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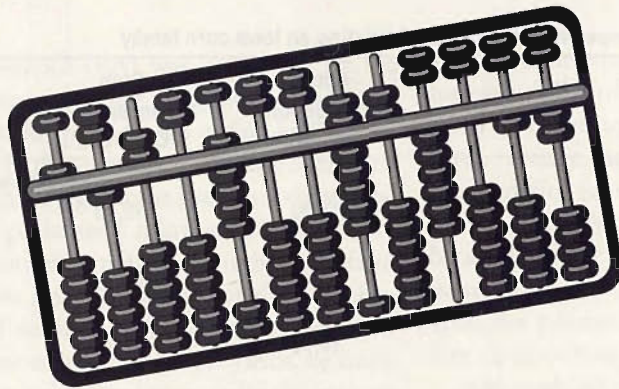
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# The Asian Financial Crisis

## Impact on U.S. Agriculture

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**W**ith one in every four dollars of U.S. farm output exported, at least double the average export share for other U.S. industries, international shocks increasingly affect American agriculture. About 40 percent of U.S. agriculture and food exports go to Asia (figure 1). What then are the likely effects of the Asian financial crisis on the U.S. food and agriculture system?

### The onset and causes of the crisis

The acute stage of the Asian financial crisis began in July 1997 when the Thai government, which had pegged the exchange rate of the baht to the

U.S. dollar, gave into mounting financial pressure and allowed the rate to change. The value of the baht promptly fell by 15 percent on 2 July 1997, and shortly afterwards the currencies of Indonesia, Malaysia, and the Philippines also declined. By mid-October, the contagion had spread to East Asia, affecting South Korea the most seriously, and, to a lesser extent, Japan and Taiwan. Korea's won declined the quickest, plummeting nearly 60 percent in less than two months. Equity markets were also affected across the region, declining the most in Korea and Indonesia and the least in Taiwan and China. By the end of 1997, there were three categories of Asian countries in crisis: those modestly affected (Japan, Hong Kong, Singapore, Taiwan, and China); those seriously affected (Korea, Thailand, Malaysia, and the Philippines); and Indonesia, an extreme case where financial problems were compounded by a political crisis of succession. Markets outside of Asia, including Brazil and Russia, also have been affected, with depreciating currencies and more uncertain economic growth prospects.

So far, the impact of the Asian financial crisis on the U.S. economy and agriculture has been mixed. While the devaluations and economic slowdowns in Asia are reducing the demand for U.S. products overseas, imports and capital inflows from Asia are reducing prices for consumer and intermediate goods and capital costs in the United States. The yield on thirty-year bonds, for example, dropped below 6 percent at the beginning of 1998, and other benchmark interest rates declined through the year.

A consensus is emerging about the causes of this crisis, summarized as follows.

*About 12 percent of U.S. agricultural exports goes to the most severely affected economies. An additional 30 percent goes to other parts of Asia.*

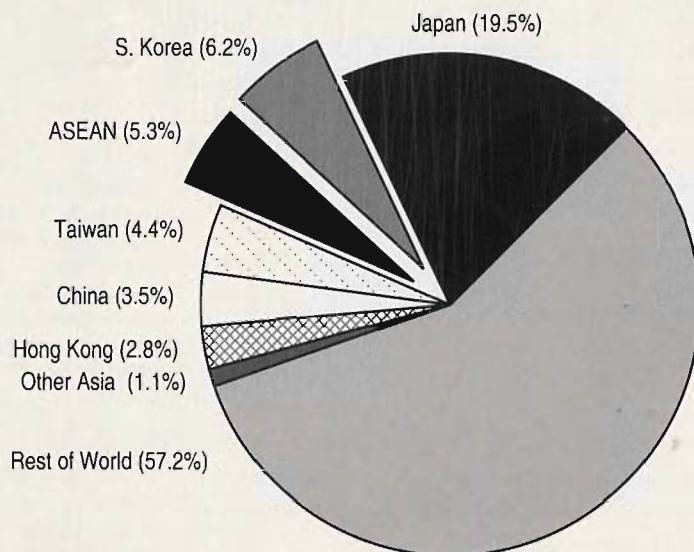


Figure 1. Share of U.S. agricultural exports to Asia, FY 1997

Source: Economic Research Service, USDA

*Rapid inflow of foreign capital into the region.* The economic success of the region attracted foreign portfolio and direct investment to Asia, and the Mexican crisis of 1994–95 diverted more foreign funds to the region. The surge in capital inflows to developing Asian countries came at a time when the OECD economies were experiencing slow economic growth, low interest rates, high liquidity, and rising stock markets.

*Declining competitiveness.* A marked slowing in the growth of the region's exports—particularly for China, South Korea, Malaysia, Singapore, and Thailand—resulted from slower growth in imports by developed markets, particularly Japan; a glut in global electronic markets; and policy measures in Asian economies to slow domestic growth to avoid inflation. Also contributing to the decline was the devaluation of the Japanese yen in 1995–97 which enhanced Japan's competitiveness *vis-à-vis* other Asian exporters.

*Inefficiencies in the banking sector and pegged exchange rates.* The rapid inflow of capital and slowing growth began to uncover problems in the banking systems across the region. Excessive reliance on political favoritism undermined loans. Lower interest rates outside the region, coupled with (in retrospect) overoptimistic faith in pegged currencies, led to excessive unhedged foreign borrowing.

Confinement of the worst effects of the crisis to South Korea and Southeast Asia was due, at least in part, to measures taken by the International Monetary Fund (IMF), banks, and other institutions which extended more than \$100 billion in credit to restore confidence in the most severely affected economies: South Korea, Thailand, and Indonesia. Revisions were made to packages for South Korea in late December 1997 and for Indonesia in January and April 1998. In Korea, the timetable for delivering credits was accelerated. Indonesia's President Suharto accepted a comprehensive reform package in January, including far-reaching agricultural reforms and deregulation, such as reducing import tariffs on agricultural products to 5 percent, eliminating monopoly import license for sugar, wheat, wheat flour, and soybeans, and encouraging foreign investment, including investment in palm oil production. The IMF imposed stricter monitoring provisions in April and added an additional \$6 billion in emergency credit in July. The U.S. Department of Agriculture (USDA) extended \$1.1 and \$1.0 billion in short-term credit guarantees near the beginning of 1998, including \$1 billion in new allocations, to aid South Korean and Southeast Asian importers. While analysts still debate the impact of the IMF programs, currency markets in South Korea, the Philippines, Malaysia, and Thailand seem to have stabilized, at least compared to the second half of 1997 (figure 2). Political changes



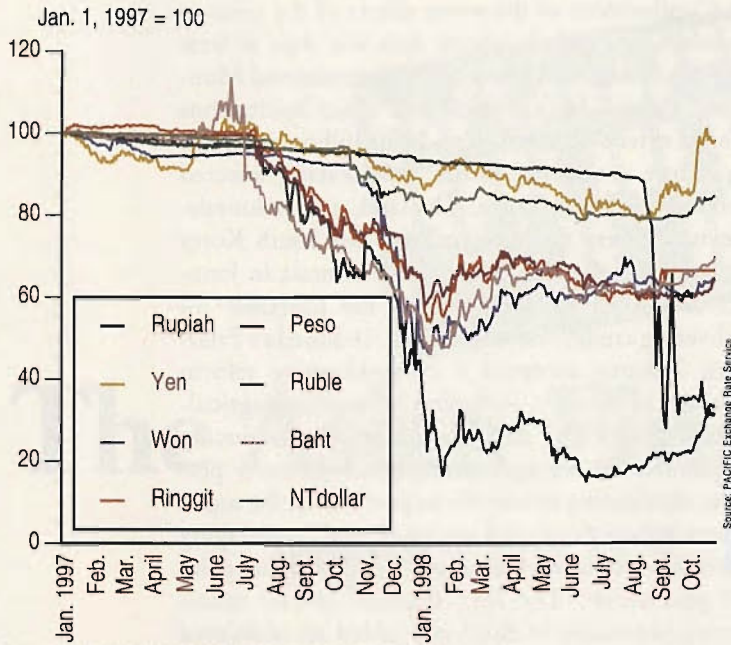


Figure 2. Currency devaluations relative to the U.S. dollar

Source: PACIFIC Exchange Rate Service

in Korea and Thailand may have helped, with Kim Dae Jung taking office in Korea in February 1998 and Prime Minister Chuan Leekpai taking office in Thailand November 1997. The resignation of Suharto in May 1998, coupled with the designation of vice president Habibie as the new president, brought some economic and political calm to Indonesia, but uncertainties persist.

Short-term growth prospects for the most affected economies have been progressively revised downward in the last six months as food and other prices and interest rates have risen. The three recipients of IMF aid in Asia (Thailand, Indonesia, and South Korea) are now in recession. Many banks and businesses across the region have failed, worsening unemployment. As currency devaluations increased the competitiveness of export sectors and reduced liquidity-constrained imports, in some cases precrisis current account deficits turned into surpluses. Relatively large export sectors in some of these countries have mitigated against more serious economic declines.

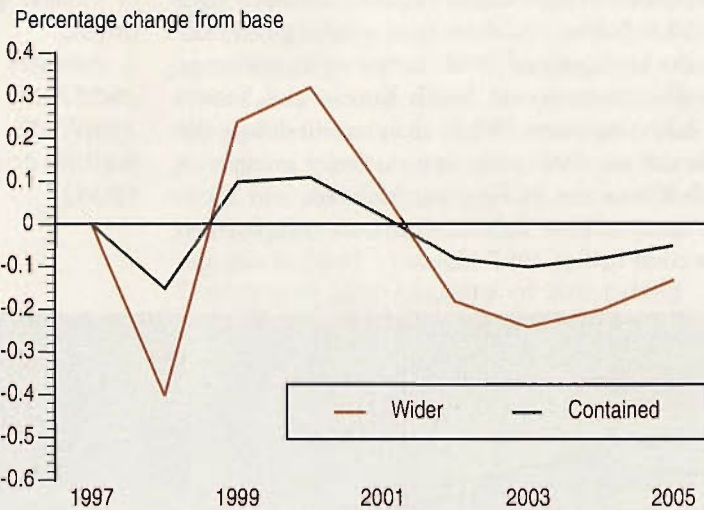


Figure 3. Projected changes in U.S. GDP, due to loss in confidence in Asia

Source: Results of simulations

The extent to which Japan, China, and Taiwan will become more embroiled in the Asian financial crisis remains uncertain. Japan has struggled to recover from the bursting of its "bubble" economy in the early 1990s and a number of macroeconomic policy mistakes, such as the raising of taxes in April 1997. While its current account and foreign exchange positions have remained relatively strong, economic growth has slowed dramatically in the 1990s compared to previous decades and Japan's economy is now in recession for the first time since 1974. Slow growth has exposed structural problems, including serious faults in its corporate and banking sectors. A central issue is the government's role in stimulating domestic demand, made more difficult in light of declining industrial production, corporate profits, and consumer optimism about the future.

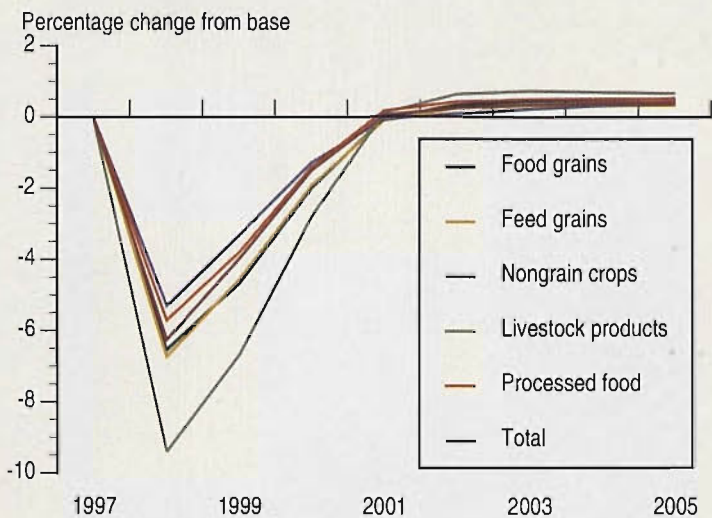


Figure 4. Contained crisis: projected changes in agricultural exports by sector in the United States

Source: Results of simulations

Pressures may be mounting for China to devalue its currency. Officials in China forecast continued economic growth at about 8 percent through 1999, but flooding in both the north and south, slowing exports, and the possibility of a declining current account surplus could change this outlook. China's political leaders are implementing policies to stimulate domestic demand, which could reduce the economy's future reliance on exports for growth and ease the short-term pressure to devalue its currency.

Taiwan has weathered the financial crisis in Asia better than most of its neighbors. Its economy is based on small-scale, family-oriented businesses that are able to adjust to economic shocks more easily. It is easier for new companies to start and for old ones to fail in Taiwan. It has a light foreign debt burden, large foreign exchange reserves, and better banking regulations than other Asian economies.

U.S. food and agriculture exports in FY '98 are forecast by USDA to be off the FY '97 level of \$57 billion by about \$3 billion. Declines of exports to Asian markets were offset to some extent by increases in exports to the NAFTA region. According to the USDA, U.S. agricultural imports rose to \$38 billion, reducing the U.S. agriculture trade surplus by more than \$4 billion to about \$17 billion.

### How the Asian crisis will affect U.S. agriculture

To get a more detailed assessment of the effects of the Asian financial crisis on U.S. agriculture, we analyzed (see sidebar for a description of our methods) two scenarios: one in which the crisis is contained in South Korea and Southeast Asia, where the problem is now most acute; and a second in which the crisis deepens in Japan, China, and Taiwan to the depths reached in South Korea and Southeast Asia.

#### *First scenario: crisis confined to ASEAN and Korea*

In the first scenario, the rise in risk and fall in productivity in the Association of Southeast Asian Nations (ASEAN5—Indonesia, Malaysia, the Philippines, Singapore, and Thailand) and South Korea leads to an outflow of financial capital. This outflow depreciates nominal exchange rates by about 60 percent through 1998 in the most affected economies. The outflow of capital also leads to a sharp rise in real interest rates in each economy and a general deflation of asset prices. The rise in real interest rates, decline in wealth, and sharp reduction in expected future incomes leads to a sharp drop in domestic demand. Overall, consumption falls by about 35 percent in ASEAN and South Korea through 1999. Investment also falls by about 40 percent in ASEAN and 25 percent in South Korea in 1999.

Despite the large contraction in domestic demand, gross domestic product (GDP) is not quite so badly hit in ASEAN and South Korea. These export-dependent economies are able to maintain production in the face of a sharp drop in domestic demand because of a rise in their exports. The sharp depreciation in the nominal and real exchange rates increases the demand for these countries' products by economies outside the region. This sharp export surge is consistent with the change in the balance of payments reflecting a capital outflow associated with a current account surplus. This can be achieved either by a rise in exports or a fall in imports. The model projects that this adjustment occurs through a large rise in exports and a small fall in imports. By early 1998, however, it appeared that the actual adjustment occurred through a sharp drop in imports rather than a rise in exports. This largely reflects the col-

### How We Made Projections

The model used in this research evaluated adjustments in agricultural markets resulting from shocks in the global economy. The model is called the G-Cubed (agriculture) model and is documented in McKibbin and Wang. It is extended from a model of the global economy called the G-Cubed model developed by McKibbin and Wilcoxon. The model divides the world into twelve regions. Within each region, production is disaggregated into twelve sectors, including five food and agricultural activities: food grains, feed grains, nongrain crops, livestock products, and processed food. A key feature of this class of models is the role of international capital mobility in economic adjustment and the integration of financial markets into the determination of real economic activity. Because the model incorporates the effects of international capital mobility, it is well suited for analyzing the effects of the large adjustments in international capital flows caused by the Asian financial crisis.

The simulations presented in this article are based on two assumptions about the affected countries. First, risk premia are assumed to increase for the next three years before confidence in the affected economies is restored to precrisis level. The premia used generate a devalued nominal exchange rate in those economies consistent with what was observed in January 1998.

Second, the Asian financial crisis causes a variety of disruptions in the affected economies that seriously affects aggregate factor employment. We simulate these effects by introducing negative "supply side" shocks that reduce total factor productivity growth across all sectors in the affected regions. The detailed simulation design can be found in McKibbin.

An important caveat is that while the model we use provides useful insights in understanding the offsetting effects of the Asian crisis on U.S. agriculture, it is only a stylized representation of the U.S. and world economies. Therefore, the results should not be interpreted as forecasts but rather as indicative of the potential impacts of the crisis.

lapse of the domestic and international financing of international trade. Given some signs of recovery in each economy, apart from Indonesia, it is expected that the model projections may come closer to being realized over the next year or so.

The effects on Asia are large. What are the effects on the United States? After a small decline in the growth of U.S. GDP in 1998 (figure 3), the relocation of capital to the United States will increase U.S. domestic production for a number of years. Importantly, the composition of GDP changes as well. The fall in demand in Asia reduces U.S. exports. Total U.S. agricultural exports fall by nearly 6 percent in 1998 (figure 4). A rise in business investment and consumer purchases in the United States, brought on by a flight of Asian capital to the U.S. and a resulting decline in interest rates, helps offset the fall in agricultural exports. The rise in U.S. investment induces some expansion in domestic demand for agricultural products.

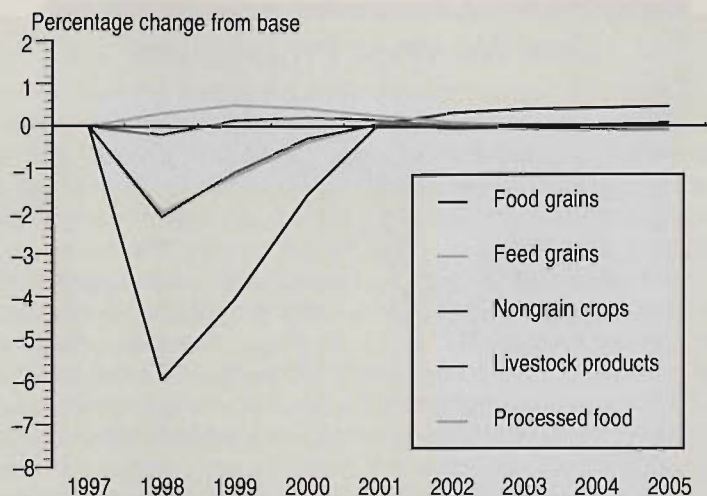


Figure 5. Contained crisis: projected changes in output by sector in the United States

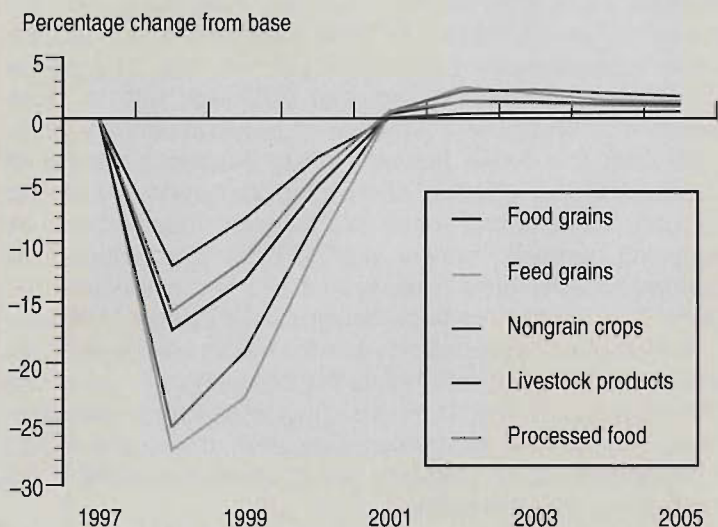


Figure 6. A wider crisis: projected changes in agricultural exports by sector in the United States

This shift in the structure of the U.S. economy from exports to domestic demand shows that the effects of the crisis on production are quite different by sector. Output of those sectors with the highest trade exposure—the U.S. exports 40–50 percent of its food grains—declines the most, about 6 percent in 1998. Feed grains and nongrain crops—with 15 to 30 percent of production exported—decline modestly, about 2 percent. And for livestock products and processed food—the least dependent on trade, with less than 10 percent of production exported—output increases in response to stronger domestic demand stimulated by lower consumer prices and cheaper capital (figure 5).

Thus within the U.S. food and agriculture industry, we see different responses to the Asian crisis. The more exposed the commodity is to export markets, the greater the impact of the Asia crisis. Also there is a switch away from exports toward

domestic demand driven by the changes in international capital flows that has a stimulating effect on U.S. investment and economic growth.

What does this adjustment process imply for U.S. producers of agricultural products? Obviously, producer revenue drops because of declining export prices and shrinking export demand from Asia. However, American agriculture benefits from reduced capital costs, the declining cost of energy and other intermediate inputs because of the strong dollar, and reduced demand for intermediate inputs resulting, in part, from the economic slowdown in Asia. It also benefits from stronger domestic demand induced by expansion of economic activity in the United States, particularly in interest-sensitive and energy-intensive sectors.

### Second scenario: a wider crisis

In the second scenario we assume the extent of the crisis spreads to include Japan, China, and Taiwan. The changes in exchange rates in ASEAN and South Korea are similar to the first simulation. The major difference is the sharp depreciation in the Yen relative to the U.S. dollar.

Even with the larger crisis in China and Japan, the loss of GDP in ASEAN and Korea about equals that from the narrow shock of the contained scenario. Lower world interest rates resulting from the relocation of capital partially offsets the reduced demand in the larger Asian economies by lowering the interest rate payments on these countries' external debt.

The decline in U.S. agriculture exports ranges from 12 to 26 percent, more than double the loss under the confined crisis. The ranking of sectors also changes with the feedgrain sector experiencing a larger proportional export decline under the more widespread shock because of the more significant role of feedgrain imports in Japan and Taiwan (figure 6). The demand for food grains and feed grains drops more sharply, although the demand for processed food continues to rise in the short term due to the strength of the domestic U.S. economy.

### Summing up

Both scenarios show that the crisis in Asia will not only reduce U.S. agricultural exports but will also reduce global real interest rates and the cost of energy and other intermediate inputs important to U.S. agriculture: in the *contained crisis*, less so; in the *wider crisis*, more so. Lower capital costs and intermediate prices will also have a stimulating effect on the U.S. domestic economy, especially in interest-sensitive sectors.

This stimulus to domestic demand may or may not offset the negative impacts of a decline in U.S. agricultural exports, depending on the relative reliance of each sector on domestic demand versus

Source: Results of simulations

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dependence on exports and Asian markets. The reallocation of financial capital away from Asia to the United States and other developed markets stimulates investment in the U.S. economy, especially those sectors relying most heavily on the domestic market such as processed food, while export-oriented sectors such as food grains are more negatively affected by the crisis. ■

### ■ For more information

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