As borrowers, we know that the interest rates we pay vary with the market's assessment of the risk that we might default on our obligations. This is why interest rates on U.S. government securities are lower than rates on private securities of the same maturity: We assume that the government will not renege on its promise. Likewise, rates on lower-rated private securities, like Baa-rated corporate bonds, are higher than those on higher-rated Aaa bonds.

The spreads between private and government securities and between Baa- and Aaa-rated bonds typically rise whenever the economy moves into recession. Why? Because as a firm's earnings decline, so too does its ability to service its debt. The less creditworthy the borrower and the deeper the recession, the wider the spreads among interest rates.

A wide range of closely watched rate spreads, including the spreads between Baa- and Aaa-rated securities, increased dramatically from July to September of last year. These widening spreads led to increased speculation of economic recession. It is important to note, however, that when the widening of these rate spreads is due to recession, the recession is already under way. Although I have learned never to say "impossible," it seems unlikely that a recession is already under way. Moreover, I know of no case where the period leading to recession was characterized by low-to-declining inflation, declining interest rates and high-and-rising money growth—all of which we have now.

A more reasonable explanation for the recent widening of rate spreads is the mid-August announcement that Russia would default on—technically, restructure—its sovereign debt. Historically, rate spreads have widened on news that caused investors to reassess risks. Some financial market disturbances affect a narrow range of rate spreads—for example, the Penn-Central Railroad bankruptcy declaration in 1970 and the near collapse of Continental Illinois Bank in 1984. Other shocks, like the stock market crash of 1987, affect a broader spectrum of spreads.

It appears to me that the Russian default led investors to think more carefully about the risks in the marketplace and to question whether existing spreads were adequate to compensate for those risks. When rate spreads widen, the danger is that borrowers who previously would have qualified readily for funds will find it more difficult to obtain them. If spreads remain high for an extended period of time, the effect on the economy can be substantial. I am inclined to think that this financial market disturbance, like many before it, will be temporary. Indeed, spreads have narrowed substantially since last October. However, we at the Fed must continue to watch this situation closely.
Models and Monetary Policy: More Science Than Art?
Kevin L. Kliesen

According to published minutes of the Federal Open Market Committee meeting held June 30 and July 1, 1998, the FOMC, worried that conditions were ripe for rising inflation, reaffirmed its previous policy position that a "bias toward restraint"—a tightening of monetary policy—was needed. Just four months later, though, confronted with the fallout reportedly stemming from the "Asian contagion," the FOMC decided to lower the federal funds rate—an action the committee repeated in October and November.

Are large-scale macroeconomic forecasting models helpful to the monetary policy process in instances like this? Or, when expectations of the future change suddenly, does a monetary policy-maker instead feel like the circus performer who, while tied to a spinning wheel, faces an onslaught of knives thrown by a blindfolded person?

Policy Challenges

One of the most important challenges confronting U.S. public policy-makers is the design and implementation of economic policies that best promote rising living standards over time. To most monetary policy practitioners, price stability—generally defined as an inflation rate low enough not to factor into the planning horizon of consumers and producers—is the necessary first step to ensuring this outcome. The economy's long-run growth rate, however, is largely influenced by "real" factors that tend to change rather slowly: population growth, labor productivity and the rate of technological advancement. The problem facing monetary policy-makers is that their actions have little direct influence over these factors.

Over shorter horizons, unforeseen economic disturbances—what economists call shocks—can influence economic outcomes. These shocks, if allowed to propagate, can affect the economy's health over the long term. But because these disturbances can't be predicted, gauging their effect is difficult—witness the recent turmoil in Asia that has spread to other regions and affected financial markets worldwide.

In some instances, however, these disturbances have certain traits in common with previous disturbances. For example, Federal Reserve Chairman Alan Greenspan has argued that the Asian situation is similar in many respects to the 1995 Mexican peso crisis. If so, then macroeconomic models may help policy-makers understand how the economy would respond to such a shock. These models may also help policy-makers formulate a policy response that minimizes the effects of these shocks.

To do this effectively requires a model that can systematically predict the change of headline variables like GDP growth, inflation and the unemployment rate. Alas, no model can accomplish all that. To help minimize the uncertain nature of the forecasting business, economists have developed several types of models to help them project the path of the economy over time. Whether any of these models can reliably inform policy-makers of future outcomes in response to unusual events—and thus effectively add to the process—is open to debate, however.
Model Types

The types of models used in the policy process can generally be described as either structural models or forecasting models. Structural models that use a Keynesian systems of equations approach are most prevalent in the policy arena. These models, which can have several hundred equations and identities, attempt to forecast such variables as output (real GDP), prices and employment from the ground up—in other words, as suggested by economic theory.1

In older structural models, such as the Federal Reserve's MPS model, the forward-looking aspect of the model's structure—which is termed expectations—was usually assumed to be a function of past behavior.2 By contrast, in newer structural models, such as the Federal Reserve Board's FRB/US Macroeconomic Model and the International Monetary Fund's MULTIMOD model, the formation of expectations is quite different. These newer models assume that the economy's producers and consumers are rational in their decision-making processes—in other words, that they know the structure of the economy (and thus the model).3

In contrast, forecasting models eschew the systems of equations approach, employing just a few equations to forecast future developments. These models, which are also known as time series models, instead rely on established statistical correlations between current and previous observations (hence the name time series) of one or more economic variables.

The most popular of these are plain vector autoregression (VAR) models and VARs that employ an error correction process.4 An example of the latter is the Vector Error Correction Model (VECM) developed by researchers associated with the Federal Reserve Bank of St. Louis.5

Unlike structural models, forecasting models like VARs regard all variables as simultaneously determined and, hence, have an equation for every variable in the model. In other words, they do not assume a unique behavioral relationship like a consumption, investment or money demand equation, which is assumed by structural models. In terms of sheer forecasting power, forecasting models generally do better than structural models. Conversely, forecasting models are not useful for evaluating alternative monetary policies—for example, looking at what would happen to the growth of real GDP and inflation if the federal funds rate were raised or lowered 25 basis points.

The Forecasting Process

At each FOMC meeting, committee members are presented with a forecast generated by the Board of Governors’ staff. This forecast, which is the staff's best guess as to the probable direction of the economy over the next several quarters, is put together in a deliberative fashion. In other words, there is much interaction between a large number of people responsible for monitoring every major sector of the U.S. economy, as well as foreign economic developments. What role, if any, do models play in this process? A recently published article outlines three ways models factor into the forecasting process.6

First, a forecast—termed a baseline projection—is made about how the economy is expected to behave over the next four to eight quarters. The baseline projection, in which the staff projects the likely direction of real GDP growth and inflation, takes as its starting point the final forecast generated from the previous FOMC meeting. The reason for this is that the economic outlook typically does not change dramatically between FOMC meetings. Nevertheless, between meetings new data become available, and/or previously released data get revised. In this way, new economic and financial information is used to update the old forecast (from the previous FOMC meeting), which then becomes the new baseline forecast (for the current FOMC meeting). At this stage, the staff generally still assumes an unchanged federal funds rate.

Second, assumptions are made about variables that are outside of the process (exogenous variables). These "conditioning assumptions," as they are called, include judgments about the future stance of monetary and
fiscal policy, foreign economic developments and oil prices. For example, if oil prices are expected to increase, this may contribute to an increase in inflation. Each participant in this process might then alter his or her view of the future in response to this anticipated change, making further give and take between the staff—sometimes involving the use of output generated by model-based forecasts—necessary. Eventually, the process converges to produce a final forecast that is used as a jumping off point at each FOMC meeting.

The baseline forecast is often termed a "judgmental forecast" because the staff does not rely very heavily on pure model-based forecasts. During times of high uncertainty, however, there may be more reliance upon the forecasting model and less reliance upon the judgment of the forecasters. Again, the Asian "crisis" would be a good example of this.

Finally, a forecast is made showing how, for example, economic growth and inflation will respond to a change in the federal funds rate target, a significant change in equity prices or major tax legislation. Thus, the policy-maker is presented with a baseline forecast (no change in policy) and a forecast contingent on a specific action. The latter is intended to provide the policy-maker with a framework for thinking about how a policy action may affect economic growth over the near term.

Policy Hurdles

The deliberative process cannot mask the numerous uncertainties policy-makers face. For example, if there is no agreement on the type of model to use—and there is not—then all parties will not agree on the strength or weakness of the economy going forward. Data revisions, which, in some instances, can change the forecast complexion significantly, further cloud the judgments of policy-makers. Finally—and this ultimately may be the biggest hurdle of all—there is uncertainty about the policy process itself. For instance, there is no over-arching consensus about how actions taken by the FOMC will influence the economy in the short run, what the policy-maker's main objective should be, or whether a policy rule should be followed.

For better or worse, monetary policy-making involves a good deal more than simply—and blindly—following a forecast generated by a complex model. After all, simple forecasting models like VARs and VECMs still do a good job of forecasting. Although structural models have evolved along with economic theory, policy-makers will probably remain skeptical of them for evaluating alternative policies. In the end, models, while useful tools, are not likely to replace the deliberative process currently in use—a process in which forecasts are just one more piece of information for policy-makers to consider.

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Endnotes

1. An identity is an equation that is true by definition. The best known identity is that for GDP: GDP = C + I + G + X - M, where C is consumer spending, I is investment, G is government spending, X is exports and M is imports. Embedded within the model are equations that are used to forecast each component and all of the major subcomponents. [back to text]
2. See Kmenta (1982). [back to text]
3. This assumption is termed "rational expectations" and can best be explained by President Lincoln's famous maxim that, "You can fool some of the people all of the time and all of the people some of the time, but you can't fool all of the people all of the time." [back to text]
4. Simply put, an error correction process enables the model to incorporate long-run statistical relationships between one or more variables that may help the forecaster do a better job. [back to text]
5. See Anderson et al. (1998). [back to text]
6. See Reifschneider et al. (1997). [back to text]
7. An example of a policy rule is the Taylor Rule, named after Stanford University Professor John B. Taylor. The Taylor rule is intended to provide the monetary policy-maker with some assessment of an appropriate level for the federal funds rate target, based on: 1) the strength of the economy relative to its potential; and 2) the current inflation rate relative to a preferred inflation rate. [back to text]

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Paper Tigers? How the Asian Economies Lost Their Bite
Michelle Clark Neely

The past year and a half has certainly been an eventful one for international financial markets. Not since the Latin American debt crisis of the early 1980s has there been so much turmoil in world markets. Like dominoes tumbling, what started in Thailand in July 1997 soon spread to the other so-called Asian tigers—the fast-growing countries of East Asia. By mid-1998, the crisis was threatening to envelop countries in Latin America and Eastern Europe—most notably Brazil and Russia. Although conditions have stabilized somewhat in recent months, the crisis is far from over, and the effects on the United States and other highly developed countries have yet to fully play themselves out.

One of the more remarkable aspects of the crisis is the speed with which conditions deteriorated and spillovers occurred in other countries. Rapid advances in computing and other communications technology have enabled financial transactions to occur around the globe almost instantaneously. One of the painful lessons of the last 18 months is that capital can flow out of a country as quickly as it comes in—a process that can turn a molehill into a mountain. The crisis in Asia has raised many questions about the advisability of investing in emerging market economies and the role of domestic regulators and international organizations like the International Monetary Fund (IMF) in preventing and stemming the damage once it's under way. But the biggest questions remain: What happened, why did it happen and what can be done—if anything—to prevent similar crises in the future?

The Drop Heard Round the World

Until the summer of 1997, the world economy looked pretty stable. Although Japan was virtually in recession and its banking sector was badly damaged, the rest of the industrialized world was growing, and inflation was low. Mexico was recovering from its 1994-95 financial crisis, and there were no serious, obvious problems in major emerging market nations. This placid scenario changed dramatically, however, on July 2, 1997, when Thailand devalued its currency, the baht.1 Within the next several months, the currencies of neighboring Indonesia, Malaysia and the Philippines came under pressure, too, leading to depreciations against the dollar ranging from 25 to 33 percent. More modest depreciations then occurred in other parts of Asia, including Korea, Taiwan and Singapore.

In the fall and winter of ’97, pressures on Asian currencies intensified. By January 1998, the currencies hit rock bottom. The Indonesian rupiah had dropped 81 percent against the dollar since July 1, 1997, the Thai baht, 56 percent, the Malaysian ringgit, 46 percent, and the Philippine peso, 41 percent. Meanwhile, between Oct. 1, 1997, and late December of that year, the Korean won depreciated 55 percent, and the New Taiwan dollar fell 19 percent. Exchange rates in other emerging market countries also came under pressure in the latter half of 1997, but central banks in these nations were generally able to defend their currencies.
The exchange rate crisis in east Asia prompted a pullback in private capital flows to the region (see below), which prompted further pressure on the region's exchange rates and more capital flight. International investors—especially banks and portfolio (stock and bond) investors—who had previously been pouring money into the region became nervous about the ability of Asian firms to pay it back. Much of this capital had been channeled through the affected countries' domestic banking systems, which had a number of structural problems. Because so many financial institutions and corporations in the region had borrowed in dollars and were consequently not protected against foreign exchange risk, the severe currency depreciations seriously weakened their balance sheets and increased credit risk.

Equity markets in both the affected countries and other emerging market nations—like those in Latin America—became very volatile. Spreads on emerging market debt, which had been very narrow in the year or so leading up to the crisis, jumped substantially, especially after problems emerged in Hong Kong in October 1997. International credit agencies began to downgrade emerging market sovereign (government) debt, dramatically increasing the cost of borrowing. Korea, which had been one of the great success stories in the developing world, suffered the ignominious distinction of having its debt fall to below investment grade, or "junk bond" status—one of the largest downgradings in recent history.

**Glossary**

**Current Account**—An account that shows international transactions that involve newly produced goods and services. For most countries, the merchandise trade balance (exports minus imports) is the largest component of the current account.

**Foreign Direct Investment (FDI)**—An international capital flow in which a firm in one country creates or expands a subsidiary in another. FDI is different from portfolio investment in that it involves the acquisition of control, as well as a transfer of resources.

**Hedge**—Protection against risk. An exporter, for example, can hedge against exchange rate risk by entering into a contract that guarantees a minimum payment, regardless of changes in the importing country's exchange rate.

**Moral Hazard**—Occurs when the existence of insurance encourages the insured parties to take risks since they know they are protected by insurance.

Austerity programs instituted by the IMF as a condition of financial assistance seemingly exacerbated the crisis. Monetary and fiscal policies were tightened to try to get exchange rate levels under control, causing domestic interest rates to further rise and growth to slow. Many domestic banks became insolvent in market value terms as nonperforming loan levels climbed; in some cases, bank runs even occurred. Domestic credit crunches emerged since banks were too undercapitalized to lend. In countries where sovereign debt was significantly downgraded, banks could no longer issue internationally recognized letters of credit for domestic exporters and importers. Since these countries were highly dependent on trade, and were counting on export revenues to help dig themselves out, this restraint only made matters worse.

In some countries, especially Indonesia, severe political unrest accompanied and exacerbated the economic turmoil. Further compounding Asia's situation was Japan's continued weakness. By the end of 1997, Japan had slipped into recession and was not able to help its neighbors with additional investment or increased trade. Although conditions in the region stabilized somewhat by late 1998, it will be several years before these formerly fast growing economies get back on track.
What Went Wrong?

The crisis in Asia caught nearly everyone by surprise. After all, this was a region that had accounted for more than half of the world’s economic growth in the 1990s. Inflation was low, and there were no obvious fiscal or monetary imbalances. Although many of the countries in the region were running high current account deficits—as they had been for a number of years—the deficits were not generally viewed as a problem since international investors seemed more than willing to supply the capital to finance them.

If investors and policy-makers had been looking a little more closely, however, they would have seen a number of similarities between the period preceding the Asian crisis and the periods leading up to the two previous international financial crises—the 1980s Latin American debt crisis and the 1994-95 Mexican financial crisis. First, capital inflows to the affected crisis areas were extremely heavy prior to the downturns as international investors enjoyed easier access to domestic financial markets. In the previous two crises, spreads on emerging market debt declined substantially as investors downgraded the risk difference between developed countries’ and emerging market countries’ debt. Second, the affected regions enjoyed strong ratings from international credit agencies and widespread investor participation in their markets. In Asia, as in the other two crisis regions, both of these factors could be viewed as very positive developments—a veritable stamp of approval from the international financial community.

But, as in the prior two crises, there were warning signs that all of the confidence in Asia may have been misplaced. Most domestic borrowers, for example, were unhedged against exchange rate risk. This meant that a large change in a borrowing country’s exchange rate could have dramatically increased the cost of paying back the dollars it borrowed from foreign investors.

Even more ominous were structural problems in the region’s financial sectors—especially banking—which left them ill-equipped to manage the sheer volume of investment flows. A laundry list of some of these problems includes: extensive government involvement in private-sector investment allocation; underdeveloped and underregulated equity markets; “crony capitalism” and corruption in banks; overly close linkages between banks and major industries (called “connected lending”); weak corporate governance; poor supervision and regulation of financial institutions; and a general lack of transparency in the economy’s financial sectors. Underlying all of these weaknesses, according to many economists, was pervasive moral hazard—a “heads I win, tails someone else loses” philosophy. Banks, investors and firms assumed that the region’s governments and international organizations would bail them out in the event of financial catastrophe.

A Tale of Two Triggers

Since the crisis began, economists have searched for answers as to what triggered the crisis in Asia and its spread to other emerging markets around the world. Although a number of explanations have been offered, the vast majority of views fall into one of two camps: the “fundamentalist” view, espoused by Massachusetts Institute of Technology economist Paul Krugman, among others; and the “panic” view, most closely associated with Harvard economist Jeffrey Sachs and World Bank chief economist Joseph Stiglitz. The fundamentalist view focuses on how the borrowing countries’ policies and practices fed the crisis, whereas the panic view focuses on the role lenders played.

The fundamentalist view holds that flawed financial systems were at the root of the crisis and its spread. Although there were no obvious macroeconomic forewarning signals, there were changes occurring in these economies that made them vulnerable to a financial crisis. The seeds for the financial crisis were actually sown several years before currency pressures began. Because most currencies in the region were in some way pegged, or tied, to the U.S. dollar, the appreciation of the dollar versus the yen and other major currencies over the past several years meant that Asian countries were losing competitiveness in export markets. As a result, export growth—the engine driving these economies—began to slow. Meanwhile, an increasing portion of
foreign capital inflows to the region consisted of liquid portfolio investment, rather than long-term foreign direct investment (FDI).

The bulk of these liquid capital flows were channeled into domestic investments by local bank and nonbank financial institutions. Frequently, the same assets—land, real estate and financial assets—were used for collateral and investment, driving the value of existing collateral up, which, in turn, spurred more lending and increased asset prices. Risk was further heightened when local banks—in response to low interest rates overseas and "stable" exchange rates at home—began borrowing foreign exchange abroad. These local banks then converted the foreign exchange to domestic currency and lent the proceeds domestically, assuming all the exchange rate risk. These risky practices went unnoticed and/or unchallenged in the weakly supervised and crony-controlled banking systems in which they occurred.

According to the fundamentalist view, such a bubble was bound to burst in the face of a shock. Some analysts have argued that the increase in U.S. interest rates in early 1997 provided the pop, while others say it was the decline in the world prices of exports—computer chips and commodities like rice, wood and rubber—from these countries. Regardless of the exact cause, asset prices fell, causing nonperforming loans to rise and the value of collateral to fall; domestic lending then declined and asset prices fell yet again.

Foreign and domestic investors subsequently got spooked, and capital started to flow out of the region. This put pressure on the exchange rate pegs in the region. Because of the fragile state of the region's domestic financial systems, the monetary authorities risked further financial turmoil if they attempted to raise interest rates to defend the pegs. So the pegs were ultimately abandoned. Because so much of the foreign currency debt was unhedged, the currency depreciations led to widespread bankruptcies and slowing economic growth.

Subscribers to the panic, or "disorderly workout," theory, on the other hand, maintain that the economic fundamentals in Asia were essentially sound. Rather, a swift change in expectations was the impetus for the massive capital outflows that triggered and fed the crisis. Economists Steven Radelet and Jeffrey Sachs (1998) essentially argue that a molehill (problems in Thailand) was turned into a mountain (a regional financial crisis) because of international investors' irrational behavior and the overly harsh fiscal and monetary medicine prescribed by the IMF as the crisis broke.

They point to several factors that support the premise that the crisis was panic-induced. First, the crisis was largely unanticipated. There were no warning signals, such as an increase in interest rates on the region's debt or downgradings by debt rating agencies. Second, prior to the crisis, there was substantial lending to private firms and banks that did not have any sort of government guarantee or insurance (a large proportion of which have gone into or are now facing bankruptcy). This fact contradicts the idea that moral hazard was so pervasive that investors were knowingly making bad deals, assuming that they would be bailed out. It is consistent, however, with the notion that international investors panicked in unison and withdrew money from all investments—good or bad.

Third, once the crisis was under way, the affected countries experienced widespread credit crunches—even viable domestic exporters that had confirmed sales could not get credit—again suggesting irrationality on the part of lenders. Fourth, the trigger for the crisis was not the deflation of asset values, as the fundamentalists argue, but, rather, the sudden withdrawal of funds from the region. Radelet and Sachs argue that some of the conditions the IMF imposed on these countries for financial assistance “added to, rather than ameliorated, the panic.”

**Never Again?**

Regardless of the cause of the crisis and its consequent spillover to other countries, all analysts agree that the fallout in Asia and other emerging market nations has been severe. Although initially only financial in nature,
the crisis has led to significant real economic losses in these formerly fast-growing economies. It is clear—whether one believes the fundamentalist theory or the panic theory—that the region’s financial sectors did not "evolve in parallel with economic performance." Moreover, international investors overinvested in the region because of a lack of opportunities (low interest rates) in the United States and Japan. This global chase for short-term profits caused herding, myopic behavior on the part of investors. At the same time, investors were misled—deliberately, in a few cases—about the ability of Asian economies and financial markets to absorb and profitably employ the massive inflows of foreign capital. In short, there is plenty of "blame" to go around.

While most analysts agree on the steps—especially reform of the banking sector—these countries must take to get back on solid economic footing, they acknowledge that Asian governments face a number of enormous challenges to meet those goals. First, many of the changes that the IMF, the G-7 countries and others offering help have insisted upon have proved to be extremely difficult to implement politically in several countries. Leaders like former Indonesian president Suharto—who was eventually forced to resign—and Malaysian president Mahathir Mohamad were extremely reluctant to enact the needed reforms and clashed with both their governments and political opponents, creating credibility problems abroad and political unrest at home.

Second, one of the short-term prescriptions for restoring economic health—a large boost in exports—is running into complications. Japan’s continued economic weakness means that one of the region’s major export markets is essentially out of commission. And in other countries, like the United States, protectionist sentiments have been aroused by the increase in cheaper imports from the region, making it difficult for Asian exporters to make further inroads in this market. U.S. steel producers, in particular, have been very vocal about the perceived threat to the U.S. steel industry from the post-crisis drop in world steel prices.

At this point, most economists expect the Asian countries to return to good health in the next several years. The outlook for non-Asian countries affected by the contagion—notably Brazil and Russia—is more uncertain, however. In mid-November 1998, Brazil agreed to a $42 billion IMF-led program to stabilize its economy and soothe the still jittery international investment community. Russia is a tougher case. The first IMF program there collapsed soon after its enactment, as the Russian government first squandered the initial funds the IMF provided, then devalued the ruble and defaulted on its sovereign debt, and failed to undertake any of the IMF’s prescriptions for more aid.

As with previous crises, the next step will be assessing the lessons learned and devising prescriptions for mitigating similar future crises, wherever they might occur. Clearly, greater transparency in financial transactions, more stringent regulatory oversight and consistent application of accounting standards would go a long way toward preventing a collapse the size of Asia’s. But no country in the world will ever be immune from a financial calamity (remember the U.S. savings and loan debacle of the 1980s?). Moreover, the “regulatory straitjacket” that would be necessary to prevent any type of crisis from occurring would also cut nations off from the many benefits that come with participating in the international financial community. To proclaim “never again” is foolhardy; to strive for less fallout and contagion when these crises occur is a goal worth pursuing.

Sidebar 1

**International Capital: Easy In, Easy Out**

The five Asian economies hit hardest by the crisis—Indonesia, Korea, Malaysia, the Philippines and Thailand—have been on a tremendous roller-coaster ride in international financial markets. For several years before the outbreak of the crisis, these five countries enjoyed an enormous inflow of foreign capital (Line 2 of the table), mostly from private creditors (Line 3). This foreign capital inflow enabled these countries to finance their current account deficits (Line 1), invest overseas (Line 13) and add to
their reserves (Line 14). In 1995, for example, $86.3 billion flowed into these five countries from international sources; $41 billion (47.5 percent) financed the current account deficit and $31.3 billion (36.3 percent) was reinvested in nonequity assets overseas. The remaining $14 billion (16.2 percent) went into the countries’ international reserves.

In 1995 and 1996, the bulk of these inflows were from private sources, such as loans from commercial banks (Line 8); investments like bond issues and private placements by nonbank private creditors (Line 9); equity investment (Line 6); and foreign direct investment (Line 5). In 1996, official inflows (Line 10)—loans and other financing from international organizations like the World Bank and the IMF (Line 11), as well as assistance from other nations (bilateral creditors, Line 12)—were negligible, and even negative (that is, the countries were paying back international official creditors).

The picture completely turned around in 1997, however. External financing to the five countries dropped from $91.2 billion to $25 billion—an amount insufficient to cover the countries' collective current account deficits at the time. A net outflow of portfolio equity, as well as commercial bank funding, occurred. Reserves fell by nearly $31 billion as the countries attempted to defend their currencies and bolster their economies.9 Official flows, meanwhile, jumped significantly to help cover the short-fall and moderate the crisis.

Forecasts for 1998 and 1999 show a slightly improved picture. Private capital is still expected to flow out of the region, but a turnaround in the countries’ current account balances and the continuation of official assistance will enable the countries to collectively replenish their reserves. Most of the improvement in their current accounts is likely to come from a reduction in imports (as these countries struggle to resume economic growth) and a rebound in exports. Foreign direct investment (Line 5) in the countries is expected to increase modestly—a vote of confidence from investors taking the long view.
## Five Asian Economies: External Financing

(billions of U.S. dollars)

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<td>1. Current account balance</td>
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<td>–</td>
<td>–</td>
<td>59.9</td>
<td>58.6</td>
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<td>2. External financing, net</td>
<td>86.3</td>
<td>91.2</td>
<td>25.0</td>
<td>3.7</td>
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<td>3. Private flows, net</td>
<td>83.8</td>
<td>93.8</td>
<td>–6.0</td>
<td>–</td>
<td>24.6</td>
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<td>4. Equity investment, net</td>
<td>15.9</td>
<td>17.4</td>
<td>–0.2</td>
<td>8.0</td>
<td>6.5</td>
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<tr>
<td>5. Direct equity, net</td>
<td>4.9</td>
<td>5.8</td>
<td>6.5</td>
<td>6.9</td>
<td>7.4</td>
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<td>6. Portfolio equity, net</td>
<td>11.0</td>
<td>11.6</td>
<td>–6.8</td>
<td>1.1</td>
<td>–0.9</td>
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<td>7. Private creditors, net</td>
<td>67.9</td>
<td>76.4</td>
<td>–5.7</td>
<td>–</td>
<td>32.6</td>
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<td>8. Commercial banks, net</td>
<td>58.0</td>
<td>58.3</td>
<td>29.0</td>
<td>30.5</td>
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<td>9. Nonbanks, net</td>
<td>9.9</td>
<td>18.1</td>
<td>23.3</td>
<td>–2.1</td>
<td>–3.8</td>
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<td>10. Official flows, net</td>
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<td>–2.6</td>
<td>30.9</td>
<td>28.3</td>
<td>5.0</td>
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<td>11. International financial institutions</td>
<td>–0.3</td>
<td>–2.0</td>
<td>22.6</td>
<td>22.4</td>
<td>2.5</td>
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<tr>
<td>12. Bilateral creditors</td>
<td>2.9</td>
<td>–0.6</td>
<td>8.4</td>
<td>5.9</td>
<td>2.6</td>
</tr>
<tr>
<td>13. Resident lending/other, net</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>14. Reserves excluding gold (– = increase)</td>
<td>14.0</td>
<td>19.3</td>
<td>30.7</td>
<td>40.4</td>
<td>29.9</td>
</tr>
</tbody>
</table>

Key:
1 – Indonesia, Malaysia, South Korea, Thailand, Philippines
2 – Including resident net lending, monetary gold and errors and omissions
e – estimate
f – IIF forecast

SOURCE: Institute of International Finance
Thomas A. Pollmann provided research assistance.

Endnotes

1. For detailed overviews of the events leading up to and including the crisis, see International Monetary Fund (1998) and Corsetti, Pesenti and Roubini (1998). An excellent web site containing hundreds of articles on the Asian crisis is maintained by Nouriel Roubini of New York University. The web address is: www.stern.nyu.edu/~nroubini/asia/AsiaHomepage.html#intro1 [back to text]

2. Indonesia's and Thailand's sovereign debt was similarly downgraded. [back to text]

3. See Krugman (1998), Noland et al. (1998) and Corsetti, Pesenti and Roubini (1998) for a detailed explanation of the fundamentalist view. [back to text]

4. Radelet and Sachs (1998), p. 44. [back to text]

5. Noland et al. (1998), p. 3. [back to text]


7. See Bluestein (1998). [back to text]


9. Part of the outflow of reserves was due to the inability of Korean banks to roll over their international bank loans, which forced the Bank of Korea to stop in and assist the banks, providing dollars to pay off the bank loans. The central bank was also providing dollars to domestic firms that could no longer get them from domestic banks. [back to text]

References


The National and District Economies—Are They Marching in Step?

Adam M. Zaretsky

The U.S. economy could not decide at what pace it wanted to produce output last year. In the first quarter of 1998, real GDP posted an unexpectedly high 5.5 percent annual growth rate. This was followed by a slower 1.8 percent annual growth rate in the second quarter. Many analysts, who at this point had already begun to acknowledge the effects that both the Asian crisis and jittery financial markets were having on the national economy, were then surprised by the early number for third-quarter real growth—a startling jump to 3.9 percent. Fast, slow, fast—just what has been happening in the U.S. economy? And has the economy of the Eighth Federal Reserve District been following suit or marching to the beat of a different drummer?

The Ups and Downs of the National Economy...

To answer the first question, the national economy has slowed since 1997, despite the appearance of a rebound in the third quarter. As always, the announced third-quarter GDP growth rate is only a preliminary number, subject to revision. In the first and second quarters of 1998, for example, the preliminary numbers showed real growth of 4.8 percent and 1.6 percent, respectively. After revision, the final numbers revealed that real growth was actually 5.5 percent in the first quarter and 1.8 percent in the second.

On top of this, the initial data show that much of the increase in the third-quarter GDP growth rate came from an unexpected rise in inventory accumulation, due to a rebound at the end of the General Motors shutdown and a stronger U.S. dollar. Although the end of the GM shutdown in late July led to a rebuilding of dealer inventories, the actual change in total automotive inventories was still negative. The rate of decline of these inventories, however, slowed substantially. Add to this the many businesses—particularly retailers—that sought to take advantage of the relatively low prices of Asian goods resulting from weak Asian economies and an appreciating dollar, and the jump in inventory investment is accounted for.

The Bureau of Economic Analysis—the government agency responsible for GDP data—stated in its third-quarter GDP report that inventory investment accounted for almost a full percentage point of the 3.9 percent growth rate. Actually, this percentage point represents almost all of investment's contribution to real output. In the second quarter of 1998, in contrast, inventory (dis)investment reduced real GDP growth by almost 2.7 percentage points, making total investment's contribution to real output negative.

At the same time inventories were increasing, consumer spending was moderating. In particular, spending on durable goods—like cars and household appliances—and spending on nondurable goods—like food and clothing—increased slightly, but substantially less than in the second quarter. Meanwhile, spending on services—like entertainment, health and financial—maintained its brisk second-quarter pace. Thus, third-quarter growth in spending on services essentially drove growth in consumption. Earlier, growth in spending on durables had played a much more important role.
Along with the recently erratic GDP numbers has been a slowing in payroll employment growth. Between June and October of 1998, employment growth has averaged about 189,000 jobs a month. During the first five months of the year, however, employment growth averaged 255,000 jobs a month. 1 Actually, as the accompanying table shows, U.S. payroll employment grew at a 2 percent annual rate in the third quarter of 1998, almost a percentage point less than the first quarter. In the second quarter, jobs grew at a 2.3 percent annual rate. Thus, job growth has been steadily slowing all year. These employment data do not necessarily contradict the output data, though, because third-quarter GDP growth would have been roughly 2.9 percent (about the long-run average growth rate) without inventory investment. The continued slowing in employment growth, coupled with the recent inventory accumulation, could therefore signal a further slackening of output growth in the coming quarter—most likely, a return to a more average growth rate.

Table 1

Slowing the Step: Payroll Employment Growth Rates

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Total</th>
<th>Manufacturing</th>
<th>Nonmanufacturing</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>2.0</td>
<td>2.3</td>
<td>2.8</td>
</tr>
<tr>
<td>Eighth District</td>
<td>0.3</td>
<td>1.9</td>
<td>1.4</td>
</tr>
</tbody>
</table>

NOTE: All data are seasonally adjusted annual rates of quarterly growth. See Endnote 2 for a definition of the Eighth District


The picture isn't all glum, though. Tight labor markets across the nation have made it tough for employers to fill vacancies. Without new workers, there can be no job growth. Nonetheless, the nation's nonmanufacturing sector, which employs about 85 percent of all workers, continues to show strong employment growth. The third quarter’s 2.9 percent annual growth rate in nonmanufacturing employment is comparable to the 2.8 percent rate posted in the second quarter and the 3 percent rate in the first.

The U.S. manufacturing sector, however, is bearing the brunt of the employment decline. In the third quarter, employment in this sector fell at a 3 percent annual rate, much sharper than the 0.5 percent decline posted in the second quarter. Employment declines at manufacturing firms, however, are not that unusual since these firms tend to be affected by the business cycle more. But manufacturing employment declines are not necessarily the norm, either. Manufacturing employment grew at a 1.5 percent annual rate in the first quarter of 1998, marking the end of a two-year positive growth trend. Taken together, then, the currently available data seem to suggest that the slowing in national output growth that began in the second quarter of 1998 is probably still with us and will likely stick around into next quarter.

...and of the District Economy

Whether the District economy has been following suit or marching to the beat of a different drummer is a more difficult question to answer. The principal reason for the difficulty is that state-level output data are not as timely as GDP. In fact, the latest gross state product data (the state-level equivalent of GDP) are from 1996—almost three years old! Thus, much more reliance must be placed on employment data.

Payroll employment growth in the District has actually been following a different beat since 1997.2 For example, payroll employment grew at a 0.3 percent annual rate in the third quarter of 1998, after rising at a 1.9
percent rate a quarter earlier. And that rate was up from the 1.4 percent gain in the first quarter. Thus, in the third quarter of this year, District employment growth was more than 1.5 percentage points less than the nation as a whole. Like their national counterparts, however, District labor markets are extremely tight.

Unlike the rest of the nation, though, employment growth in the District's nonmanufacturing sector, which employs about 85 percent of all District workers, has been slowing. In the third quarter of 1998, new jobs in this sector were created at only a 0.9 percent annual rate, after rising at a 2.4 percent rate in the second quarter. That's a 1.5 percentage point swing in one quarter—the biggest monthly drop in this growth rate since the second quarter of 1995. That said, it is only one quarter, and the decline came on the heels of a 1 percentage point gain between the first and second quarters of 1998.

At the same time, the District's manufacturing sector has followed a pattern of steady decline, like its national counterpart. District manufacturing employment fell at a 2.5 percent annual rate in the third quarter of this year, after a drop of 0.5 percent in the second quarter. As with the national numbers, though, it's not unusual to see manufacturing employment decline from time to time. Still, coupled with the severe turnaround in nonmanufacturing employment, the trend becomes more troubling. With both major employment sectors in decline, therefore, the outlook for District output growth is probably a bit weaker than it is for the rest of the country.

What is the answer to the question, then? The District economy has been marching to the beat of a different drummer, but it's not completely out of step. While District manufacturing employment seems to be mimicking the nation rather well, District nonmanufacturing employment appears to be doing its own thing. Furthermore, if the swings in District employment growth rates are a reliable indicator of expected movements in District output growth rates, output growth is probably going to remain slower than it was six months or a year ago. Unfortunately, the output data to confirm this won't be available for two more years.

AUTHOR'S NOTE: Since this article was written, the final GDP growth number for the third quarter was released. It was 3.7 percent.

Gilberto Espinoza provided research assistance.

Endnotes

1. These figures have been adjusted for the effects of the GM strike. [back to text]
2. The "District" composite contains data for the whole states of Arkansas, Illinois, Indiana, Kentucky, Mississippi, Missouri and Tennessee. For information on how the individual states compare with the nation and this "District" composite, see the tables and charts on pages 18 and 19 of this publication. All data have been seasonally adjusted. [back to text]
Pieces of Eight: News Bulletins from the Eighth Federal Reserve District
Jeryldine Tully

Regional Economist Takes Its Show on the Road

Starting next issue, you'll see all-new content in the Pieces of Eight section. The usual Pieces of Eight content will be replaced by an economic profile on a town or city somewhere in the Eighth Federal Reserve District (see map). We'll discover—in-person—the economic aftereffects in areas that have undergone major recent changes, whether they be positive or negative, man-made or acts of God.

We're making the change for two reasons. First, we learned in last year's readership survey that the Pieces of Eight section was the only one in The Regional Economist that went largely unread (so if you're reading this now, you're the exception!). Secondly, we wanted to look for a way to impart more regional information into the publication to balance the increasingly global nature of the economic topics covered in the three main articles.

We're looking forward to learning more about our region and sharing that information with you. If you have ideas about which areas would be interesting for us to visit, send them to Jeryldine Tully at Jeryldine.Tully@stls.frb.org.

Data Page Changes on the Way

Starting with the April issue of The Regional Economist, the data pages will have a new look. We're revamping the content, in addition to freshening up the design. To make way for the community profile that will replace the content that usually appears on this page (see related story above), the number of data pages will be reduced to three from five. We're also introducing a national and regional economic briefing essay for those who would like a text synopsis of current data trends.

The new data pages will cover banking, as well as regional business, national economic and agricultural indicators.

- The District banking data will look familiar; the only thing missing will be the breakouts of performance ratios by bank size.
- The regional business indicators will be condensed to one page, instead of two, with the data reformatted to highlight growth rates, rather than levels. Some new data series also will be added; for example, year-to-date housing permits for each of the seven District states will be reported. In addition, charts highlighting District economic data that come out less frequently will be rotated among the four yearly issues.
- A third page will contain national economic indicators, like GDP growth and inflation, as well as agricultural data.
We realize that some of you will still want to have access to the data we're eliminating. Not to worry: Starting in April, all of the data series you're used to seeing in printed form in *The Regional Economist* will be available on FRED®, the Bank's economic data base.
District Data

Selected economic indicators of banking, agricultural and business conditions in the Eighth Federal Reserve District

Commercial Bank Performance Ratios
U.S., District and State

<table>
<thead>
<tr>
<th>Return on Average Assets (Annualized)</th>
<th>All U.S.</th>
<th>U.S. &lt;$15B</th>
<th>District</th>
<th>AR</th>
<th>IL</th>
<th>IN</th>
<th>KY</th>
<th>MS</th>
<th>MO</th>
<th>TN</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd quarter 1998</td>
<td>1.49%</td>
<td>1.36%</td>
<td>1.37%</td>
<td>1.20%</td>
<td>1.34%</td>
<td>1.34%</td>
<td>1.32%</td>
<td>1.21%</td>
<td>1.63%</td>
<td></td>
</tr>
<tr>
<td>2nd quarter 1998</td>
<td>1.46</td>
<td>1.36</td>
<td>1.39</td>
<td>1.46</td>
<td>1.33</td>
<td>1.32</td>
<td>1.31</td>
<td>1.05</td>
<td>1.62</td>
<td></td>
</tr>
<tr>
<td>3rd quarter 1997</td>
<td>1.37</td>
<td>1.34</td>
<td>1.32</td>
<td>1.14</td>
<td>1.35</td>
<td>1.29</td>
<td>1.46</td>
<td>1.28</td>
<td>1.59</td>
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<table>
<thead>
<tr>
<th>Return on Average Equity (Annualized)</th>
<th>All U.S.</th>
<th>U.S. &lt;$15B</th>
<th>District</th>
<th>AR</th>
<th>IL</th>
<th>IN</th>
<th>KY</th>
<th>MS</th>
<th>MO</th>
<th>TN</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd quarter 1998</td>
<td>15.35%</td>
<td>15.39%</td>
<td>14.11%</td>
<td>11.69%</td>
<td>14.96%</td>
<td>16.18%</td>
<td>13.42%</td>
<td>14.15%</td>
<td>19.68%</td>
<td></td>
</tr>
<tr>
<td>3rd quarter 1997</td>
<td>14.78</td>
<td>15.10</td>
<td>13.98</td>
<td>12.89</td>
<td>15.16</td>
<td>14.85</td>
<td>15.26</td>
<td>15.42</td>
<td>17.83</td>
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</table>

<table>
<thead>
<tr>
<th>Net Interest Margin (Annualized)</th>
<th>All U.S.</th>
<th>U.S. &lt;$15B</th>
<th>District</th>
<th>AR</th>
<th>IL</th>
<th>IN</th>
<th>KY</th>
<th>MS</th>
<th>MO</th>
<th>TN</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd quarter 1998</td>
<td>4.80%</td>
<td>4.30%</td>
<td>4.29%</td>
<td>4.44%</td>
<td>4.29%</td>
<td>4.21%</td>
<td>4.63%</td>
<td>3.88%</td>
<td>4.81%</td>
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<tr>
<td>3rd quarter 1997</td>
<td>4.89</td>
<td>4.46</td>
<td>4.44</td>
<td>4.35</td>
<td>4.34</td>
<td>4.39</td>
<td>5.00</td>
<td>4.48</td>
<td>4.46</td>
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<table>
<thead>
<tr>
<th>Nonperforming Loans / Total Loans</th>
<th>All U.S.</th>
<th>U.S. &lt;$15B</th>
<th>District</th>
<th>AR</th>
<th>IL</th>
<th>IN</th>
<th>KY</th>
<th>MS</th>
<th>MO</th>
<th>TN</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd quarter 1998</td>
<td>1.02%</td>
<td>0.90%</td>
<td>1.02%</td>
<td>0.96%</td>
<td>0.60%</td>
<td>0.69%</td>
<td>0.59%</td>
<td>0.88%</td>
<td>1.18%</td>
<td></td>
</tr>
<tr>
<td>2nd quarter 1998</td>
<td>0.95</td>
<td>0.93</td>
<td>1.00</td>
<td>0.99</td>
<td>0.55</td>
<td>0.74</td>
<td>0.67</td>
<td>0.86</td>
<td>1.28</td>
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<tr>
<td>3rd quarter 1997</td>
<td>1.05</td>
<td>1.00</td>
<td>0.94</td>
<td>1.04</td>
<td>0.60</td>
<td>0.70</td>
<td>0.59</td>
<td>0.83</td>
<td>1.96</td>
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<table>
<thead>
<tr>
<th>Net Loan Losses / Average Total Loans (Annualized)</th>
<th>All U.S.</th>
<th>U.S. &lt;$15B</th>
<th>District</th>
<th>AR</th>
<th>IL</th>
<th>IN</th>
<th>KY</th>
<th>MS</th>
<th>MO</th>
<th>TN</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd quarter 1998</td>
<td>0.80%</td>
<td>0.33%</td>
<td>0.22%</td>
<td>0.29%</td>
<td>0.21%</td>
<td>0.37%</td>
<td>0.28%</td>
<td>0.22%</td>
<td>0.55%</td>
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<td>2nd quarter 1998</td>
<td>0.72</td>
<td>0.31</td>
<td>0.22</td>
<td>0.17</td>
<td>0.20</td>
<td>0.34</td>
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<td>0.26</td>
<td>0.51</td>
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<tr>
<td>3rd quarter 1997</td>
<td>0.80</td>
<td>0.37</td>
<td>0.20</td>
<td>0.54</td>
<td>0.15</td>
<td>0.33</td>
<td>0.28</td>
<td>0.31</td>
<td>0.63</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Loan Loss Reserve / Total Loans</th>
<th>All U.S.</th>
<th>U.S. &lt;$15B</th>
<th>District</th>
<th>AR</th>
<th>IL</th>
<th>IN</th>
<th>KY</th>
<th>MS</th>
<th>MO</th>
<th>TN</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd quarter 1998</td>
<td>1.85%</td>
<td>1.40%</td>
<td>1.29%</td>
<td>1.36%</td>
<td>1.26%</td>
<td>1.37%</td>
<td>1.42%</td>
<td>1.42%</td>
<td>1.51%</td>
<td></td>
</tr>
<tr>
<td>2nd quarter 1998</td>
<td>1.83</td>
<td>1.41</td>
<td>1.35</td>
<td>1.29</td>
<td>1.23</td>
<td>1.42</td>
<td>1.44</td>
<td>1.46</td>
<td>1.52</td>
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</tr>
<tr>
<td>3rd quarter 1997</td>
<td>1.89</td>
<td>1.42</td>
<td>1.35</td>
<td>1.43</td>
<td>1.30</td>
<td>1.51</td>
<td>1.47</td>
<td>1.38</td>
<td>1.43</td>
<td></td>
</tr>
</tbody>
</table>

1 U.S. banks with average assets of less than $15 billion are shown separately to make comparisons with District banks more meaningful, as there are no District banks with average assets greater than $15 billion.

2 Includes loans 90 days or more past due and nonaccrual loans

NOTE: Data include only that portion of the state within Eighth District boundaries.

SOURCE: FFIEC Reports of Condition and Income for all Insured U.S. Commercial Banks

15
Commercial Bank Performance Ratios by Asset Size

3rd Quarter 1998

Earnings

Return on Average Assets

Percent | Annualized
--- | ---
1.70 | 1.63
1.60 | 1.49
1.50 | 1.40
1.40 | 1.34
1.30 | 1.34
1.20 | 1.24
1.10 | 1.17
1.00 | 1.22

District (D) and United States (US)

Net Loan Loss Ratio

Percent | Annualized
--- | ---
1.25 | 1.21
1.20 | 1.17
1.17 | 1.09
1.10 | 1.06
0.91 | 0.83
0.83 | 0.76
0.76 | 0.68
0.50 | 0.26
0.20 | 0.25
0.10 | 0.30
0.00 | 0.39

Asset Quality

Return on Average Equity

Percent | Annualized
--- | ---
18.00 | 17.20
16.00 | 16.03
14.00 | 14.99
12.00 | 13.61
10.00 | 13.45
8.00 | 11.16
6.00 | 10.91

Net Loan Loss Ratio

Percent | Annualized
--- | ---
1.25 | 0.93
1.20 | 1.06
1.10 | 1.06
1.00 | 0.91
0.95 | 0.85
0.85 | 0.83
0.75 | 0.83
0.50 | 0.83
0.25 | 0.83
0.00 | 0.83

Nonperforming Loan Ratio

Percent | Annualized
--- | ---
0.90 | 0.68
0.85 | 0.76
0.83 | 0.68
0.75 | 0.76
0.50 | 0.68
0.25 | 0.68
0.00 | 0.68

Loan Loss Reserve Ratio

Percent | Annualized
--- | ---
2.25 | 2.15
2.00 | 1.58
1.75 | 1.47
1.50 | 1.42
1.25 | 1.31
1.00 | 1.39
0.75 | 1.39
0.50 | 1.39
0.25 | 1.39
0.00 | 1.39

Net Interest Margin

Percent | Annualized
--- | ---
5.50 | 4.87
4.75 | 4.71
4.50 | 4.63
4.25 | 4.76
4.00 | 4.41
3.75 | 4.34

District (D) and United States (US)

$ = District
US = United States

< $100 Million
$ $100 Million – $300 Million
$ $300 Million – $1 Billion
$ $1 Billion – $15 Billion

1 Loan losses are adjusted for recoveries.
2 Includes loans 90 days or more past due and nonaccrual loans.
3 Interest income less interest expense as a percent of average earning assets.

NOTE: Asset quality ratios are calculated as a percent of total loans.
SOURCE: FFIEC Reports of Condition and Income for all Insured U.S. Commercial Banks
Agricultural Bank Performance Ratios

<table>
<thead>
<tr>
<th>U.S.</th>
<th>AR</th>
<th>IL</th>
<th>IN</th>
<th>KY</th>
<th>MS</th>
<th>MO</th>
<th>TN</th>
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<tbody>
<tr>
<td><strong>Return on average assets (annualized)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd quarter 1998</td>
<td>1.30%</td>
<td>1.38%</td>
<td>1.25%</td>
<td>1.17%</td>
<td>1.40%</td>
<td>1.45%</td>
<td>1.22%</td>
</tr>
<tr>
<td>2nd quarter 1998</td>
<td>1.30</td>
<td>1.28</td>
<td>1.30</td>
<td>1.21</td>
<td>1.40</td>
<td>1.38</td>
<td>1.20</td>
</tr>
<tr>
<td>3rd quarter 1997</td>
<td>1.33</td>
<td>1.42</td>
<td>1.31</td>
<td>1.26</td>
<td>1.46</td>
<td>1.55</td>
<td>1.31</td>
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<tr>
<td><strong>Return on average equity (annualized)</strong></td>
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<td></td>
</tr>
<tr>
<td>3rd quarter 1998</td>
<td>12.35%</td>
<td>12.76%</td>
<td>11.25%</td>
<td>11.53%</td>
<td>13.05%</td>
<td>15.17%</td>
<td>11.82%</td>
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<tr>
<td><strong>Net interest margin (annualized)</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd quarter 1998</td>
<td>4.47%</td>
<td>4.28%</td>
<td>4.35%</td>
<td>4.82%</td>
<td>4.47%</td>
<td>5.07%</td>
<td>4.29%</td>
</tr>
<tr>
<td>2nd quarter 1998</td>
<td>4.45</td>
<td>4.30</td>
<td>4.10</td>
<td>4.98</td>
<td>4.43</td>
<td>4.99</td>
<td>4.24</td>
</tr>
<tr>
<td>3rd quarter 1997</td>
<td>4.62</td>
<td>4.46</td>
<td>4.16</td>
<td>4.56</td>
<td>4.60</td>
<td>5.08</td>
<td>4.48</td>
</tr>
<tr>
<td><strong>Ag loan losses + average ag loans (annualized)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd quarter 1998</td>
<td>1.16%</td>
<td>1.16%</td>
<td>-0.04%</td>
<td>0.13%</td>
<td>0.07%</td>
<td>0.23%</td>
<td>0.15%</td>
</tr>
<tr>
<td>2nd quarter 1998</td>
<td>0.14</td>
<td>0.13</td>
<td>-0.14</td>
<td>-0.05</td>
<td>0.03</td>
<td>0.19</td>
<td>0.17</td>
</tr>
<tr>
<td>3rd quarter 1997</td>
<td>0.14</td>
<td>0.08</td>
<td>-0.05</td>
<td>-0.61</td>
<td>0.15</td>
<td>0.24</td>
<td>0.11</td>
</tr>
<tr>
<td><strong>Ag nonperforming loans + total ag loans</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd quarter 1998</td>
<td>1.44%</td>
<td>0.91%</td>
<td>0.84%</td>
<td>2.66%</td>
<td>1.68%</td>
<td>1.50%</td>
<td>1.16%</td>
</tr>
<tr>
<td>2nd quarter 1998</td>
<td>1.51</td>
<td>0.79</td>
<td>0.81</td>
<td>3.50</td>
<td>2.24</td>
<td>1.72</td>
<td>1.26</td>
</tr>
<tr>
<td>3rd quarter 1997</td>
<td>1.32</td>
<td>0.68</td>
<td>0.71</td>
<td>3.43</td>
<td>1.70</td>
<td>0.89</td>
<td>1.65</td>
</tr>
</tbody>
</table>

1 Includes loans 90 days or more past due and nonaccrual loans

NOTE: Agricultural banks are defined as those banks with a greater-than-average share of agricultural loans to total loans. Data include only that portion of the state within Eighth District boundaries.

SOURCE: FFIEC Reports of Condition and Income for all Insured U.S. Commercial Banks

U.S. Agricultural Exports by Commodity

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Year-to-date</th>
<th>Change from year ago</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livestock &amp; products</td>
<td>.88</td>
<td>.83</td>
<td>.75</td>
<td>10.67</td>
<td>-2.0%</td>
</tr>
<tr>
<td>Corn</td>
<td>.35</td>
<td>.35</td>
<td>.30</td>
<td>4.26</td>
<td>-30.0%</td>
</tr>
<tr>
<td>Cotton</td>
<td>.20</td>
<td>.14</td>
<td>.10</td>
<td>2.54</td>
<td>-7.0%</td>
</tr>
<tr>
<td>Rice</td>
<td>.07</td>
<td>.07</td>
<td>.07</td>
<td>1.13</td>
<td>16.0%</td>
</tr>
<tr>
<td>Soybeans</td>
<td>.20</td>
<td>.17</td>
<td>.17</td>
<td>6.12</td>
<td>-12.0%</td>
</tr>
<tr>
<td>Tobacco</td>
<td>.06</td>
<td>.10</td>
<td>.08</td>
<td>1.45</td>
<td>-10.0%</td>
</tr>
<tr>
<td>Wheat</td>
<td>.31</td>
<td>.34</td>
<td>.30</td>
<td>3.76</td>
<td>-9.0%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>3.88</td>
<td>3.70</td>
<td>3.49</td>
<td>53.73</td>
<td>-4.0%</td>
</tr>
</tbody>
</table>

1 Includes commodities not listed here

U.S. Crop and Livestock Prices

Indexes of Food and Agricultural Prices

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Prices received by U.S. farmers</td>
<td>101</td>
<td>103</td>
<td>107</td>
<td>-8.8%</td>
<td>-6.2%</td>
<td></td>
</tr>
<tr>
<td>Prices received by District farmers</td>
<td>134</td>
<td>131</td>
<td>140</td>
<td>9.5</td>
<td>-4.1%</td>
<td></td>
</tr>
<tr>
<td>Arkansas</td>
<td>82</td>
<td>91</td>
<td>113</td>
<td>-36.1</td>
<td>-27.7%</td>
<td></td>
</tr>
<tr>
<td>Illinois</td>
<td>87</td>
<td>98</td>
<td>112</td>
<td>-37.9</td>
<td>-22.3%</td>
<td></td>
</tr>
<tr>
<td>Indiana</td>
<td>90</td>
<td>98</td>
<td>107</td>
<td>-29.0</td>
<td>-16.2%</td>
<td></td>
</tr>
<tr>
<td>Missouri</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td></td>
</tr>
<tr>
<td>Tennessee</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td></td>
</tr>
<tr>
<td>Prices paid by U.S. farmers</td>
<td>111</td>
<td>114</td>
<td>117</td>
<td>-9.1</td>
<td>-5.3%</td>
<td></td>
</tr>
<tr>
<td>Production items</td>
<td>134</td>
<td>116</td>
<td>117</td>
<td>-5.6</td>
<td>-2.6%</td>
<td></td>
</tr>
<tr>
<td>Other items</td>
<td>141</td>
<td>160</td>
<td>158</td>
<td>2.8</td>
<td>2.1%</td>
<td></td>
</tr>
<tr>
<td>Consumer food prices</td>
<td>101</td>
<td>103</td>
<td>107</td>
<td>-8.8%</td>
<td>-6.2%</td>
<td></td>
</tr>
<tr>
<td>Consumer nonfood prices</td>
<td>164</td>
<td>163</td>
<td>161</td>
<td>1.6</td>
<td>1.5%</td>
<td></td>
</tr>
</tbody>
</table>

1 Compounded annual rates of change are computed from unrounded data.

2 Index of prices received for all farm products and prices paid (1990-92=100)

3 Indexes for Kentucky and Mississippi are unavailable.

N.A. = Not Available

NOTE: Data not seasonally adjusted except for consumer food prices and nonfood prices.
## Selected U.S. and State Business Indicators

### United States

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Labor force</strong> (in thousands)</td>
<td>137,595</td>
<td>137,351</td>
<td>136,379</td>
</tr>
<tr>
<td><strong>Total nonagricultural employment</strong> (in thousands)</td>
<td>126,141</td>
<td>125,516</td>
<td>122,995</td>
</tr>
<tr>
<td><strong>Unemployment rate</strong></td>
<td>4.5%</td>
<td>4.4%</td>
<td>4.9%</td>
</tr>
<tr>
<td><strong>Real personal income</strong> (in billions)</td>
<td>$4,351.0</td>
<td>$4,324.3</td>
<td>$4,210.4</td>
</tr>
</tbody>
</table>

### Arkansas

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Labor force</strong> (in thousands)</td>
<td>1,241.2</td>
<td>1,246.6</td>
<td>1,209.5</td>
</tr>
<tr>
<td><strong>Total nonagricultural employment</strong> (in thousands)</td>
<td>1,127.1</td>
<td>1,125.1</td>
<td>1,105.4</td>
</tr>
<tr>
<td><strong>Unemployment rate</strong></td>
<td>4.7%</td>
<td>5.1%</td>
<td>5.3%</td>
</tr>
<tr>
<td><strong>Real personal income</strong> (in billions)</td>
<td>$31.4</td>
<td>$31.4</td>
<td>$30.8</td>
</tr>
</tbody>
</table>

### Illinois

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Labor force</strong> (in thousands)</td>
<td>6,159.5</td>
<td>6,143.4</td>
<td>6,133.5</td>
</tr>
<tr>
<td><strong>Total nonagricultural employment</strong> (in thousands)</td>
<td>5,881.3</td>
<td>5,864.7</td>
<td>5,787.8</td>
</tr>
<tr>
<td><strong>Unemployment rate</strong></td>
<td>4.4%</td>
<td>4.2%</td>
<td>4.6%</td>
</tr>
<tr>
<td><strong>Real personal income</strong> (in billions)</td>
<td>$213.0</td>
<td>$211.3</td>
<td>$206.5</td>
</tr>
</tbody>
</table>

### Indiana

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Labor force</strong> (in thousands)</td>
<td>3,088.3</td>
<td>3,097.2</td>
<td>3,102.2</td>
</tr>
<tr>
<td><strong>Total nonagricultural employment</strong> (in thousands)</td>
<td>2,875.3</td>
<td>2,892.0</td>
<td>2,863.5</td>
</tr>
<tr>
<td><strong>Unemployment rate</strong></td>
<td>2.8%</td>
<td>2.8%</td>
<td>3.6%</td>
</tr>
<tr>
<td><strong>Real personal income</strong> (in billions)</td>
<td>$87.1</td>
<td>$86.7</td>
<td>$84.5</td>
</tr>
</tbody>
</table>
### Kentucky

- **Labor force (in thousands):**
  - III/1998: 1,943.8
  - II/1998: 1,940.8
  - I/1998: 1,935.4

- **Total nonagricultural employment (in thousands):**
  - III/1998: 1,754.2
  - II/1998: 1,748.8
  - I/1998: 1,719.4

- **Unemployment rate:**
  - III/1998: 4.2%
  - II/1998: 4.2%
  - I/1998: 5.3%

- **Real personal income (in billions):**
  - III/1998: $51.4
  - II/1998: $51.1
  - I/1998: $50.0

### Mississippi

- **Labor force (in thousands):**
  - III/1998: 1,281.3
  - II/1998: 1,279.8
  - I/1998: 1,268.8

- **Total nonagricultural employment (in thousands):**
  - III/1998: 1,123.6
  - II/1998: 1,121.7
  - I/1998: 1,110.3

- **Unemployment rate:**
  - III/1998: 5.1%
  - II/1998: 5.0%
  - I/1998: 5.8%

- **Real personal income (in billions):**
  - III/1998: $31.6
  - II/1998: $31.4
  - I/1998: $30.7

### Missouri

- **Labor force (in thousands):**
  - III/1998: 2,908.0
  - II/1998: 2,911.9
  - I/1998: 2,878.9

- **Total nonagricultural employment (in thousands):**
  - III/1998: 2,676.5
  - II/1998: 2,672.1
  - I/1998: 2,642.0

- **Unemployment rate:**
  - III/1998: 4.0%
  - II/1998: 4.4%
  - I/1998: 4.1%

- **Real personal income (in billions):**
  - III/1998: $81.9
  - II/1998: $81.3
  - I/1998: $79.5

### Tennessee

- **Labor force (in thousands):**
  - III/1998: 2,776.6
  - II/1998: 2,778.7
  - I/1998: 2,704.3

- **Total nonagricultural employment (in thousands):**
  - III/1998: 2,621.0
  - II/1998: 2,622.8
  - I/1998: 2,589.0

- **Unemployment rate:**
  - III/1998: 4.0%
  - II/1998: 4.3%
  - I/1998: 4.5%

- **Real personal income (in billions):**
  - III/1998: $77.5
  - II/1998: $77.3
  - I/1998: $75.7

---

**NOTE:** All data are seasonally adjusted. The nonagricultural employment data reflect the most current benchmark revision. *Annual rate. Data deflated by CPI, 1982-84=100.*