations, are critical. Mismatched macroeconomic policies generate internal and external imbalances that are more difficult to sustain, and the longer the imbalances persist in the real markets, the more dramatic the reaction in financial markets when it comes.
- The United States is not immune from changes in investor sentiment, but it is better able to weather panics. First, currency mismatch is less of a problem for the United States, since much borrowing is dollar based. Second, asset markets are deep, quite liquid, and populated by diverse investors. Finally, because US dollar assets are so important in the global web of finance and in global investors’ portfolios, changes in investor sentiment that have an impact on interest rates or the exchange value of the dollar are more likely to be self-righting than would be the case for countries whose assets represent the fringe of an investor’s portfolio instead of the heart of it.